

**Country Report**  
for the Preparation of  
**the First Report on the State of the World's Animal Genetic Resources**

**Report on**  
**Domestic Animal Genetic Resources in China**

**June 2003**

**Beijing**

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## Executive Summary

Biological diversity is the basis for the existence and development of human society and has aroused the increasing great attention of international society. In June 1992, more than 150 countries including China had jointly signed the "Pact of Biological Diversity". Domestic animal genetic resources are an important component of biological diversity, precious resources formed through long-term evolution, and also the closest and most direct part of relation with human beings. Therefore, in order to realize a sustainable, stable and high-efficient animal production, it is of great significance to meet even higher demand for animal and poultry product varieties and quality by human society, strengthen conservation, and effective, rational and sustainable utilization of animal and poultry genetic resources.

The "Report on Domestic Animal Genetic Resources in China" (hereinafter referred to as the "Report") was compiled in accordance with the requirements of the "World Status of Animal Genetic Resource " compiled by the FAO. The Ministry of Agriculture" (MOA) has attached great importance to the compilation of the Report, organized nearly 20 experts from administrative, technical extension, research institutes and universities to participate in the compilation team. In 1999, the first meeting of the compilation staff members had been held in the National Animal Husbandry and Veterinary Service, discussed on the compilation outline and division of labor in the Report compilation, and smoothly fulfilled the tasks to each of the compilers. During the compilation of the Report, we had convened nine compilation committee meetings, and discussed in details about the content of the Report. Since the draft was fulfilled, we have sent it to administrative leaders and experts for reviewing and suggestion solicitation.

The Report is consisted of 7 parts:

- Part I General Situation of Animal Husbandry in China**
- Part II Appraisal of the Diversification Status of Domestic Animals**
- Part III Changes of Demand for Animal Products and Their Influence on Policy, Strategy and Plan of State Animal Genetic Resources**
- Part IV Review on Situation of Ability for National Resource Conservation and Evaluation on Requirement for Capacity Building in the Future**
- Part V Priorities of Conservation and Utilization on Domestic Animal Genetic Resources**
- Part VI Recommendations on Strengthening International Cooperation on the Domain of Animal Diversification**
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The Report is a precious document of great value, has fully demonstrated the important position of China's domestic animal genetic resources in the world, and expounded the great volume of work done by the Chinese Government in the conservation and utilization of domestic animal genetic resources.

China is one of the countries that have the richest animal and poultry breed resources in the world. According to current investigation, China has a total number of 576 animal and poultry breeds or lines, of which, native breeds account for about three of fourth. These native breeds have formed specific germplasm characters through long-term selection and breeding. Up to now, they are still playing an important role in the development of animal production. Here, the Chinese Government is willing to unfold cooperative research and exchange in the domain of domestic animal genetic resources, and spare common efforts in the conservation and utilization of global domestic animal genetic resources and for a sustainable development of livestock industry.

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## **Part I General Situation of Animal Husbandry in China**

The People's Republic of China is located in eastern Asia, sharing border with Korea in the east, sharing border with Vietnam, Laos and Burma in the south, sharing border with India, Bhutan, Sikkim, Nepal, Pakistan and Afghanistan in the southwest and west, sharing border with Russia, Kazakhstan in the Northwest and northeast, and sharing border with Mongolia in the north. China is a country that has near neighbours of Japan, the Philippines, Malaysia, Indonesia, Brunei and other countries and regions. China has a total land area of 9.6 million square km, the largest country in Asia.

China has a multiple categories of topography, with west part higher than the east. Of which, mountainous area accounts for 33%, plateau accounts for 26%, basin area accounts for 19%, plain area accounts for 12% and hilly area accounts for 10%. The major rivers include the Yangtze River, Yellow River, Pearl River, Heilongjiang River, Hai River and Huai River. These rivers flow into the Pacific Ocean. China has broad territory and occupies temperate and tropic zones. Most part of China is located in the North Temperate Zone and Subtropical zone, belonging to East Asian Monsoon-type climate. Due to complicated topography, great gap in altitude and long distance between hinterland and the ocean, China has complicated and diversified climate types. For example, there is no summer in the northern part of the Heilongjiang Province. On the contrary, there is no winter in the Hainan Island. In the Huaihe River valley, there are distinct four seasons in a year. In the southern part of the Yunnan-Guizhou Plateau, there is spring all year round while in the Qinghai-Tibetan Plateau snow is covered all year round. In the inland area of Northwest China, the temperature range is very great with hot summer and cold winter. Controlled by dry monsoon during the period from September/October to next year's March/April, the whole country is very cold and dry with temperature difference of 40 degrees centigrade between the north and the south. In winter, the temperature in China is about 5~18 degrees centigrade lower than other countries and regions of the same latitude. A natural mountain defense has formed from the Greater Xing'an Mountains in Northeast China via Yinshan Mountains, Helanshan Mountains to the Bayankela Mountains and Gangdisi Mountains in Southwest China. During the period from April to September each year, influenced by hot and humid airflow from the sea, the area south of the natural defense has hot and raining weather. In July, the temperature difference between Guangzhou and Harbin is only 6 degrees centigrade. China has great difference in rainfall among different regions. In Southeast coastal region the annual rainfall exceeds 1500 mm and it reduces as we go further inland and the annual rainfall was as low as 50 mm in Northwest region. Humid monsoon is concentrated in July and August and it brings large amount of rainfall.

China is a populous nation. The total population of China reached 1.266 billion in 2000, ranking the first in the world and accounting for 22% of the world population. The Chinese population is mainly concentrated in Eastern Region and Central Region, and the population density in Western Region is relatively scarce. Before the 1980 s, the annual growth rate of Chinese population was as high as 21.3 ‰ while the annual growth rate of world population was only 19.4 ‰. Since the 1980 s, China has successfully implemented the birth control policy and the annual population growth rate in 2000 has reduced to 11.7 ‰ while the annual growth rate of world population is 15.8 ‰.

The formation, category population and distribution of China's domestic animal breeds have close

relation with the natural environment. Complicated geographical and climatic conditions have played a profound influence on the formation and distribution of domestic animal diversity. According to climatic and geographic conditions, China is classified into Northwest Part (the pastoral zone) and Southeast Part (agricultural zone) along the natural mountain defense formed by Greater Xing'an Mountains, Yinshan Mountains, Helanshan Mountains, Bayankela Mountains and Gangdisi Mountains. The intermediate transition area is the agricultural-pastoral zone.

The distribution of domestic animals can differ according to the characteristics of different geographic and climatic conditions and vegetation type. China can be divided into the following 7 types according to the ecological conditions of the pastoral regions:

- (1) Forest Grassland Region includes western part of Northeast, the northern part of Hebei Province and eastern part of Inner Mongolia Autonomous Region. This region has long winter with dry and cold weather and short summer with humid weather. The soil is fertile with abundant grass, high yield and good quality grass output. It is one of the major animal husbandry producing bases in China, suitable for raising horse, cattle and sheep.
- (2) Arid Grassland Region includes the central and western parts of Inner Mongolia as well as a small part of Ningxia and Gansu Province. This region has slightly higher altitude and is fairly dry comparing with the Forest Grassland Region, with fairly short and scattered grass. The animals in the region include horses, cattle, sheep and goats of Mongolian origin. The region is mainly raising sheep and goats, with local quality breeds including Tan Sheep, Zhongwei goats and Cashmere goats, etc.
- (3) Mountainous Desert Region is mainly distributed in the Kunlun Mountains, Qilian Mountains, Tianshan Mountains and Altai Mountains in Northwest region, the distribution of animals including horse, cattle, sheep, yaks, donkeys, camels, etc. of Mongolian and Kazak origin.
- (4) Plain Desert Region is located in the western part of the Helan Mountains and the north part of the Qinghai-Tibetan Plateau, including Xinjiang, Qinghai, Ningxia, Gansu and parts of Inner Mongolia. The Region has desert, Gobi and desert grassland and is the most arid area with domestic animal including horses, cattle, sheep and camels of Mongolian and Kazak origin.
- (5) Frigid Meadow Region includes eastern Qinghai, northern and western Sichuan and southwest Gansu and other high and cold areas. Due to the fact that the mountains have a vertical distribution, water and heat conditions varies according to altitude, the main vegetation is meadow type grassland, and the main animal species include horse, sheep and goat.
- (6) North Plateau Region includes northern Tibet and western Qinghai with high altitude (4500~5000 m), low temperature, fewer rainfall and scarce vegetation, with high mountainous grassland and high mountainous desert. The main domestic animals include Tibetan sheep and yaks that have been adapted to high plateau climate conditions.
- (7) South Plateau Region stretches from southern Tibet to the north side of the Himalayas. The mountains have vertical zone distribution with distinct change of climate. The region has distributed high mountainous grassland and high mountainous shrub grassland, etc. The region has the most numerous animal species and the main distributed animals include sheep, goats, yaks, horses and pig, etc.

The Agricultural Region is mainly distributed in Northeast China, North China, the Middle and Lower Reaches of the Yangtze River, and Loess Plateau. Taking Qingling Mountains and the Huaihe River as the demarcation line, China can be divided into North Agricultural Region and South Agricultural Region. The North Agricultural Region belongs to the temperate zone, producing wheat, corn, soybean and sorghum with rich agricultural and animal products and has provided diversified raw feeds for animal production. The major domestic animals include yellow cattle, pigs, sheep, goats, chickens, ducks, goose, horses and donkeys. The South Agricultural Region is located in sub-tropical and tropical zone, with ample rainfall. The main crop is rice and the major domestic animals include water buffalo, cattle, pigs, goats, chickens, ducks and goose.

According to the national agricultural census of 1996, China has a total number of 130.04 million ha of farmland, with about 1.106 ha of land per capita and a total area of 307.874 million ha of grassland. In 2000, the national crop sowing area was 156.3 million ha, of which 108.46 million ha is grain crops, with a total grain output of 462.18 million tons; 154 million ha was oil crops with an oil output of 29.548 million tons; and 40.41 million ha is cotton, with cotton output of 29.55 million tons. In 1998, grain output created a historic new height, reaching 512.295 million tons. The development of crop industry has provided feed guarantee for the development of animal production.

The Chinese Government has always attached great importance to the development of animal husbandry. Since 1949, especially in recent 20 years, the Chinese Government has formulated a series of guiding principles and policies that encourage the development of animal production, adjust production relations, reform circulation systems, improve operational management, and increase input in science and technology, so as to enable animal production to have unprecedented rapid development. At present, China has become a major animal production country in the world, with both meat and poultry egg output ranking the first in the world, meat output per capita exceeding the world average level, poultry egg output per capita approaching or reaching the level of the developed countries. However, the dairy output per capita is only 1/13 of the world average level. The proportion of animal production output value in the total output of agriculture, forestry, animal husbandry and fishery has reached 30% in 2000 from the original 18% at the beginning of the 1980s.

Since 1978 when China started to implement the reform and open policy, great changes have taken place in China's livestock industry. Firstly, the production structure has been continuously optimized. At present, the proportion of pork production accounts for 65.8% of the total meat output, which has decreased by about 27 percentile as compared with that in 1978. The proportion of beef, mutton and poultry meat output has significantly increased to 33.9%. Of which, poultry meat production has the quickest development, reaching 19.7% of the total meat output. China has become the second poultry meat producer in the world. Secondly, China has attached great importance in the conservation, development and utilization of domestic animal genetic resources, developed a series of new breeds and new line suitable to meet the market demand by making use of numerous native breed resources of roughage tolerance, broad adaptation and disease resistance. Thirdly, the production level has been significantly increased. At present, the turn-off rate of pig reaches 123%, an increase of 65 percentile as compared with that in 1978; the turn-off rate of cattle reaches 30.3%, an increase of 26 percentile as compared with that in 1978; the turn-off rate of sheep and goat reaches 67%, an increase of 48 percentile as compared with that in 1978, and the animal and poultry carcass weight has increase by a big margin.

Fourthly, the large-scale and professional level has continuously increased and become the major force in stabilizing and flourishing market supply. Farms with a capacity of more than 50 pigs account for 20% of the total pork population, chicken farms with a capacity of 2000 birds account for 30% of egg layer population, and broiler farms with a capacity of 10,000 birds account for 50% of the total broilers population. Fifthly, science and technology has been acted more and more important role in the animal production. The technology gap between China and the developed countries has been narrowed. At present, the contribution rate of science and technology in animal production has reached 48%, an increase of 14 percentile as compared with that about 20 years ago.

China has used less than 10% of farmland in the world to feed a population that accounts for 22% of the world population. Although China has achieved great progress in developing agricultural and animal production and solving the problems of people's food and clothing, yet, along with the increase of population and decrease of farmland, food security remains a prime issue for China. The Chinese Government has paid close attention to the increase of food and animal production. From now on, the core task of agricultural and animal production is to adjust agricultural and animal production structure, speed up the pace of animal production development, accelerate the process of agricultural and animal production modernization, promote a sustainable development of agricultural and animal production, guarantee an effective supply of agricultural and animal products and increase the income of farmers.

## **Part II Appraisal of the Diversification Status of Domestic Animals**

### **2.1 Animal Production Systems**

Same as most of the developing countries, the grazing production system, the production system that combines agricultural production with animal production, and the industrialized production system co-exist in China.

#### **2.1.1 Grazing Production System**

In the pastoral zone in Northwest China, including Inner Mongolia, Gansu, Xinjiang, Qinghai and Tibet pastoral provinces. In these areas, grazing production system is the major animal production type. Under conditions of a grazing production system, the grazing domestic animals are mainly the herbivorous animals, of which, the feeding population of sheep and goats is the most numerous, following by cattle, horses and camels. Grazing grassland can be divided into summer pasture and winter pasture, and sometimes even spring (autumn) pastures. In the past, most of the herdsmen had nomadic life but now most of them have settle-down life. In general, the herdsmen have settled down in places near the winter pasture and feed base. Domestic animals of the herdsmen mainly rely on grassland for grazing, and in general, only supplement small quantities of fodder and concentrate so as to guarantee the domestic animal to survive the winter safely. A herdsman household (3-6 persons) feeds about 80-300 sheep and goats, several heads of cattle, horses or camels as well as 1-2 working dogs in general. These domestic animals are not only production means of the herdsmen, but also their living means. The main foods of herdsmen are mutton, milk and horse milk produced by themselves, plus small quantities of grain purchased from outside. The main commodity sold by herdsmen is sheep wool and other wool or cashmere (goat cashmere, goat wool, yak hair and camel hair). They also sold live sheep and goats as well as small quantity of live cattle and other domestic animals.

In the pastoral zone, native breeds have been adapted to local environment. Therefore, they could be conserved very well. In order to improve the production performance of native breeds, they also introduced some exotic breeds to engage in hybrid improvement with the native breeds, especially very good progress has been achieved in the improvement of fine-wool and semi-fine-wool sheep. The original sheep breeds in China are coarse wool sheep breeds, now we have developed several fine-wool and semi-fine-wool sheep breeds that can be adapted to local environment.

What should be pointed out is that in the western pastoral zone, there have distributed some agricultural zone and semi-agricultural semi-pastoral counties after long-term land reclamation. These agricultural zone and semi-agricultural semi-pastoral counties have fairly good feed conditions. They feed relative great number of pig, poultry and other domestic animals except feeding herbivorous animals. In order to reduce the pressure of grassland in pure pastoral counties, these agricultural counties and semi-agricultural semi-pastoral counties have become important sites for fattening cattle and sheep come from the pure pastoral zones. In addition, in the city suburbs of the pastoral zones there are some industrialized pig and poultry farms.



In the pastoral zone, herdsmen can get services concerning artificial insemination, disease control and grassland improvement from the grass-root animal husbandry, veterinary medicine and grassland service stations. There are two main problems in the grazing production system.

- Firstly, the pastoral zone is still in a situation of relying on weather in feeding animals, with poor climate conditions, frequent natural disaster (drought and snow storms) are major factors causing an unstable animal production.
- Secondly, serious overstocking of grassland has caused the grassland serious deterioration, and the speed of grassland improvement cannot catch up with the speed of grassland deterioration.

In order to change this situation, the Chinese Government has formulated the "Grassland Law", and the Ministry of Agriculture has issued the "Circular Concerning the Stop of Illegal Land Reclamation and Conservation of Grassland Resources", which have effectively provided policy and legal basis for effective protection of grassland. The grassland contract responsibility system has been carried out continuously. More than 90% of the grassland has been contracted to the herdsmen's households. The government has already adopted the measures to return farmland to forest and grassland, implemented prohibited grazing and suspended grazing, fixed grazing animals according to grassland output and rotational grazing, undertaken projects of disaster prevention, extended confined feeding and semi confined feeding technology, and constructed feed bases and winter warm stalls. Through the above measures, the grassland ecological condition is getting improved.

### **2.1.2 Production System that Combines Agriculture with Animal Production**

In the agricultural zone of Southeast China, the production system that combines agriculture with animal production is the main domestic animal production type. In China, the feed conditions in agricultural zone are superior to that in the pastoral zones.

- First of all, agricultural zones have better climate conditions. Animals and poultry under confined feeding conditions can avoid direct attack by natural disaster.
- Secondly, the crop industry in agricultural zone can provide ample feed resources for animal production development. Animal production can provide funds, fertilizer and dynamic resources for crop industry development, thus forming a virtual cycled production system.
- Thirdly, agricultural zone is closer to the broad masses of consumption market than the pastoral zone.

In history, a rural household has in general several mu (1 mu = 1/15 ha) of farmland, and fed one draft animal (cattle or horse), several heads of pig and a flock of poultry. Rural household keeping a draft animal is for working on farmland or other draft purpose. Raising pig and chickens is mainly for collecting fertilizer and getting cash as pocket money. Rural households take animal production as a sideline for a self-sufficient production activity second to crop industry, with very weak commodity production awareness of animal production. To a certain extent, this is a kind of traditional production system.

Since the implementation of reform and open policy, rural households have regained land and livestock use right and their initiative in growing crops and feeding animals have been mobilized fully. The

production system that combined agriculture with animal production has recovered and developed. At present, although the number of animals and poultry raised by each rural household in the broad agricultural zone has increased by a big margin, yet they basically maintain a production system of combining agriculture with animal production. However, along with the development of the specialization, commercialization and large scale of agricultural and animal products, there has appeared separation of crop industry and animal industry in partial regions that have fairly rapid development of agriculture and rural economy. In other words, partial of the rural households become specialized in animal production. The specialized animal production households can be broken down into two categories: One category develops into fairly large scale industrialized animal and poultry producers while another category become households with animal production as their main industry with crop industry as the auxiliary industry. In these two categories of specialized animal production households, at present most of them belong to the latter one.

In the agricultural zone, there are two kinds of situation concerning the issue of animal breed resource conservation, utilization and improvement.

- Firstly, in the economic developed areas, in order to increase the production performance of animal and poultry, people have imported some exotic breeds for hybrid improvement and hybrid breeding of the original local breeds. They have developed a batch of high yielding breeds, which have played very great role in animal production. During the process of importing exotic breeds and undertaking hybrid improvement, there have happened some losses in certain breed or genes. The State has adopted corresponding measures and has established preservation farms (areas) or gene banks for some important genetic resources.
- Secondly, in the less developed areas, the original local breeds are still under utilization and are preserved relatively complete. However, along with the development of local economy, these breeds will come under pressure of exotic breeds.

In the broad agricultural zones, there have established grass-root animal husbandry, veterinary medicine and feed service system. Rural households can get technical services in artificial insemination, disease control, feeds and feeding. In the future, it is essential to further improve and adjust socialized service system and functions so as to serve the broad masses of farmers under market economic conditions.

### **2.1.3 Industrialized Production System**

In China, the industrialized production system of animals and poultry is mainly distributed in the suburbs and large and medium-size cities and in the coastal developed areas. The feed of animal and poultry farms are mainly purchased from outside. Large and medium-size cities have greater demand on animal products, and have superiority in the aspects of sound technology and fund resources. Therefore, industrialized production systems have got fairly rapid development. First of all, the large-scale production of layers started in mid-1970s and got popularized and extended in the 1980s. In mid- and late-1980s, the large-scale production of pigs and broilers started to appear. Beginning from the 1990s, there have appeared small-scale beef cattle fattening farms and meat-purpose sheep fattening farms. At present, industrialized broilers production system has the quickest development, with a broiler output accounting for 50% of total poultry meat output. The proportions of commercial pigs and eggs produced by industrialized pig farms and industrialized layer farms account for about 20~25%.

Industrialized production featuring large scale and technical strength, can make full use of modern research results in the process of breed development, feeds, reproduction, disease control and product processing and realize enormous increase of labor production level and production efficiency. It has not only met the demand of standardized animal products required by market, but also promoted animal production of adjacent farmers and promoted the development of feed industry, textile industry and food industry.

In view of the industrialized production systems for layers, broilers and pigs, the breeds used are in general imported breeds or hybrid lines; some of them have adopted domestically developed hybrid lines or hybrid combinations. At present, the production level of large-scale production of pigs and chickens in China has basically reached or is close to the world level.

Along with the rapid development of urban construction and coastal economy, the industrialized production system of animals and poultry has the trend of transfer from the suburbs of large and medium-size cities to the broad rural areas. Meanwhile, the investors for industrialized production have transferred from the government to multiple element investment. Many enterprises and private producers have showed great interests in industrialized animal production and have started to invest in industrialized animal production.

In the past 10 years, the position of grazing production system has gradually been weakened; the position of agricultural-pastoral combined production system has become dominant; and industrialized production system is at the development phase. This changing trend will continue in China for a long period of time.

## **2.2 Status of Main Animal Products**

Since the implementation of reform and open policy, China has obtained enormous development in animal production. In 2000, China had achieved a total meat output of 61.254 million tons, poultry egg output of 22.432 million tons, dairy product output of 9.191 million tons and sheep wool output of 0.293 million tons, an increase of 210%, 180%, 93% and 22% over those in 1990 and accounting for 26%, 41%, 1.6% and 12% of the total world outputs in 2000, respectively. In 2000, the per capita output was 48.4 kg meat, 17.7 kg eggs, and 7.3 kg dairy products. At present, China has become a large country in animal production in the world, with meat output and poultry egg output ranking the first in the world. However, the production of dairy product was very backward and sheep wool output cannot meet the demand of domestic wool textile industry.

In the meat production structure, pork occupies a dominant position, but the proportion of pork in total meat output has gradually declined. In 2000, pork output was 40.314 million tons, beef output 5.328 million tons, mutton output 2.74 million tons and poultry meat 12.075 million tons, accounting for 65.8%, 8.7%, 4.5% and 19.7% of total meat output, respectively. As compared with 1990, the proportion of pork output had reduced by 14 percentile while the proportions of beef; mutton and poultry meat had increased by 4.3 percentile, 0.8 percentile and 8.4 percentile, respectively.

General speaking, in the past 10~20 years, animal production development was varied among regions in

China. Influenced by climatic conditions, the grassland in northwest pastoral zone has serious deterioration and the improvement of animal production productivity has been increased by a small margin. The grassland in the pastoral region needs to be rehabilitated. The development of animal production in Southeast and central agricultural zone has been very fast, except the production of wool and hair, the output of majority animal products mainly come from provinces in the agricultural zone. Of which, more than 95% meat output also comes from the provinces in the agricultural zone. Historically, provinces in the agricultural zone are major areas in raising pigs and poultry. Since the 1990s, the cattle and sheep industry in agricultural zone has had a rapid development.

In the future, the regional development strategy of China's livestock industry is as follows: In the pastoral region, it is essential to pay attention to ecological protection of grassland, accelerate grassland improvement, improve production and operation modes, increase the marketing rate and commercial rate of livestock and achieve an integration of ecological benefits and economic benefits according to the strategic arrangement of great development of the Western Region. The agricultural zone especially grain production areas, should speed up the transformation of grain, develop household husbandry and specialized husbandry areas at appropriate scales. In the developed areas and suburbs of large- and medium-size cities, it is essential to bring into full play the advantages of science, technology, manpower and market, and accelerate the transfer to intensive operation.

### **2.3 Status of Diversification of Domestic Animals**

China has a long history in animal production. The main raised animal species and their products have become people's necessities and living means. In China there are vast animal genetic resources, which have been formed in the long history of domestication and selection by numerous nationalities with different living habits in diversified geographic, ecological and climatic conditions.

The genetic diversification of domestic animal species in China, especially the excellent germplasm characters of native breeds, was left over by our ancestors under several thousand years' diversity in natural and ecological environment. These native breeds are and will be playing roles in a sustainable development of animal production, and they are essential raw material in developing new types and new breeds.

China has rich genetic resources in animal and poultry. According to the breed resource survey and the verification by the China National Committee Domestic Animal Breed Examination, the livestock and poultry genetic resources mainly include the following species: pig, chicken, duck, goose, special fowls, cattle, water buffalo, yak, Gayal (*Bos frontalis*), sheep, goat, horse, donkey, camel, rabbit, sika deer, red deer, mink, raccoon dog and bee, totaling 576 breeds (Table 1). There are 426 native breeds (accounting for 74%), 73 developed breeds (accounting for 12.7%) and 77 introduced exotic breeds (accounting for 13.3%).

**Table 1: Status of China's Animal and Poultry Genetic Resources**

	<b>Total</b>	<b>Native Breeds</b>	<b>Developed Breeds</b>	<b>Exotic Breeds</b>
Pig	99	72	19	8
Chicken	100	81	14	5
Duck	29	27	-	2
Goose	26	26	-	-
Other fowl	12	-	-	12
Cattle	69	52	5	12
Buffalo	26	24	-	2
Yak	11	11	-	-
Gayal ( <i>Bos frontalis</i> )	1	1	-	-
Sheep	50	31	9	10
Goat	50	42	4	3
Horse	47	23	17	7
Donkey	21	21	-	-
Camel	4	4	-	-
Rabbit	13	4	-	9
Sika deer	3	-	3	-
Red deer	2	1	1	-
Mink	1	-	1	-
Raccoon dog	1	1	-	-
Bee	11	4	-	7
<b>Total</b>	<b>576</b>	<b>426</b>	<b>73</b>	<b>77</b>
% in total	100	74	12.7	13.3

Due to the diversification of China's geographic, ecological and animal production systems, the utilization of livestock and poultry breeds varies in different regions. In urban suburbs and developed agricultural regions, people mainly make use high yield introduced exotic breeds (the method of utilization includes crossing with local native breeds) and developed breeds. In areas of less developed, remote mountain areas and some specific ecological regions (such as altitude, highly frigid and tropical regions), animal mainly relying on native breeds operates production.

## **2.4 Status of the Diversification Conservation of Domestic Animals**

### **2.4.1 Status of threat to domestic animal species and breeds**

Significant changes in China's domestic animal genetic resources have been taken place in the past 20 years. The population of 41.9% of native breeds has decrease by different extent.

The extinct animal and poultry resources are as follows:

In 1983, MOA had confirmed the extinction of the following breeds: Jiujinhuang Chicken, Tangjiao Cattle, Yangba Cattle, Shenxian Pig, Taotai Cattle, Caobei Big-tailed Sheep, Xiangcheng Pig, Taiping Chicken, Lintao Chicken, and Wuwei Game Chicken.

In 1999, MOA had confirmed the extinction of the following breeds: Big-Snout Type Neijiang Pig, Big

Puji Pig, Caihai Goose, Wenshan Goose, Simao Goose, Xiaoshan Chicken and Zhoushan Turkey.

Breeds at risk are as follows (1999):

Wuzhishan Pig, Longyou Black Pig, Panlang Pig, Tongcheng Pig, Bamei Pig, Zhangmu Yellow Cattle, Lanzhou Big-Tailed Sheep, Elunchun Horse, Tieling Draught Horse, Jinzhou Horse, Beijing You Chicken, Pudong Chicken, Jingning Chicken and Lingkun Chicken.

Breeds endangered are as follows (1999):

Bama Xiang Pig, Jiangkou Radish Pig, Guanzhuang Spotted Pig, North Fujian Spotted Pig, Lanxi Spotted Pig, Bihu Black Pig, Jinhua Pig, Lantang Pig, Hang Pig, Wuyi Black Pig, Huai Pig, Beigang Pig, Beijing Black Pig, Apeijiza Cattle, Sibuyak, Pali Yak, Sanjiang Cattle, Dulong (*Bos frontalis*), Zhoushan Cattle, Yanjin Buffalo, Wenzhou Buffalo, Altai White-Head Cattle, Tengchong Horse, Jinjiang Horse, Shandan Horse, Heihe Horse, Heilongjiang Horse, Guanzhong Horse, Ningqiang Horse, Yiwu Horse, Guishan Goat, Maguan Poll Goat, Chengde Poll Goat, Hanzhong Sheep, Jinyang Silky Chicken, Xishuangbanna Fight Chicken, Long-leg Chicken, Short-leg Chicken, Zhangzhou Game Chicken, Tulufan Chicken, Aba Donkey, Zhong Bee.

There are many factors that cause the population decline of domestic animal genetic resource. For example, the production performance of some native breeds could not meet the demand of current market as well as an inadequate awareness of the value of some native resources. Therefore, many exotic breeds were introduced as simply substitution or for blind crossing with native breeds. As a result, population size of some native breeds declined, and some breeds are even endangered.

## **2.4.2 Status of Domestic Animal Conservation**

### **2.4.2.1 Policies Concerning Domestic Animal Conservation**

The genetic resource preservation of domestic animals is a long-term, public welfare and social work.

- First of all, the Chinese Government has actively given support. The Government enlists genetic resource preservation into the national economical and social development plan, encourages enterprises and individuals to take part in the conservation and scientific development of animal genetic resources.
- Secondly, it is overall arranged and is responsible by governments at different levels. Perfect, practical plans for animal resources conservation have been formulated and developed by governments at all walks.
- Thirdly, the conservation work is combined with development and utilization, with preservation as the major objective.
- Fourthly, it is essential for the conservation farms and conservation areas to play full roles, with complementary of modern biotechnology, such as embryo, sperm, DNA and other modern freezing conservation technologies and methods.

Strengthen the conservation and administration of the conservation of animal and poultry genetic resources. China has issued a series of regulations and policies.

- In 1994, the State Council issued the " Regulations on Breeding Livestock Administration ";

Afterwards, MOA issued its implementation regulations in detail.

- Many provinces (automatic regions and municipalities) formulated related administration measures, which have provided basis for legal administration.
- MOA established the China National Commission for Domestic Animal Genetic Resources Administration, published the list of state level animal and poultry breed resources, and determined a batch of native breeds conservation farms (areas) at state level.
- Some local governments established administration organizations for animal and poultry genetic resources, defined the key list of animal and poultry breeds according to the principle of conservation at different levels.
- In 1980s, MOA formulated Administrative Regulation on Exportation of Breeding Animals. In 1993, MOA updated and adjusted the Regulation.

All these measures have promoted the administration work of China's domestic animal genetic resources, which has played an active role in domestic animal genetic resources conservation.

At present, MOA is drafting the "Animal Husbandry Law", which will integrate the domestic animal genetic resources conservation as an important content in the Law. It has concrete stipulations on the legal responsibility of conservation work, and this has made the conservation work to follow legal procedures. Meanwhile, MOA has formulated the "Plan of Domestic Animal Genetic Resource Conservation", with the following contents:

- The current situation of conservation and existing problems of animal and poultry genetic resources;
- The guiding thought and objective of the conservation in animal and poultry genetic resources; and
- The basic train of thinking and construction content in China's animal and poultry genetic resource conservation.

#### **2.4.2.2 Administrative Organizations for Animal Genetic Resources**

On January 4, 1996, MOA approved the establishment of the "China National Commission for Domestic Animal Genetic Resources Administration", with main tasks in assisting the administrative departments in the overall management work in field of domestic animal genetic resources.

At present, there are altogether 4 subordinate organizations:

- Administrative Office of the Commission;
- Department of Technical Exchange and Training of the Commission;
- Foundation of the Commission; and
- National Committee for Domestic Animal Examination.

All above subordinates are based at the National Animal Husbandry and Veterinary Services.

National Committee for Domestic Animal Examination has set up five sub-committees:

- Professional Committee for Cattle Breeds Examination;
- Professional Committee for Sheep and Goat Breeds Examination;
- Professional Committee of Pig Breed Examination;

- Professional Committee of Poultry Breeds Examination; and
- Professional Committee of Other Animal Breeds Examination.

In each of the professional sub-committees, there are one Director, one Deputy-Director, one Secretary and several Committee Members.

The administrative animal production departments, animal husbandry and veterinary extension stations, livestock breed improvement stations and other technical extension departments at all levels, together with various associations, breeding committees, animal breeding farms, and conservation farms/areas have taken great efforts for the conservation of animal genetic resources.

Generally, China National Commission for Domestic Animal Genetic Resources Administration takes the responsibility for the coordinating of above organizations/institutions in field of conservation and administration of domestic animal genetic resources.

### **2.4.2.3 Progress on Animal Genetic Resources Management**

The Chinese Government has always attached great importance to the work of animal and poultry breed resource conservation.

In order to clarify the animal germplasms in China, the Chinese Government had started animal and poultry breed resource survey in the 1950s.

In 1976, MOA had organized the agricultural, scientific and educational departments of the whole country to unfold a fairly large-scale animal and poultry germplasm survey. Through 9 years of efforts, China had clarified the breed resource status in most areas and published "Pig Breeds in China", "Cattle Breeds in China", "Sheep and Goat Breeds in China", "Poultry Breeds in China" and "Horse and Donkey Breeds in China". The provinces had also edited and published books of Local Animal Breed, which give a comprehensive introduction to animal genetic resources.

In 1995, a supplementary survey was made to the Southwest and Northwest remote areas on animal resources. During the period of 4 years, 79 new breeds or populations were discovered. The survey on animal genetic resources has provided necessary ground for formulating policies of conservation, rational utilization, for formulating overall animal production development plans and for unfolding international cooperation and exchange in animal production science and technology.

In the past 20 years, China has strengthened basic research on animal resources, conducted systematic research on germplasm characters of some animal and poultry breeds and genetic distance estimation, and achieved certain results in the theory of systematic conservation of animal breeds and conservation methodology. This has provided scientific support for the unfolding of conservation work.

In order to strengthen the conservation of native breeds, the Chinese Government has input large quantities of funds and established a big batch of excellent conservation farms and bull stations in various parts of the country. During the Eighth Five-Year Plan period, MOA had recognized 83 state-level key breeding farms and undertaken construction for the infrastructures of some conservation farms of elite native breeds. Provinces, prefectures and counties had established a batch of conservation and breeding



farms of native breeds according to local advantages, defined conservation areas, formulated conservation programs, undertaken herd book registration and unfolded conservation and breeding work in a planned way. Since 1995, the Government has started the projects on animal germplasm conservation. According to the conservation principle of "key, endangered, and special performance characters" and the distribution of breed resources that urgently needed conservation, the State has allocated special funds for the conservation of domestic animal genetic resources throughout the country.

Since 1998, the special fund for the work of domestic animal genetic resources conservation has been increased year by year. By 2001, the total input fund reached 42 million RMB arranged in 164 projects. We have used the method, which combined *in-situ* conservation and *ex-situ* conservation of genes and focused on the increase of live animal population and perfect corresponding infrastructure.

China has established the State Domestic Animal Gene Banks in Beijing and Jiangsu, respectively and preserved a batch of original breeds and germplasm materials. At present, China has preliminarily established a livestock and poultry resource conservation system, which has laid a good foundation for a sustainable development of animal production in China.

In order to transfer the advantages of rich Chinese animal resources into economic advantages, while strengthening conservation work, the governments have given focus on the breeding and utilizing of animal breeds. In recent 20 years, modern breeding techniques have been used to develop a lot of specialized lines and new breeds. During the period of 1996 to 2001, the State had examined and approved a total number of 26 new animal breeds. They are Nanjiang Yellow Goat, Nanchang White Pig, Guangming Pig Multiple Lines, Shennong Pig Multiple Lines, Jun Mu No. 1 White Pig, Sutai Pig, Dahe Black Pig, Jihe White Pig Multiple Lines, Kangda'er Yellow Chicken No. 128 Multiple Lines, Yunnan Semi Fine Wool Sheep, Xinyang Brown Shell Egg Chicken Multiple Lines, Jinzhou Black Standard Mink, Chinese Simmental Cattle, Jiangcun Yellow Chicken JH-2 Multiple Lines, Jiangcun Yellow Chicken JH-3 Multiple Lines, Xinxing Yellow Chicken No. 2 Multiple Lines, Xinxing Dwarf Yellow Chicken Multiple Lines, Lingnan Yellow Chicken No. 1 Multiple Lines, Lingnan Yellow Chicken No. 2 Multiple Lines, Jingxing Yellow Chicken 100 Multiple Lines, Jingxing Yellow Chicken 102 Multiple Lines, Siping Sika Deer, and Audong Sika Deer and Qingyuan Red Deer. Meanwhile, the development and utilization of animal resources trend to the integration of breeding, production and processing. Thus this has enabled China to keep the excellent characters of many native animal breeds and improved the production performance by a big margin. For example, the quality Yellow Chickens widely used in production were developed from the local chicken breed. The developed breeds from native pig breeds, such as Sutai Pig, have become the major crossing dam line in some areas. The newly developed Cashmere goat has doubled cashmere output. The egg production of Shaoxing Duck and Jinding Duck is among the highest in the world. Rational development and utilization of animal resources has promoted the transformation of resource advantage into economic advantage, formed a diversification, quality and specialty of animal products, which has made important contributions to the comprehensive quality of animal production and income increase of farmers and herdsmen.

#### **2.4.2.4 Key Conservation Objects of Animal Genetic Resources**

On August 23, 2000, MOA had announced 78 key conservation animal breeds at state-level. They are as

follows:

**(1) Pig** (19 breeds):

Bamei Pig, Large Black and White Pig, Huang-Huai-Hai Black Pig, Neijiang Pig, Wujin Pig, Wuzhishan Pig, Taihu Pig, Min Pig, Liangguang Small Black and White Pig, Licha Black Pig, Jinhua Pig, Rongchang Pig, Xiang Pig, Huazhong Two-End-Black Pig, Qingping Pig, Diannan Small-Ear Pig, Huai Pig, Lantang Pig and Tibetan Pig.

**(2) Chicken** (11 breeds):

Jiujinhuang Chicken, Dagu Chicken, Chinese Game Chicken, Buff Baier Chicken, Xianju Chicken, Beijing You Chicken, Silkies, Chahua Chicken, Langshan Fowl, Qingyuan Partridge Chicken and Tibetan Chicken.

**(3) Duck** (8 breeds):

Beijing Duck, Youxian Partridge Duck, Liancheng White Duck, Jianchang Duck, Jinding Duck, Shaoxing Duck, Putian Black Duck and Gaoyou Duck.

**(4) Goose** (6 breeds):

Sichuan White Goose, Yili Goose, Lion Head Goose, Wanxibai Goose, Yan Goose and Huoyan Goose.

**(5) Sheep and Goat** (14 breeds):

Liaoning Cashmere Goat, Inner Mongolia Cashmere Goat, Small-Tailed Han Sheep, Zhongwei Goat, Yangtze River Delta White Goat, Wuzhumuqin Sheep, Tongyang Sheep, Tibetan Sheep, Tibetan Goat, Jining Grey Goat, Guide Black Fur Sheep, Hu Sheep, Tan Sheep, and Leizhou Goat.

**(6) Cattle** (15 breeds):

Julong Yak, Tianzhu White Yak, Qinghai Plateau Yak, Gayal (*Bos frontalis*), Water Buffalo, Yanbian Cattle, Fuzhou Cattle, Nanyang Cattle, Qingchuan Cattle, Jinnan Cattle, Bohai Black Cattle, Luxi Cattle, Wenling Peak Cattle, Mongolian Cattle, and Leiqiong Cattle.

**(7) Other Animal** (5 breeds):

Zhong Bee, Alashan Bactrian Camel, Guanzhong Donkey, Baise Horse, and Mongolian Horse.

#### **2.4.2.5 Methods of Animal Genetic Resource Conservation**

At present, the conservation of animal resources in China has mainly adopted two methods, i.e., *in-situ* conservation and *ex-situ* conservation. The two methods are complementary with each other, and composed of the main body of animal genetic resources conservation at present time in China.

— *in-situ* conservation:

Many live animals are kept in a number of Conservation Farms and Conservation Areas at the original sites of the native breeds. The original areas of breeds is responsible for formulating corresponding conservation policies, such as forbidding cross with exotic breeds, formulating scientific and effective

breeding programs, avoiding inbreeding, and formulating corresponding resource conservation technical standards. At present, methods of *in-situ* conservation are fairly popular, and play an active role in resource conservation work. The areas of various species have established numerous breeding farms for horse, cattle, sheep, goat and poultry in original areas through special funds allocated by the government. Meanwhile, China has also defined some conservation areas. These breeds have conserved well, and their performance has been tested for further understanding. Many of them have played an active role in the development of livestock industry in China.

Take Hu Sheep and Small-Tail Han Sheep as an example. These two breeds have the characters of non-seasonal estrus and high fertility, and their producing area has mild climate, ample rainfall, and rich agricultural and animal products. In 1960s, due to the focusing of development in fine wool improvement and ignoring of the characters of non-seasonal estrus and high fertility, plus blind crossing with exotic breeds, the number of these two breeds has decreased sharply. Since 1980s, local government has defined a region in Dongshan Peninsula in Wuxian County, Jiangsu Province as the conservation zone of Hu Sheep. Through 20 years of conservation, the population of Hu Sheep has resumed. The Small-Tailed Han Sheep distributed in Southwest part of Shandong Province also endangered at the beginning of the 1980s. Since the establishment of conservation farm in Jiayang County and conservation areas in Liangshan County, Shandong Province, the population size has increased by a big margin. This has laid a solid foundation for the development and utilization of Small-Tailed Han Sheep in 1990s.

— ***ex-situ* conservation:**

***-ex-situ* live conservation:**

Although most of the Chinese domestic animal breeds are conserved *in situ*; a few of them are migrated from the original sites and conserved in established farms. Meanwhile, a series of scientific researches are conducted.

The Poultry Conservation Gene Bank has conserved Xianju Chicken, Buff Baier Chicken, Langshan Chicken, Dagu Chicken, Beijing You Chicken, Xiaoshan Chicken, Luyuan Chicken, Gushi Chicken, Chinese Game Fowl, Silkies, Chahua Chicken, Tibetan Chicken, Chongren Partridge Chicken, Huiyang Bearded Chicken, Qingyuan Partridge Chicken, Xinghua Chicken, and other chicken breeds with a total number of 21 breeds, with conservation scale of 200-300 hens in each breed. Meanwhile, genetic distance among breeds is being conducted and a survey on endangered poultry breeds has begun.

Xiang Pig was introduced to the China Agricultural University in Beijing for purebred reproduction. Wuzhishan Pig, an endangered breed, had moved to Beijing in 1989 to the Institute of Animal Science, Chinese Academy of Agricultural Sciences for conservation. Through long-term research on growth pattern, reproductive physiology, blood biochemical and genetic marker, it has been further proved that Wuzhishan Pig is a unique genetic resource among all Chinese pig breeds and is of important value in conservation and utilization. Chahua Chicken is distributed in rural households. In order to conserve this original chicken breed, institutions in Yunnan Province have collected some chickens from the rural households and undertaken conservation and scientific research in Xishuangbanna Prefecture and Kunming City.

### **-Cell conservation:**

The MOA has established State Animal and Poultry Germplasm Conservation and Utilization Center. At present, it has conserved frozen embryos and frozen semen of 16 breeds of cattle, sheep and other animals. Each breed has conserved 1500 samples of frozen semen and 100 frozen embryos. There are two yak breeds in conservation, storing about 1500 samples of semen in each breed.

### **-Gene Conservation**

In the State Animal and Poultry Germplasm Conservation and Utilization Center, DNA samples from nearly 3600 individuals representing 60 Chinese native and introduced pig breeds and some cells and tissues were conserved.

## **2.4.3 Breed Characteristics Identification and Risk Evaluation**

### **Pig:**

Most of the Chinese pig breeds are fatten type. They are classified into large-, medium- and small-types. Jinhua Pig has the characters of thin skin, fine bone and tender pork. It is the raw material for making Jinhua hams. Gilts can be mated at the age of 3 months (body weight of 20 kg) with a litter size of 14.25 piglets for sows. Wujin Pig has strong muscles with high lean meat percentage in hind legs and is the raw material for making "Yunnan Ham". Wuzhishan Pig has small body weight of 35 kg for adult pig and good resistance, with lean meat percentage of 47.3%, litter size of 6-8. It can be used as laboratory material for scientific research. Tibetan Pig is suitable to be used for all-year-round grazing and has the characters of small in body size, thin skin and high lean meat percentage with an average body weight of 40 kg for adults. Rongchang Pig has the characters of good quality strong white coarse and long bristles with a length of 11-15 cm and a maximum length of 20 cm. The output of bristle is 250-300 grams per pig. Taihu Pig has high reproductivity of 14.9 piglets and quality pork. The pre-slaughter weight is 61.5 kg with a dressing percentage of 66.7%, lean meat percentage of 43.9%. It has good reputations for its high fecundity in the world.

### **Poultry:**

Most of the poultry breeds belong to dual-purpose breeds. Of which, some breeds, such as Beijing You Chicken and Huiyang Chicken, have the characters of thin skin, fine bones, tender meat and good flavor, and can be used for meat production. Peking Duck is a large-size meat duck famous in the world and can be used as the raw material for making "Beijing Roast Duck". Gaoyou Duck can be used to make processed and salted duck, and is famous for producing double yolk eggs. China has some native breeds of egg layers, Xianju Chicken has an annual egg production of 200 with egg weight of 50 g; Shaoxing Duck has an annual egg production of 280-300 with egg weight of 68-70 g; and Huo Goose has an annual egg production of 100-120 with an egg weight of 128 g. In addition, Silkies is a precious breed using as medicine; Lion-Head Goose has a big head and the Chinese Game Fowl is used as ornamentals.

### **Sheep:**

Most sheep breeds have multi-purpose: wool purpose (carpet wool), meat purpose (coarse wool and fat tail), fur purpose and lamb skin purposes. Of which, the Tibetan Sheep produced in Qinghai-Tibetan

Plateau and the Hetian Sheep from Xinjiang, belonging to sheep breeds of quality carpet wool have the characters of long wool and good elasticity. Aletai Sheep from Xinjiang has well-developed fat rump and the Tan Sheep from Ningxia produces white fur coat after first shear. In addition, the Black Fur Sheep from Qinghai and Gansu, Hu Sheep from Jiangsu and Zhejiang are famous breeds producing lambskin. Hu Sheep and Small-Tail Han Sheep have the characters of early maturity and multiple lambs. They are fine breed of high fertility.

#### **Goat:**

The famous goat breeds include Zhongwei Goat, Liaoning Cashmere Goat, Jining Black Goat, Inner Mongolia Cashmere Goat, Chengdu Ma Sheep. Zhongwei Goat produces white fur coat after first shear with beautiful curl and evenly arranged wool. Liaoning Cashmere Goat has the characters of high cashmere output with long fiber. Jining Qingshan Goat has a hair coat of black and white mixture with a color of black, pink black or iron black, with quality black fine long wool and a reproductivity rate of 270%. Chengdu Gray Goat has a milk yield of more than 150 kg per lactation, with milk fat of 6.47%, dense wool, durable and can be divided in layer for use. The lambing percentage is 210% with two lambings per year.

#### **Cattle:**

Famous elite native breeds include Qinchuan Cattle, Luxi Cattle, Nanyang Cattle, Jinnan Cattle and Yanbian Cattle. Nanyang Cattle and Yanbian Cattle are located in hilly regions, and the other three breeds are distributed in plains. These native cattle breeds are sound in confirmation and very strong with good draft capacity, fine meat performance. They are the basis for developing China's beef cattle.

#### **Water Buffalo:**

China has a population of more than 20 million water buffaloes. All of them belong to the Swamp type water buffalo, but there are many categories: beach type, plain-lake type, plateau-plain type and hill-mountain type. Some of them are produced in Jiangsu, Zhejiang and coastal regions, and are called Haizi water buffalo. Some of them are beach-lake water buffaloes produced in Boyang Lake, Dongting Lake and Honghu Lake regions, with strong constitution, suitable for working in paddy field in South China. Wenzhou Buffalo has good milking performance and high fat content.

#### **Yak:**

Yaks are produced in the high frigid region above the altitude of over 3000 m in the Qinghai-Tibetan Plateau and have the characters of multi-purpose of milk, meat and hair production, and pack transportation. It is essential animal for herdsmen in Qinghai-Tibetan Plateau frigid pastoral region. It is not only a production means but also living means. The white yaks produced in Tianzhu Prefecture, Gansu Province is a rare yak breed. According to statistics of 2001, China has a total population of more than 14 million yaks, accounting for 95% of world yak population.

#### **Horse:**

Chinese horses belong to dual-purpose type. Mongolian Horse performance high speed in short distance race. Kazak Horse has good milking performance. Wuzhumuqin Horse, one kind of Mongolian Horses is a dual purpose of riding and drafting, adapted to hard conditions. It is good in walking with strong forces and working sustainable. Hequ Horse is suitable for working as a shaft horse. Its draught

force is equivalent to 80% of the body weight. Yushu Horse is adapted to plateau climate, and can walk freely in swamp, steep slopes, and narrow winding trail. In the horses distributed in Yunnan, Guizhou and Sichuan provinces as well as Baise Prefecture, Guangxi Zhuang Autonomous Region, most of the adult horses has a height of lower than 1 meter, and is called pony. These horses have been used in tourist.

#### **Donkey:**

The famous donkey breeds include Guanzhong Donkey, Dezhou Donkey and Jiami Donkey. Guanzhong Donkey can be used as draft, ride and pack purpose. Male donkey has a draught force of 93.8% of the body weight while female donkey can be used in pack and riding in mountainous road.

#### **Camel:**

China's camels belong to Bactrian camel type. Camel can stand hunger and thirsty and walk in desert, pack transportation and riding. It can also be milked or used as meat. Camel wool is a superior raw material for wool textile industry.

In the aspect of breed characteristics identification, in addition to conventional distribution, population, confirmation and production performance investigations, China has unfolded germplasm study of major native poultry breeds. The study has systematically measured the physiological and biochemical parameters, carcass composition, meat quality and flavor related materials. In the past 10 years, research institutions have conducted molecular research on major animal genetic resources, and found some genetic markers of major economic traits, such as high fertility of Taihu Pig, meat quality of native chickens, and high fertility of Small-tailed Han Sheep. Microsatellite DNA technology is used to undertake molecular genetic diversity research among breeds. This has provided scientific basis for the conservation, development and utilization of genetic resources.

Due to low production performance and poor economic benefits, the majority of the native breeds have been substituted by crosses or exotic breeds. The proportion of native breeds in the current animal production system is becoming smaller and smaller. Although some breeds with special values have been listed in the state conservation plan, and the provinces (municipalities and autonomous regions) have established corresponding conservation farms, yet in the past 20 years, the population size of most of the native breeds are decreasing by different extent and it has a trend of further declining. The powerful conservation measures are being adopted, so as to avoid the risk in the conservation of native animal breeds.

#### **2.4.4 Development of Breed Conservation Information System**

By using the techniques of computer and Internet and on the basis of the supplementary survey on animal genetic resources, the China Information System of Domestic Animal Genetic Resources has established. The Domestic Animal Resources Dynamic Monitoring Center is now under construction. A dynamic information investigation is going to be taken.

The "China Information System of Domestic Animal Genetic Resources" includes a total number of 282 animal and poultry breeds in the "Animal and Poultry Breeds of China", of which there are 66 pig breeds, 45 cattle breeds, 30 sheep breeds, 23 goat breeds, 33 horse breeds, 10 donkey breeds, 47 chicken

breeds, 14 duck breeds, 13 goose breeds and 1 turkey breed. The content includes breed's name, origin, distribution, natural ecology, breed characters, production performance and other information. Picture, video and other multimedia information of these breeds are being added into the system. The information system can be applied in the administration of animal genetic resources throughout the country.

In the future, the Information System shall include more animal breeds, as well as more detailed information of each breed. Meanwhile, technical training shall be strengthened so as for widely using of the information system throughout the country. Applying Internet technology into learning and monitoring the dynamics of resource conservation and utilization throughout the country, the state organizations can master the changes of resources, adopt effective measures and realize an effective conservation and rational utilization of resources.

## **2.5 Developments and Utilization Situation of Domestic Animal Genetic Resources**

Domestic animal genetic resources are an important basis for livestock industry development. Over a long period of time, China has always followed the principle of combining development and utilization with conservation in the aspect of development and utilization of domestic animal genetic resources. Meanwhile China has formulated a series of policies and regulations, which suit to this principle to undertake rational conservation of domestic animal genetic resources so as to guarantee a stable development of livestock industry.

### **2.5.1 Policies, Regulations and Organizations for Development and Utilization**

China attaches importance to the conservation, development and utilization of animal genetic resources. Governments at all levels and related departments have continued to input huge funds and strengthened related technical research in addition to adopting a series of policies, legal and technical means. MOA has made fairly comprehensive survey and systematic planning on the conservation of domestic animal genetic resources. By putting into full consideration of social, economic and environmental factors, the plan has rationally developed and utilized domestic animal genetic resources, and made important contribution to the increase of animal products and farmers' income. In order to encourage local government departments, enterprises and privates to participate in the conservation and development of animal genetic resources, the state has adopted the principle of rendering benefits first to the investors, which has mobilized the initiative of people from all walks of life in the conservation of animal genetic resources.

In 1994, the State Council issued "Regulations on the Administration of Breeding Animal Stock", which have clarified "Reproduction, extension & utilization as well as breeding of fine breeds of livestock and poultry are encouraged and supported by the state". Afterwards, the MOA released implementation rules to carry out the Regulations while implementing permit system for breeding livestock and poultry to strengthen conservation, development and utilization of the resources.

The implementation of above mentioned laws, regulations and rules has vigorously improved the conservation, utilization and management of the resources of domestic animals in China, and has enabled them to enter into track of standardization and legalization. All these have promoted the administration

work of China's animal and poultry breed resources and played an important role in conservation of animal and poultry genetic resources.

The MOA is responsible for the administration of domestic animal genetic resources, with corresponding administrative institutions established in different provinces, autonomous regions and municipalities and with the bureaus and stations of animal husbandry established in different prefectures, cities, counties and towns. The MOA is a policy-making institution for livestock production and conservation of their genetic resources in the whole country and for formulating the development and utilization plan and approval of importation/exportation of breeding livestock and poultry. MOA has established the National Committee for Domestic Animal Examination by and the corresponding committees have also been established in some local areas, which are responsible for examining and approving new breeds and lines in their regions.

In order to continuously develop and improve the quality and performance of domestic animals, MOA has established associations, technical organizations and breeding centers of breeding committee (technical cooperative organization) for dairy cattle, poultry, pig, yellow cattle, yak, water buffalo, horse and bee, etc. These associations and breeding committees have played an important role in improving the quality of domestic animal breeds in China.

### **2.5.2 Development and Utilization of Pig Genetic Resource**

Pig industry occupies the leading position in overall animal husbandry in China and the production of pork accounted for 65.82% of total meat production in 2000. China attaches great importance to the genetic improvement of pig and has established three-grade multiplication system of breeding stock, reproductive farm and commercial production farm. In the last 20 years, China has been implementing national and provincial pig breeding programs. There is utilization of breed resource in different markets in China. In large and medium size cities, there is a big demand for lean meat breeds, mainly exotic breeds and some developed breeds. In rural markets, there is a demand for the paternal lines with rapid growth and high lean meat percentage and the maternal lines with high reproductivity, which are more suitable to rural feeding conditions.

There is a rich resource of pig breeds in China. Besides the breeds with high reproduction, roughage resistance and good adaptation, there are also some pig breeds with good meat quality and special utilization. Some of these genetic resources have been applied and some are used as specifically genetic material. For example, Taihu Pig and Min Pig are developed for new breeds (female lines) with high fertility, and improved growth rate and lean meat. Xiang Pig is used for roasted piglets and Wuzhishan Pig, as small type of pig, is used as lab animal.

Both of pure breeding and crossbreeding are utilized for pig production. The breeding structure is composed of breeding farm, reproduction farm, parent farm and commercial production farm. Breeding is conducted mainly in breeding farm, which can guarantee the most rapid transfer of breeding improvement and high efficiency of the whole productive system. The replacement of exotic breeds mainly comes from breeding farms in China, and some from abroad. Commercial production farms will get replacement of male and female pigs from breeding farm and reproduction farm.



China has established technical extension institutions of animal husbandry and veterinary at national, provincial and county levels, which are playing very important role in extension of new breeds and new technologies. Generally, there are extension technicians in pig breeding farms for sale service and help farmers understand nutritional requirement and the technology for feeding and management through different training courses and on-spot service. Universities and research institutes have widespread and profound research on theory, methodology and technology of pig breeding, making great contributions to breeding and extension of new breeds.

### **2.5.3 Development and utilization of cattle genetic resources**

At present, the average occupations of beef and milk per capita in China are 4.6kg and 7.3 kg, respectively, which are lower than that of world average level and fall far behind of that in developed countries. With the rapid development of economy and gradual increasing of people's living standard, demand for beef and milk products is getting higher and higher. This leads to an increase of proportion of cattle industry in animal husbandry and agriculture sector. At the same time, some producers constantly introduce specialized breeds with high production to improve local breeds, resulting in gradually substitution by exotic breeds or crossbred and decrease and vanish of local breeds. On the other hand, local breeds cannot meet the requirements of quality and standards for beef in international market, which is another reason for the substitution of exotic breeds or crossbred for local breeds. Thanks for China's rich genetic resources and diversified ecological environments, it is impossible to vanish a breed or to use fully exotic breeds within short time period. One of the best alternatives is to suit the local ecological conditions and regional economy, carry out crossbreeding improvement and local breed selection under complete breeding program. In spite of lower productivity, local breeds have favorable genetic advantages, such as adapting to local ecological conditions and environments, which are potential for further development and utilization. Chinese Simmental is a good example. Using original Simmental of fast growth rate crossbred local breeds to develop a new breed. Chinese Simmental is a good combination of high meat quality, adaptability and group performance improvement.

Speaking of the utilization of water buffalo, yak and cattle in China, the first purpose of water buffalo in rice producing areas in southern provinces is for draft and followed by milk and beef. Yak in Northwest Plateau is for multi-purpose of milk, beef and draft. In the recent years, the utilization of yak fine wool upgraded the yak's economic value. The beef production in China is mainly from five major breeds of yellow cattle and their crossbreeds, including Qinchuan, Jinnan, Nanyang, Luxi and Yanbian. The most parts of milk output in China come from Chinese Holstein and improved breeds. In 2000, there were 5.07 million heads of dairy cattle in china. Chinese Holstein, with high milk yield, accounted for 60% of the total dairy cattle population. They are mainly distributed in suburbs of cities. Chinese Simmental is a dual-purpose breed of milk and meat. Other milk purpose breeds are Sanhe, Red Steppe and Xinjiang Brown, etc.

### **2.5.4 Development and Utilization of Genetic Resources of Sheep and Goat**

The selection and improvement of fine sheep and goat breeds have been lasting for 50 years. Utilization of fine genetic resources has been widely extended. For the production system, China implements pure breeding and systematic crossbreeding structure with specific plan and purpose. Pure breeding is to keep

fine genetic resources of sheep and goat, while the systematic crossbreeding with specific purpose is to rationally use and expand these resources to develop new breeds or strains with higher adaptability and better performance. In sheep and goat breeding structure, using local breeds' maternal with better adaptability crossbred with paternal from exotic breeds with high performance and moderate adaptability. Successive improvements have been done on coarse wool breeds, such as Kazakh, Tibetan and Mongolian to have bred a series of new breeds of fine wool, including Chinese Merino, East-north Fine-wool, Xinjiang Fine-wool and Aohan Fine-wool, etc. By supplying raw material of quality wool, these breeds promote the development of China's textile industry. Meanwhile, farmers' income was increased. Toggenburg is used to cross with Chendu Grey to develop Nanjiang Yellow with fast growth and high meat production, which has been widely raised in southwest areas.

In the last few years, the introduced meat purpose Boer goat has been used to cross with local goat breeds. Good results have been seen. To improve the local sheep breeds with small body, low daily gain and low meat production, the meat purpose exotic sheep breeds, such as Polled Dorset, Suffolk, Texel, etc. have been introduced. Heterosis has been fully used and mutton production has been promoted greatly.

During the period from the 1950s to the 1970s, there was a rapid increase in market demand for fur and lambskin. Population size of Chinese Karakul, Tan and Guide Black had been significantly increased. After the 1980s, the quantity of these breeds decreased sharply due to decline of the demand for fur and lambskin. At the same time, market demand for sheep and goat products had changed from wool purpose to meat purpose, resulting in decline of quality of fine-wool.

### **2.5.5 Development and Utilization of Genetic Resources of Poultry**

China is the largest country of poultry production and consumption in the world. In poultry production, relatively complete multiplication systems of improved and other breeds have been formed. There are not only the breeding and GGP farms for layer, broiler and duck, but also the corresponding GP and PS and commercial farms, which determined the structure of poultry production system.

China is a country with vast land and various needs for animal products. Therefore, the utilization of genetic resources varies in different regions. In poultry, there is a big difference in broiler. In South, East, Central and Southwest China, there is a high demand for quality chickens of special flavor. Consumers prefer quality chicken breeds with color-feathered (mainly yellow feather). And these quality chicken breeds have mainly been developed from native breed resources. In Northern China, consumers pay little attention to feather color and special flavor of poultry meat, and the introduced white broilers with fast growth rate and high feed efficiency are widely used. The broiler breeds used for export are almost the same as that used in domestic market. In meat duck production, lean meat type suitable for further processing is used for export, such as Cherry Valley while traditional Peking Duck is used for roasting and other native breeds of medium size, such as Gaoyou, Jianchang, etc. are used for further processed products, such as pressed salted duck and saline water duck. The main reason for the difference is the longlasting tradition for consumption and cooking.

Under the positive proposition and support of the government, great attentions have been paid to the development and utilization for genetic resources of poultry in China and various poultry breeding

institutions have been established, including some state-owned poultry breeding centers, as well as share-holding and private companies. These sectors have free competition in basically commercialized environment and promoted the development of poultry breeding. The mature breeding products (breeds or multiplication strains) released by poultry breeding sectors enter to the stage of fine breed reproduction, which is carried out by GP and PS farms throughout the country and commercial production is finally conducted by various poultry production companies or households, to supply rich poultry products to the market. At the same time, many GP farms introduce fine breeds from foreign countries. Intensive production system is mainly implemented for layer and broiler production and three-way and four-way crossbreeding systems are basically used. As a result of the implementation, local breeds have been basically replaced by crossbreeding lines for layer and fast growth broiler while in the production of quality chickens, local breeds are fully used in crossbreeding lines. Small scale, household production is the main production systems for duck and goose. So purebreeding is the main type of breed utilization, but the use of crossbreeding lines is increasing rapidly to meet the requirements of large-scale production and advanced technology. At the same time the heterosis can be fully used in commercial production.

A large number of successively introduced breeds (multiplication strains) from international breeding companies are used in the production of layer, fast growth broiler and lean meat duck. The main commercial breeds of layer, broiler and meat duck that introduced throughout the year are Hyline Brown, Lohmann Brown, Hyline White and Hisex Brown, AA, Cobb, Hubbard and Cherry Valley etc. There are also some breeds developed and bred through domestic breeding program based on the exotic breeding materials, such as Beijing White and Xinyang Brown layers. A large number of Peking Duck are used in meat duck production. The local breeds including Shiqi and Qingyuan Patriadge are used for quality chicken production. Local breeds of duck and goose, such as Shaoxing and Jinding Duck for egg production, Huoyan, Taihu, Shitou and Sichuan White for meat production. It can be seen that the situation will be stable within 10 years in the future.

A large part of poultry genetic resources haven't been fully used in production. The main reason is that the performance of these breeds (performance for both egg and meat production) is far behind those of introduced breeds or exotic breeds, lacking features in special flavor and quality and abandoned by producers. However these breeds have got good conservation and are basically not endangered due to the attention paid by the government.

China is a large country of poultry production in the world but the productive level has only reached to that of the average level. Development and utilization of poultry genetic resources is still a hard job. At present, the main task is to improve performance of poultry breeds in order to meet market requirements and to extend high efficient technology of poultry production.

## **Part III Change of Demand for Animal Products and Its Influence on State Policy, Strategy and Plan of Animal Genetic Resources**

### **3.1 Reviews on Demand of Animal Products and Policy of Animal Husbandry**

Since the founding of new China, the supply and demand of animal products can be divided into three stages:

During the period of 1949~1978, the production and supply of major animal products increased on certain amount compared to that before 1949, under the situation of people's commune and state monopoly purchase and rationing, preliminarily met the demand of state economic construction and people's life at low level. Under the overall situation of economy at that time, the policy for development of animal husbandry was to mainly use local breeds to produce animal products with high content of fat and to meet the caloric requirement from food. Large livestock, such as horse, donkey and cattle, etc was mainly used for draft due to the low level of agricultural mechanization and pork was the main resource for meat. Besides, the overall productivity of animal husbandry was low because of inadequate feed, backward feeding method and low level of fine breed utilization.

During the period of 1979~1995, the production and supply of major animal products increased rapidly and people's living standard improved greatly under the situation of agricultural operational system reform, science & technological progress and investment increase. During this period, China began to implement the policy of reform and opening up. Social economy had entered to a rapid development stage and people's living condition was improving. The demand for animal products changed significantly, from single meat of pork to diversified animal products of poultry, beef, mutton, eggs and milk, etc., from high fat content pork to high protein content and other nutrients. Market supply was liberated. Under the guidance of the policy of quantitative increase of animal products, the animal productivity developed rapidly through introduction and utilization of specialized breeds with high performance and basically met the market demand for animal products.

Since 1996, the demand and supply of animal products was tending to be balanced and the requirement from residents in both cities and rural areas for animal products changed from quantitative type to that of quality and this requirement was basically ensured. The conscience-ness of consumption for safe food, green food, harm-free food and special flavor food increased. Animal products from elite local breeds had become more popular.

Looking back on the last 50 years, especially on the last 20 years, great changes had been taken place on animal production in China. The basic experience is as follows:

- Rely on family operation system to exert farmers' enthusiasm;
- Rely on opened price policy to promote a market oriented livestock production;
- Rely on science and technological advancement to improve the animal productivity; and
- Rely on legal measures to standardize production and market.

### 3.2 Analysis on Demand and Trends

Since 1980s, the production of meats and eggs in China has been developing very rapidly. Pork is still the major meat in total meat production, with sufficient supply. Other animal products are relatively in short supply and the quality still needed to be improved. Extension of elite breeds and improvement of their quality will be put in the priority by governments to adjust the structure of animal production and to fully exert the advantages of rich animal resources. At the same time, China will develop vigorously famous, special, top-quality and new animal products and diversify animal products to meet the requirements at different levels. In light of development strategy, MOA urge stabilization of pork and poultry egg production, acceleration of production of beef, mutton and top quality poultry meat, and highlighting milk and high-quality fine wool production. In meat production, efforts should be paid on improvement of quality and special flavor, and local breeds' conservation. Strengthen development and utilization of local breeds of pig and poultry while promoting the scale for beef and mutton production and enlarging proportion of beef and mutton by heterosis based on economic crossing. Increase both of total milk output and per capita occupation of dairy products by utilizing fine breeds, applying embryo transfer to extend fine dairy cattle number, and improving dairy productivity.

### 3.3 Policy and Plan for Conservation, Utilization and Development for China's Animal Genetic Resources

Conservation and development of animal genetic resources are fundamental work for achieving a sustainable development of animal husbandry. It needs active involvements of multi-discipline, multi-sector and stakeholders in the field. In the future, the basic considerations for conservation and development of animal genetic resources are:

- Taking animal genetic resources conservation as basis;
- Improving genetic resources through systematic breeding plans;
- Developing and utilizing animal genetic resources according to market demand; and
- Forming a virtuous circle of conservation-utilization.

Breed conservation must have clear-cut priorities and implement responsibility at different levels. Establish conservation and management system corresponding to national economy and social development to push forward conservation and utilization work to a new level.

Strengthen legal measures to standardize both of animal production and animal products marketing at different levels. **“Regulations on Breeding Livestock Administration”** and its detailed rules for implementation have put forwarded the requirements for animal genetic resources conservation and standardized for the principles. Special administrative measures for animal genetic resources conservation would be further formulated to stipulate concretely related rights, duties, responsibility and behavior. China has already started to study and formulate the **“Implementing Measures for Conservation and Development of Domestic Animal Genetic Resources”**, which will further determine the basic policies and principles for animal genetic resources conservation and the system of conservation at different levels, as well as the rights, responsibilities and benefits of governments, sectors and privates to encourage diversified form of conservation; implement the principle of both conservation and development and have priority conservation while strengthening development and utilization of the breed resources and promote

conservation through rational development and utilization; work out concrete measures against destroy and loss of the breed resources.

On the basis of stabilizing the original policy, strive for support from local governments and strengthen the aid in order to include the conservation and development of the breed resources into local financial budget. At the same time, establish the financing mechanism with multi channels and encourage social strength at home and abroad to invest on conservation and development of animal genetic resources within the scope of laws and plans.

Development and utilization of animal genetic breeds are the main purpose for implementing conservation of the resources and conservation is the premise of utilization and the basis for sustainable and efficient use. Utilization is the purpose and rational method for conservation. Vigorously push forward development and utilization of animal genetic resources based on need of market to realize industrialized development. Most local breeds in China have good reputation and have been extended in long period of history, some of which are even well known abroad. Taking these advantages, produce a series of products with top quality through strict, standard and specific processing method to improve their competitive ability and bring along overall development and utilization of domestic animal breeds.

Great importance should be attached to scientific research and development for breed conservation. Efficient and economic methods for breed conservation should be studied. The research on frozen semen, embryo and other method for breed conservation should be strengthened on the basis of conventional technology. At the same time, enhance international cooperation and carry out bilateral and multilateral exchange and cooperation. Study on and introduce foreign advanced technologies and implement better international duty on conservation of animal breeds.

## **Part IV Situation of State Capacity of Resource Conservation and Evaluation on Construction Requirements**

### **4.1 Evaluation on the Conditions of National Capacity**

#### **4.1.1 Establishment and Development for Administrative Institutions of Conservation and Utilization of Domestic Animals Genetic Resources**

Under the direct leadership of MOA, the administrative institutions of conservation and utilization of domestic animal genetic resources in China have been gradually established. As an authority administrating the sector, MOA is responsible for organizing and coordinating conservation and utilization of domestic animal genetic resources.

- China National Commission for Domestic Animal Genetic Resources Administration established in 1996 and its sub-commissions are authorized to administrate on domestic animal genetic resources management.

- The National Animal Husbandry and Veterinary Service established Division of Domestic Animal Genetic Resources in 2001. The Division is responsible for coordination and implementation of the actions for conservation and utilization of domestic animal genetic resources.

- MOA established “Storage and Utilization Center for Germplasm Resources of Domestic Animal and Forage” and “Gene Bank for Native Breeds” which undertake vital conservation of genetic resources, frozen storage of spermatozoa and embryo.

- Chinese Academy of Agricultural Sciences and other research and educational institutions are carrying out the research on theory and technology of animal genetic resources conservation, helping on collection, classification, conservation and utilization of genetic resources and providing consultant services.

- China established more than 20 breeding committees or its coordinating groups on different species, such as cattle, yak, water buffalo, horse, sheep, goat, poultry, pig and rabbit, etc.

#### **4.1.2 Progress for scientific research on conservation of animal genetic resources**

The research institutes and universities have carried out the following researches and activities:

- Survey on Domestic Animal Resources;
- Compiling for “Books of Livestock and Poultry Breeds in China”;
- Research on Plan of Development and Utilization for Domestic Animal Genetic Resources in China;
- Establishment and Application of Cattle & Sheep Semen and Embryo Bank;
- Research on Cattle Genetic Distance in China;
- Characteristic Test of Germplasm in 10 Native Pig Breeds;
- Systematic Theory on Breeds Conservation;
- Simulation Study of Computer and Laboratory Animal on Theory, Methodology of Animal Genetic Resources Conservation and
- Research on Conservation of Small Poultry Flocks”.

At present, the following projects are undertaking:

- Research on Genetic Distance of Local Pig Breeds in China;
- Research on Genetic Diversity of Local Poultry Breeds in China;
- Research on Genetic Diversity on Sheep and Goat Breeds in China.

Many professionals with master and doctor's degrees in the field have been trained on the basis of these researches. A professional team with both theoretical knowledge and practical experience has been built up.

#### **4.1.3 National Conferences in the Field of Genetic Diversification Conservation and Domestic Animal Genetic Utilization**

Animal Husbandry Bureau, MOA and Chinese Academy of Agricultural Sciences jointly held "Symposium on Conservation and Utilization of Domestic Animal Genetic Resources in China" in Anhui Province in November 1984. More than 80 participants representing administration, education and research institution on domestic animal genetic resources attended the symposium. This was the first national conference on the field since the foundation of new China, which promoted greatly the awareness on domestic animal genetic resources conservation at all walks of life.

In the last 20 years, topics on domestic animal genetic resources conservation and utilization were always discussed on Bi-Annual Conference on Animal Genetics and Breeding.

In November 2001, MOA held "National Conference on Conservation and Utilization of Domestic Animal Genetic Resources" in Hebei Province. Nearly 100 participants from different provinces, autonomous regions and municipalities attended the conference. The importance of conservation and development of domestic animal genetic resources was emphasized and preservation priorities and protection program were also formulated.

In July 2002, China National Commission for Domestic Animal Genetic Resources Administration held "A Training Course on Technology and Methods of Animal Genetic Resources Conservation". More than 120 technicians from 70 domestic animal conservation farms and areas attended the course.

#### **4.1.4 Formulation of Laws and Regulations on Conservation and Utilization on Domestic Animal Genetic Diversification**

In the past 50 years, government have published the following programs, laws and regulations on development of animal husbandry, management for breeding animal importation/exportation and domestic animal genetic resources conservation:

- Instructions on Conservation and Development of Draft Cattle and Prevention of Indiscriminate Slaughter
- National Plan for Horse Improvement
- National Plan for Sheep Improvement
- Regional Plan for Livestock Improvement in China
- Regulations on Breeding Animal Administration



- Agricultural Laws
- Laws on Agricultural Extension
- Laws on Epidemic Prevention
- Regulations on Administration of Veterinary Drug
- Regulations on Administration of Feed and Feed Additives
- Laws on Grassland
- Announcement on Strengthening Development and Conservation of Domestic Animal Genetic Resources and Promoting International Exchange and Cooperation
- Laws on Animal Quarantine etc.

#### **4.1.5 Establishment for Conservation Farms and Areas**

China has established many conservation farms for native genetic resources, set up some conservation areas and established Gene Bank of fine native resources (spermatozoa and embryo). Meanwhile, selection and improvement for certain breeds were carried out. Through these efforts, the performance of some local breeds has improved greatly; more importantly, conservation of native genetic resources become even efficient.

#### **4.1.6 Evaluation on Human Resources Availability**

Chinese government attaches great importance in training for professionals. On one hand, China is actively involved in international training or conference held by FAO in order to keep pace of new technology in breed conservation. On the other hand, China has strengthened domestic training:

- Since the establishment of China National Commission for Domestic Animal Genetic Resources Administration, training workshop at different levels is held once a year.
- Universities and colleges trained professionals involved in the conservation and utilization of the resources.
- Governments attached great importance in breed conservation, invested manpower, material and funds continuously to establish conservation farms or areas.
- Horizontally international cooperation has been carried out. Foreign experts are invited to come for lectures and training courses while sending people to the foreign countries to study. In general, a large batch of professional talents has been fostered through above-mentioned channels and the technological team for conservation and management has been gradually formed.

At present, there are approximately 200 public servants working at governments of different levels in the field of animal genetic resources management in the whole country and more than 500 senior professionals for research and education. Besides, there are approximately 2000 technicians for the conservation and approximately 10,000 technicians involved in utilization. Amongst, there are about 30% professionals graduated from universities and colleges and more than 100 of them holding master and/or doctor's degree on animal genetic resources.

#### **4.1.7 Infrastructure, Equipment and Technology Used at Present**

— In the respect of domestic animal genetic resources conservation:

For live animal conservation, the main infrastructure is buildings and corresponding equipment such as forage processing equipment, disease control equipment. For the conservation of gene bank, the equipment for collection, identification, freezing and storage of semen and embryo are used. The technologies for conservation, such as systematic conservation method, conservation combined with selection and breeding, is mainly suggested by FAO, adapting to situation in China.

— In the aspect of domestic animal genetic resources information system:

Most of the hardware used in information system are above PIII and can meet the requirements. Multimedia network information system has been designed and developed on the basis of original database and DAD-IS in China, which is convenient for inquiring.

— In the respect of domestic animal genetic resources utilization

Classic theory & traditional technology is combined with modern breeding theory and new technology on the basis of application for traditional breeding method and technology. Performance test and individual genetic evaluation is widely used in breeding process to increase accuracy of selection. The technologies for artificial insemination and embryo transfer are used to improve proportion of fine gene.

#### **4.1.8 International Cooperation and Trade on Animal Genetic Resources**

##### **4.1.8.1 International Cooperation**

Efforts have been made to participate international academic exchanges, training and cooperative research and international projects. Representatives have been sent to FAO to participate in international meetings on conservation and utilization on domestic animals. Besides, send administrative and technical staff in the field abroad for investigating and studying advanced technologies and updated experience.

The universities and research institutes actively carry out scientific exchange and technical project cooperation with international organizations and institutions. For example, 13<sup>th</sup> Conference of Global Committee of Agriculture and the Second Coordinator's Meeting of Asia and Pacific Region Project. China sent young scholars to the 5<sup>th</sup> Meeting of Application of Genetics in Animal Production and submitted some valuable thesis. After the meeting, the thesis was translated and the translated book "Conservation for Animal Diversification" was published. Besides, China completed FAO project "Supplementary Survey on Diversification of Domestic Animal in China" etc. At the same time, China has had consulted with FAO senior officials and project officers many times and put forwarded 6 proposals of international aid for discussion on the Meeting of Donor Countries held in Rome, September 1999. In addition, China has organized related people to draft "Action Plan for Conservation of Diversification of Domestic Animal in China", etc.

##### **4.1.8.2 International Trade**

As early as 2000 years ago, the Rome Empire introduced pigs from China. In early 19<sup>th</sup> Century, USA

and UK introduced Panyu Pig from Guangdong Province, which were then transferred to Germany and France, and involved in development of famous breed of Yorkshire and Poland China, etc. Langshan chicken in China was introduced to UK in 1870s and was well known in the world as large body, black feather and high egg production with big egg size. It involved in breeding for famous breeds, such as Orpington and Australorp. Pudong chicken was also approved to be a fine breed of meat type chicken. More than 30 China's local animal breeds, including Peking Duck, Silkies, Shitou Goose, Meishan Pig, Fengjing Pig, Jinhua Pig, Guanzhong Donkey, Nanyang Cattle, Luxi Cattle and Tong Sheep were exported one after another to some countries and regions in Asia, Europe, America and Oceania. The strains of Meishan and Fengjing pig in Taihu breed in China were introduced to France, USA and UK, etc. for crossbreeding, which enhanced greatly genetic progress in economic traits of fertility in these countries. The elite features of germplasm of domestic animals in China had made great contribution to the world animal production.

According to incomplete statistics, China introduced more than 120 domestic animal breeds before 1989, including horse, cattle, sheep, goat, pig and poultry, etc. from Russia, UK, France, Germany, the Netherlands, Denmark, USA, Canada, Australia and New Zealand, etc. Including:

- 18 horse breeds,
- 27 cattle breeds (including beef, dual purpose of meat and milk),
- 2 water buffalo breeds
- 25 sheep breeds,
- 4 goat breeds (milking goat and wooly goat),
- 11 pig breeds
- 39 poultry breeds (there were 30 chicken breeds, 5 duck breeds, 1 goose breeds and 3 turkey breeds).

The introduced domestic animals enriched genetic resources of in China and played a positive role in improving local animal breeds. At the same time, there were many breeds involved in breeding (breed herd or flock). In the last few years, the annual value for breeding livestock importation exceeds US\$20 million.

## **4. 2 Demand for Construction**

### **4.2.1 Establishment of State Monitoring and Evaluation Center for Domestic Animal Genetic Resources**

Establish collection and monitoring system of domestic animal genetic resources, form the network in the whole country, and monitor status regularly. The main task is, on the basis of finding out dynamic changes for genetic resources of existing breeds, to have trace survey on the resources and collect the most updated information for analysis trend of change; apply modern information technology to upgrade database of national dynamic information system; on the basis of heredity, have overall, systematic and long-term evaluation on characteristics of the genetic resources. Center is located in Beijing.

### **4.2.2 Establishment of the Test Center for Germplasm of Animal Genetic Resources**

Using modern biotechnology method, test on animal genetic resources at molecular, cell and population level and have research on genetic diversity; understand the features of germplasm, molecular basis and

genetic relationship of the animal genetic resources. The content for the construction is laboratory, test house for livestock and poultry, instrument, equipment and construction for computer network. The location for construction is in Beijing.

#### **4.3 Improvement of Gene Bank of Animal Genetic Resources**

Establish and improve laboratory for conservation and apply biological freeze technology of ultra-low temperature to meet the requirement of long-term storage of some rare animals and endangered animal resources. Put the storage of embryo and frozen semen in first place, complementary by applying the technologies of embryo bisection, embryo appraisal, embryo cloning and the technology for in vivo collection of egg and in vitro fertilization, etc. to preserve genetic material. Under the precondition of introducing small herd of livestock for live animal conservation, it is required to conserve 250 embryos and 1600 doses semen for each breed. Frozen semen storage was used to preserve 17 breeds that are endangered, such as Jiulong Yak, Fuzhou Cattle, Qinghai Yak, Bohai Black and Tan Sheep, etc. while embryo storage is used for preserve 16 breeds including Mongolia Cattle, Liaoning Cashmere Goat, Zhongwei Goat, and Tong Sheep, etc.

Poultry Conservation Farm has been established in Jiangsu Province and will be expanded in capacity to preserve a total of 40 local poultry breeds, including Pudong, Dagu and Qingyuan Partridge, etc., with the requirement of at least 300 hens for each breed.

The main construction content includes laboratory and test room construction and poultry sample collection and introduction as well as purchase for instrument and equipment.

#### **4.4 Construction for Conservation Farms and Areas**

MOA has put forwarded a conservation inventory of 78 local breeds at nation level. The priorities of breed conservation will be based on the inventory and at the same time some endangered breeds at provincial level will be preserved. The priorities for the construction are local breeds collection, houses and stables expansion and instrument and equipment purchasing. A number of conservation farms of pig, poultry, cattle, sheep, goat and horse will be constructed, expanded or modified.

Conservation areas should cooperate with conservation farms closely. Conservation areas should be delimited in the central production zone and have systematic breeding plans.

#### **4.5 Promoting Publicity and Education**

Continue to exert the role of traditional media for publicity while fully taking advantage of fast communication, wider coverage and low cost for maintenance of Internet to strengthen the publicity on conservation and public understanding on importance of the conservation. The core content is to perfect the construction of “China Domestic Animal Diversity Network” with rich content and fast update.

Speed up establishment of research team on domestic animal genetic resources and strengthen personnel training. On one hand, continue to establish the courses on conservation and utilization of domestic animal

genetic resources in universities and on the other hand, reinforce personnel training through multiple forms including training courses and symposium to improve overall their levels of research and management.

## **Part V Priorities of Conservation and Utilization of Domestic Animal Genetic Resources**

### **5.1 Priorities in the Conservation of Domestic Animal Genetic Resources**

#### **5.1.1 Genetic resources for endangered domestic animals**

According to conservation inventory determined by MOA in 2000 and the classification results of the endangered genetic resources, Government will give priority in seriously endangered genetic resources at present, with the conservation methods of combining *in vivo* conservation with gene bank.

#### **5.1.2 Genetic resources of local elite breeds**

The state and local governments will conserve the genetic resources of local elite breeds with featured performance and special adaptability. At the same time, development and utilization will be carried out to realize unification of conservation, development and utilization.

### **5.2 Priorities for Utilization of Domestic Animal Genetic Resources**

#### **5.2.1 Priorities for utilization of genetic resources of local elite breeds**

The genetic resources of local elite breeds will be further selected and bred to improve their performance while developing for the markets for special products, realizing direct use of these genetic resources. For example, Qinchuan, Jinnan, Nanyang, Luxi and Yanbian cattle, with large body and quality meat can be used for the meat purpose; Tibet and Hetian sheep can be used as carpet wool of better quality; Liaoning and Inner Mongolia Cashmere goats will be utilized toward white cashmere with high yield and high quality; Tan sheep and Zhongwei goat will be used for the fur purpose; Jinhua and Wujin pig will be used for the production of top quality Ham; Wuzhishan Pig will be used toward the direction of laboratory animal; Beijing You Chicken will be used as a quality chicken and Peking Duck is used for roast duck. In principle, crossbreeding of these local fine breeds with exotic breed is banned and standardized processing for their products should be strengthened to have better utilization of these fine genetic resources.

Under the special conditions of geography, ecology and climate, the local breeds with special adaptability should be developed and utilized as main resources. The breeds adapted to plateau, mountain areas and humid climate, the main performance should be improved without losing their adaptability.

#### **5.2.2 Utilization of Heterosis**

Some genetic resources have no special performance, but large number in size. Crossbreeding should be considered for these breeds with elite genetic resources in order to improve economic value.

Commercial pig production is mainly based on crossbreeding system using genetic complementarities

and heterosis of different breeds or lines. Local pig breeds or developed breeds or lines are used as dam lines, and the introduced breeds are used as sire lines so as to combine the advantage of high reproductivity of Chinese breeds with fast growth and lean meat of introduced ones.

Due to the shortage of milk and beef products in China, a certain degree of cross is used in cattle breeding to improve productivity. Elite genes are introduced for developing new breeds or lines and improving productivity. This is a common measure for beef cattle improvement. The main breed of dairy cattle in China is Chinese Holstein, which is crossed by introduced Holstein with local cattle. At present, selected breeding is still going on by introducing elite breeding stock with high performance from foreign countries. For beef production in China, Simmental, Charolais, Limousin and Angus are used to cross with local breeds to improve growth rate while keeping the genetic background of quality meat of local breed. Generally speaking, beef production in China at present is still at the stage of utilizing both crosses and local elite breeds. The main purpose for crossbreeding in water buffalo is to improve body weight and draft ability with the priority of milk production.

Crossbreeding is widely used for mutton production to utilize genetic complementarity and heterosis. For the coarse wool breed, Polled Dorset, Suffolk and Charolais are used as sires, mating with Small Tail Han and Mongolian Sheep. For goat production, introduced Boer is used as sires to cross with Huanghuai, Matou and Guizhou White goat, so as to improve growth rate and meat production. For fine wool production, introduced breeds of super-fine wool are used to grade crossing for super-fine wool production.

For egg and broiler production, introduced commercial lines basically replace local breeds. 3-way or 4-way crossbreeding is generally used for commercial production to meet the market demand. For yellow-weathered quality chickens, local breeds are fully used to develop package lines of crossbreeding. In duck and goose production, purebreds are generally used but the use of package lines is growing rapidly in order to use heterosis in commercial production.

## **Part VI Recommendations for Strengthening International Cooperation in the Field of Livestock Diversification**

### **6.1 Training for Qualified Personnel**

According to the requirements on conservation and development of domestic animal resources, technical training should be strengthened to improve the quality of managers on genetic resources and employees, with the priority field on:

- Management and monitor on the resources;
- Surveying on developments of the resources and maintenance of information system and
- Application of breed conservation.

Different forms of training should be taken based on different needs of people and the main ones are as follows:

- Officials and technicians from resource administrative institutions are sent to training courses held by FAO and other international institutions.
- The experts from FAO and other international institutions are invited to China to hold training courses.

### **6.2 Technical Exchange**

Positively create the conditions to participate in international exchange of academy and have active research on scientific, effective and economic methods for breed conservation. The professionals involving in management and technology will be sent out to learn advanced experience and technology while inviting some foreign experts to come to China for exchange and direction. Besides, “China National Administrative Committee on Livestock and Poultry Genetic Resources” will hold non-periodic international symposiums on management of domestic animal genetic resources.

### **6.3 Cooperative Research and Development and Utilization**

Strengthen international cooperation and carry out bilateral and multilateral cooperative research as well as the research with international organizations under the prerequisite of preserve well the national major and special genetic genes. Learn foreign advanced technology and implement well international responsibility of conservation for breed resources. At the same time, great efforts should be made to strive for financial support and project aid from international organizations on the conservation of the resources.



## Part VII Appendixes

### 7.1 List of Compilers

#### Compiling committee

##### Director:

Qi Jinhfa, Vice Minister of Agriculture, Ministry of Agriculture (MOA)

##### Deputy Director:

Jia Youling, Director-General, Bureau of Animal Production and Health, MOA

He Xintian, Director-General, National Animal Husbandry and Veterinary Service, MOA

##### Members:

Zhang Xiwu;	Chen Weisheng;	Han Gaoju;	Guo Shjian;	Hu Yan-an;
Liu Jiawen;	Xu Guifang;	Wang Junxun;	Liu Hailiang;	Wang Zhigang;
Deng Rongzhen;	Yang Hongjie;	Zhang Cungen;	Feng Weiqi;	Wang Aiguo;
Yang Ning;	Ma Yuehui;			

##### Compilers:

Xu Guifang; Yang Hongjie

#### National Consultative Committee for the Country Report of SoW-AnGR

Zhang Xiwu,	Wu Changxin,	Han Gaoju,	Guo Shjian,	Sheng Zhilian,
Zhang Yuan,	Ma Ning,	Du Yuchuan		

#### NCC Chairperson

Chen Wesheng, Deputy Director-General of National Animal Husbandry & Veterinary Services

#### National Technical Secretary

Yang Hongjie, Deputy Division Chief, National Animal Husbandry and Veterinary Service

#### Experts for the Examination of “List of China's Domestic Animal Genetic Resources”

Sheng Zhilian;	Zhang Yuan;	Ma Ning;	Du Yuchuan;	Zheng Youmin;
Chen Kuanwei;	Chang Hong;	Zhang Jihan;	Yang Fuhe;	Zhao Shuguang;
Wang Aiguo;	Xiong Yuanzhu;	Wang Linyun;	Wu xianhua;	Hou wanwen;
Fan Shoujun;	Feng Weiqi;	Shang Keqin;	Rong Weiheng;	Hu Xiangrong;
Lin Jia;	Ma Yuehui;	Lu Zhonglin;	Zhou Dingnian;	Zhang Yinghan;
Xu Shangzhong;	Chen Yuxin;	Gong Guifen;	Yang Ning;	Ge Fengchen

#### Experts for the Examination of This Report

Xu Dingren; Sheng Zhilian; Zhang Yuan; Ma Ning; Du Yuchuan

#### English Translators

He Chunpei; Yang Hongjie, Tai Weidong; Hou Zhuocheng; Li Xianyao; Chen Min; Shi Kerong

#### Experts for the Examination of English

Chen Weisheng; Guo Shjian, Wang Aiguo; Yang Ning; Ma Yuehui

## 7.2 List of China's Domestic Animal Genetic Resources

### Pig

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Min	37	Hongqiao
2	Bamei	38	Wei
3	Huang-Huai-Hai Black	39	Yangxin
4	Haijiang Black	40	Taiwan
5	Yimeng Black	41	Neijiang
6	Liang Guang Small Spotted	42	Rongchang
7	Yuedong Black	43	Chenghua
8	Hainan	44	Yanan
9	Diannan Small-Ear	45	Huchuan Mountainous
10	Lantang	46	Wujin
11	Xiang	47	Guanling
12	Longlin	48	Tibetan
13	Huai	49	Pudong White
14	Wuzhishan	50	Anqing Six White
15	Ningxiang	51	Panlang
16	Huazhong Two-End-Black	52	Chalu Black
17	Xiangxi Black	53	Yayang
18	Daweizi	54	Beigang
19	Large Black- White	55	Bihu
20	Jinhua	56	Xianjuhua
21	Longyou Black	57	Lanxi Spotted
22	Minbei Spotted	58	Guangzhuang Spotted
23	Shengxian Spotted	59	Pingtian Black
24	Leping	60	Licha Black
25	Hang	61	Dapulian
26	Ganzhongnan Spotted	62	Qianshao Spotted
27	Yujiang	63	Bama Xiang
28	Wuyi Black	64	Debao
29	Qingping	65	Guizhong Spotted
30	Nanyang Black	66	Baixi
31	Wanzhe Spotted	67	Jiangkou Luobo
32	Putian	68	Qiandong Spotted
33	Fuzhou Black	69	Mingguang Small-ear
34	Taihu	70	Saba
35	Jiangquhai	71	Baoshan
36	Dongchuang	72	Hexi
<b>Developed Breed</b>			
73	Beijing Black	83	Hubei White
74	Shanxi Black	84	Zhejiang Middle-Large
75	Harbin White	85	Sutai
76	Sanjiang White	86	Nanchang Whit
77	Northeast Spotted	87	Guangming
78	Shanghai White	88	Shennong
79	Xinhuai	89	Junmu I White
80	Ganzhou White	90	Dahe Black
81	Hanzhong White	91	Jihe White Multiple Lines
82	Yili White		
<b>Exotics Breed</b>			
92	Berkshire	96	Landrace
93	Yorkshire	97	Duroc
94	Soviet White	98	Hampshire
95	Kemiroff	99	Pietrain

### Chickens

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Xianju	42	Yantai Sankang
2	Baier Buff	43	Luxi Fighting

3	Langshhan	44	Zhengyang Sanhuang
4	Dagu	45	Lushi
5	Beijing You	46	Henna Fighting
6	Pudong	47	Hongshan
7	Shouguang	48	Jianghan
8	Xiaoshan	49	Shuanglian
9	Luyuan	50	Yunyang Large
10	Gushi	51	Yunyang Silkies
11	Bianji	52	Huanglang
12	Pengxian Buff	53	Zhongshan Shalan
13	Linxun	54	Yangshan
14	Emei Black	55	Huaixiang
15	Jinyuan	56	Nandanyao
16	Liyang	57	Guangxi Sanhuang
17	Wuding	58	Jinyang Silkies
18	Taoyuan	59	Jiuyuan Black
19	Huiyang Bearded	60	Miyi
20	Qingyuan Partridge	61	Xingwen Silkies
21	Xinghua	62	Shimian Caoke
22	Xiayan	63	Muchuan Silkies Black
23	Hetian	64	Luning
24	Silkies	65	Liangshanya Ying
25	Chahua	66	Zhuxiang
26	Tibetan	67	Weining
27	Bashing Long-tail	68	Qiandongnan Xiao Xiang
28	Jiangshan Silkies	69	Long-leg
29	Lingkun	70	Short-leg
30	Huainan Sanhuang	71	Wumeng Silkies
31	Huaibei Partridge	72	Nixi
32	Xuanzhou	73	Yanjin Silky
33	Zhangzhou Fighting	74	Tengchong Snow
34	Chongren Partridge	75	Yunlong Short-leg
35	Yugan Silkies	76	Xishuangbanna Fighting
36	Dongxiang Green	77	Lueyang
37	Kangle	78	Taibai
38	Ningdu Sanhuang	79	Shanbei
39	Jining Bairi	80	Haidong
40	Wenshang Patterned	81	Turpan
41	Langyu		
<b>Developed Breed</b>			
82	Beijing White	89	Jiangcun Buff JH-3 Multiple Lines
83	New Langshan	90	Xinxing Buff No.2 Multiple Lines
84	New Yangzhou	91	Xinxin Dwarf Buff Multiple Lines
85	New Pudong	92	Linnan Buff No.1 Multiple Lines
86	Kangdar Buff, Multiple Lines 128	93	Linnan Buff No.2 Multiple Lines
87	Xinyang Brown Egg Multiple Lines	94	Jingxin Buff, Multiple Lines 100
88	Jiangcun Buff JH-2 Multiple Lines	95	Jingxin Buff, Multiple Lines 102
<b>Exotic Breed</b>			
96	Shaver Layer	99	Recessive White Beather Broiler
97	Roman Layer	100	Dwarf Small Buff
98	Avian		

#### Ducks

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Shaoxing	15	Wendeng Black
2	Jinding	16	Huainan Partridge
3	Youxian Partridge	17	Enshi Partridge
4	Xingjiang Partridge	18	Mianyang Partridge
5	Sansui	19	Linwu
6	Liancheng White	20	Zhongshan Partridge
7	Putian Black	21	Jingxi Large Partridge
8	Gaoyou	22	Guangxi Small Partridge
9	Jiangchang	23	Sichuan Partridge

10	Dayu	24	Xingyi
11	Caohu	25	Yunnan Partridge
12	Beijing	26	Hanzhong Partridge
13	Shan Partridge	27	Taiwan Partridge
14	Weishan Partridge		
<b>Exotic Breed</b>			
28	Khaki-Compbell	29	Muscovu

#### Geese

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Lion Head	14	Yongkang Grey
2	Wanxi White	15	Minbei White
3	Yan	16	Lianhua White
4	Xupu	17	Xingguo Greyi
5	Zhedong White	18	Guangfeng Bailing
6	Sichuan White	19	Fengcheng Grey
7	Taihu	20	Baizki
8	Huoyane	21	Wugang Copper
9	Wuzong	22	Yangjiang
10	Lingxian White	23	Magang
11	Changle	24	Youjinag
12	Yili	25	Gang
13	Zi	26	Zhijin White

#### Other Fowls

No.	Breed Name	No.	Breed Name
<b>Exotic Breeds</b>			
1	Japanese Quail	7	Australia Emu
2	France Quail	8	Numida Meleagris
3	American King Pigeon	9	Nicolas Turkey
4	Africa Black Ostrich	10	Bronze Turkey
5	S.C. Massaicus	11	American Rainbow Fowl
6	S.C.Arustralis	12	Partridge

#### Cattle (*Bos Taurus*) and Zebu (*Bos Indicus*)

No.	Breed Name	No.	Breed Name
<b>Native Breeds</b>			
1	Qinchuan	27	Yunnan Humped
2	Nanyang	28	Tibetan
3	Luxi	29	Taihang
4	Jinnan	30	Dangjiao
5	Bohai Black	31	Xuzhou
6	Jiaxian Red	32	Ji'an
7	Jinan	33	Jinjiang
8	Pinglu Mountainous	34	Mengshan
9	Yanbian	35	Nandan
10	Fuzhou	36	Weizhou
11	Mongolian	37	Ganzhizang
12	Hazake	38	Liangshan
13	Zhoushan	39	Pingwu
14	Weiling Humped	40	Chuannan Muntainous
15	Taiwan	41	Wuchuan Black
16	Wannan	42	Liping
17	Guangfeng	43	Weining
18	Minnan	44	Dengchuan
19	Dabieshan	45	Diqing
20	Zhaobei	46	Zhaotong
21	Bashan	47	Lhasa
22	Wuling	48	Caidamu
23	Panjiang	49	Altay Whitehead
24	Leiqiong	50	Apeijiaza
25	Sanjiang	51	Rikaze Humped

26	Ebian Spotted	52	Zhangmu
<b>Developed Breed</b>			
53	China Holstein	56	Xijiang Brown
54	Sanhe	57	China Simmental
55	Red Steppe		
<b>Exotic breed</b>			
58	Holstein	64	Piemontese
59	Simmental	65	South Devon
60	Jersey	66	Lirnousin
61	Shorthorn	67	Angus
62	Hereford	68	Deutsches Gelbvien
63	Charolais	69	Red Dane

#### Water Buffalo

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Shanghai	13	Xinglong
2	Haizi	14	Fuzhong
3	Mountainous	15	Xilin
4	Weizhou	16	Fuling
5	Dongliu	17	Yibin
6	Fu'an	18	Dechang
7	Xinfeng Mountainous	19	Guizhou White
8	Xiajiang	20	Guizhou
9	Xinyang	21	Dehong
10	Enshi Mountainous	22	South-east Yunan
11	Jinghan	23	Yanjin
12	Binhu	24	Shannan
<b>Exotic breed</b>			
25	Murrah	26	Nili-Ravi

#### Yak

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Jiulong	7	Zhogdian
2	Qinghai Plateau	8	Pali
3	Tianzhu White	9	Sibu
4	Maiwa	10	Niangya
5	Tibetan High Mountain	11	Xinjiang
6	Muli		

#### Bibos frontalis

No.	Breed Name	No.	Breed Name
<b>Nativ Breed</b>			
1	Dulong		

#### Sheep

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Mongolian	17	Jingzhong
2	Tibetan	18	Wadi
3	Hazakh	19	Sishui
4	Ujumqin	20	Yuxi Large-tailed
5	Bayinbuluke	21	Taihang
6	Altay Fat-rumped	22	Weining
7	Hetian	23	Diqing
8	Guide Black Fur	24	Tengchong
9	Minxian Black Fur	25	Zhaotong
10	Tan	26	Hanzhong
11	Fat-tailed Han	27	Bashibai
12	Small-tailed Han	28	Cele
13	Tong	29	Kerkezi
14	Lanzhou Large-tailed	30	Tashikurgan
15	Hu	31	Duolang

16	Guangling Large-tailed		
<b>Developed Breed</b>			
32	Xinjiang Merino	37	Chinese Merino
33	North-east Merino	38	Chinese Karakul
34	Inner Mogonolia Merino	39	Yunna Semi-fine-wool
35	Ganshu Alpine Merino	40	Xinji Fine-wool
36	Aohan Merino		
<b>Exotic Breed</b>			
41	Charolais	46	Romney
42	Tsigai	47	German Mutton Merino
43	Corriedale	48	Suffolk
44	Lincoln	49	Poll Dorset
45	Australian Merino	50	Texel

#### Goats

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Tibetan	23	Daiyun
2	Xinjiang	24	Ganxi
3	Inner Mongolia Cashmere	25	Guangfeng
4	Hexi Cashmere	26	Yimeng Black
5	Liaoning Cashmere	27	Lubei White
6	Taihang	28	Funiu Wite
7	Zhongwei	29	Xiangdong Back
8	Jining Grey	30	Dou'an
9	Huanghuai	31	Baiyu Back
10	Shaannan White	32	Ya'an Dairy
11	Matou	33	Gulin Grey
12	Yichang White	34	Chuandong Whitet
13	Chengdu Grey	35	Fengqing Horn Down Black
14	Jiangchang Black	36	Guishan
15	Banjiao	37	Linchang Long-wool
16	Guizhou White	38	Longling
17	Longlin	39	Maguan Horn down
18	Fuqing	40	Yunling
19	Leizhou	41	Zhaotong
20	Yangtse River Delta White	42	Ziwuling Black
21	Chengde Horn down	43	Chaidamu
22	Lvliang Black		
<b>Develop Breed</b>			
44	Guanzhong Dairy	47	Nanjiang Grey
45	Laoshan Dairy	48	Shanbei White Cashmere
<b>Exotic Breed</b>			
49	Saanen Dairy	50	Boer

#### Horses

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Mongolian	13	Guizhou
2	Xini	14	Bose
3	Elenchus	15	Lichuan
4	Hequ	16	Jinjiang
5	Datong	17	Yongning
6	Chakou Post	18	Wenshan
7	Yanqi	19	Zhongdian
8	Kazakh	20	Ganzi
9	Balikun	21	Ningqiang
10	Tibetan	22	Yushu
11	Jianchang	23	Chaidamu
12	Yunnan		
<b>Developed Breed</b>			
24	Iyi	33	Shandan
25	Sanhe	34	Yiwu

26	Jinzhou	35	Xilinguole
27	Tieling Draught	36	Kerqin
28	Jiline	37	Henan Light Draught
29	Heilongjiang	38	Zhangbei
30	Guanzhong	39	Xiangfen
31	Bohai	40	New Lijiang
32	Heihe		
<b>Exotic Breed</b>			
41	Thoroughbred	45	Orlov Trotter
42	Achal-Teke	46	Ardennes
43	Don	47	Soviet Heavy Draught
44	Kabardin		

#### Donkey

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Guangzhong	12	Taihang
2	Dezhou	13	Linxian
3	Jinnan	14	Kulun
4	Guangling	15	Huaibei
5	Jiami	16	Subei
6	Biyang	17	Yunnan
7	Qingyang	18	Shanbei
8	Xinjiang	19	Tibetan
9	China North	20	Liangzhou
10	South-west	21	Qinghai
11	Yangyuan		

#### Camel

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Alashan Bactrian	3	Qinghai
2	Shunite Bactrian	4	Xinjiang Bactrian

#### Rabbit

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Sichuan White	3	Fujian Yellow
2	Wanzai	4	Yunnan Spotted
<b>Exotic Breed</b>			
5	Chinchilla	10	Denmark Long-wool
6	French Lob	11	German Angora
7	Belgian Hare	12	Fench Angora
8	New Zealand	13	Rex
9	Californian		

#### Spotted Deer

No.	Breed Name	No.	Breed Name
<b>Developed Breed</b>			
1	Shuangyang	3	Siping
2	Aodong		

#### Red Deer

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Northeast		
<b>Developed Breed</b>			
2	Qingyuan		

## Mink

No.	Breed Name	No.	Breed Name
<b>Developed Breed</b>			
1	Jinzhou Black		

## Nyctereutes Procyonoide

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Wushuli		

## Bee

No.	Breed Name	No.	Breed Name
<b>Native Breed</b>			
1	Zhong	3	Hunchun Black
2	East-north Black	4	Sinkang Black
<b>Exotic Breed</b>			
5	Kani Ela	9	Mei-I
6	Caucasian	10	Ao-Ie
7	Carlpakin	11	Anatolia
8	Italian		

## 7.3 Introduction on China's Native Domestic Animal Genetic Resources

### Pig

#### 1. Min (Large Min, Moderate Min, Small Min, Northeast Min)

**Distribution:** Heilongjiang, Jilin, Liaoning and Hebei provinces

**Population size:** Approximately 20,000 in 1982

**Major characteristics:** Head is moderate size, relatively straight long face, big and lop ears. The body is flat, with narrow back and loin, pitching rump and sound legs. The coat color of the breed is black, and accompanying true wool in the winter. Note the cold resistance ability, which characterizes the breed. The breed doesn't tremble at  $-28^{\circ}\text{C}$ , can normally fertilize and nurse at  $-15^{\circ}\text{C}$ . Adult males average weight is 195kg and female is 151kg. The prematurely order of the body is skeleton-muscle-skin-fat. Sows first estrus at age of 4 months and ovulate 14.86 follicles at age 9 months. The diameter of the follicle is 900-1000 micron. Min sows are excellently good mothers. The litter size is 11.04 piglets in the first litter, and 11.93 piglets, 13.54 piglets in the third, up-fourth parity respectively. The daily gain in the fattening period is 458g. The average dressing percentage is 72.5%. After body weight of 90kg, fat begins to accumulate, and lean meat starts to decelerate.

#### 2. Bamei (including Jingchuan, Huo and Huzhu pig)

**Distribution:** Gansu, Shaanxi and Qinghai Province; and Xinjiang Uygur Autonomous Region; Ningxia Hui Autonomous Region and Inner Mongolia Autonomous Region

**Population size:** Approximately 70,000 in 1981

**Major characteristics:** The head is fairly long and narrow with large, drooping ears. There are longitudinal "eight" (Chinese character) wrinkles in the forehead, so they are named "Bamei" pig, which include da-bamei, er-bamei and xiaohuozhu types, er-bamei is the intermediate type. They are black in color, and grow slowly. The weight of Da-bamei adult pigs on average is 103.7kg and 80kg for males and females, respectively, while er-bamei is 88.9kg and 60.7kg; and Xiaohuozhu 80.9kg and 55.8kg. Boars are used to mate when weight and age is up to 40kg and 10 months, respectively, while sows 45kg and 8 months. The litter size is 6.4 piglets in the first litter, and 12 piglets in up-third parity. The daily gain in the fattening period is 458g. The lean meat of carcass contains 22.6% protein. Loin-eye pH value is 6.7. Sows of the breed are excellent crossing dams.

#### 3. Huang-Huai-Hai Black (including Huai, Laiwu, Shenzhou, Mashen and Hetao Large-ear)

**Distribution:** Middle and lower reaches of the Yellow River, Huai River and Hai River valleys, including the north of Jiangsu and Anhui, Shandong, Shanxi, Henna and Hebei Provinces and the



Inner Mongolia Autonomous Region

**Population size:** More than 400,000 in 1982

**Major characteristics:** The breed has big-type body conformation with fairly large and drooping-ear, reaching the nose end. The snout is long and straight. The back and loin is flat and narrow, with pitching rump and sound legs. The coat color is black, with thick skin and condenses hair, accompanying reddish brown true wool. The Huai male adults pig Average weight is 140.6kg and females 114.9kg. The litter size is 9.2 piglets in the first litter, and 13 piglets in afterward litter. While the Shenzhou pig, Mashen pig, Laiwu pig and Hetao lop-ear pig is 150-200kg, 100-150kg, 10.1 piglets, 12.8 piglets; 121-154kg, 101-128kg, 10.5-11.4 piglets, 13.6 piglets; 108.9kg, 138.3kg, 10.4 piglets, 13.4 piglets and 149.1kg, 103kg, 8.5 piglets, 10.1 piglets respectively. Their daily gain in the fattening period is 251g, 434g, 450g, 359g and 325g respectively. The average dressing percentage is 72.8%, 70.2% and 67.3% for Shenzhou, Laiwu, and Hetao pig respectively. The lean meat percentage is 40.9% and 44.3% for Mashen pig and Hetao pig.

#### 4. Hanjiang Black (including Heihe, Shuihe, Tiehe, Tielu and Ankang pig)

**Distribution:** South of Shaanxi province and Hanjiang River Valley.

**Population size:** Approximately 400,000 in 1982

**Major characteristics:** The breed is classified big-ear type and small-ear type. The former is also classified “lion head” and “horse face” type. The “horse face” type has large body conformation, with fairly large head, long face, body and legs. The “lion head” type is short and wide, with lightly concaved face, suggestible, large and drooping ears, wide snout. The small-ear type seems smooth snout, small, thin and half-drooping ears. Average weight of male adults is 61.4 to 137.6kg and females 67 to 91.9kg. Early sex maturity and begins to be bred at the age of 4-5 months in the rural areas. The litter size is 8.33 piglets in the first litter, and 10 piglets in upward litter. The daily gain in the fattening period is 561g. The average dressing percentage is 66%. The ham ratio is 27.5%. The lean meat percentage is 49.3%. The diameter of muscle fiber is 42.4 micron. An evident heterosis is found.

#### 5. Yimeng Black (Yinanercha, Lunan)

**Distribution:** The border area of the Yinan, Yishui and Lunan Counties in the South of Linyi Prefecture, Shandong province,

**Population size:** Approximately 60,000 fertilized sows in 1978

**Major characteristics:** The breed is medium-framed: moderate-sized head, medium-sized, strong-root and inclined forward ears, short and slightly upper erect snout. There is “jinqian” wrinkles in its wide forehead. Note deep full chest, flat and wide back, sound legs. The coat color of the breed is black, covering ashen skin. It is classified large, intermediate and small types. Average weight of adult male is 199kg and female is 154.3kg. The litter size is 8.8 piglets in the first litter, and 10.8 piglets in afterward litter. The daily gain in the fattening period is 419-680g; the average dressing percentage is 76.3%. The back fat thickness is 4.6 cm. the lean meat percentage is 43.9%.

#### 6. Liang Guang Small Spotted (including Luchuan, Fumian, Gongguan, Huangtang, Zhongtong, Tang and Guixu)

**Distribution:** In the south part of the Xunjiang River and Xijiang River valleys bordered by Guangdong Province and Guangxi Zhuang Autonomous Region

**Population size:** Approximately 400,000 fertilized sows in 1981

**Major characteristics:** The breed has big-type body conformation, with “six short characters” --- the head, neck, ears, body, feet and tail. There is “<>” or diamond wrinkles and triangle white hair in the wide forehead. The ears are small and forward flatly extending ears. The back and loin are wide and concaved. The belly is large and reaching ground. The length of body is almost equal to the chest girth. The coat color of the breed is black and white; the rest part is white in addition to the black head, ears, back, loin and rump. Average weight of adult males is 103.2-130.9kg and females are 81-112kg. Early sex maturity and begin to be bred at the age of 2-3 and 4-5 months for males and females respectively. The litter size is 8.2 piglets in the first litter, and 10.4 piglets in third and up-third parity, while 12.5 piglets in breeding pig farms. The daily gain in the fattening period is 285-328g. The average dressing percentage is 67.6%. The lean meat percentage is 37.2%.

#### 7. Yuedong Black

**Distribution:** Huiyang, Raoping and Jiaoling counties in Guangdong province

**Population size:** Approximately 40,000 brood sows in 1981

**Major characteristics:** The breed has rectangle body conformation, with neat and trim head, wide and flat forehead, fairly small and inclined erect ears, lightly long and smooth snout, trim jowl. So the native people called it “hexia tou”. The back and loin are wide and concaved. The belly is lightly large but not reaching ground. The legs are straight, sound and moderately long. The coat color of the breed is black. Average weight of male adult is 74.9kg and female adult is 58.5kg. Early sex maturity. The litter size is 9.3 piglets in the first litter, and 11.3 piglets in third and up-third parity. The daily gain in the fattening period is 281g; the average dressing percentage is 70.3%. The lean meat percentage, fat and flare fat ratio for the carcass is 46%, 30.7% and 17.3% respectively.

#### **8. Hainan (including Wenchang, Dunchang and Lingao pig)**

**Distribution:** Wenchang, Dunchang and Lingao counties in Hainan Province.

**Population size:** Approximately 130,000 fertilized sows in 1979

**Major characteristics:** Note small head, lightly bended nose bridge, small-sized, thin, erect and lightly inclined forehead ears, short and blunt snout. The breed has plump body conformation, with lightly concaved back and loin, large and drooping belly, plump rump, wrinkled pastern. The coat color of the breed is mostly white and few black, with a wide black skin and hair stripe from head to tail. Average weight of female adult is 94.3kg. Early sex maturity and begin to estrus and be bred at the age of 15-20 days and 90 days for males, and females 3-4 months and 7-8 months respectively. The litter size is 9.5 piglets for two years old sow, and 12.2 piglets for three years older sow. The daily gain in the fattening period is 147-368g; the average dressing percentage is 69.4%. The back fat thickness is 4.2 cm between the sixth and the seventh ribs. The eye muscle area is 25.5 square cm. The lean meat percentage is 38.5%. An evident heterosis is found through Subai Pig.

#### **9. Diannan Small-Ear (including Libi, Mengle, Wenshan and Dehong small-ear pig)**

**Distribution:** Mengla, Ruili, Yingjiang and Wenshan areas in Yunnan Province

**Population size:** Approximately 160,000 fertilized sows in 1979

**Major characteristics:** The body conformation is short, with erect and flatly extended ears, wide back, plump body, thin skin and sparse hair. The color of the breed is primarily black, following six white spot, black, white and brown. It is classified large, intermediate and small types. The small type pig is also called “slender bone” pig; “wax gourd” pig and “oil-gourd” pig, with small head, flat forehead, fat and deep neck; lightly long snout, short and straight legs and sound hooves. Large type Average weight of male adults is 64.2kg and females 76kg, while small type 39.6kg and 54.3kg respectively. Early sex maturity. Males begin to be bred at the age of 90 days and females at the age of 4 months. The litter size is 7.7 piglets in the first litter, and 10.1 piglets in the upward litter. The daily gain in the fattening period is 220g; the average dressing percentage is 74%. The lean meat percentage and fat for the carcass is 31% and 53%, respectively.

#### **10. Lantang**

**Distribution:** Zijin county, Guangdong province and distributing over 30 counties or cities including Haifeng, Jiexi, Lufeng, Wuhua counties, etc.

**Population size:** Approximately 45,000 in 1981

**Major characteristics:** Note the moderate-sized head, flat and upward snout, tangle or diamond wrinkles, small, erect and thin ears. The body is deep, ample stretch, short, with lightly concaved back, large belly, flat rump and short legs. The coat color of the breed is unanimous, the down half of the body side, belly and legs are white, which account for half of the body, and the boundary is mostly flat. Average weight of male adults is 127kg and female is 85.5kg. The litter size is 8.1 piglets in the first litter, and 11-16 piglets in third and up-third parity. The daily gain in the fattening period is 397g; the average dressing percentage is 65.5%. The back fat thickness is 5.3 cm. The eye muscle area is 19.5 square cm. The ham ratio is 24.6%. The flare fat ratio is 17.2%. The lean meat percentage and fat for the carcass is 35.2% and 47%, respectively. An evident heterosis is found.

#### **11. Xiang (including Jiangxiang and Huanjiang xiang pig)**

**Distribution:** Congjiang County, Guizhou Province; Huanjiang County, Guangxi Zhuang Autonomous Region

**Population size:** Approximately 35,000 in 1983

**Major characteristics:** The body conformation is small, with lightly straight head, small, thin and lightly extended forward or lightly drooping ears, wide and lightly concaved back, large, reaching ground

belly, plump and sleeping pastern, short and trim legs. The coat color of the breed is primarily black, but occasionally with six white points. The males grow slowly. The body weight on average 7.87kg and 16.02kg at the age of 4 and 6 months for males, and females 11.08kg and 26.29kg respectively. Average weight of female adult is 41.1kg. Early sex maturity and begin to be bred at the age of 170 days and 120 days for males and females respectively. The litter size is 4.5 piglets in the first litter, and 5.7 piglets in third and up-third parity. The daily gain in the fattening period is 397g under better-feed condition. Xiang pig has good fattening ability, is apt to be slaughtered at the early period. The average dressing percentage is 65.7%. The back fat thickness is 3 cm. The eye muscle area is 12.7 square cm. The lean meat percentage is 46.7%. The meat is delicious and used to make preserved ham and roast suckling pig.

## 12. Longlin

**Distribution:** Longlin County, Guangxi Zhuang Autonomous Region

**Population size:** Approximately 10,000 sows in 1987

**Major characteristics:** The breed is large body conformation, long body, moderate-sized head, and lightly large and concaved snout. There is transverse wrinkle in the forehead, which is protruding and seems like lion head. The back is flat and straight. The belly is large and not reaching ground. The longli pig is six white spotted, black, brown and “spotted belly” in color. Average weight of male and female adults is 122kg and 130g. The breed begins to be bred at the age of 4 months and 6-8 months for males and females respectively. The litter size is 6.4 piglets in the first litter, and 8.5 piglets in third and up-third parity. The daily gain in the fattening period is 629g under high energy and protein condition. The average dressing percentage is 75.1%. The lean meat percentage of carcass is 35.7%.

## 13. Huai

**Distribution:** Mountain region of Minxi in Fujian province

**Population size:** Approximately 450,000 in 1982

**Major characteristics:** The head is short and wide, with distinctive transverse wrinkles in the forehead, small and erect ears, short body, wide and deep chest, wide and concaved back, large and drooping ears, sleeping pastern, black coat color. It is classified into “large-boned” type and “trim-boned” type. The former is large body, with rough bone; lightly flat back and larger litter size. While the latter is short body, with trim bone, also lightly flat back, early fattening ability, and higher curability. Average weight of male adults is 62.3kg and female is 65.2kg. Early sex maturity and begin to be bred at the age of 6 months and 6-8 months for males and females respectively. The litter size is 5.6 piglets in the first litter, and more than 9 piglets in third and up-third parity. When crossing with Yorkshire, an evident improvement of the lean percentage, dressing percentage and feed conversion rate is found. The average dressing percentage is 66.2%. The eye muscle area is 17.8 cm<sup>2</sup>.

## 14. Wuzhishan (also named Shan, Mouse)

**Distribution:** Wuzhishan mountain region of Hainan province

**Population size:** Approximately 600 breeding pigs in 1983

**Major characteristics:** The breed has small body conformation, with fine and tight constitution, with small and long head, small and erect ears, smooth and lightly bended snout, narrow chest, flat and straight back, undraping belly, steep rump, and trim long legs. The coat color of the breed is mostly black, and the belly and the inside of the legs are white, the mane is black or brown. Average weight of female adult is 30-35kg. When about 30 days after weaning, the piglet shows estrus sign. It can be bred at the age of 3-4 months. The litter size is 4 piglets in the first litter, and 6-8 piglets in afterward litter. The male piglet has sexual behavior at the age of 1-1.5 months, so it is slaughtered after mated.

## 15. Ningxiang

**Distribution:** Caochong and Liusha River region in Ningxiang county, Hunan province

**Population size:** Approximately 150,000 sows in 1980

**Major characteristics:** The breed has moderate body conformation, with medium-sized head, different shape and depth transverse wrinkle, fairly small and lop ears, short and stout neck, wide and concaved back, arched ribs, large and drooping belly, short and rough legs, unclamp rump, sleeping pastern, monkey-like hooves. The coat color of the breed is black and white. It is classified to three types according to head size, including lion head, Uzi head and kanji head. The amount of ovulation is 17.2. The litter size is 10.1 piglets in third and up-third parity. The daily gain in the fattening period is 368g. The feed conversion ratio is fairly high. It is apt to be slaughtered when the weight reaches to 75-80kg. The average

dressing percentage is 70.2%. The back fat thickness is 4.6 cm. The eye muscle area is 12.7 cm<sup>2</sup>. The lean meat percentage is 46.7%. The eye muscle area is 18.42 square cm. The lean meat percentage is 34.7%. An evident heterosis is found when the breed is used as female parent.

**16. Huazhong Two-End-Black** (including Jianli, Tongcheng, Shaziling, Ganxi two-end-black and Dongshan pig)

**Distribution:** Hubei, Hunan and Jiangxi provinces and Guangxi Zhuang Autonomous Region and the mid-reach of the Yangtze River and broad areas south of the Yangtze River

**Population size:** Approximately 250,000 sows in 1980-1982

**Major characteristics:** The “lion head” type note the short and wide head, deep and diamond shaped wrinkles in the forehead. While the “wanzi head” or “you-snout” type note the long and straight head, shallow and trim wrinkles. The ears are medium-sized and drooping. The legs are fairly strong, but mostly sleeping pastern because of reared in pens. The coat color of the breed is “two-end-black, and middle-white”. They grow quickly before the age of 6 months. Average weight of male adults is 98.9kg and females 92.5kg. The amount of ovulation is on average 19. The litter size is 7.8 piglets in the first litter, and 11.3 piglets in the third and up-third parity. The daily gain in the fattening period is 413-428g under middle feeding condition. The average dressing percentage is 71.1% when the weight is 75kg. The lean meat percentage is 41-44%. An evident heterosis is found, and the lean percentage, dressing percentage and feed conversion rate are evidently improved.

**17. Xiangxi Black** (including Taoyuan black, Pushi black and Daheping pig)

**Distribution:** Middle and lower reaches of Yuanjiang River in Hunan province

**Population size:** Approximately 60,000 sows in 1982

**Major characteristics:** The breed is large-framed with strong constitution, and classified into long head type and short head type. There are ununiform depth of “介” or “八” Chinese character wrinkles in the forehead. The ears are drooping. The body side is lightly long, with flat and wide back, large but not reaching ground belly, lightly pitching rump, strong and straight legs. The coat color of the breed is black. Average weight of male adults is 113.3kg and females 85.3kg. Early sex maturity and begin to show estrus sign at the age of 4-6 months and 3-4 months for males and females respectively. The litter size is 6.8 piglets in the first litter, and 11 piglets in afterward litter. The daily gain in the fattening period is 280-300g; the average dressing percentage is 73.2%. The eye muscle area is 21.5 square cm. The ham ratio is 24.2%. The lean meat percentage is 41.6%.

**18. Daweizi**

**Distribution:** Suburbs of Changsha City and Nantuo area of Changsha County in Hainan province

**Population size:** Approximately 13,000 fertilized sows in 1980

**Major characteristics:** The breed has moderate body conformation, with neat and trim head, medium-sized and drooping ears, which seem to be a Chinese character of “八”, so native people call it “butterfly ear”. According to the size of the head, the breed is classified into long head type and short head type. The former is locally named “yanji head”, with narrow forehead, superficial wrinkles, round and trim snout. While the latter is named “shouzi head”, with wide forehead, deep wrinkles, rough and trim snout, lightly concaved face. Note the wide and deep chest, wide and lack-arched back, and large and lightly drooping belly. The fore quarters are higher than the hindquarters. The coat color is black, with white hooves. Average weight of male adults is 106.9kg and females 80.9kg. The litter size is 8.7 piglets in the first litter, and more than 12.3 piglets in third and up-third parity. The milk yield is 31.4kg. The daily gain in the fattening period is 384g in the country. The average dressing percentage is 67%. The back fat thickness is 4.2 cm and the eye muscle area is 22.2 square cm. The ham ratio is 26.5%. The lean meat percentage is 40.7%.

**19. Large Black-White** (including Large spotted black, Guangdong large black-white, Jinli, Meihua, Liangcun, Sibao and Nipo pig)

**Distribution:** Distributed in over 42 counties or cities located in north and central of Guangdong Province.

**Population size:** Approximately 440,000 sows in 1979

**Major characteristics:** The breed has moderate body conformation, with large and drooping ears; mostly there are transverse wrinkles in the forehead. The back is lightly wide and lack-arched, and the belly lightly large. The coat color of the breed is black and white, with white belly and legs. Average

weight of male adults is 133.3kg and females 110.8kg. The litter size is 11.9 piglets in the first litter, and more than 13.8 piglets in third and up-third parity, about 96.2% piglets are able to survive. The daily gain in the fattening period is 519g under better condition. The average dressing percentage is 70.7%. The eye muscle area is 18.1 square cm. The lean meat percentage is 43.2%. A high combining ability is found.

**20. Jinhua** (also named Two-end-black and Jinhua two-end-black pig)

**Distribution:** Dongyang county of Jinhua prefecture in Zhejiang province

**Population size:** Approximately 63,000 brood sows in 1980

**Major characteristics:** The breed has moderate body conformation, with medium-sized and drooping ears (not reaching snout), thick and short neck. The back is lightly concaved, and the belly large and lightly drooping, the rump lightly pitching, slender and short legs, the hooves strong and jade greened color. The coat color of the breed is “two end black and middle white”. According to the size of the head, the breed is classified into large, medium and small types. Average weight of male adults is 112kg and females 97kg. The males and females usually are used as breeders at the age of 5 months. The litter size is 13-14 piglets in third and up-third parity. The daily gain in the fattening period is about 460g. The average dressing percentage is 71.7%. The skin thickness is 0.33 cm. The eye muscle area is 19.1 square cm. The ham ratio is 30.9%. The lean meat percentage is 43.4%. High flare fat ratio and little subcutaneous fat are the characteristics of the breed.

**21. Longyou Black**

**Distribution:** Longyou, and Zhangshutan Districts of Quzhou city in Zhejiang province

**Population size:** Approximately 21,000 brood sows in 1980

**Major characteristics:** The breed has moderate body conformation. According to the size of the head, the breed is classified into lion head and mouse head types. The former is noted dished face, short head, wide forehead, short and lightly upward snout, deep and numerous wrinkles, large and heavy lop ears, short and plump neck, wide, lightly long and dished loin. The latter is characterized smooth snout, neat and straight face, little and shallow wrinkles, lightly long legs, flat and straight loin, small-sized ears. The common characteristics are medium-sized belly, lightly pitching rump, short and slender legs, strong hooves, and black coat color. Average weight of male adults is 98kg and females 80kg. The litter size is 8-9 piglets in the first litter, and more than 12-13 piglets in third and up-third parity. The daily gain in the fattening period is 454g. The average dressing percentage is 73.2% when the weight is up to 72kg. The back fat thickness is 4.5 cm. The eye muscle area is 18.6 square cm. The fat ratio is 36.3%. Early maturity, high fat ratio in carcass and high fat content in muscle are the characteristics of the breed.

**22. Minbei Spotted** (including Xiamao, Yangkou and Wangtai pig)

**Distribution:** Shaxian, Shunchang, Nanping, Jianyang, Longxi and Sanming counties and Yong'an and Jian'ou cities of Fujian province

**Population size:** Approximately more than 30,000 sows in 1982

**Major characteristics:** The head is medium-sized. There are ununiform depth and shape wrinkles in the forehead. The ears are drooping and inclined forward, and the neck short and thick, the back wide and dished, the belly large and drooping, the rump wide and lightly pitching, the hair sparse and short. The coat color is not uniform: some are black except legs, belly and tail are white; some are white at the chest, belly, shoulders, legs and tail; some are white belt around the neck. The females grow quickly before the age of 6 months. Average weight of male adult is 83.9kg and that of female is 78.1kg. The males reach sexual maturity early and begin to be bred at the age of 6 months. The litter size is on average 7.5 piglets in the first litter, and 8.3 piglets in afterward litter. The daily gain in the fattening period is 300g. The average dressing percentage is 75.2%. The back fat thickness is 5.7 cm. The ham ratio is 23.9%. The flare fat ratio is 8.9%. The lean meat percentage and fat for the carcass is 41% and 38.5%.

**23. Shenxian Spotted** (including Furong, Xinchang, Zhangzheng and Jiangyan-bridge pig)

**Distribution:** Shenxian and Xinchang counties of Zhejiang province

**Population size:** Approximately 22,500 boars in 1980

**Major characteristics:** The head is medium-sized, with thick, large and drooping ears, lightly dished face. The chest is deep. The back is flat and straight, the belly is drooping, the legs are sturdy and short, and the body skin is wrinkled. The coat color of the breed varied from black, large spotted to six white points. The weight at the age of 6 months and body length are on average 39.1kg and 136 cm, while female's 40.9kg and 107.5 cm. Early sex maturity. The litter size is 7.6 piglets in the first litter, and 15.4

piglets in third and up-third parity. The daily gain in the fattening period is about 257g in the country. The average dressing percentage is 70%. The lean meat percentage is 45%. Different degree heterosis is found.

24. **Leping** (also named Gan-northeast Spotted pig)

**Distribution:** Jiedu, Wokou, Gugang regions of Leping County in Jiangxi province

**Population size** Approximately 13,000 sows in 1980

**Major characteristics:** The head is large, with wide forehead, deep wrinkles, large and drooping ears, short and upward snout, thick and short neck. The back is flat and straight, and the belly large and upward arched, the rump lack plumpness, sturdy legs, and the hooves strong, hard and jade greened color. The coat color of the breed is black and white spotted. Average weight of male adults is 109kg and females 114kg. The litter size is 6.8 piglets in the first litter, and 10.9 piglets in third and up-third parity. The daily gain in the fattening period is about 64.8g. The average dressing percentage is 71.7-73.9%. The eye muscle area is 19.8-22.3 square cm. The carcass percentage is 38.4-43.12%. The fat percentage is 43.4%.

25. **Hang** (also named Hangkou, Shanghang, including Daxiang, Lianhua and Wuning Spotted)

**Distribution:** Hangkou, Shanghang districts of Xiushui County in Jiangxi province

**Population size:** Approximately 11,000 sows in 1981

**Major characteristics:** The breed has moderate body conformation and loose constitution. According to the head type, the breed is classified into "lion head" type and "dog head" type. The former is locally named "bagua face", with lightly dished forehead, short snout, many deep wrinkles in the face. While the latter with long and straight snout, lightly long neck, medium-sized ears, lightly concaved loin, large belly, rough legs and sleeping pastern. The coat color is "black cloud covering white snow". Average weight of male adults is 117.9kg and females 134.6kg. The breed reaches to sexual maturity early, and begin to be bred at the age of 8.5-10 months, in the country 5-7 months. The litter size is 8.3 piglets in the first litter, and more than 10.6 piglets in third and up-third parity. The daily gain in the fattening period is about 300g in the rural areas. The average dressing percentage is 68-70%. Under better-feed conditions, the former two indexes are 477g and 71.7-75.2%, respectively.

26. **Ganzhongnan Spotted** (including Chayuan, Guangchao and Zuo'an pig)

**Distribution:** Taihe, Xingguo and Wan'an counties of Jiangxi province

**Population size:** Approximately 13,000 brood sows in major producing area in 1982

**Major characteristics:** The breed is medium-framed. The head is medium-sized, with wide and lightly dished forehead, medium-sized, thin and drooping ears, lightly dished face, diamond shape wrinkles. The back is lightly dished, and the belly large and round, the rump lightly pitching. The coat color of the breed varied from "black cloud covering snow", "three spotted points" to "spotted neck". Average weight of male adults is 110kg and females 100.7kg. The litter size is 7.8 piglets in the first litter, and 10 piglets in upward litter. The daily gain in the fattening period is about 436g. The average dressing percentage is 71.8%. The lean meat percentage is 37.9% and fat percentage is 38%.

27. **Yujiang** (including Yushan black, Guangfeng black and Jiangshan black)

**Distribution:** Yushan county of Jiangxi province and Jiangshan county of Zhejiang Province

**Population size:** Approximately more than 50,000 in 1981

**Major characteristics:** The breed has small body conformation and loose constitution, with medium-sized and drooping ears, wide short upward snout, short and plump neck, wide and lightly concaved loin, medium-sized belly, lightly plump and pitching rump, short and sturdy legs. The coat color is black. Average weight of male adults is 84.2kg and females 75.6kg. The litter size is 8.56 piglets in the first litter, and 11.6 piglets in third and up-third parity. The daily gain in the fattening period is 290-362g. The average dressing percentages is 70-75%. The back fat and skin thickness is 4.5-5.5 cm and 0.38-0.5 cm respectively. The lean meat percentage is 37.2%. The daily gain and the lean meat percentage are all improved under the condition when the breed is used as crossing sows.

28. **Wuyi Black** (including Minbei black and Gandong black)

**Distribution:** Counties at the foot of Wuyi Mountain, Nancheng county of Jiangxi Province and Pucheng county of Fujian province

**Population size:** Approximately 300,000 in 1982

**Major characteristics:** The head is medium-sized, with thick, medium-sized inclined forward ears, long lightly dished face, and short neck. The back is flat and straight or lightly concaved, and the legs are

sturdy and slender. The coat color of the breed varied from black, murky gray to six white points or incomplete six white points. Weight on average of males 90.16kg and females 89.8kg. Early sex maturity. The litter size is 7.4 piglets in the first litter, and 9.8 piglets in third and up-third parity. The daily gain in the fattening period is 200-300g in the country. The average dressing percentage is 72%. The back fat and skin thickness is 4.8 cm and 0.38 cm respectively. The eye muscle area is 22.6 square cm. The lean meat percentage and fat for the carcass is 42.6% and 42.2%.

### 29. Qingping

**Distribution:** Distributed in Yuxi, Longque, Guangdong and Cihua counties along the Qingping River in Hubei Province, distributing in Dangyang and other neighboring counties

**Population size:** Approximately 40,000 brood sows in 1981

**Major characteristics:** The breed has moderate body conformation and fine and strong constitution. The forehead is narrow, neat and trim. There are shallow longitudinal wrinkles in the forehead. The ears are medium-sized and drooping. The snout is long and straight, but some lightly upward. The back is flat and straight, the belly medium-sized, the rump neatly turned (but some drooping rump), the ham lack plumpness, the bones are trim, and the hind legs sleeping pastern. The coat color of the breed is black. The replacement piglets grow quickly after the age of 6-10 months. The boars weight on average 131.3kg and sows 103.2kg. The pregnancy duration is on average 110 days. The litter size is 9.4 piglets in the first litter, and 12.1 piglets in third and up-third parity. The daily gain in the fattening period is about 500g. The average dressing percentage is 69.7%. The eye muscle area is 17.1 cm<sup>2</sup>. The lean meat percentage and fat of carcass is 41% and 41.7%, respectively.

### 30. Nanyang Black (also named Wanxi-bamei and Shigang)

**Distribution:** Neixiang, Zhechuan, Zhenping and Dengxian Counties in the west part of Nanyang Prefecture, Henna Province

**Population size** Approximately 10,000 breeding sows in 1983

**Major characteristics:** The breed has moderate body conformation. According to the head type, the breed is classified into “wood-bowl head” type and “cucumber head” type. The head is short. The ears are large and heavy drooping. The back is long and straight. The back is flat and straight, the belly large and not drooping, the rump short, wide and lightly pitching, the legs fine and sturdy built. The coat color of coat and skin is black and gray respectively. Average weight of male adults is 136.9kg and females’ 130.4kg. The females show estrus sigh at the age of 121 days. The litter size is 7 piglets in the first litter, and 9-11 piglets in afterward litter. The daily gain in the fattening period is about 385g. The average dressing percentage is 71.7%. The back fat thickness is 3.3 cm. The eye muscle area is 21.8 square cm. The ham ratio is 25.9%. The flare fat ratio is 7.5%. The lean meat percentage is 47.5%.

### 31. Wanzhe Spotted (including Wannan spotted and Chun’an spotted)

**Distribution:** Lantian and Nantang Districts of Xiuning County of An’hui province and Chun’an county of Zhejiang province

**Population size:** Approximately 18,000 fertilized sows in 1981

**Major characteristics:** The breed has moderate body conformation. The head is large, with medium-sized and drooping ears. There are wrinkles in the forehead. The back is flat and straight, and the belly large and not drooping, the coat color of the breed is black-white spotted, the snout, leg-ends, chest and the belly is lightly white. And the head and rump black, and there is different shaped and sized white hair in the forehead. It is classified into lion-head type, horse-face type and stake-head type. Average weight of female adult is 94.4kg. The females reach to sex maturity early and begin to be bred at the age of 4-5 months. The litter size is 6.7 piglets in the first litter, and 10.9 piglets in third and up-third parity. The daily gain in the fattening period is about 150-250g in the rural areas. The average dressing percentage is 68.7%. Some daily gain heterosis is found on hybrid F1.

### 32. Putian

**Distribution:** Putian and Xianyou Counties and northwest Fuqing County, Fujian province

**Population size:** Approximately 35,000 sows in 1986

**Major characteristics:** The breed has moderate body conformation. The head is lightly long, with medium-sized, thin, peach-shaped and inclined forward ears, lightly dished face. There are deep and diamond-shaped wrinkles in the forehead. The neck is medium-length and long body. The back is flat or dished, and the belly round, large and drooping, the hindquarters lack plumpness, the legs lightly long. The

hair is sparse and the color is murky gray. Average weight of male adults is 126.4kg and females 77.4kg. The litter size is 6-7 piglets in the first litter, and 13 piglets in upward litter. The daily gain in the fattening period is about 311g. The average dressing percentage is 69.9%. The lean meat percentage is 42.1%. The fat ratio is 36.4%.

### 33. Fuzhou Black

**Distribution:** Suburb of Fuzhou city in Fujian province, distributing in coastal area of Fujian Province and both banks in the lower reaches of the Minjiang River

**Population size:** Approximately 9,000 breeding pigs in 1978

**Major characteristics:** The breed has moderate body conformation. The head is medium-sized, with large and drooping ears, deep and diamond-shaped wrinkles, long and lightly dished face. The chest is deep. The back is flat and straight or lightly concaved. The belly is large and lightly drooping. The rump is lightly pitching. And the legs are sturdy and slender. The coat color of the breed is murky gray and the skin is lightly coarse. Average weight of male adults is 188kg and females 172.8kg. The litter size is 10.2 piglets in the first litter, and 12.2 piglets in third and up-third parity. The daily gain in the fattening period is 400-500g. The average dressing percentages is 72%. The back fat thickness is 3-3.5 cm. The eye muscle area is 21-25 cm<sup>2</sup>. The lean meat percentage and fat for the carcass is 47.2% and 32.5%.

### 34. Taihu (including Erhualian, Meishan, Fengjing, Jiaxing black, Hengjing, Mi and Shawutou)

**Distribution:** The breed is primarily distributed the lower reaches of Yangtze River and the Taihu Drainage area—the boundary area of Jiangsu and Zhijiang provinces and Shanghai Municipality

**Population size:** Approximately more than 600,000 breeding pigs in 1980

**Major characteristics:** The breed has moderate body conformation. There are differences among types. Meishan pig is larger and the bones are strong; while Mi Pig the bones fine and tight built; the other four types are intermediate ones. The head is large, wide and wrinkled forehead, heavy large, soft, and drooping ears. The color of the breed is black or murky gray. Average weight of male adults is 128-192kg and females 102-172kg. The reproductive efficiency is high which is characterized the breed. The litter size is 12 piglets in the first litter, and 15.8 piglets in third and up-third parity. The amount of ovulation is 25-29 follicles every time. The average milk yield of 60 days is 311.5kg. The daily gain in the fattening period is more than 430g. The average dressing percentage is 65-70%. The lean meat percentage for Erhualian Pig is 45.1%. The eye muscle area is 15.8 cm<sup>2</sup>.

### 35. Jiangquhai (including Dalunzhaung, Qvtang and Hai'antuan)

**Distribution:** Hai'an and Taixian counties of Jiangsu province

**Population size:** Approximately 95,300 sows in 1980

**Major characteristics:** The head is short, with medium-sized and drooping ears, thin skin and sparse hair. The body and the legs are short. The belly is large and drooping. The mouth of some individuals is white spotted, called "spotted nose". The coat color of the breed is black. Average weight of male adults is 156.4kg and females 141.4kg. The litter size is 10 piglets in the first litter, 12.1 piglets in the second parity, and 13.5 piglets in third and up-third parity. The daily gain in the fattening period is about 464g under better-feed condition. The average dressing percentage is 66.4%. The lean meat percentage is 40%. The eye muscle area is 22.3 cm<sup>2</sup>.

### 36. Dongchuan

**Distribution:** East part of Taixing county, southwest Rugao County and Liuqiao area of Nantong County in Jiangsu province

**Population size:** Approximately more than 20,000 sows in 1980

**Major characteristics:** The breed has large body conformation. It is classified into "lion head" and "horse face" types. The head and face of the former are shorter than the latter ones. The former has plump and large constitution, the ears large and drooping, the back flat and straight or lightly arched, the body long, the legs long, straight pastern, and the tail up setting. There are deep rumples in the inside of the ham for the adult pig. The coat color of the breed is black. The breed reaches sex maturity late. Average weight of male adults is 157.5kg and females 138.9kg. The litter size is 10.6 piglets in the first litter, and 14.2 piglets in third and up-third parity. The daily gain in the fattening period is about 335g. The average dressing percentage is 66.9%. The back fat thickness is 3.2 cm.



### 37. Hongqiao

**Distribution:** Hongqiao area of Leqing County in Zhejiang Province

**Population size:** Approximately only 8,400 sows in Leqing County in 1980

**Major characteristics:** The breed has moderate body conformation. The head is medium-sized, and neat. The forehead is narrow and there are deep transverse wrinkles. The ears are large and drooping. The neck and chest are short and deep. The back is wide and lightly concaved, the loin long, the hindquarters high, the belly loose and drooping, the rump lightly pitching, the legs short, the gambrels close. The coat color of the breed is black and the skin wrinkled. Average weight of female adult is 93.7kg and males 81.7kg at the age of 1-2 years old. The litter size is 7.3 piglets in the first litter, and 12 piglets in third and up-third parity. The daily gain in the fattening period is about 454g. The average dressing percentage is 69.3%. The meat percentage is 36.1%. The fat for the carcass is 47.6%.

### 38. Wei (also named Wannan Black and Xuancheng Pig)

**Distribution:** Yicheng prefecture of Anhui Province

**Population size:** Approximately 3,000 pigs in 1981

**Major characteristics:** The breed has moderate body conformation and uniform and fine constitution. The head is medium-sized, there are disorder and different depth wrinkles, some are called "herring head", and some called "lion head". The former is more than the latter, with large, suggestible drooping forward ears. The chest is wide; the back lightly concaved, the females belly large and drooping, mostly reaching ground in the rear-gestation period. The color is black. Weight on average of male is 7kg and females' 2.12kg at age of 6 months. The litter size is 8.3 piglets in the first litter, and 12.1 piglets in third and up-third parity. The daily gain in the fattening period is about 244g in the country. The average dressing percentage is 70.6%. The eye muscle area is 20.02cm

### 39. Yangxin

**Distribution:** The central producing area is located in Mugang, Cengguan and Fenglin areas of Yangxin County, Hubei province

**Population size:** Approximately 10,000 adult females in 1982

**Major characteristics:** The breed has moderate body conformation. It is classified into "lion head" and "trunk head" types. The former head is short and wide, with many deep diamond-shaped wrinkles, upward setting snout, while the latter long and small head, long snout. The breed has large and drooping ears, the back lightly concaved, the belly large and not reaching ground, the rump pitching, the legs strong, the hooves sturdy. The coat color of the breed is black wholly or white spotted forehead and belly, the end of the nose and legs. Average weight of male adults is 128.2kg and female's 94.3kg. The piglets grow quickly during the suckling period, and slowly at the age of 4-6 months, but after mating quickly too. The litter size is 10 piglets in the first litter, and 11.65 piglets in third and up-third parity. The daily gain is about 375-438g when the weight is 25-50kg. The average dressing percentage is 71.7%. The eye muscle area is 24.5 square cm and the skin thickness is 0.48 cm. The lean meat percentage and fat for the carcass is 44.5%. To the filial-generation, the daily gain is about 500g.

### 40. Taiwan (including Taoyuan, Meinong, Dingshuangxi meinong, Red small-ear and Black small-ear pig)

**Distribution:** Taiwan Province

**Population size:** Approximately 50,000 breeding pigs in 1986

**Major characteristics:** The head is short and large, with large and drooping forward ears, wrinkled forehead and flank. The back is narrow and lightly dished, the ribs mostly straight, and the belly large and drooping (not reaching ground), the rump pitching, the legs are weak and sleeping pastern, the body skin is thick. The coat color of the breed is black wholly. The males weight 99.4kg and females 79.2kg at the age of 12 months. The litter size is on average 6-10 piglets for the first-farrow gilt. The gestation period is 116.4 days for Taoyuan Pig. The weaning weight of litter is 40-55kg, and 2 litters every year. The daily gain in the fattening period is about 332-341g. The averages dressing percentage is 81.9%. The lean meat: the fat ratio is 30:40 for the carcass. The combining ability is high.

### 41. Neijiang

**Distribution:** Neijiang County of Neijiang City, Sichuan province

**Population size:** Approximately 125,000 breeding pigs in 1981

**Major characteristics:** The breed has moderate body conformation and loose constitution. The head is large with short snout. There is deep transverse wrinkles seemed like chimb and the skin up heaved. The

ears are medium-sized and drooping. The body is wide and deep. The back is lightly concaved, and the belly large, the rump square and lightly inclined backward, the legs strong, the skin thick. There are deep rumples in the body sides and hind legs for the adult boars, called “wagou” or “taoku”. The coat color of the breed is black. Average weight of male adults is 169.3kg and females 154.8kg on the farm. The fat deposits early, and the gaining ability are high. The mature females ovulate on average 11-18 follicles. The litter size is 9.4 piglets in the first litter, and 10.4 piglets in third and up-third parity. The milk yield of 60 days is 186.8kg. The daily gain in the fattening period is about 662g under better-feed condition. The back longest muscle contains water 71.4%. The average dressing percentage is 67.5%. The eye muscle area is 17.6 square cm.

#### 42. Rongchang

**Distribution:** It is originated in Rongchang County of Chongqing Municipality and Longchang County of Sichuan Province. Distributing in Yongchuan, Luxian, Hejiang, Naxi, Dazu, Tongliang and other counties or cities

**Population size:** Approximately 150,000 breeding sows in 1982

**Major characteristics:** The breed is described as follows: large uniform body conformation, long body, medium-sized head, lightly dished face, medium size and drooping ears, transverse wrinkles, swirls, slightly concaved back, large and deep belly, slightly pitching rump, fine and strong legs. The coat color of the breed is almost white except of eyes circumambience, individually with white or spotted tail root and body, so the breed is classified into “jinjiayan”, “black eye orbit” and “black-head”. Average weight of male adults is 98.1kg and females 86.8kg in the country. The litter size is 8.6 piglets in the first litter, and 11.7 piglets in third and up-third parity for selected herd. The milk yield of 60 days is 286.5kg. The daily gain in the fattening period is about 263g under no restricted ration condition. It is apt to be slaughtered at the age of 7-8 months, and the weight is about 80kg. The average dressing percentage is 69%. The lean meat percentage is 42-46%. The meat seems bright red with clear marbling. The heterosis is evident, and can improve the lean percentage.

#### 43. Chenghua

**Distribution:** Central of Chengdu plain, Sichuan Province. The central producing areas is Jinniu, Shuanliu, Bei and Wenjiang Counties in Sichuan Province

**Population size:** Approximately 70,000 breeding pigs in 1976

**Major characteristics:** The breed has small body conformation. The breed is described as follows: slightly rectangle head, few and superficial wrinkles, small size and drooping ears (is called “jinqian ear”), wide and slightly concaved back, round and slightly drooping belly, plump rump, lightly short legs. The coat color of the breed is black. Average weight of male adults is 148.9kg and females 128.9kg, but 78.0kg for females in the country. The breed reaches sexual maturity early, and can be bred at the age of 3-4 months and 6-8 months for males and females respectively. The adult females on average ovulate 15-21 follicles. The litter size is on average 10.7 piglets in second and up-second parity. The milk yield for whole suckling period is 196kg. The daily gain in the fattening period is about 535g. The average dressing percentage is about 70%. The lean meat percentage is 41.2-46.1%. The longest muscle contains water about 63.9%. The meat seems bright red with clear marbling. The heterosis is evident, and can improve the lean percentage, which is up to 57% for Hampshire × (Landrace × Chenghua) cross combination.

#### 44. Yanan

**Distribution:** Yanan, Danleng, Qiulai and Rongxian counties of Sichuan province

**Population size:** Approximately 70,000 breeding pigs in 1978

**Major characteristics:** The breed is described as follows: large uniform body conformation, slightly long and narrow body, long snout, flat and straight back, lightly pitching hind legs, lack plumpness rump, large belly, slightly pitching rump, black color. Average weight of male adults is 95.7-138.3kg and females 74.4-139.4kg. Early sex maturity and begin to be bred at the age of 3-5 and 5-7 months for males and females respectively in the country. The productive life is 6-7 years. The mature females ovulate on average 13.3 follicles. The litter size is 8.6 piglets in the first litter, and 10.2 piglets in third and up-third parity. The milk yield during suckling period is 205kg. The daily gain is about 620g when the weight is from 15.6kg to 89.4kg. The average dressing percentage is 73%. The lean meat percentage and fat for carcass is 35% and 44.1%, respectively. The heterosis is evident.

#### 45. Huchuan Mountainous (including E'xi Black Pig, Pengzhou Mountain)

**Distribution:** It is located in Daba Mountain, Wu Mountain and Wudan Mountain, which are bordered by Sichuan, Hubei, and Hunan Provinces.

**Population size:** Approximately 200,000 breeding sows in 1986

**Major characteristics:** The breed is described as follows: slightly long head, shallow wrinkles, large belly, flat and straight back, lightly pitching rump, slightly pitching rump, strong legs. The coat color of the breed is black, but individually with white forehead, leg-ends and tail. Average weight of male adults is 128.4kg and females 94kg. The litter size is 8.7 piglets in the first litter, and 11.9 piglets in third and up-third parity. The daily gain is about 402g. The average dressing percentage is 71.43%. The lean meat percentage for carcass is 41.1%. The water, protein and crude fat of the back longest muscle account for 73.3%, 22.9% and 2.9% respectively. The heterosis is evident for Yorkshire×Taihu cross combination.

#### 46. Wujin (including Kele, Weining, Dahe and Liangshan Pig)

**Distribution:** Located in the Wumeng, Daliang and Xiaoliang Mountains, bordered by Sichuan, Hubei and Hunan Provinces

**Population size:** Approximately 300,000 breeding pigs in 1986

**Major characteristics:** The breed is described as follows: rough and strong constitution, long head, wide and straight snout, swirls in the forehead, medium size and drooping ears, narrow body flat and straight back, higher hind quarters, plump rump and ham, rumpled skin lower half legs. The coat color of the breed is black, individually brown. Average weight of male adults is 48.2kg and females 69.5kg. The litter size is 5.4 survive piglets in the first litter, and 8.7 piglets in third and up-third parity. The breed is dominantly feed by pasturing. The daily gain in the fattening period is about 200g. The average dressing percentage is 71.8%. The lean meat percentage and fat for carcass is 46.3% and 34.4% respectively. The back longest muscle contains water 73.4%. The fat deposition ability is high, and skin grows quickly. The heterosis is evident, and can improve the lean percentage and the eye muscle area.

#### 47. Guanling

**Distribution:** Guanling County of Guizhou Province

**Population size:** Approximately 2,000,000 pigs in 1987

**Major characteristics:** The breed is medium-framed. The head is medium-sized. There is longitudinal “八” or diamond-shaped wrinkles and swirls in the forehead, the ear small, the snout medium-sized, the neck slightly short, the body square and deep, the chest deep, the back slightly concaved, the belly large and drooping, the ham plump and slightly pitching, the legs straight, strong constitution, the skin wrinkled. The coat color of the breed is dominantly black. Average weight of male adults is 60.5-75.6kg and females 62.2-74.7kg. The litter size is 10.4 survive piglets in afterward litter. The breed grows the most quickly at the age of 8-9 months. The daily gain in the fattening period is about 400-430g. The eye muscle area is 14.6-19.4 square cm. The lean meat percentage and fat for the carcass is 38.9% and 38.3%, respectively. The heterosis is evident, and can improve the litter size, the litter weight, but shorten the fattening period.

#### 48. Tibetan

**Distribution:** A'ba and Ganzi Prefectures of Sichuan Province; Shannan and Changdu Prefectures of the Tibet Autonomous Region, Diqing Prefecture of Yunnan Province, Gannan Prefecture of Gansu Province

**Population size:** Approximately 60,000 breeding sows in 1986

**Major characteristics:** The breed is described as follows: small conformation, long and straight rectangle snout, narrow forehead and face, small size and erect (or extending forward) ears, short body, narrow chest, flat and straight or slightly dished back, neat underline, higher hind quarters, lightly pitching rump, fine and tight built legs, straight and strong hooves, dense and long mane (93-250g every pig). The coat color of the breed is dominantly black, partly with brown longitudinal stripes when piglet. The breed is feed by pasturing all the year, and grows slowly. Average weight of male adults is 35.9kg and females 40.9kg. The litter size is 4.8 piglets in the first litter, and 6.4 piglets in third and up-third parity. The daily gain in the fattening period is about 173g. The average dressing percentage is low, and thin skin, productive lean meat. The crossbred has good adaptability to the environment.

#### 49. Pudong White

**Distribution:** Nanhui and Chuansha counties, Shanghai City

**Population size:** Approximately over 10,000 sows in 1984

**Major characteristics:** The breed is described as follows: large and drooping ears, long and wrinkled forehead, rough and large head, which is classified into short, intermediate and long head types. The legs are long and rough, the hind legs bended outward or inward, the belly large and slightly drooping. The coat color of the breed is white. Average weight of female adult is 160kg. The litter size is 15 piglets in the second and up-second parity. The daily gain in the fattening period is about 414g. The average dressing percentage is 67.0%. The back fat thickness is 2.7cm.

#### 50. Anqing Six-White

**Distribution:** Anqing Prefecture of Anhui Province

**Population size:** Approximately over 2,000 breeding pigs in 1981

**Major characteristics:** The breed has moderate body conformation. The breed is described as follows: large and drooping ears (reaching snout), neat and trim head. The snout is classified into short and long types. The coat color of the breed is black and six white points. The belly is slightly drooping. Average weight of male adults is 110kg and females 97kg. The litter size is 10-14 piglets in the second and up-second parity. The daily gain in the fattening period is about 265g. The average dressing percentage is 73.3%. The back fat thickness is 3.2 cm.

#### 51. Panlang

**Distribution:** The breed is native to the Panlang county of Zhejiang province

**Population size:** Approximately 1529 sows in 1980

**Major characteristics:** The breed is described as follows: large ears, wide forehead, short snout, round rump, large belly, deep chest, square back, pitching and plump shoulders, higher hind quarters, strong and straight fore hooves, rough and slightly bended hind legs, uniform constitution. The coat color of the breed is black. Average weight of male adults is 110kg and females 71kg. The litter size is 10-14 piglets in the second and up-second parity. The daily gain in the fattening period is about 350g. The back fat thickness is 5.4cm.

#### 52. Chalu Black

**Distribution:** The breed is native to Ningxiang, Xiangshan, Fenhua and Qingxian counties of Zhejiang Province

**Population size:** Approximately 7389 sows in 1980

**Major characteristics:** The breed has uniform conformation, with fine and tight built constitution. The breed is described as follows: large and drooping ears, flat and straight back, slightly drooping belly, deep chest, strong legs. There are 1-2 wrinkles at the elbow joints and gambrels. The coat color of the breed is black. Average weight of male adults is 113kg and females 96kg. The litter size is 12-16 piglets in the second and up-second parity. The average dressing percentage is 68.5%. The back fat thickness is 2.4cm. The milk performance is good.

#### 53. Yayang

**Distribution:** The breed is native to the Yayang Prefecture, Zhejiang Province

**Population size:** Approximately 2,000 sows in Taishun County in 1980

**Major characteristics:** The breed has strong body conformation, and it is classified into coarse and neat types. The former is large and drooping ears, large head, wide forehead, half double-backed, square chest, flat and straight loin, rough legs; while the latter small and drooping ears, small head, distinct soft loin, trim and strong legs. The coat color of the breed is black. Average weight of male adults is 126.8kg and females 97.1kg. The litter size is 10-11 piglets in the second and up-second parity. The daily gain in the fattening period is about 450g. The average dressing percentage is 74.5%. The back fat thickness is 8.5cm.

#### 54. Beigang

**Distribution:** The breed is native to Pingyang and Cangnan counties of Zhejiang province

**Population size:** Approximately over 1900 sows in 1980

**Major characteristics:** The breed is described as follows: medium-sized head, small and covering-eye ears, wide and round eyes, long snout, flat and straight or slightly concaved back, large belly (not reaching ground), strong legs, fine and tight built constitution. The coat color of the breed is black. Average weight of male adults is 112.7kg and females 90.6kg. The litter size is 13 piglets in the second and up-second parity. The daily gain in the fattening period is about 396g. The average dressing percentage is 70.6%.

### 55. Bihu

**Distribution:** The breed is native to the Bihu region of Lishui City for Zhejiang Province

**Population size:** Approximately 4,000 sows in 1980

**Major characteristics:** The breed is classified into two types. The one type is described as follows: smooth and long snout, medium-sized head, moderate size and drooping ears, single-backed, slightly concaved loin, large belly, moderate body conformation. While the other type short snout, wide forehead, large and drooping ears, double-backed, flat and straight or slightly concaved loin, strong legs. The coat color of the breed is black. Average weight of male adults is 69.5kg and females 71kg. The litter size is 11.1 piglets in the second and up-second parity. The daily gain in the fattening period is about 500g. The average dressing percentage is 72.7%. The back fat thickness is 5.2cm.

### 56. Xianju Spotted

**Distribution:** Xianju county of Zhejiang province, distributing in Linhai, Huangyan and other counties

**Population size:** Approximately 30,000 breeding sows in 1980

**Major characteristics:** The breed has moderate body conformation. The ear root is a hard, and medium-sized and heavy drooping ear. The head is classified into “mouse head” and “shoos head”, and wide and deep chest, square, flat and straight back, long and neat loin, large and slightly belly, long legs. The coat color of the breed is large spotted or small spotted. Average weight of male adults is 71.4kg and females 67.0kg. The litter size is 10.7 piglets in the second and up-second parity. The daily gain in the fattening period is about 250g. The average dressing percentage is 65.1%. The back fat thickness is 4.5cm between the sixth and the seventh rib.

### 57. Lanxi Spotted

**Distribution:** The breed is native to the Lanxi County of Zhejiang Province

**Population size:** Approximately 15,000, breeding sows in 1980

**Major characteristics:** The body conformation is classified into large and small types. The former is called “shoos head” or “tiger head”, with large head, round and short snout, large soft and drooping ears, wide and deep chest, square, flat and straight back, higher rear squatters, straight and strong legs. While the latter is called “mouse head”, with small and long head, smooth snout, small ears, rough and short legs. The coat color of the breed is varied from large spotted, Jungian spotted and “black cloud covering snow”. Average weight of male adults is 135kg and females 82.5kg. The litter size is 14.6 piglets in the second and up-second parity. The daily gain in the fattening period is about 362.5g. The average dressing percentage is 70.4%. The back fat thickness is 4.3cm.

### 58. Guanzhuang Spotted

**Distribution:** The breed is native to the Shanhang County of Fujian province

**Population size:** Approximately 6,000 breeding pigs in 1982

**Major characteristics:** The breed is described as follows: small body conformation, medium-sized ears, wide forehead, short snout, deep chest, flat and straight back, slightly concaved loin, large and drooping belly, short legs, rectangle body. The coat color of the breed is white with black head and rump. Average weight of male adults is 86.3kg and females 78.3kg. The litter size is 8.4 piglets in the second and up-second parity. The daily gain in the fattening period is about 350-450g. The average dressing percentage is 73.3%. The back fat thickness is 4.6-5.0cm between the sixth and the seventh rib.

### 59. Pingtan Black

**Distribution:** The breed is native to the Pingtan County of Fujian Province

**Population size:** Approximately 2,500 breeding pigs in 1981

**Major characteristics:** The breed is described as follows: wide and long body, Chinese character “八” shaped wrinkles, short and slightly concaved snout, thin, large and drooping forward ears, wide and deep chest, flat and straight loin, large belly, strong legs, black color. Average weight of male adults is 137.0kg and females 122.5kg. The litter size is 11.5 piglets in the second and up-second parity. The daily gain in the fattening period is about 430g. The average dressing percentage is 76.4%. The back fat thickness is 5.4cm.

### 60. Licha Black

**Distribution:** The breed is native to Licha town of Jiaozhou City, Shandong Province, distributing in

the hilly area where Jiaonan and Gaomi counties share their border

**Population size:** Approximately 81,000 pigs in 1985

**Major characteristics:** The breed is characterized heterophagous, coarse fodder resistance, prolific, high-producing. The breed has fine and tight built constitution. The breed is described as follows: medium-sized head, long and straight snout, wrinkled forehead, drooping ears, long and straight loin, moderate size and not drooping belly, strong legs, plump rear quarters, black color. The number of vertebra is 21.7, and 2-3 pieces more than the general pig. Average weight of female adult is 209.7kg. The litter size is 12 piglets in the second and up-second parity, and the most 21 piglets. The daily gain in the fattening period is about 550.2g. The average dressing percentage is 73.03% for the pig that the litter size is more than 10 piglets. The back fat thickness is 2.9-2.6cm.

#### 61. Dapulian (also named Yanhe Large)

**Distribution:** The breed is native to the west of Jining city and Nanwanghu region of eastern Heze City, the central producing area is Jiaxiang County, Shandong Province

**Population size:** Not available in 1999

**Major characteristics:** The breed has large body conformation and coarse appearance, loose constitution. The breed is described as follows: long head, shallow forehead, Chinese character “川” shaped wrinkles, medium-lengthen and slightly upward snout, large and drooping ears (reaching snout), lightly narrow and lack-plumpness chest, single-backed, narrow, long and lightly concaved loin, large and drooping belly, pitching rump, higher rear quarters, strong legs, sleeping pastern, medium thickness, long tail (reaching gambrels). The coat color of the breed is black. Average weight of female adult is 130kg. The litter size is 10-14 piglets in the second and up-second parity, with a maximum of 33 piglets. The sows are noted as good mothers, they are not only good mothers and raise large litters, but also are good at piglet protectors. The weaning rate is up to 98%. The Dapulian Pig is characterized by good adaptability to the environment, high reproductive efficiency and good meat quality.

#### 62. Qianshao Spotted (including Longtan, Liangsang and Dongshan pig)

**Distribution:** Huaihua and Shaoyang prefectures of Hunan province

**Population size:** Approximately 11,883 sows in 1982

**Major characteristics:** The breed has moderate body conformation. The breed is described as follows: narrow and long head, long and straight snout, medium-sized and inclined outward ears, trim neck, flat and straight or lightly concaved back, slightly open ribs, large belly (but not reaching ground), strong legs, partly sleeping pastern. The coat color of the breed is classified into “two-end black” and “large spotted points”. Average weight of male adults is 68.5kg and females 83.1kg. The litter size is on average 10 piglets. The weaning rate is up to 97.1%. The daily gain in the fattening period is about 480-529g. The average dressing percentage is 73.4%. The back fat thickness is 5.5cm. The eye muscle area is 21.3cm<sup>2</sup>. The lean percentage is 39%.

#### 63. Bamaxiang (also named Donggua or Bajiao pig)

**Distribution:** It is originated in the Chengguan area of Bama County and Yiwei area of Dongtian County in Guangxi Zhuang Autonomous Region

**Population size:** Approximately 400 in 1981

**Major characteristics:** The breed is characterized as “small, short, round and fat”. The breed is described as follows: small and neat head, long and trim snout, no wrinkles in the forehead, small and thin ears, thick and short neck, slightly concaved loin, wide and round chest, drooping and reaching-grounded belly, straight fore legs, sleeping pastern hind legs, thin cannon circumference. The color of the breed is black from half or one-third of the neck to the rump, and there are white spots or lines from face-middle to snout-end. The tail is up to gambrels, and the hair of the tail end seems like fishtail shaped. Average weight of female adult is 50-60kg. The chest girth is 96cm. The litter size is on average 10.4 piglets. The viability of rearing piglets is 93%. The gestation period is 111.7 days. The average dressing percentage is 66.9% for the pig that the live weight is 35kg. The back fat thickness is 2.9-2.6cm. The eye muscle area is 10.8cm<sup>2</sup>.

#### 64. Debao

**Distribution:** Debao County, southwestern part of Guangxi Zhuang Autonomous Region, distributing in Jingxi, Tiandeng, Baise, and Tiandong Prefectures.

**Population size:** Approximately 15,000 in 1987

**Major characteristics:** The breed has moderate body conformation. The breed is described as

follows: small head, lightly long face, long and straight snout, large and drooping ears, distinct wrinkles, transverse wrinkled snout-end, long and narrow neck, lightly wide and deep chest, flat and straight back, large and drooping belly, square and lightly pitching rump, strong legs, black color. Average weight of male adults is 61.3kg and females 82.1kg. The litter size is on average 8.7 piglets. The weaning rate is up to 91.4%. The daily gain in the fattening period is about 476g. The average dressing percentage is 71.8% when the weight is 77.5kg. The lean percentage is 35%. The gain: feed ratio is 1:4.24.

#### **65. Guizhong Spotted**

**Distribution:** Liuzhou, Hechi, Nanning and Baise prefectures in Central Guangxi Zhuang Autonomous Region

**Population size:** Approximately more than 400,000 in 1981

**Major characteristics:** The breed has moderate and uniform body conformation. The breed is described as follows: small head, narrow forehead, long and straight face, light eyes, long and straight face, medium-sized, long and erect ears, slightly concaved back, lightly pitching rump, large and not reaching grounded belly, strong legs. The body length is more than the chest girth. The coat color of the breed is black and white spotted, and the spotted point lie(s) every part of the back or the loin. Average weight of male adults is 74.9kg and females 81.1kg. The litter size is on average 10.5-12.5 piglets. The daily gain in the fattening period is about 620g. The average dressing percentage is 67.5%. The lean percentage is 43%. The sows are good mothers, with high reproductive efficiency (2 litters every year), high coarse fodder resistance ability, and high disease resistance.

#### **66. Baixi** (belong to the middle-large type pig, also named Miaozhai)

**Distribution:** The central producing area is located in Baixi and Wengxi districts of Shibing County and Gulong District of Huangping County, Guizhou Province

**Population size:** Approximately 320,000 in 1983

**Major characteristics:** The breed has moderate body conformation. The breed is described as follows: reddish skin, medium-sized and almost rectangle head, unequal shaped and deep wrinkles, slightly dished face, thick snout, long and straight face, medium-sized, and drooping ears, flat and straight back (but concaved for the sows), lightly pitching rump, large and not reaching grounded belly, rumped hams, sleeping pastern. The coat color of the breed is black, individually with white leg-ends and tail end. Average weight of female adult is 65.8kg. The litter size is on average 7.9 piglets. The daily gain in the fattening period is about 200g. The average dressing percentage is 68.5%. The back fat thickness is 3.5cm. The eye muscle area is 15.2 square cm.

#### **67. Jiangkou Luobo** (belonging to Qianzhong small type)

**Distribution:** Guizhou province

**Population size:** Approximately 40,000 in 1983

**Major characteristics:** The breed has small body conformation. The breed is described as follows: medium-sized head, smooth and long snout (called “zuanzi head”), 2-3 transverse wrinkles in the forehead’s long and straight face, medium-sized, and drooping ears, flat straight and narrow back, lightly pitching rump, large and lightly drooping belly, thin hams, short and trim but strong legs, higher hind legs. Average weight of male adults is 81.5kg and females 44.1kg. The litter size is on average 6.3 piglets. The daily gain in the fattening period is about 240g. The average dressing percentage is 65.2%. The back fat thickness is 3.4cm. The eye muscle area is 12.7cm<sup>2</sup>. The lean percentage is 35.3%.

#### **68. Qiandong Spotted**

**Distribution:** The eastern Guizhou province

**Population size:** Approximately 40,000 sows in 1993

**Major characteristics:** The breed has long and flat body conformation. The breed is described as follows: medium-sized head, long snout, wide forehead, diamond-shaped wrinkles in the central of the forehead, long and straight back, medium-sized, and drooping ears, lightly pitching rump, large and lightly drooping belly, plump rear quarters strong legs. Average weight of male adults is 57.5kg and females 72.6kg. The litter size is on average 8.8 piglets. The weaning rate is 94.8%. The daily gain in the fattening period is about 440.6g. The average dressing percentage is 71.3%. The back fat thickness is 5cm. The eye muscle area is 21.8cm<sup>2</sup>.

#### **69. Mingguang Small-ear**

**Distribution:** Tengchong County of Yunnan Province

**Population size:** Approximately 30,000 in 1980

**Major characteristics:** The breed is described as follows: short head, smooth snout, flat face, wide forehead, small and wide ears, short but plump body, short slender but strong legs, short tail. It is called “you hulu “. The coat color of the breed is black, and some with six white points. Average weight of male adults is 40.2kg and females 49.8kg. The litter size is on average 7.3 piglets. The weaning rate is 92%. The daily gain in the fattening period is about 450g. The average dressing percentage is 69.4%. The back fat thickness is 4.5cm.

## 70. Saba

**Distribution:** Chuxiong Yi Autonomous Prefecture in Yunnan province

**Population size:** Approximately 1,180,000 in 1979

**Major characteristics:** It is classified into large, intermediate and small types according to body conformation, head shape, and appearance and maturity age. The former head is called “begun head”, with large head and ears, large and not drooping belly, long body, long and rough tail, lightly dished face, strong legs. The small types is called “dog head” or “you hulu head”, thin snout, trim tail, small ears, short body, slender and short legs, sparse hair. And the intermediate type is called “goat head” or “er-hu head”. The coat color of the breed is dominantly black, red pig account for 22.7%. The mortality rate of the piglets is high. The litter size is on average 7.1-8.4 piglets. The daily gain is about 423g.

## 71. Baoshan (also named Baoshan large-Ear)

**Distribution:** Baoshan, Shidian, Changning and Tengchong counties, Yunnan Province

**Population size:** Approximately 900,000 in 1980

**Major characteristics:** It is classified into large bone pig, slender bone pig and erlangzi pig types according to body conformation. The Erlangzi pig is intermediate type. The breed is black or brown (red as fire) in color. Average weight of male adults is 82kg and females 68kg for large bone type. The weaning weight is 5.8kg at the age of 60 days. The litter size is on average 7.7 piglets. The daily gain is about 130-170g. The average dressing percentage is 68.2-71%. The lean percentage is 42.6%.

## 72. Hexi

**Distribution:** Gansu Province

**Population size:** Approximately 440,000 sows in 1986

**Major characteristics:** The breed has small body conformation, fine and tight built constitution. The breed is described as follows: thin skin, slender bone, long and weak neck, obviously protuberant withers, narrow back, shallow chest, round bended ribs, large and drooping belly, pitching rump, higher rear legs. The body side is slightly ladder-shaped. The coat color of the breed is dominantly black or black-white, with six white points characteristics. Average weight of male adults is 104.8kg and females 82.9kg. The litter size is on average 11.7 piglets. The weaning rate is 89.6%. The daily gain in the fattening period is about 400g. The average dressing percentage is 62.9%. The lean percentage is 37%.

## Chicken

### 1. Xianju (also called Meilin)

**Distribution:** Xianju, Linhai, Tiantai and Huangyan Counties, Zhejiang Province.

**Population size:** over 500,000 chickens were fed in 1981.

**Major Characteristics:** small body size, egg-type breed. Xianju have yellow, black and white plumage colors. Black Xianju has the largest body size, Yellow Xianju has the medium body size and White Xianju has the smallest body size. The major breeding objectives are breeding for Yellow Xianju at the breeding farms. The major color characteristics of Yellow Xianju: closed plumage, tails carried at a high angle, strong body, compact body conformation, single up-right comb, short yellow beak, yellow toes without feathers. There are black spots on some Xianju necks. The body weight of the day-old chick is 32.7 g for male and 31.6 g for female. Body weight at 180 days old is 1256 g for male and 953 g for female, which is close to adult weight. Half evisceration rate at 3 month of age is 81.5% for male, and 82.96% for female, respectively. Evisceration rate at 6-month old is 70.0% for male and 71.0% for female, respectively. Average egg number is 160-180 per year/ per hen, with the peak yield 200 per year/ per hen. Egg weight is about 42 g. Eggshell color is fawn. Egg shape index is 1.36.



## 2. Baier Buff (also called Baier Yin, Jiangshan, Yushan and Shangrao Baier)

**Distribution:** Guangfeng, Shangrao and Yushan Counties, and Shangrao Prefecture in Jiangxi Province; Jiangshan City, Zhejiang Province

**Quantities:** Over 800,000 chickens were bred in 1980.

**Major Characteristics:** The typical characteristics are “Shanhuang and Yibai”, namely yellow feather, yellow beak, yellow foot and white ear. Ear lobe is big with silvery white. Iris is golden. Beak is yellow or lark and little crooks. Standard characteristics: yellow feather, up-right single comb, and yellow skin, shank without hackle. Birth weight is about 37 g in Yushan County and 31.15 g in Shangrao County. Age at first egg is around 180~210 days old, 150~180 days old and 150 days old in Jiangshan, Guangfeng, YuShan County, respectively. Egg number is about 180 per year/ per hen. Egg weight is 53~55g. Eggshell color is puce. Eggshell thickness is 0.34~0.38 mm. Egg shape index is 1.35~1.38.

## 3. Langshan

**Distribution:** Larger populations were bred in Matang and Chahe districts of Rugong County, some bred in Juegang, Pingtu, Fengli, Shuangdian districts as well as Shiigang district of Nantong City, Jiangsu Province.

**Population size:** 130,000 were fed in 1979

**Major Characteristics:** egg-broiler type. There are Black Langshan, Yellow Langshan and White Langshan. At present, the major Langshan breed is Black Langshan. The Black Langshan develops short and globular head, cardinal red face, cardinal red ear lobes and wattle, white skins, black leg. Mature weight at 500 days is 2840g for male and 2283g for female. Half evisceration rate at 6.5-month of age is 80% for male and female. Evisceration rate at 6.5-month is 70.0% for male and female. Percentage of breast muscle yield for male is 13.06% and 14.16% for female. Percentage of leg muscle yield for male is 22.3% for male and 16.7% for female. Average egg number is 135~175 per year per hen, with the maximum of 252. Average egg weight is 58.7g per year per hen.

## 4. Dagu (also called Zhuanghe)

**Type:** Local breed

**Distribution:** Originated in Zhuanghe County, Liaoning Province; distributed in Jilin, Heilongjiang and Shandong Provinces

**Population size:** over 4,500,000 chickens were fed in 1980

**Major Characteristics:** egg-broiler type. Dagu develops large body size, broad and deep breast, long and strong leg, round and abundance belly, stout and strong, good abilities to find food. Cock's plumage is bay lustrous black tail. The color of the hen's plumage is purple yellow. Dagu chicken has Strong and wide head, wide neck, bright and large eyes, red single comb, red ear lobe and wattle, yellow beak, yellow leg and toe. Adult weight is 2900g for male and 2300g for female. Average age at first egg is 213 day. Average egg number is 160 per year per hen with the peak production 180 under good feed environment. Average egg weight is 62~64g. Eggshell color is puce. Egg shape index is 1.35.

## 5. Beijing You

**Distribution:** Datun and Wali of Chaoyang District and Qinghe town of Haidian Distirct, Beijing Municipality

**Population size:** over 30,000 chickens were fed in 1980

**Major Characteristics:** broiler-egg type, medium body size. Beijing You with dark red plumage has little body size and Beijing You with yellow plumage has larger body size. The surface plumage throughout of day-old chick is buff. Day-old chick has crest, hackle and beard. Beijing You has round body. Mature chick's surface plumage throughout is thick and close with crest and hackle. Few chickens have feathered-toes. There are some beards in cheek and lower mandible of Beijing You. Beijing You grows slowly. Body weight is 38.4 of the Day-old chick. Adult weight is 2049g for male and 1730g for female. Half evisceration rate at mature age is 83.5% for male, and 64.6% for female, respectively. Evisceration rate at mature age is 76.6% for male. It has older sex mature age and age at first egg is 7-month. Average egg number is 110 per year/ per hen. Average egg weight is about 56g. Eggshell thickness is 0.325mm. Eggshell color mainly is brown, also is light purple. Egg shape index is 1.32.

## 6. Pudong (also called Cochin Huang)

**Distribution:** Nanhui, Fengxian, and Chuansha Counties, Shanghai Municipality

**Population size:** 1,000 chickens were bred in 1980

**Major Characteristics:** egg-broiler type and slowly-feather breed. Male's feather has three types: yellow feather on the breast and back, red feather on the breast and back, black feather on the breast and red feather on the back. The surface plumage throughout is different yellow colors laced with black mottles. Single up-right comb for male and little comb for female. Body weight is 36.4g for the day-old chick, 3346g at 6-month age for male and 2213g for female. Half evisceration rate at 12-month of age is 85.11% for male, and 84.76% for female, respectively. Evisceration rate at 12-month is 80.06% for male and 77.32% for female, respectively. Average age at first egg is 208 day with earliest is 152 day, latest is 294 day. Average egg number is 130 per year/ per hen, with the peak yield 216 per year/ per hen and the minimum of around 86 per year per hen. Egg weight is about 57.9 g. Eggshell color is fawn or brown.

## 7. Shouguang (also called Cilun)

**Distribution:** Shouguang County, Shandong Province

**Quantities:** 1,000,000 chickens were bred in 1978

**Major Characteristics:** egg-broiler type breed. Shouguang breed has large or medium body size, also some body size is small. Shouguang with large body size has some typical characteristics: large and strong body, thick and large bone, long and deep breast, strong breast muscle, long and wide leg, quasi square body shape. The surface plumage throughout of mature chick is black. Mature male chick has large up-right single comb and mature female chick has different sizes of single comb. Color of feather is gray for neck and toes and is white for foot and skin. Body weight is 42.4g for the day-old chick. Adult weight with large body size is 3609g for male and 3305g for female. Adult weight with medium body size is 2875g for male and 2335g for female. Half evisceration rate at mature age is 82.4% for male, and 85.4% for female, respectively. Evisceration rate at mature age is 77.1% for male and 80.7% for female, respectively. Average age at first egg is 162 day for large type and 145 day for medium types. Average egg number is 117.5 per year/ per hen for large body size type and 122.5 for medium body size type. Average egg weight is about 65~75 g for large body size type and 60g for medium body size type. Egg shape index is 1.32 for larger body size type and 1.31 for medium types. Eggshell thickness is 0.363mm for large type and 0.358mm for medium type. Eggshell color is brown.

## 8. Xiaoshan (also called Yue)

**Type:** local breed

**Distribution:** Xiaoshan County, Zhejiang Province

**Population size:** 1,500,000 chickens were bred in 1981

**Major characteristics:** egg-broiler type. Xiaoshan has large body size with round and square shape. Cock's typical characteristics: closed plumage, high head and tail with a high angle, red up-right single comb. The surface plumage throughout has two types: red and yellow. The surface plumage throughout almost is yellow and single comb is red for female. Hen's beak and leg color is yellow. Body weight is 38.5g for the day-old chick. Adult weight is 2758g for male and 1940g for female. Half evisceration rate at 150 days is 84.7% for male, and 85.6% for female, respectively. Evisceration rate at 150 days is 76.5% for male and 66.0% for female, respectively. Average age at first egg is 185.4 day. Average egg number is 132.5 per year/ per hen. Egg weight is about 56g. Eggshell color is brown. Egg shape index is 1.39.

## 9. Luyuan (also called Big Luyuan)

**Distribution:** Originated in Luyuan Township, Shazhou County of Jiangsu Province

**Population size:** 100,000 chickens were bred in 1980

**Major characteristics:** egg-broiler type. Luyuan has large and high body size, deep breast and flat back. The surface plumage throughout is yellow and closed to body. There are some black stripe on the neck feather, primaries and tail feathers. Leg and toe's skin color is yellow. It is wide between two legs and no hackle. The feather color of the day-old chick is yellow. Adult weight is 3270g for male and 3120g for female. Half evisceration rate at 6-month days is 81.13% for male, and 82.57% for female, respectively. Evisceration rate at 6-month days is 72.64% for male and 73.01% for female, respectively. Average age at first egg is 180 day. Average egg number is 144.72 per year/ per hen. Egg weight is about 54.2g. Eggshell color is brown.

## 10. Gushi

**Distribution:** Originated in Gushi County, Henan Province. Also Bred in Shangcheng, Xinxian and Huaibin Counties, Henan Province; Houqiu and Jinzai Counties, Anhui Province.

**Population size:** 8,820,000 chickens were bred in 1981

**Major characteristics:** egg-broiler type. Gushi develops medium body size, narrow body conformation, and compact and symmetry body structure, thick and closed plumages. The color of the chuckling fluff is yellow. The surface plumage throughout is dark red or yellow for male and most proportional is yellow, white and black for few female. Most combs are single comb for male and some combs are pea comb. Some typical characteristics: up-right comb, indigo leg, white 4- toes, white skin. Body weight of the day-old chick is 32.8g. Adult weight is 2470g for male and 1780g for female. Half evisceration rate at 6-month is 82.3% for male, and 80.3% for female, respectively. Evisceration rate at 6-month is 74.1% for male and 70.9% for female, respectively. Average age at first egg is 205 day with average egg weight 38.8g. Average egg number is 141.2 per year/ per hen. Commercial egg weight is about 51.4g. Eggshell color is brown. Eggshell thickness is 0.35mm. Egg shape index is 1.32.

## 11. Bianji (also called Youyu in Shanxi Province)

**Distribution:** Ulanqab League, Inner Mongolia; Youyu County, Shanxi Province.

**Population size:** 500,000 chickens were bred in originated area

**Major characteristics:** broiler-egg type. Bianji develops with medium body size, wide and deep breast, strong breast muscle, flat and wide back, long and wide leg. Comb mainly is single comb and sometimes is strawberry comb, pea comb. Red comb shape is up right for male and small size with significant S-shaped curve for female. The day-old chick's weight is 35g. Adult weight is 1825g for male and 1505g for female. Half evisceration rate is 79% for adult male and 73.8% for adult female, respectively. Evisceration rate is 73% for adult male and 67.5% for adult female, respectively. Average age at first egg is roughing about 8-month. Average egg number is 101.7 per year/ per hen with the maximum around 150~160. Egg weight is about 60g and sometimes 70~80g. It is about 70% eggshell color with puce. Eggshell thickness is 0.386mm. Egg shape index is 1.33.

## 12. Pengxian Buff

**Distribution:** Originated in Pengxian City, Sichuan Province; also bred in hilly area of the Sichuan Plain

**Population size:** 280,000 chickens were bred in Pengxian in 1981

**Major characteristics:** egg-broiler type. Pengxian develops with round body shape, medium body size, and red single comb and rarely with pea comb, red ear lobe, fawn beak, white skins and leg. The surface plumage throughout is slight red except that some primaries color is black or yellow, mottles. Hen's plumage color has three types: dark yellow, dull and yellow with mottles. The day-old chick's weight is 37.14g. Adult weight is 3950g for male and 1880g for female. Half evisceration rate is 83% for adult male and 77.27% for adult female, respectively. Evisceration rate is 79.1% for adult male and 72.12% for adult female, respectively. Average age at first egg is 216th day (50% rate of egg production is 50%). Average egg number is 140~150 per year/ per hen. Average egg weight is about 53.52g. Egg shape index is 1.35.

## 13. Lindian

**Distribution:** Originated in Lindian County and adjacent counties, Heilongjiang Province

**Population size:** Approximately 260,000 chickens were bred in 1982

**Major characteristics:** broiler-egg type. Lingdian develops with medium doby size, thick feather, and big eyes with red iris, white skin. Dark yellow, buff and black are three major colors of the Indian feather. Cock has golden feather, long black tail, small head, wattle and comb. Most combs of Indian are single comb, and some are rose comb. Beak, leg and toe skin's color is black or brown. Also has narrow leg and some of them have hackle. The day-old chick's weight is 37.6g. Adult weight is 1740g for male and 1270g for female. Average age at first egg is 240~260th day. Average egg number is 70~90 per year/ per hen. Average egg weight is about 56.5g. Eggshell color is fawn or brown.

## 14. Emei Black

**Distribution:** Originated in Emei, Leshan, and Ebian Counties, Sichuan Province

**Population size:** 16,000 chickens were bred in 1980

**Major characteristics:** broiler-egg type. Emei Black develops large and round body shape, golden-black and closed feather, black beak, white skin and seldom of them with black skin. Combs are mainly red single comb and some combs are red pea comb or purple single comb or pea comb. Some of them have hackle. Toe is black and rarely of them have beard. The day-old chick's weight is 37.4g. Body weight is 2643g at 6-month for male and 1880g for female. Evisceration rate is 80.25% for adult male and 70.96% for adult female, respectively. The rate of leg muscle yield is 41.30% for adult male and 39.20% for adult female. Average egg number is 120 per year/ per hen. Average egg weight is about 53.84g. Egg shape index is 1.34. Eggshell color is brown or buff.

#### 15. Jingyuan (also called Jingning, Guyuan)

**Distribution:** Jingning County, Gansu Province; Guyuan County, Ningxia Hui Autonomous Region

**Population size:** 800,000 chickens were bred in 1980

**Major characteristics:** egg-broiler type. Male develops medium body size, high head, and tail with a high angle, strong breast, and wide and long back, wide leg. Female develops with a small head size, wide back and round breast. There are red and black red plumages in adult cock. Adult hen's plumage has different colors. There are black, yellow, white chickens etc. The yellow or Ma chick is the most popular population. Their combs are mainly rose combs and some of them are single combs. Leg skin color is gray and few have hackle. The day-old chick's weight is 37.1~47g. Body weight is 1888~2250g for adult male and 1630~1670g for adult female. Half evisceration rate is 73.4~75% for 6-month male and 73.6~74.6% for 6-month female, respectively. Evisceration rate is 68.7%~69.5% for 6-month male and 67.5~69.1% for 6-month female, respectively. Average age at first egg is rough about 8~9 month. Average egg number is 117~124 per year/ per hen. Egg weight is about 56.7~58g. Eggshell thickness is 0.34~0.35mm. Egg shape index is 1.312~316. Eggshell color is brown or dark brown.

#### 16. Liyang (also called Shan huang, Jiuqing huang)

**Distribution:** Liyang County, Jiangsu Province

**Population size:** 200,000 chickens were bred in 1980

**Major characteristics:** broiler breed. Male develops large body size, square body shape. The color of their plumage, beak and foot are mainly yellow, but there are also much yellow with mottle. Cock's comb is up right, 5 points, deeply serrated. Hen's comb is up right, drooping to one side. Body weight is 3300g for adult male and 2700g for adult female. Half evisceration rate is 73.4~75% for 6-month male and 73.6~74.6% for 6-month female, respectively. Half Evisceration rate is 87.5% for adult male and 85.4% for adult female, respectively. Evisceration rate is 79.3% for adult male and 72.9% for adult female, respectively. Average age at first egg is rough about 204~282 days. Total egg number at 500 days is 154.4 per year/ per hen. Egg weight is about 57.2g. Eggshell color is brown.

#### 17. Wuding

**Distribution:** Wuding County and Luquan County, Chuxiong Yi Autonomous Prefecture, Yunnan Province.

**Population size:** over 900,000 chickens were bred in major producing areas in 1980

**Major characteristics:** broiler breed. Wuding develops large and high body size; wide and deep body conformation, thick and puff plumages, feathered-toe, feathered-hackle. The plumage color of cock is red. The surface plumage of primary and tail feather is black. There are some white-stripe on body's plumage and other feather. Some typical characteristics: up-right red comb, black beak and leg, skin with white color. The feather grows slowly. The tail feather could be seen only in 4~5 month old. So, it also called "bold chick". Adult weight is 3050g for male and 2100g for female. Half evisceration rate at 5-month is 85% for capon male, and 85.4% for capon female, respectively. Evisceration rate at 5-month is 77% for male. Average age at first egg is 6-month. Average egg number is 90~130 per year/ per hen. Egg weight is about 50g. Eggshell color is fawn. Egg shape index is 1.27.

#### 18. Taoyuan (also called Taoyuan Da)

**Distribution:** Taoyuan County, Changsha, Yueyang and Binzhou Cities, Hunan Province.

**Population size:** 176,600 chickens were bred in Taoyuan County in 1980

**Major characteristics:** broiler breed. Taoyuan develops large and high body size, long square body conformation, puff plumages. The cock has long neck, tail with a high angle, look like U-shape. The hen has higher height, long and flat back, rounded body in later like square. The feathers of the cock are golden or red. The surface plumage of primary and tail feather is black or golden or some black mottles for male.

The feathers of hen have two types: yellow, rough black. The feather of yellow type is yellow for back and black-yellow for leg. Beak and leg are gray. Skin's color is white. Single comb is up right for male and drooping gradually to one side for female. The body weight for the day-old chick is 41.29g. Adult weight is 3342g for male and 2940g for female. Half evisceration rate at 24-week is 84.9% for male, and 82.06% for female, respectively. Evisceration rate at 24-week is 75.9% for male and 73.56% for female. Average age at first egg is 195th days. Average egg number at 500 days is  $88.18 \pm 48.57$  per hen. Egg weight is about 53.39g. Eggshell color is fawn. Egg shape index is 1.32.

#### **19. Huiyang Bearded** (also called Shanhuang, Longgang, Longmeng, Feizhou)

**Distribution:** Huiyang Prefecture, Guangdong Province

**Population size:** 150,000,000 chickens were bred per year in Huiyang district, Guangdong Province

**Major characteristics:** medium body size, broiler breed. Huiyang develops compact body conformation, large head, wide neck, deep breast and wide back, strong breast muscle, round rear body, the gourd-like body shape. The typical characteristics: beard in lower mandible, without wattle or only some tracks. Day-old chick has buff plumage, yellow beak and leg, single up-right comb without hackle. The feather in the back of the male is bright red, dividing into main tail feather and no main tail feather. Main tail feather are mainly yellow but some are black. The hen has yellow beak, yellow feather, some black feathers in the primary and tail feather, with short tail feather and yellow foot. The body weight for the day-old chick is 31.6g. Adult weight is  $2228.40 \pm 38.78$ g for male and  $1601.00 \pm 31.20$ g for female. Half evisceration rate for the chick at the age before laying eggs using as broiler is 84.8% and evisceration is 75.6%. Half evisceration rate at 150 days for the cock is 87.5% and evisceration rate is 78.7%. Average age at first egg is 115~200 days. Average rate of egg production per year: 28%. Average egg number is 45~55 per year per hen and could be reached 108 at good management condition. Egg weight is about 45.8g. Eggshell thickness is 0.3mm. Eggshell color is fawn. Egg shape index is 1.3.

#### **20. Qingyuan Partidge**

**Distribution:** Qingyuan County, Guangdong Province

**Population size:** 4,850,000 chickens were bred in originated area in 1981

**Major characteristics:** broiler breed. The major typical body conformation can be summarized as: "Yixie", "Erxi" and "Sanma". "Yixie" denotes that the hen's body shape look like wedge which fore body is compact and rear is round and large. "Erxi" denotes that head or foot is slim. "Sanma" denotes that the back feather mainly has three kind of color: yellow, palm and brown. The cock has proportional long neck, head and back covered with golden. The feather on the breast, belly, tail and primary is black. The feather on the shoulder is bright red. The hen also has proportional long neck; one-third feather of the head and fore neck is dark yellow. There are yellow, brown of the back feather with some black mottle. Then these colors formed into yellow, brown feather. They are single up-right comb, short and slim leg and toe with yellow. Adult weight is 22180g for male and 1750g for female. Half evisceration rate for the young hen at 6-month is 85% and 83.7% for male. Evisceration rate at 6-month is 75.5% for young hen and 76.7% for male. Average egg number is 70~80 per year per hen. Egg weight is about 46.6g. Eggshell color is fawn. Egg shape index is 1.31.

#### **21. Xinghua** (also called Mizhi)

**Distribution:** Fengkai County, Guangdong Province.

**Population size:** 1,000,000 chickens were bred per year in the feeding area

**Major characteristics:** small body size, broiler breed. Xinghua develops compact body conformation, symmetry body structure, dense fur, narrow fore body and wide rear. The major typical body conformation can be summarized as: "two slim"(slim head, slim foot), "three yellow", "and three short" (short neck, short body shape, short foot). Day-old chick has "three yellow" characteristics and buff plumage. The cock has big head size, large up-right comb, bright red comb and ear lobe and wattle, yellow foot. The feather is golden for cock and black in the primary and tail. While the hen has small head size, short beak with yellow color, single comb. The feather is yellow or golden for hen and some black mottles on the neck. There are several black feathers among the tail feather. Adult weight is 1950g for male and 1590g for female. Half evisceration rate for the chick at 112 days is 79% and 76.0%. Evisceration rate at 112 days is 74.7% for the male and 70.0% for female. Average age at first egg is 150 days (average 30% hen laying eggs). Average egg number is 95 per year per hen. Egg weight is about 45g. Eggshell color is brown.

## 22. Xiayan (also called Yan Chicken, Feizhong Chicken)

**Distribution:** Rongxian County, Guangxi Province.

**Population size:** 60,000 chickens were bred in 1982

**Major characteristics:** broiler breed. Xiayan develops short and round body shape, abundance belly, approximately length for breast broadness, breast deep and pelvis broadness, square body shape. Chuckling has dark yellow fluff, yellow beak, yellow or white leg. Main tail feather are mainly yellow but some are black mottles or white mottles. There are red feathers on the belly of the sex mature cock. The hen has yellow feather, bright single comb and wattle, bright red ear lobe. Puce beak and buff peak point. White or yellow color skin. The body weight for the day-old chick is 29g. Adult weight is  $2178.00 \pm 45.69$ g for male and  $1915.00 \pm 18.25$ g for female. Half evisceration rate at 6-month is 82.4% for male, 87.89% for female and 84.8% for capon. Half evisceration rate at 6-month is 74% for male, 81.2% for female and 74% for capon. Average age at first egg is 170~180 days. Average egg number is 110 per year per hen. Egg weight is about 43.6g. Egg shape index is 1.3.

## 23. Hetian

**Distribution:** Changting and Shanghang Counties, Fujian Province.

**Population size:** 2,000,000 chickens were bred in 1982

**Major characteristics:** broiler breed. Hetian develops short body shape, wide neck, and wide breast and back, medium long leg, square body shape. There are “large body size” and “small body size” about body shape. Chuckling has dark yellow fluff, yellow beak and leg. Mature chick approximately has the same appearance: single up-right comb, white or yellow skin, yellow leg. The cock’s beak point color is buff and head feather is fawn. The feather on the back, breast and belly is fawn. Tail and main sickles are bright black. Primary is black with fawn on the brink of the primary. The hen has yellow feather, black feather on the side of the neck. Adult weight is  $1725.0 \pm 103.26$ g for male and  $1207.0 \pm 35.82$ g for female. The body weight of the day-old chick is 30.7g for male and 29.6g for female. Half evisceration rate at 120 days is 85.8% for male, 87.08% for female. Half evisceration rate at 120 days is 68.64% for male, 70.53% for female. Average age at first egg is 180 days. Average egg number is 100 per year per hen. Egg weight is about 42.89g. Eggshell colors mainly are brown and few are hoar. Egg shape index is 1.38.

## 24. Silkies (also called Taihe, Wushan, Bairiong, Zhusi)

**Distribution:** Taihe County, Jiangxi Province; Quanzhou and Xiamen Cities, Fujian Province and southern part of Fujian

**Population size:** 150,000 were bred in Taihe County in 1980

**Major characteristics:** fancy breed. Xiayan develops small body shape, short neck, and short leg, compact body structure. Standard characteristics can be summarized as “ten major characteristics”: ① Purple comb: strawberry comb; dark purple before sex mature, like mulberry; purple with red after sex mature; ② tassel head: crest on the top of the head, especially for hen, hen with more crests; ③ green ears: greenish ear before sex mature; gradually become dark purple ear after sex mature; ④ beards: the hen has more long and slight beard on the face and mandible; ⑤ silky: the surface plumage throughout is silky except of wing feather; short tail feather; ⑥ 5-toes: the foot has 5 toes; ⑦ feathered-feet: shank and fourth-toe without feather; ⑧ black skin: black skin, eyes, faces, beak, shanks, and toes; ⑨ black muscle: slight black muscle; ⑩ 10 black bone: dark bone membrane. The day-old chick’s body weight is 26.6~31g. Adult weight is 18106g for male and 1660g for female. Half evisceration rate is 88.35% for male, 84.18% for female. Evisceration rate is 75.86% for male, 69.5% for female. Average age at first egg is 205 days. Average egg number is 120~150 per year per hen. Egg weight is about 37.56~46.85g. Eggshell colors mainly are brown and few are hoar. Egg shape index is 1.34~1.36.

## 25 Chahua

**Distribution:** Dehong, Xishuangbanna, Honghe and Wenshan Autonomous Prefectures, Linchang and Simao Prefectures, Yunnan Province

**Population size:** 660,000 were bred in 1980

**Major characteristics:** low and small body size, plumage closed with skin, strong muscle, slight bone, symmetry body structure, more active and vulnerable, be good at flying and running, comeliness head, red wattle, black leg and foot, black beak. Most combs are red single comb; some are pea comb and have cristate. The most popular color of the iris is yellow, following brown or gray. The surface plumage

throughout is red except that some primaries color is black. Hen's plumage color is black except that wing feather and tail feather are black. The day-old chick's weight is 23g. Adult weight is  $1190 \pm 10.84$ g for male and  $1190 \pm 10.84$ g for female. Half evisceration rate at 6-month is 75.6% for male and 75.6% for female, respectively. Evisceration rate is 70.4% for male and 70.1% for female, respectively. Average egg number is 70 per year/ per hen with the peak yield 130. Eggshell color is puce. Average egg weight is about 38.2g. Egg shape index is 1.35.

#### **26. Tibetan** (also called Yunnan baxi)

**Distribution:** Shannan, Lhasa, Qamdo, Xigaze, Nagqu and Ngari Prefecture, Tibet Autonomy Region; border areas of Yunnan, Guizhou and Sichuan Provinces.

**Population size:** 175,000 chickens were bred in 1983

**Major characteristics:** low and small body size, well-muscled breast, slight bone, symmetry body structure, more active and vulnerable, be good at flying, red wattle, black beak. Most combs are red single comb and some are pea combs. The length of cock's sickle is about 40~60cm. The cock's characteristics: larger and single u-right serrated comb with 4~6 point, bright red feather expect that primary, secondary, main tail feather and larger sickle are bright black. The hen's characteristics: small single red comb drooping slightly to one side, white ear lobe, black or white leg. The hen's feather is more variable than cock's feather. The day-old chick's weight is 23g. Adult weight is 1145g for male and 860.2g for female. Half evisceration rate is 79.89~84.87% for adult male and 71.43~77.97% for female, respectively. Evisceration rate is 72.17~78.91% for male and 68.25~70.34% for female, respectively. Average egg number is 40~80 per year/ per hen. Average egg weight is about 33.92g. Egg shape index is 1.26.

#### **27. Bashang Long-tail**

**Distribution:** Bashang district, Zhangbei, Guyuan, Kangbao, Shangyi, Fengning and Weichang Counties, Hebei Province

**Population size:** Not available

**Major characteristics:** egg-type breed. Bashang develops medium head size, short neck, wide breast and back, medium long leg, long body size, tail with a high angle. The surface plumage throughout is puff and long. There are four kinds of feather colors: Ma, Black, White and rough white. Ma is the largest number among these types. The feathers on the leg, shoulder mainly are composed of edge feathers with brown and black mottles. The cock's feather is approximately the same feather. And the proportion of the red cock is 80%. The cock has a long tail feather which length is about 40~50cm. So, the long tail chick was called. Most popular comb is single comb, second is the strawberry comb, the least is the rose comb and pea comb. Adult weight is 1800g for male and 1240 for female. Half evisceration rate is 85.8% for adult male. Evisceration rate is 68.45% for adult male. Average age at first egg is 270 days. Average egg number is 100~120 per year per hen. Egg weight is about 53.62g. Eggshell colors mainly are dark brown. Egg shape index is 1.35.

#### **28. Jiangshan Silkies**

**Distribution:** Jiangshan County, Zhejiang Province

**Population size:** 80,000 chickens were bred in Jiangshan County in 1981

**Major characteristics:** Jiangshan silkies develops medium body size, triangle body shape, black beak, black tongue, black toes, black skin, deep red single up-right comb and wattle, green earlap, leg with feathers, 4 toes and 1 spur. Adult weight is 1800~2200g for male and 1400~1800 for female. Half evisceration rate is 87.86% for adult male and 81.01% for adult female. Evisceration rate is 75% for adult male and 65% for adult female. Average egg number is 133.29 per year per hen. Egg weight is about 55.95g.

#### **29. Lingkun**

**Distribution:** Wenzhou city, Zhejiang Province

**Population size:** 40,000 chickens were bred in 1981

**Major characteristics:** egg-broiler type, rectangle body shape, leg with some feathers, single comb with serrated 6~8 points, yellow beak, yellow leg and skins, "three typical yellow characteristics". There are divided into flat on top and floss on the head by appearance. The surface plumage throughout is bright red-yellow for cock and fawn for hen. There are several pieces of black feathers among primaries. Adult weight is 2330g for male and 1950~2020g for female. Half evisceration rate at 180 days is 87.8% for male

and 85% for female. Evisceration rate at 180 days is 76.7% for male and 71.7% for female. Average age at first egg is 150~180 days. Average egg number is 130~160 per year per hen. Egg weight is about 56.74g. Eggshell color is henna.

### 30. Huainan Sanhuang

**Distribution:** Originated in the hilly areas south of Huaihe River, distributed in Hefei City, Changfeng, Dingyuan, Fengyang and Jiashan Counties, Anhui Province

**Population size:** 10,000,000 chickens were bred in 1980

**Major characteristics:** egg-broiler type, large body size, compact body structure, living in different conditions, abilities of disease resistance. There are different appearances. Body weight at 120 days is 1200g for male and 950g for female. Adult body weight is 2060g for male and 1890g for female. Average age at first egg is over 180 days. Average egg number is 120~130 per year per hen. Egg weight is about 53.6g. Eggshell color is pink. Egg shape index is 1.32. Half evisceration rate is 86.04% for adult male and 85.5% for adult female. Evisceration rate is 76.86% for adult male and 72.01% for adult female.

### 31. Huaibei Partridge (also called Shuxian Ma, Fuli)

**Distribution:** Originated in Shuxian County, Anhui Province; distributed in Tanxi County, Huaibei County, and Xiaoxian County, Anhui Province

**Population size:** Not available

**Major characteristics:** egg-broiler type, small body size, living in different conditions, abilities of disease resistance, strong ability to find food, good meat quality, high performance of laying eggs. Body weight is 28.5g for the day-old chick and 110.2g for 30-day old chick. Adult body weight is 1500g for male and 1250g for female. Average age at first egg is over 150~180 days. Average egg number is 180 per year per hen. Egg weight is about 44g. Most popular eggshell color is pink, following is white and the least is brown. Egg shape index is 1.34. Half evisceration rate is 83.5% for adult male and 80.9% for adult female. Evisceration rate is 70.9% for adult male and 68.7% for adult female.

### 32. Xuanzhou

**Distribution:** Nanling County, Anhui Province

**Population size:** 4,630,000 chickens were bred in 1980

**Major characteristics:** egg-broiler type, medium body size, yellow leg, yellow feather and skin. Adult body weight is 1830g for male and 1480~1590g for female. Half evisceration rate at 6~7 month is 80.56% for male and 79.14% for female. Evisceration rate at 6~7 month is 71.5% for male and 68.71% for female. Average age at first egg is over 240 days. Average egg number is 140 per year per hen. Egg weight is about 53.5~56.3g. Most popular eggshell color is red and dark yellow. Egg shape index is 1.3~1.35.

### 33. Zhangzhou Fighting

**Distribution:** Originated in Zhangzhou city and its suburbs, distributed in Xiamen City and Quanzhou City, Fujian Province

**Population size:** Over 200 chickens were bred in 1985

**Major characteristics:** rectangle body shape, fawn beak, pea comb, yellow leg, and white skin. The surface plumage throughout is palm yellow or henna for hen and henna or tan for cock. The hen's feather color is tan on the neck, brown on the back to tail, fawn on the belly. The cock's feather color is dark red or golden on the neck, dark red on the back, black on the breast. The little chick grows very slowly before one-month old. They grow faster when their body weight is over 500g. Average egg number is 80 per year per hen. Average egg weight is 49.5g.

### 34. Chongren Partridge

**Distribution:** Chongren County, Jiangxi Province

**Population size:** 15,000,000 chickens were bred in Chongren County in 1997

**Major characteristics:** The hen has two, red single comb, comeliness head, closely feather, and bright red wattle. The cock has colorful feather, mainly dark red feather, green tail, black red feather on the breast and belly, red single up-right comb, thin wattle, diamond body shape. Adult body weight is 1457-1627g for male and 1153-1161g for female. Half evisceration rate is 85.9% for male which body weight are 1880g and 84.99% for female which body weight is 1270g. Evisceration rate is 76.26% for male which body weight is 1880g and 67.06% for female which body weight is 1270g. Average age at first



egg is over 180 days. Average egg number is 100~200 per year per hen. The cock has good fertility.

### 35. Yugan Silkies

**Distribution:** Yugan and Chengnan Counties, Jiangxi Province

**Population size:** 1,800,000 chickens were bred in 1999

**Major characteristics:** medicine-type breed, single comb. The surface plumage throughout is black. The color of beak, comb, skin, muscle, bone and toe is black. The hen has comeliness head, closely and puff feather. The cock has purple comb, thin wattle, and diamond body shape. The body weight of the day-old chick is 32.7g. Adult body weight is 1584.6g for male and 1249.8g for female. Average age at first egg is over 156.3 days. Average egg weight is 47.8g at the 500 days. Egg shape is 1.34. Eggshell thickness is 0.32mm.

### 36. Dongxiang Green

**Distribution:** Dongxiang County, Jiangxi Province

**Population size:** 50,000 chickens were bred in 1998

**Major characteristics:** egg-broiler type, single comb. The surface plumage throughout is black. The color of beak, comb, skin, muscle, bone and toe is bright black. The hen has comeliness head, closely and puff feather. The cock has purple comb, thin wattle, and diamond body shape. The body weight of the day-old chick is 33.2g. Adult body weight is 1654.6g for male and 1306.7g for female. Half evisceration rate is 78.4% for male which body weight are 1809.6g and 81.8% for female which body weight is 1307.8g. Evisceration rate is 64.5% for male which body weight are 1809.6g and 71.2% for female which body weight is 1307.8g. Average age at first egg is over 152 days. Average egg weight is 49.6g at the 500 days. Eggshell color is aqua. Egg shape is 1.33. Eggshell thickness is 0.35mm.

### 37. Kangle

**Distribution:** Wanzai County, Yichun Prefecture, Jiangxi Province

**Population size:** 10,000,000 chickens were bred in 2001

**Major characteristics:** broiler-egg type, yellow beak, yellow foot and skins. The hen has comeliness head, bright red single up-right comb, and red earlobe. The cock has tan or red feather, tail with a high angle, like U shape, 10~15 pieces of green tail feathers. Adult body weight is 1875.6g for male and 1426g for female. Half evisceration rate is 84.37% for male which body weight are 1530g and 79.95% for female which body weight is 1180g. Evisceration rate is 78.2% for male which body weight are 1530g and 66.6% for female which body weight is 1180g. Average age at first egg is over 170.4 days. Average egg weight is 38.5g at age at the first egg. Average egg weight is 48.6g at the 500 days.

### 38. Ningdu Sanhuang

**Distribution:** Ningdu County, Jiangxi Province

**Population size:** 6,000,000 chickens were sold to Guangdong Province in 1996

**Major characteristics:** small body size, slim head and foot, yellow beak, yellow foot and skins, red comb and wattle. The cock has serrated single comb with 5~6 points, tan short and wide beak, fawn feather on the breast and belly, saffron leg and short foot. The hen has serrated single up-right comb with 4~5 points, red earlobe. The body weight is  $31.09 \pm 1.64$ g for the day-old chick. Adult body weight is  $2100 \pm 80.0$ g for male and  $1350 \pm 89.2$ g for female. Half evisceration rate is 84.2% for male which body weight is  $2100 \pm 80.0$ g and 79.7% for female which body weight is  $1209.1 \pm 132.3$ g. Dressing percentage is 90.64% for male which body weight is  $2090.5 \pm 91.4$ g and 90.8% for female which body weight is  $1209.1 \pm 132.3$ g. Average age at first egg is over 130~150 days. Average egg weight is  $44.83 \pm 2.28$ g at the 500 days. Eggshell color mainly is fawn with a proportional of 78.8% and some eggshell color is also white or brown. Eggshell thickness is 0.316mm. Egg shape index is 1.312.

### 39. Jining Bairi

**Distribution:** Originated in Jining County, Shandong Province, distributed in Wenshang, Jiaxiang and Jingxiang Counties, Shandong Province

**Population size:** Small numbers were bred in 1998

**Major characteristics:** egg-type breed, small body size, back like U shape. The head shapes are mainly flat on top and only 10% are. The feather colors of hen are purple, yellow etc. The largest

population is chickens with purple feather. The feathers on the head and neck are purple of the chickens with purple feather. A black stripe through each feather laced with golden, the slight or dark purple feathers on the shoulder and wing. The hen's feather color is approximately the same color. The proportion is 80% of the cock with red feathers in the whole population. There are also some cocks with yellow feather. The cock has single comb, bright red comb, face and wattle, white skin. The colors of foot are cyan or gray. The body weight of the day-old chick is 29.63g. Adult weight is 1320g for male and 1230g for female. Half evisceration rate at 6.5-month is 77.3% for male, and 84% for female, respectively. Evisceration rate at 6.5-month is 57.7% for male and 63.8% for female. Average age at first egg is 146th days. Average egg number is 130~150 per year per hen with the maximum number are over 200. Egg weight is about 42g. Eggshell color is pink. Egg shape index is 1.31.

#### **40. Wenshang Patterned**

**Distribution:** Originated in Wenshang County and neighboring area, Shandong Province

**Population size:** Small numbers were bred in 1998

**Major characteristics:** The breed has the approximately body shape, up-right neck, narrow fore body shape, long and flat back, wide and round rear, long leg and tail feather with a high angle, a black stripe through each feather. The body shape look like "Yuanbao" shape. The feather on the hen's head and neck laced with red orange or yellow. The cock has single comb, dual-comb, pea comb, rose comb and strawberry comb, white skin. The colors of foot are cyan or gray. Basic color of beak is black and the border color of the beak is white. Adult weight is  $1400 \pm 130$ g for male and  $1260 \pm 180$ g for female. Half evisceration rate at 6-month is 81.24% for male, and 80% for female, respectively. Evisceration rate at 6-month is 71.21% for male and 68.9% for female. Average egg number is 180~200 per year per hen. Egg weight is between 35~52g. Average Egg weight is about 45g. Most eggshell colors are pink and some are white. Egg shape index is 1.32.

#### **41. Langya (also called Jiaonan huang, Liangcheng, Rizhao Ma)**

**Distribution:** Originated in south of Jiaonan City and northeast of Rizhao City, Shandong Province, distributed in Jiaonan, Rizhao, Wulian and Zhucheng Cities, Shandong Province

**Population size:** 2,000,000 were bred in 1978 and decreased gradually since 1978

**Major characteristics:** The cock has wide and deep breast, wide and long leg, large body size, large up-right comb. The color of feather on the neck, shoulder and saddle is golden. Other feathers are henna. The hen has small and compact body conformation, closely feather, and shorter leg, tail with a high angle. The color of feather is tan on the neck, black on the primary and tail, pale yellow on the fore breast, dark color on the back with some brown mottles, gray single-comb, white skin. The body weight is 39.5g for the day-old chick. Adult weight is 1400~1750g for male and 1390~1870g for female. Half evisceration rate is 81.9% for adult male, and 77.1% for adult female, respectively. Evisceration rate is 72.0% for adult male and 66% for adult female. Average egg number is 150 per year per hen. Average Egg weight is about 55.9g. Eggshell color is pink. Egg shape index is 1.33~1.34.

#### **42. Yantai Sankang**

**Distribution:** Penglai, Longkou and Laizhou Cities, Shandong Province

**Population size:** 1,300,000 chickens were bred in 1978 and decreased gradually since 1978

**Major characteristics:** egg-broiler type, medium body size, compact body structure. The cock has large body size, wide and deep breast, tail with a high angle. The colors of cock are bright red or dark red. The color of feather on the neck, shoulder and saddle is golden. Other feathers are henna. The cock with bright red feather has red single comb, red wattle and face, red earlobe, bright gray beak, leg and toe. The mainly color of skin are pure white. The hen has compact body conformation, round rear and tail shape with a tip like shape, white skin. Adult weight is  $2130 \pm 410$ g for male and  $1590 \pm 390$ g for female. Half evisceration rate is 81.6% for male at 6-month, and 72.1% for adult female, respectively. Evisceration rate is 70.8% for male at 6-month and 72.2% for adult female. Average egg number is 163.3 per year per hen with the maximum number is 260. Average Egg weight is about 54.3g. Eggshell color is pink or henna. Egg shape index is 1.3.

#### **43. Luxi Fighting**

**Distribution:** Originated in Juancheng, Caoxian and Chengwu County, Heze Prefecture, Shandong Province

**Population size:** 1,000 chickens were bred in 1998

**Major characteristics:** A fancy breed with large body size and compact body structure. The cock has large body size, strong breast muscle, long leg, tail with a high angle, leg without feather, wide distance among 4-toe and foot. The feather colors of cock are black, red and white. The comb is hump. The body weight is 43.5g for the day-old chick. Adult weight is 2890g for male and 2070.6g for female. Half evisceration rate is 82.9% for adult male, and 84.2% for adult female, respectively. Evisceration rate is 77.9% for adult male and 76.6% for adult female. Age of the first egg is 200~240 days. Average egg number is 40 per year per hen with the maximum number is 60. Average Egg weight is about 54.3g. Eggshell color is dark red. Egg shape index is 1.31.

#### 44. Zhengyang Sanhuang

**Distribution:** Originated in Zhengyang, Runan and Queshan Counties, Henan Province

**Population size:** 400,000 chickens were in 1980

**Major characteristics:** An egg-broiler type, small body size, symmetry body structure, compact body conformation, yellow beak, yellow feather, yellow leg. The cock has single up-right comb and dual-comb, red iris, golden feather. The color of hen's leg is bright yellow. The hen has round breast and abundance muscle. Adult weight is 2000g for male and 1500g for female. Half evisceration rate is 81% for male at 5-month, and 80% for female at 6-month, respectively. Evisceration rate is 72.0% for male at 5-month and 71.79% for female at 6-month. Average age at first egg is 194 days. Average egg number is 153 per year per hen. Average Egg weight is about 42g. Eggshell color is puce. Egg shape index is 1.33.

#### 45. Lushi

**Distribution:** The major producing area is Lushi County, Henan Province

**Population size:** 320,000 chickens were bred in 1980

**Major characteristics:** egg-broiler type, small body size, compact body conformation, good development of the rear, closely feather, slim neck, flat back, tail with a high angle, long leg with cyan. The colors are complex. The combs are mainly single comb. The cock feather colors are mainly dark red. Adult weight is 1700g for male and 1110g for female. Half evisceration rate at 6-month is 79.7% for male and female. Evisceration rate at 6-month is 75% for male and female. Average age at first egg is 170 days. Average egg number is 110~150 per year per hen. Average age at first egg is 170 days. Average Egg weight is about 46.75g. Eggshell color is pink or cyan. The proportion of the eggshell which color is ping is 96.4%. Egg shape index is 1.32.

#### 46. Henan Fighting

**Distribution:** Kaifeng, Zhengzhou and Luoyang Cities, Henan Province

**Population size:** over 9,000 chickens were bred in 1986

**Major characteristics:** A fancy breed. The body conformation are four types: coarse loosen type, fine type, compact type, fine-compact type. Head shape looks like diamond shape. There are. The feather color is mainly cyan, red and white. The combination of these colors composed of cyan, red, purple, white and other colors. The bone is stronger than normal breed. The bone of the breast is long. The distance between toes is wider than normal breed. Adult weight is 3500g for male and 2000~3000g for female. Half evisceration rate at 6~7-month is 82.9% for male and 77.85% for female. Evisceration rate at 6~7-month is 84.1% for male and 76.63% for female. Average age at first egg is 8-month. Average egg number is 82~121 per year per hen with the maximum number are 130. Average Egg weight is about 50~60g. Eggshell color is puce or light brown. The eggshell thickness is thicker than normal breed's eggshell thickness.

#### 47. Hongshan

**Distribution:** Hongshan, Suixian and Ciyang Counties, Hubei Province

**Population size:** Approximately 65,000 chickens are bred in 1981.

**Major characteristics:** egg-broiler type. Having "san huang yi qiao" and "san huang yi chui". "San huang yi qiao": yellow plumage, yellow beak, and yellow shank, tail with a high angle above horizontal. "San huang yi chi ": yellow plumage, yellow beak, and yellow shank, tail with a low angle above horizontal. Head: broad, short. Neck: medium length. The popular comb: Single comb. Birth weight: 26.15g. Evisceration rate: 6-month old, male, 69.99%; female, 73.24%. Half evisceration rate: male, 73.75%; female, 78.72%. Age of fist egg: 210~225-day old. Egg number: 137 eggs per hen per year. Egg

weight: 48g. Eggshell color: commonly white. Egg shape index: 1.27.

**48. Jianghan** (also called Local chick, Ma chick)

**Distribution:** Jianghan Plain, Hubei Province.

**Population size:** over 40,000,000 chickens were fed in producing area in 1979.

**Major Characteristics:** egg-broiler type. Small body-size. Long body size and short shank. Rear develops well. Most of its tail feathers lean. Male head: large in size, rectangle-shaped. Most of them have upright bright red single combs. Female head are smaller than males, and has single comb, which fall to one side sometimes. The feather color of female: commonly, sandy beige, buff. Beak and shanks have blue and yellow two colors. Growing slowly. Adult weight: male, 1272~1750g; female, 1249~1330g. Half evisceration rate: 6~8-months old, male, 75.5~79.81%; female, 78.83~79.99%. Evisceration rate: male, 67.82~73.5%; female, 71.35~73.56%. Age at first egg: 180-270-day old. Egg number: one year, one hen, and 153 eggs. Egg weight: 42.92-45.13g. Eggshell color: commonly brown, sometimes white. Eggshell thickness: 0.38-0.41mm. Egg shape index: 1.27-1.29.

**49. Shuanglian** (Erda chick)

**Distribution:** Dangyang County, Hubei Province.

**Population size:** Approximately 42,000 chickens are bred in 1981.

**Major characteristics:** Egg-broiler type. Medium body size. Symmetric posture. Broad and deep head. The popular surface color of male: henna, sandy beige. Majority of female surface color is yellow. Single comb take first place. Male comb erects. Female comb commonly drops to one side. Few have rose combs. Major of shanks color is yellow and blue. Birth weight: 35.92g. Adult weight: 2060 g for male and 1702 g for female. Evisceration rate: 72.99% for 178-day old male; 74.68% for female before laying. Half evisceration rate: male, 79.82%; female, 80.62%. Age at first egg: 210-day. Egg number: one year, one hen, and 163 eggs. Egg weight: 51.5g. Eggshell color: 79% of all, Sandy beige. Eggshell thickness: 0.419mm. Egg shape index: 1.25-1.26.

**50. Yunyang Large**

**Distribution:** Shennong Jia Forest District, Zhushan County, Hubei Province

**Population size:** Over 50,000 chickens are bred in 1982.

**Major characteristics:** puff feather. Long neck, Long shank, Drooped tail. They are similar with ostrich in shape. Rose comb or single comb. Iris is golden. Beak: tubby, nicely curved. Wattle: red, small. Shank: Black. Female surface color: commonly, yellow, yellow, few, black and white. Male surface color: red, golden. Birth weight: 38.64g. Adult weight: male, 3.3kg; female, 2.3kg. Age at first egg: 192-day old. Egg number: one year, one hen, and 142 eggs. Egg weight: 58.73g. Eggshell color: sandy beige. Egg shape index: 1.35.

**51. Yunyang White Silkies** (also called Wu Chicken and Silkies)

**Distribution:** Yunyang Prefecture, Hubei Province

**Population size:** Approximately 35,000 chickens are bred in 1979.

**Major characteristics:** Surface color is white. Skin, muscle, stone, beak color are black. Single comb, Green ear, White plumage, Patch feather, Tail with a high angle, Naked shank, Four toes, Black skin, Black muscle, Black bone. Small body size. Adult weight: male, 1.43kg; female, 1.23kg. Evisceration rate: 8-month old, male, 79.27%; female, 81.68%. Half evisceration rate: male, 68.49%; female, 72.89%. Egg number: one year, one hen, and 144 eggs. Egg weight: 46.44g. Eggshell color: sandy beige. Egg shape index: 1.31.

**52. Huanglang** (also called Xianghuang)

**Distribution:** Xiangjiang River valley; Hengdong, Hengnan, Hengshan, Yongxing, Guidong and Liuyang Counties along the Peking-Guangzhou Railway.

**Population size:** Approximately 3,000,000 chickens are bred in 1982.

**Major characteristics:** egg-broiler type. Small body size. Burly constitution. Body is oval. Single upright comb with 5-7 points. Iris color is saffron. Male surface color is golden-yellow and canary. Female surface color is canary. Yellow Beak, shanks, and skin. Cyan beak and shank is few. Birth weight: 29g. Adult weight: male, 1.46kg; female, 1.28kg. Evisceration rate: 5-month old, male, 74.4%; female, 67.34%. Half evisceration rate: male, 81.78%; female, 77.89%. Age at first egg: 170-day old. Egg number: one year, one hen, and 160 eggs. Egg weight: 41.43g. Eggshell color: sandy beige. Eggshell thickness: 0.39mm.

Egg shape index: 1.33.

### 53. Zhongshan Shalan

**Distribution:** Zhongshan, Shunde, and Fanyu Counties, Guangdong Province.

**Population size:** Approximately 50,000 chickens are bred in 1981.

**Major characteristics:** Broiler type breed. Medium or small body size. Moderate head size. Most have single upright comb. Chubby body. Developed breast muscle. Surface color: male, yellow, red and female, yellow, maze. Shanks color is yellow or white, the latter of which is common. Skin color is yellow and white, the latter takes first place. Birth weight: 32.2g. Adult weight: male, 2.2kg; female, 1.6kg. Evisceration rate: 105-day old, male, 81.12%; female, 78.82%. Half evisceration rate: male, 86.16%; female, 85.93%. Age at first egg: 150~180-day. Egg number: 70-90 eggs per hen per year. Egg weight: 45g. Eggshell color: brown, sandy beige.

### 54. Yangshan

**Distribution:** Yangshan County, Guangdong Province.

**Population size:** Not available in 1987.

**Major characteristics:** broiler-type breed, broad deep breast. Back is straight from front to rear. Body shape is rectangle. Leg: long. Foot: long. Skin: yellow. Beak: yellow. Female has single upright comb. Dark red large comb, wattle, ear. Iris: golden. Plumage: large type, medium type, small type. Adult weight: male, 2.3kg; female, 1.8kg. Evisceration rate: male, 180~240-day, 75.5%; female, 140~150-day, 75%. Half evisceration rate: male, 84.7%; female, 85.7%. Age at first egg: 7~8-month. Egg number: one year, one hen, and 40-47. Egg weight: 43.15g. Eggshell color: beige. Egg shape index: 1.39.

### 55. Huaixiang

**Distribution:** Xinyi County, Guangdong Province.

**Population size:** Not available in 1981.

**Major characteristics:** broiler-type breed, large body size or small body size. The large body size has wide stone and long leg. The small body size has slender stone and short leg. Single up-right comb. Tan beak. Bright red Ear lobe or wattle. Male surface color is bright. Surface color on head and neck feather is golden. Two types tail feather: short-type, long-type. Majority of female surface color in all sections is yellow. Yellow shanks and toes. Birth weight: 25-30g. Adult body weight: male, 1.77kg; female, 1.72kg. Evisceration rate at the adult: male, 73.8%; female, 72.9%. Half evisceration rate: male, 82.35%; female, 84.16%. Age at first egg: 5~6-month. Egg number: one year, one hen, and 80 eggs. Egg weight: 43.42g. Eggshell color: white, salmon. Egg shape index: 1.38.

### 56. Nandan Yao

**Distribution:** Nandan County, Guangxi Zhuang Autonomous Region

**Population size:** 5,000 chickens were bred in 1981.

**Major characteristics:** Black Primaries, main tail feather, beak or shanks. Dark yellow primary covert. Single comb. Yellow Iris. Red wattle and ear lobe. Male surface color: golden, red, dark yellow. Female surface color: black, black-white, dusk yellow. Adult weight: male, 4.6kg; female, 2.7kg. Evisceration rate: small body size male, 77%; large body size female, 86.1%. Half evisceration: male, 82.5%; female, 90%. Age at first egg: 6~7-month. Egg number: one year, one hen, and 88 eggs. Egg weight: 48g. Eggshell color is bay.

### 57. Guangxi Sanhuang (also called Xindu, Nuodong, Da'an, Madong and Jiangkou chicken)

**Distribution:** Guiping, Pingnanteng, Changwu, Hexian, Lingxi and Rongxian Counties, Guangxi Zhuang Autonomous Region.

**Population size:** Approximately 10,000,000 chickens were bred in 1985.

**Major characteristics:** Male surface color is red. Color of feather on the neck is paler than on other sections. Wing feather is laced with black. Black tail feather. Single comb. Saffron Iris. Yellow Beak and foot. White skin. Birth weight: 28.8g. Adult weight: male, 1.98-2.32kg; female, 1.39-1.85kg. Half evisceration rate: female, 150-day old, 83.5%; capon, 180~200-day, 85%. Evisceration: female, 75.1%; capon, 77.8%. Age at first egg: 150~180-day. Egg number: one year, one hen, and 77.1 eggs. Egg weight: 41.07g. Eggshell color: sandy beige. Egg shape index: 1.28~1.53.

#### **58. Jinyang Silkies** (also called “wool chick” or “shongmao chick”)

**Distribution:** Jinyang and neighbour counties, Liangshan Yi Autonomous Prefecture, Sichuan Province.

**Population size:** Over 500 chickens were bred in 1980.

**Major characteristics:** Silked-structure plumage is like pine needle or wool, so they are called “wool chick” or “songmao chick”. Surface: white, black, mottle. Red single comb. Female has small body size. Moderate head size. Salmon beak. White ear lobe. Red or fuchsia face. Saffron or nacarat Iris. White skin. Salmon shanks. Majority is free from shank feathers. 4-toe. Adult weight: male, 1.45kg; female, 2.23kg. Percentage of leg muscle yield: male, 37.6%; female, 34.3%. Age at first egg: 160-day old. Average egg weight: 52.6g. Eggshell color: sandy beige. Egg thickness: 0.31mm. Egg shape index: 1.34.

#### **59. Jiuyuan Black**

**Distribution:** Wanyuan, Baisha, Chengkou and Yihan Counties, Sichuan Province.

**Population size:** 10,000 chickens were bred in 1983.

**Major characteristics:** Large body size. Body shape is rectangle. Skin color is white or bright black. Single comb or compound comb. Comb and wattle color is red or purple. Black shanks. Majority is free from no shank feather. Female surface color is black with lustrous green. Male surface color is dark red. Adult weigh: male, 2.62-4.4kg; female, 1.76-3.1kg. Evisceration rate: adult, male, 79%; female, 67%. Egg number: one year, one hen, 100. Egg weight: 54.6-61.3g. Eggshell color is sandy beige. Proportion of blue eggshell is 5%. Egg thickness: 0.30mm. Egg shape index: 1.37.

#### **60. Miyi**

**Distribution:** Miyi County and adjacent counties, Sichuan Province.

**Population size:** Approximately 93,000 chickens were bred in 1980.

**Major characteristic:** Large body size. Body shape is brick. Majority has single comb, minority have pea comb. Chestnut iris. Red or purple wattle. Black beak and shanks. Majority has shank feathers and toe feathers. White, gray or black skin. Major female surface color is deep partridge. Minority is dark red. Male surface color is red or dark red. Adult weight is 2.41-2.88kg for male and 2kg for female. Percentage of muscle at adult is 78% for male and 70% for female. Egg number at 500-day old is 42 per year per hen and egg weight is 52.4-55.1g. Eggshell color is brown. Eggshell thickness is 0.31mm. Egg shape index is 1.3.

#### **61. Xingwen Silkies**

**Distribution:** Originated in Xingwen County, Sichuan Province; distributed in Gongxian, Junlian, Gaoxian and Xuyong Counties, Sichuan Province.

**Population size:** 2,200,000 were bred in 1996.

**Major characteristics:** Surface color is black, or white. Bright black comb, face, wattle, toes, skin or tongue. Black muscle, tone or viscous. Large body size. Burly constitution. Majority of feather shape is patch. Minority is crossed feather or silkies. Adult weight: male, 2.7kg; female, 2.2kg. Evisceration rate: adult, 79.5%. Age at first egg: 180~210-day old. Egg number: one year one hen 100-120. Egg weight: 58g. Eggshell color: beige.

#### **62. Shimian Caoke**

**Distribution:** Shimian County, Ya'an Prefecture, Sichuan Province.

**Population size:** 180,000 were bred.

**Major characteristics:** Round body. Large body size. Comely, short and wide head. Majority has red single comb. Comb is deeply serrated with 5-9 point. Round red ear. Jacinth Iris. Black, straight and short beak. Gray black shanks are common. Minority is black. Male has big and upright comb. Black Surface colors in all sections. Female surface color is complex, majority of which is black, yellow, gray or white. Adult weight: male, 3.6kg; female, 3.1kg. Evisceration rate: adult, male, 70%; female, 65%. Half evisceration: male, 82%; female, 80%. Age at first egg: 180-210-day old. Egg number: one year, one hen, and 158 eggs. Egg weight: 55g. Eggshell color: sandy beige. Egg thickness: 0.37mm. Egg shape index: 1.3.

#### **63. Muchuan Silkies Black**

**Distribution:** The central producing area is Shuchuan County, Sichuan Province.

**Population size:** without detailed information

**Major characteristics:** Surface color in all sections is black with lustrous green. Black skin, beak, mucous membrane or m. sphincter aims. Short and broad black Beak. Having single black comb rose black comb, black compound comb; Feathered-leg; Black toes. Adult weight: male, 2.7kg; female, 2.3kg. Meat percentage: male, 56%; female, 50%. Age at first egg: 210-230<sup>th</sup> day. Egg number: one year, one hen, and 110. Average egg weight: 53.9g. Eggshell color: fawn. Egg shape index: 1.35.

#### 64. Luning

**Distribution:** Mianning County, Sichuan Province.

**Population size:** Over 60,000 were bred in 1995.

**Major characteristics:** Large body size. Chubby body conformation. Symmetric body structure. Comb, wattle, face color is Turkey red. Iris is saffron yellow. Minority has feathered-spur. Major color of shank is lilac, minority is flesh color. Beak, skin, muscle color are black. Female surface color is white, dark, black. male surface color is white, yellow and black. Adult weight is 2.5kg for male and 2.2kg for female. Evisceration rate at adult is 66.5% for male and 66.3% for female. Weight of breast muscle and leg muscle is 736.3g for male and 615.75g for female. Age at first egg is 6-month old. Egg number is 130-180 per year per hen and egg weight is 50.5g. Eggshell color is sandy beige. Egg shape index is 1.3.

#### 65. Liangshanya Ying (also called Dagu or Long Leg)

**Distribution:** Meigu County and Leibo County, Sichuan Province

**Population size:** Approximately 500,000 chickens were bred in 1995

**Major characteristics:** Large body size and high body. Body is Quadrel-shape. Deep breast, broad back. Chubby abdomen. Wide and long leg. Single comb is common. Minority have folded comb. Black beak or shank color is. Most have feathered-leg. White or fawn skin. Cock: surface color is red. Black hackle, wing bow or tail feather. Hen: surface color is dark partridge color, yellow, white and black. Adult weight is 2.9kg for male and 2.2kg for female. Evisceration rate at adult is 66.9% for male and 64.3% for female. Age at first egg is 8~10-month. Egg number is 110-140 per year per hen and egg weight is 65g. Eggshell color is sandy beige. Egg shape index is 1.3.

#### 66. Zhuxiang

**Distribution:** Chishui County, Guizhou Province.

**Population size:** Approximately 146,400 chickens were bred in 1983

**Major characteristics:** egg-broiler type breed. Medium body size. Single comb. Flat on the top. Broad breast, deep body. Loosen plumage. Major color of beak and shanks is black. Foot color is gray. Saffron Iris. Majority of surface color is black, yellow take second place. Minority is yellow, black and gray. Skin and muscle color are black for some chicken. Ear lobe is purple-black. Brown or black Iris. Birth weight is 35g. Adult weight is 2.3kg for male and 2.1kg for female. Half evisceration rate is 80.2% and 82.6%, respectively. Age at first egg is 6~7-month old. Egg number is 100-150 per year per hen and egg weight is 47.9g. Eggshell color is sandy beige. Eggshell thickness is 0.4mm. Egg shape index is 1.3.

#### 67. Weining

**Distribution:** Weining Prefecture, Guizhou Province.

**Population size:** Approximately 500,000 chick was bred in 1983.

**Major characteristics:** egg-broiler type. Moderate body size. Tight constitution. Symmetric body structure. Compact plumage. Male: Surface color is reddish yellow. Bay neck, breast, back or wing feather. Black primaries, secondary, abdomen feathers, tail feathers. Single upright comb. Female: major surface color is yellow, black takes second place. Single comb with crest, minority have rose comb. Black shanks and feet. Birth weight is 33.2g. Adult weight is 2.4kg for male and 1.9kg for female. Evisceration rate at adult is 70% for male and 66% for female. Half evisceration rate is 81% and 72%, respectively. Egg number is 70-120 per year per hen and egg weight is 55g. White is the most common eggshell color.

#### 68. Qiandongnan Xiao Xiang

**Distribution:** Liping and Congjiang Counties, Guizhou Province.

**Population size:** 1,000,000 chickens were bred in 1983.

**Major characteristics:** Small body size. Smart action. Adult weight is 1.3kg for male and 1.2 for female. Half evisceration rate is 70.6% for male and 71.8% for female. Annual egg production is 68 with

egg weight of 38.2 g.

#### 69. Long-leg

**Distribution:** Originated in counties in the south of Mount Miaoling, Guizhou Province

**Population size:** 200,000 chicks were bred in 1983.

**Major characteristics:** Large body size and long leg. Male: Surface color in all sections is reddish yellow. Black abdomen feather or wing feather. Tail feather is lustrous greenish black. Majority have single combs, minority have rose combs. Female: and dark-brown take first place. Majority have single comb with flat top, minority have rose comb and beard. Black beak, shank or feet are. Birth weight is 37g. Adult weight is 2.4kg for male and 1.9kg for female. Evisceration rate at adult is 70% for male and 66% for female. Half evisceration rate is 83% and 79%, respectively. Egg number is 50-60 per year per hen and egg weight is 47.9g. Eggshell color is sandy beige. Egg shape index is 1.3.

#### 70. Short-leg

**Distribution:** Xingyi and Anlong Counties, Guizhou Province

**Population size:** 3,000 chickens were bred in 1983.

**Major characteristics:** Symmetric body conformation. Plumage is loosening and close to body. Short leg. Male surface color in all sections is reddish yellow. Reddish saffron back, wing, breast, Iris or hackle. Single comb. Short beak. Broad back is straight from front to rear. Tail with a high angle. Majority of female surface color is. White and take second place. Black beak, shanks and feet, minority is yellow. Birth weight is 36g. Adult weight is 2.3kg for male and 1.7kg for female. Evisceration rate at adult is 74.4% for male and 72.5% for female. Half evisceration rate is 83.4% and 82.5%, respectively. Egg number is 120-150 per year per hen and egg weight is 48g. Eggshell color is white.

#### 71. Wumeng Silkies

**Distribution:** Originated in Bijie, Zhijin, Nayong, Dafang and Shuicheng Counties in the Wumeng Mountains bordered by both Yunnan and Guizhou Provinces.

**Population size:** 3,000 chickens, 1983.

**Major characteristics:** Medium body size. Majority of comb is single comb, and minority is flat comb. Male have large upright comb and thin long wattle. Female comb assume saw. Majority of surface color is black, few is white, barred, yellow or gray. Majority of plumage is multi-slice feather, and minority is fur. Black comb, beak, foot, toe or skin. Greenish black ear. Adult weight is 1.9kg for male and 1.5kg for female. Half evisceration weight is 1.2kg for male and 1.1 for female. Age at first egg is 185~200-day. Egg number is 100-130 per year per hen and egg weight is 40-45g.

#### 72. Nixi

**Distribution:** Zhongdian County, Yunnan Province.

**Population size:** Approximately 25,000 was bred in 1981.

**Major characteristics:** Egg-type breed. Small body size. Compact plumage. Tail feather develop and hold up. Red single comb. Large comb for male is thick and upright. Female comb is thin. Majority of male surface color are bright red, white or black-white. Surface color is complex for female, which have black, white, yellow-pocked. White skin color. No shank feather. Birth weight is 31.7g. Adult weight is 1.4kg for male and 1.2kg for female. Evisceration rate at adult is 69.94% for male and 64.30% for female. Half evisceration rate is 76.39% and 70.58%, respectively. Age at first egg is 6~7-month. Egg number is 150-180 per year per hen and egg weight is 47.8g. Eggshell color is white, and minority is beige. Egg shape index is 1.34.

#### 73. Yanjin Silkies

**Distribution:** Yanjin, Dagan and Weixin Counties, Yunnan Province.

**Population size:** Approximately 30,000 was bred in 1980.

**Major characteristics:** Large body size. Body shape is square ness. Head and tail hold up. Compact plumage. Flat on the top, Single upright comb, Breast develops well, Well-folded wing. Some have shank feather. Majority of surface color is black. It is ripple-yellow, gray, black-yellow, white, red that take second place. The skin, beak, comb, wattle, ear, and face are all black in color. Adult weight is 3.18kg for



male and 2.2kg for female. Evisceration rate at adult is 78.2% for male and 73.2% for female. Half evisceration rate is 84.3% and 84.1%, respectively. Age at first egg is 7-month old. Egg number is 120-160 per year per hen and egg weight is 56.7g. Major eggshell color is hazel, and minority is white. Egg shape index is 1.4.

#### 74. Tengchong Snow

**Distribution:** North and East of Tengchong, Yunnan Province.

**Population size:** Approximately 20,000 was bred in 1997.

**Major characteristics:** Flat feather. Surface color in all sections is white. Black skin, muscle, bone matter. Majority have single comb, minority have rose comb. Comb and wattle is freshly red for male and purple-black for female. Many hens have Z-shaped comb. Black shanks and toes are free from feather. Adult weight is 2.1kg for male and 1.6kg for female. Half evisceration rate at adult is 81% for male and 73% for female. Evisceration rate at adult is 67% for male and 59% for female. Egg number is 150 per year per hen. Egg weight is 41.9g, and Eggshell color is pale brown-white. Egg shape index is 1.3.

#### 75. Yunlong Short-Leg

**Distribution:** Yunlong County, Yunnan Province.

**Population size:** Over 10,000 were bred in 1996.

**Major characteristics:** egg-broiler type. Medium body size, Tighten constitution, Surface color is various, majority of which are gray and yellow. There is black feather around neck. Rose pink skin is common. Single comb. Yellow-red Iris. Beak color is pale black or black. Adult weight is 2kg for male and 1.7kg for female. Evisceration rate at adult is 80.2% for male and 82% for female. Age at first egg is 180~210-day old. Egg number is 213 per year per hen. Egg weight is 58g and eggshell color is white.

#### 76. Xishuangbanna Fighting

**Distribution:** Jinghong County, Xishuangbanna Dai Autonomous Prefecture, Yunnan Province.

**Population size:** Approximately 1,000 was bred in 1981

**Major characteristics:** enjoying-type breed. Large body size and square-shaped body, naked plumage, Small head is like shuttle. Small, cardinal red comb or ear. Majority have short comb. Long neck. Surface color is various, majority of which are black, white, deep red. White skin. Having no shank feathers, toe feather. Adult weight is 2kg for male and 1.4kg for female. Half evisceration rate at adult is 83% for male and 79% for female. Evisceration rate is 78% for male and 74% for female. Egg number is 100-120 per year per hen. Average egg weight is 40g. Eggshell colors are white and slight brown. Egg shape index is 1.35.

#### 77. Lueyang

**Distribution:** Originated in Lueyang, Mianxian, Ningqiang, Chenggu, Yangxian and Xixiang Counties, Shaanxi Province.

**Population size:** Approximately 300,000 was bred in 1985.

**Major characteristics:** Broiler-type breed. Long and sloping body conformation. Broad breast. Loosen Plumage. Majority have single comb, minority have rose comb. Black, fuchsia or red comb, Wattle color is same with comb. Iris color is bay or black. Beak is black and nicely curved. Black shanks and toes. The minorities have shank-feathers. White or black skin, male surface color is black, red or white. Female surface color is mixed, majority of which are black, ripple, white. Adult weight is 2.8kg for male and 2.5kg for female. Half evisceration rate at 180-day old is 86%. Evisceration rate is 81% for male and 83% for female. Average egg number at 500-day old is 73. Average egg weight is 60g. Majority of eggshell color is brown, blue and white take second place. Egg shape index is 1.3.

#### 78. Taibai

**Distribution:** Taibai County, Shaanxi Province

**Population size:** Approximately 15,000 was bred in 1985

**Major characteristics:** broiler-egg type. Cocks have large body size. Back is broad and flat. Tail feathers have a high angle upper horizon. Single upright comb, Comb, wattle and earlobe are coarse, which color is red or fuchsia. White or blue purple skin. Surface color is mixed, which have red, reddish black and white. Hen surface color is complex, which have ripple, yellow, black, white, gray etc. Birth weight is 34.09g. Live weight at 180-day is 2018.5g for male and 1138.2 for female. Evisceration rate is 74% for

male and 71% for female. Half evisceration rate is 81% for male and 80% for female. Day when rate of egg production is 50% is 276~295-day old. Average egg weight is 54.5g. Eggshell color is slight brown, white, and blue in part. Egg shape index is 1.3.

### 79. Shaanbei

**Distribution:** Originated in hilly and gully area in northern Shaanxi Province, the major producing area is Yan'an and Yulin Prefectures and the broad desert area.

**Population size:** Approximately 1,190,000 was bred in 1982.

**Major characteristics:** Egg-type breed. Tightly constitution. Feathers are close to body. They have single comb, rose comb or pea comb. Surface color is white, yellow, black and ripple. Skin color is white or yellow. Birth weight is 36.8g. Body weight at 180-day is 1580g for male and 1320g for female. Half evisceration rate is 75% for cocks and 78% for hens. Evisceration rate is 63% for cocks and 66% for hens. Age at first egg is 180~240-day old. Average egg weight is 50g. Egg shape index is 1.3.

### 80. Haidong

**Distribution:** Minhe, Ledu, Ping'an, Huangyuan, Huangzhong and Datong Counties, Qinghai Province.

**Population size:** Approximately 1,300,000 was bred in 1981.

**Major characteristics:** Small body size, symmetric body conformation. Poll is musty flat and few have crests. Single comb. Some have beard. Surface color is dark, dark ripple for female and black, white, reddish black for male. Surface color on leg is black and some have shank-feathers for male. Birth weight is 34g. Adult weight is 1.9kg for male and 1.4kg for female. Half evisceration rate is 73.5 for male and 75.5% for female and evisceration rate 64.05% and 68.64%. Age at first egg is 8~10-month old. Egg number is 60-80 per year per hen and egg weight is 52g. Eggshell color is tan.

### 81. Turpan

**Distribution:** Mainly distributed in Turpan Prefecture, Shanshan and Toksun Counties, Xinjiang Uygur Autonomous Region. Small numbers are distributed in north of Yili Prefecture,

**Population size:** No assured number in 1985.

**Major characteristics:** Fighting-type. Surface color is mixed, which have black, blight ripple and bay. Poll is broad, flat and long. Ruby folded comb. Red ear lobe or wattle, Surface color on breast is black. Short tail feathers, Main sickles hold up. Most of tail feathers are black with lustrous turquoise. Shank is long and straight. Shank skin color is salmon. Having shank feathers. Birth weight is 39g. Adult weight is 4-4.5kg for male and 3-3.5kg for female. Evisceration rate is 65-70%. Age at first egg is 210~270-day old. Egg number is 60-80 per year per hen and average egg weight 65g. Eggshell color is slight brown.

## Duck

### 1. Shaoxing

**Distribution:** Originated in Shaoxing, Xiaoshan and Zhuji Counties, Zhejiang Province; distributed in the whole Zhejiang Province and suburbs of Shanghai Municipality; south of Jiangsu Province.

**Population size:** over 1,000,000 ducks were bred in 1980

**Major characteristics:** egg-type breed, symmetry body structure, compact body conformation, long narrow body shape, long beak, slim neck, sparrow feather. There are some different collars between male and female. The body weight of the day-old duck is 36~40g. Adult weight is 1301-1422g for male and 1255-1271g for female. Half evisceration rate is 82.5% for adult male, and 84.8% for adult female, respectively. Evisceration rate is 74.5% for adult male and 74.0% for adult female. Age of the first egg is 140~150 days (rate of egg production is 50%). Average egg number is 250 per year per duck with the maximum number is 300. Average Egg weight is about 68g. Egg shape index is 1.4. Eggshell thickness is 0.354mm. Eggshell color is white or cyan.

### 2. Jinding

**Distribution:** Originated in Longhai City, Fujian Province; distributed in Xiamen, Longhai, Tong'an, Nan'an, Jinjiang, Hui'an, Zhangzhou and Zhangpu Cities in Fujian Province

**Population size:** 1,660,000 ducks were bred in 1982

**Major characteristics:** egg-type breed. Male: wide breast, long narrow body shape, Kelly beak,

brown iris, red orange shanks or webs, greenish feathers on the head or up-neck, henna feathers on the front breast, gray brown back, dark brown wing feather. Female: long and slim body shape, compact body structure, long and slim neck, copper-colored beak, red orange shanks or webs, black bay feather. The body weight of the day-old duck is 47.6g for male and is 47.4g for female. Adult weight is 1760g for male and 1730g for female. Half evisceration rate is 79% for adult female. Evisceration rate is 72.0% for adult female. Age of the first egg is 100~120 days. Average egg number is 260~300 per year per duck. Average Egg weight is about 72.26g. Eggshell color mainly is cyan. Egg shape index is 1.45.

### 3. Youxian Partridge

**Distribution:** Originated in Youxian County, Hunan Province

**Population size:** 1,000,000 ducks were bred in 1980

**Major characteristics:** egg-type breed and small body size, narrow long body shape with boat-shape, feather compact. Male: emerald feathers on the head or up-neck, white-ring on the middle of neck, henna feathers on the front breast and lower neck, gray brown wing feather, dark greenish tail and sex feather. Female: feather color is tan with oval-shaped black spot, red orange shanks and webs, black feet. The body weight of the day-old duck is 33g. Adult weight is 1170g for male and 1230g for female. Half evisceration rate is 79% for 85-day old hen and 84.85% for 90-day old cock. Evisceration rate at 85-day old is 71.6% for female. Age of the first egg is 100~110 days. Average egg number is 200~250 per year per duck. Average Egg weight is about 62g. Eggshell color mainly is white with 90% proportion. Eggshell thickness is 0.36mm. Egg shape index is 1.36.

### 4. Jingjiang Partridge

**Distribution:** Originated in Jiangling, Jianli and Mianyang Counties, Hubei Province

**Population size:** 182,500 ducks were bred in 1981

**Major characteristics:** egg-type breed, comeliness head, greenish beak, red orange shanks and webs, feather compact, white eyebrow feather on the eyes. Male: emerald feathers on the head or up-neck, henna feathers on the front breast and back, slight gray tail. Female: the head and neck's feather color is tan red orange shanks and webs, a black stripe through yellow feather. The body weight of the day-old duck is 39g. Adult weight is 1340g for male and 1440g for female. Half evisceration rate is 79.6% for adult male, and 79.9% for adult female, respectively. Evisceration rate is 72% for adult male and 72.3% for adult female. Age of the first egg is 100 days. Average egg number is 214.4 per year per duck. Average Egg weight is about 63.6g. Eggshell color mainly is white with 90% proportion. Eggshell thickness is 0.3mm. Egg shape index is 1.4.

### 5. Sansui

**Distribution:** Sansui County, Guizhou Province

**Population size:** 70,000 ducks were bred in 1983

**Major characteristics:** egg-type breed. Male: long body shape, henna feathers on the head, white ring on the lower neck, dust color back, sandy beige abdomen. Female: long and slim neck, boat-shape body, puce feather, red orange shanks and webs, black feet, short mature period, and high egg production performance. The body weight of the day-old duck is 44.62g. Adult weight is 1690g for male and 1680g for female. Half evisceration rate is 69.5% for adult male, and 73.9% for adult female, respectively. Evisceration rate is 65.6% for adult male and 58.7% for adult female. Age of the first egg is 110~120 days. Average egg number is 200~240 per year per duck. Average Egg weight is about 65.12g. Eggshell color mainly is white. Eggshell thickness is 0.31mm. Egg shape index is 1.42.

### 6. Liancheng White

**Distribution:** Originated in Liancheng, Fujian Province; distributed in Changting, Shanghang, Yong'an and Qingliu Counties, Fujian Province

**Population size:** 700,000 ducks were bred in 1982

**Major characteristics:** egg-type breed, long and narrow body shape, long and slim neck, compact and pure white feather throughout body. Male: 2~4 sex feathers, gray black or black red neck and webs. The body weight of the day-old duck is 40~44g. Adult weight is 1440g for male and 1320g for female. Evisceration rate is 70.3% for adult male and 71.7% for adult female. Age of the first egg is 120 days. Average egg number is 220~230 per duck at the first laying year, 250~280 per duck at the second laying year. Average Egg weight is about 58g. Eggshell color mainly is white. Egg shape index is 1.46.

## 7. Putian Black

**Distribution:** Originated in Putian County, Fujian Province; distributed in Pingtan, Changle, Lianjiang, Hui'an, Jinjiang and Quanzhou Counties, suburbs of Fuzhou City, Fujian Province

**Population size:** 1,000,000

**Major characteristics:** egg-type breed, small body size, slight black feathers throughout body, black shanks, webs, feet. Male: sex feather, lustrous slight black feather on the head and neck. The body weight of the day-old duck is 40g. Adult weight is 1340g for male and 1630g for female. Half evisceration rate at 70-day old is 81.9%. Evisceration rate is 75.3%. Age of the first egg is 120 days. Average egg number is 270~290 per year per duck. Average Egg weight is about 70g. Eggshell color mainly is white.

## 8 Gaoyou (also called Tai, Mian)

**Distribution:** Originated in Lixiahe Region, Jiangsu Province

**Population size:** 1,000,000 ducks were bred in 1980, 100,000 ducks were bred for breeding

**Major characteristics:** dual-purpose breed. Male: rectangle body shape, dark green feather on the head and neck, brown feathers on the back, waist and breast, white feathers on the belly, greenish beak, red orange shanks and webs, black feet. Female: compact feather, slight black bay feather throughout the body, greenish beak, black feet. Adult weight is 2365g for male and 2625g for female. Half evisceration rate is 80%. Evisceration rate is 70%. Age of the first egg is 108~140 days. Average egg number is 140~160 per year per duck. Average Egg weight is about 75.9g. Eggshell color mainly is white. Egg shape index is 1.43.

## 9. Jianchang

**Distribution:** Xichang, Dechang, Mianning, Miyi and Huili Counties, Liangshan Yi Autonomous Prefecture, Sichuan Province

**Population size:** 300,000~400,000 ducks were bred in 1980

**Major characteristics:** Broiler breed, broad body conformation, large head size, wide neck. Male: lustrous dark greenish feather on the head and upper-neck, white ring on the lower neck, black tail, 2~4 pieces of sex feathers, silvery gray feathers on the abdomen. Female: fawn feathers, red orange shanks and webs. The body weight is 37.4g for the day-old duck. Adult weight is 2410g for male and 2035g for female. Half evisceration rate at 6-month old is 72.80% for male and 74.08% for female. Evisceration rate at 6-month old is 78.95% for male and 81.41% for female. Age of the first egg is 150~180 days. Average egg number at 500-day old is 144 per duck. Average Egg weight is about 72.9g. Eggshell color mainly is cyan with the proportion 60~70%. Eggshell thickness is 0.39mm. Egg shape index is 1.37.

## 10. Dayu

**Distribution:** Originated in Dayu County, Jiangxi Province; distributed in Suichuan, Chongyi, Ganxian, and Yongxin Counties, Jiangxi Province; Nanxiong City, Guangdong Province.

**Population size:** 400,000 ducks were bred in 1981; 5,000,000 were bred in 2001

**Major characteristics:** famous with bloat-salted duck. Male: puce feather on the head and neck, dark greenish feather on some duck's head, dark greenish wing feather. Female: brown feathers, dark greenish feather. The body weight is 42g for the day-old duck. Adult weight is 2147g for male and 2108g for female. Half evisceration rate is 84.1% for adult male and 84.5% for adult female. Evisceration rate is 74.9% for adult male and 75.3% for adult female. Age of the first egg is 205 days. Average egg number is 121.5 per duck per year. Average Egg weight is about 70.1g. Eggshell color mainly is white. Eggshell thickness is 0.58mm.

## 11. Chaohu

**Distribution:** Originated in Lujiang County, Chaoxian County, Feidong County, Feixi County, Shucheng and Weiwu Counties, Anhui Province

**Population size:** 400,000~500,000 ducks were bred in 1982

**Major characteristics:** egg-broiler type breed, moderately body size, rectangle body conformation, and compact feather. Male: lustrous dark greenish feather on the head and neck, brown feather with black stripe on the breast, back and waist, white abdomen. Female: fawn feathers with slight black stripe, cyan wing feather, red orange shanks and webs, black feet. The body weight is 48.9g for the day-old duck. Adult weight is 2420g for male and 2130g for female. Half evisceration rate is 83%. Evisceration rate is 72%. Age of the first egg is 105~144 days. Average egg number is 160~180 per duck per year. Average Egg weight is about 70g. Egg shape index is 1.42. Eggshell color mainly is white. The color of few

eggshells is cyan.

## 12. Beijing

**Distribution:** Beijing, Tianjin and Shanghai Municipalities; Guangdong and Liaoning Provinces.

**Population size:** 10,000,000 ducks were bred in 1980, 30,000 breeding ducks in Beijing.

**Major characteristics:** broiler breed, mainly used as force-fed duck, broad rectangle shape body conformation, lustrous pure white feather, saffron or red orange shanks, beak or webs. The body weight is 58~62g for the day-old duck. The body weight at 150-day old is 3490g for male and 3410g for female. Half evisceration rate of the force-feed duck is 81% for male and 81% for female. Evisceration rate of the force-feed duck is 74% for male and 74% for female. The time for the force-feed duck is 57 days. Weight of liver is 300~400g after force-feed. The Age of the first egg is 150~180 days. Average egg number 200~240 per year per duck. Average Egg weight is about 90~95g. Eggshell thickness is 0.358mm. Egg shape index is 1.41.

## 13. Shan Partridge

**Distribution:** The central producing area is Longyanhu Township, Fujian Province

**Population size:** 4,500,000 ducks were bred in 1982

**Major characteristics:** egg-type breed, moderately head size, long and slim neck, large and round eyes, shallow breast, rectangle body conformation, lustrous emerald feather on the head and neck, white ring on the neck. Male: red brown feather on the front of breast, black tail or sex feather. Female: fawn feathers with slight black stripe, red orange shanks and webs, black feet. The body weight is 45g for the day-old duck. Adult weight is 1430g for male and 1550g for female. Half evisceration rate is 72%. Evisceration rate is 70.3%. Age of the first egg is 100 days. Average egg number is 243 per duck per year. Average Egg weight is about 54.5g. Egg shape index is 1.3.

## 14. Weishan Partridge

**Distribution:** Mainly distributed in Nanyang, Dustan, Haying and Weishan Lakes, and the drainage area of the Sihe, Wenhe, Zhaoyuhe, Laoyunhe Rivers in Shandong Province

**Population size:** over 700,000 ducks were bred per year

**Major characteristics:** egg-type breed, small body size, long and slim neck, small size of the front breast, round rear, boat-shape body conformation. Female: the same color of the neck feather and back feather. Beak color mainly is cyan, and less proportion is black gray. Male: red brown feather, black green feather on the head and neck with lustrous blue, red orange shanks or toes, minor is yellow orange, black feet. The body weight is 42.3g for the day-old duck. Adult weight is 1800g for male and 1900g for female. Half evisceration rate is 75.2%. Evisceration rate is 60.2%. Half evisceration rate for commercial production is 84%. Evisceration rate for commercial production is 77%. Age of the first egg is 150~160 days. Average egg number is 140~150 per duck per year. Average Egg weight is about 80g. The color of the egg is turquoise or white. The most popular color of egg is turquoise. Egg shape index is 1.3.

## 15. Wendeng Black

**Distribution:** Originated in Wendeng City, Shandong Province; distributed in Rushan and Mouping Counties, Shandong Province

**Population size:** 180,000 ducks were bred in Wendeng city in 1998

**Major characteristics:** black feather with white top of the wing feather, round head, moderately long neck, fawn skin. Male: turquoise feather on the head and neck, 3~4 pieces of sex feather, black or wax-yellow webs. Adult weight is 1900g for male and 1800g for female. Half evisceration rate is 77.02% for male and 72.58% for female. Evisceration rate is 71.82% and 66% for female. Age of the first egg is 140 days (rate of egg production is 50%). Average egg number is 203~282 per duck per year. Average Egg weight is about 80g. The proportion of egg with slight green is 67% and few with maple or white. Egg shape index is 1.3~1.4.

## 16. Huinan Partridge (also called Gushi)

**Distribution:** Gushi County and Xinyang Prefecture, Henan Province

**Population size:** over 1,400,000 ducks were bred; Gushi County has only 260,000 ducks.

**Major characteristics:** egg-broiler type, medium body size. Male: black head, white ring on the neck, black neck or tail, white breast or abdomen. Female: brown, yellow red toes, greenish yellow beak. The

body weight is 42g for the day-old duck. Adult weight is 1400g for male and 1380g for female. Half evisceration rate is 85% for male and 82% for female. Evisceration rate is 73% and 72% for female. Average egg number is 110~150 per duck per year. Average Egg weight is about 61g. The eggshell color is cyan.

### 17. Enshi Partridge

**Distribution:** The central producing area is Lichuan County, Hubei Province; distributed in southwest part of Hubei Province

**Population size:** Approximately 200,000 ducks were bred, accounting for 48% of the total number in 1981.

**Major characteristics:** Small body size, egg-type breed. Shallow front quarter, Broad rear quarter. Compact plumage. Short and wide neck, Upper head for male is greenish black. Having white loop around neck. Blue green back or abdomen, Yellow toes. 2-3 tail feathers have a high angle above horizontal. Female neck feathers color is mostly mase, which is same with back feather. Adult weight is 1.4kg for male and 1.6kg for female. Evisceration rate at adult is 77% for male and 76% for female. Half evisceration rate is 85% and 84%, respectively. Age at first egg is 180-day old. Egg number is 183 per year per duck and average egg weight is 65g. Eggshell color is mostly white. Egg shape index is 1.4.

### 18. Mianyang Partridge

**Distribution:** Originated in Mianyang County, Hubei Province.

**Population size:** 150,000 young ducks and 50,000 laying ducks were bred. Fore part of head and neck and Primaries are peacock green.

**Major characteristics:** egg-broiler type breed. Large body size. Rectangle-shaped body. Upper head and neck, primary covert color is peacock green with lustrous gold. Lower neck and back feather color is dark brown. Female surface has thin stripe. Saffron yellow shanks, Black web or feet, Birth weight is 48.58g. Adult weight is 1.7kg for male. Evisceration rate is 73.01% for male and 75.89% for female. Half evisceration rate is 80.74% and 80.33%, respectively. Age at first egg is 115~120-day old. Egg number is 163 per year per duck and average egg weight is 79.58g. Eggshell color is mostly white. Egg shape index is 1.41.

### 19. Linwu

**Distribution:** Originated in Linwu County, Hunan Province.

**Population size:** 150,000 young ducks and only 50,000 laying ducks on hand.

**Major characteristics:** broiler-egg type. Large body size. Long body. Rear developed better than front. Cylinder-shaped body. Male: color of feather upper and lower head and neck is mostly dark brown, few of which are green. Having white loop around neck. Dark brown abdomen feathers. Some of which are white or dusky yellow. Having 2-3 sex feathers. Female surface color in all sections is yellow or dusky yellow. Color of beak and feet is tan or saffron yellow. Birth weight is 42.67g. Adult weight is 2.5-3kg for male and 2-2.5kg for female. Evisceration rate is 75% for male and 76% for female. Half evisceration rate is 85% and 87%, respectively. Age at first egg is 160-day old. Egg number is 180-220 per year per duck and average egg weight is 67.4g. Eggshell color is mostly white. Egg shape index is 1.4.

### 20. Zhongshan Partridge

**Distribution:** Originated in Zhongshan County, Guangdong Province; distributed in the delta area of the Pearl River.

**Population size:** 150,000 young ducks and 50,000 laying ducks on hand.

**Major characteristics:** egg-broiler type. Small or medium body size. Male: head and beak are larger. Deep and long body, Head feather, Neck and back feather. Having white loop around neck. Sandy beige breast feathers, Abdomen feathers and Emerald mirror feathers, Female plumage color is mostly brown. Having a white loop around neck, and Orange yellow web. For grazed duck, Birth weight is 48.4g. Adult weight is 1.7kg Evisceration rate at 63-day is 75.7% for male and 75.36% for female. Half evisceration rate is 84.37% and 84.48%, respectively. Age at first egg is 130~140-day old. Egg number is 180-220 per year per duck and average egg weight is 70g. Eggshell color is white. Egg shape index is 1.5.

### 21. Jingxi Large Partridge

**Distribution:** Jingxi, Debao and Nabo Counties, Guangxi Zhuang Autonomous Region.

**Population size:** 1,000,000 young ducks were produced each year. Breeder duck is over 2000.

**Major characteristics:** Large body size. Rectangle-shaped body. Head feather color is greenish black, black white with thin nod or bright green. Color of shanks and web is baccarat, brown, and saffron yellow or dark brown. Birth weight is 48g. Adult weight is 2.7kg for male and 2.5kg for female. Evisceration rate at 90-day is 72.77% for male and 72.61% for female. Half evisceration rate is 84.08% and 80.21%, respectively. Age at first egg is 130~140-day old. Egg number is 140-150 per year per duck and average egg weight is 86.7g. Eggshell color is blue or white. Egg shape index is 1.4.

## 22. Guangxi Small Partridge

**Distribution:** Pingnan, Guiping, Tengxian and Cangwu Counties, Guangxi Zhuang Autonomous Region.

**Population size:** Over 15,000,000~20,000,000 ducks were bred in 1981.

**Major characteristics:** Some have white loop around neck. Having green mirror feather on head and wing bar. Adult weight is 1.41-1.8kg for male and 1.37-1.71kg for female. Half evisceration rate is 80.42% for male and 77.57% for female. Evisceration rate is 71.9% and 69.04%, respectively. Age at first egg is 120~150-day old. Egg number is 200-220 per year per duck. Average egg weight is 65g. Eggshell color is mostly white. Egg shape index is 1.5.

## 23. Sichuan Partridge

**Distribution:** Yongchuan and Wenjiang Counties; Mianyang, Leshan, Yibin and Neijiang Cities, Fuling, Wanxian and Daxian Prefectures, Sichuan Province.

**Population size:** Over 1,000,000 ducks were bred in 1983.

**Major characteristics:** Small body size, egg-broiler type compact body. Female: surface color is mostly brown. Grounding of feather on rear end is sandy beige with black spot. Having white loop lower neck. Male feather color is blue head or bay head. The former have emerald feather on neck. White abdomen feather. Bay feather on front of breast, and Adult weight is 1.68-2.1kg for male and 1.86-2kg for female. Evisceration rate at 6-month is 70% for male. Drake has no nesting. Egg number is 120-150 per year per duck. Average egg weight is 71.8-74.88g. Eggshell color is mostly white. Few are blue. Eggshell thickness is 0.4mm.

## 24. Xingyi

**Distribution:** Originated in Xingyi, Anlong, Xingren and Zhenfeng Counties, Guizhou Province.

**Population size:** Over 600,000 ducks were bred in 1981.

**Major characteristics:** Same body size, egg-broiler type. Round and square body. Loosen plumage. Wide, large head, Green head is a 90% of drake. Feather upper head and neck, tail feather are lustrous greenish black. Having a white loop on neck. Brown breast feather, Color of feather on back is black, brown and white. Over 70% of female is this color. Saffron yellow web and black feet. Birth weight is 45g. Adult weight is 1.62kg for male and 1.56kg for female. Half evisceration rate is 83.11% for male and 73.6% for female. Age at first egg is 145~150-day old for duck hatched in spring and 180~200-day old for duck hatched in summer. Egg number is 107-180 per year per duck. Average egg weight is 70g. Eggshell color is milk white or Reseda, the former of which is common. Egg shape index is 1.4.

## 25. Yunnan Partridge

**Distribution:** Qujing, Chuxiong, Baoshan and Kunming Cities, Honghe and Wenshan Counties, Xishuangbanna Autonomous Prefecture, Yuxi, Simao, Dehong and Zhaotong Prefectures in Yunnan Province.

**Population size:** Over 6,000,000 ducks were bred in 1980.

**Major characteristics:** Dual-purpose breed. Drake: deep breast. Rectangle-shaped body. Head and front of neck is dark peacock green with a white loop. Surface color is puce. Gray abdomen feathers. Black tail feathers. Greenish black wing feathers are common. Female: chubby breast and abdomen. Surface color is ma with yellow. Saffron or saffron yellow shanks or web. Black feet. White skin. Adult weight is 1.58kg for male and 1.55 for female. Young duck at 30~40-day old can be taken into the market. Evisceration rate at adult is 74.9% for male and 75.3% for female. Half evisceration rate is 86.4% and 82.5, respectively. Age at first egg is 150-day old. Egg number is 120-150 per year per duck. Average egg weight is 72g. Eggshell color is light blue, blue or white. Egg shape index is 1.4.

## 26. Hanzhong Partridge

**Distribution:** Originated in Hanzhong, Chenggu, Nanzheng, Xixiang, Mianxian and Yangxian

Counties, Shaanxi Province.

**Population size:** Over 90,000 ducks were bred in 1988.

**Major characteristics:** egg-broiler type breed. Small body size and compact plumage. Major surface color is brown. Comely head. Saffron beak. Color of toes and web is mostly jacinth, few of which are black. Surface color is brown. Color of feather on back is dusk yellow with brown spots. Male have 2-3 sex feathers, which is lustrous greenish black. Birth weight is 38.7g. Body weight at 300-day is 1172g for male and 1157g for female. Evisceration rate at 6-month is 78.17% for male and 81.76% for female. Half evisceration rate is 87.71% and 91.31, respectively. Egg number at 300-month is 76. Egg number is 220 per year per duck. Average egg weight is 68g. Eggshell color is mostly white, few of which is blue. Egg shape index is 1.4.

## 27. Taiwan Partridge

**Distribution:** Originated in Yilan of Taipei, Dalin of Taizhong, Pingdong of Tainan, Taiwan

**Population size:** Not available

**Major characteristics:** Adult weight is 1-1.2kg for male and 1.2-1.5 for female. Age at first egg is 120~150-day old. Egg number is 250 per year per duck. Ratio of male and female is 1:40.

## Goose

### 1. Shitou

**Distribution:** Originated in Raoping County, Guangdong Province; distributed in Chenghai Counties, Shantou City, Guangdong Province

**Population size:** 50,000 geese were bred for breeding in 1981; over 100,000 young geese were bred per year

**Major characteristics:** rectangle body shape, large head size, wide neck, high front of body, black sarcoma, dewlap under forehead is developed extending to neck, orange shanks or webs with black spots, beige or milk white skin, very development of black sarcoma, extrude, puce feather on the back, breast or wing, white or gray abdomen. The body weight for the day-old duck is 134g for male and 133g for female. Adult weight is 8850g for male and 7860g for female. Half evisceration rate at 70~90-day old which body weight is 5800g is 81.9% for male and 84.2% for female. Evisceration rate at 70~90g which body weight is 5800g is 71.9% and 72.4% for female. Average egg number is 24 per goose at the first laying year. Average Egg weight is about 176.3g. The eggshell color is milk white. Egg shape index is 1.48. Average egg number is 28 per year after 2 years old. Egg weight is 217.2g. Egg shape index 1.53.

### 2. Wanxi White

**Distribution:** Originated in Huoqiu, Shouxian, Liu'an, Feixi, Shucheng and Changfeng Counties, Anhui Province; Gushi County, Henan Province

**Population size:** over 4,800,000 geese were bred for breeding in 1981

**Major characteristics:** moderately body size, pure white feather, orange sarcoma on the top of head, orange beak, red webs, salmon feet. Adult weight is 6120g for male and 5560g for female. The body weight is 1500g at the 30-day old, 3000~3500g at the 60-day old, 4500g at the 90-day old. Half evisceration rate is 78% for male and 80% for female. Evisceration rate is 70% for male and 72% for female. Average egg number is 25 per year per goose. The age at first egg is 6-month. The eggshell color is milk white. Egg weight is 142.2g. Eggshell color is white. Egg shape index 1.47. The weight of the goose down is 349g per goose.

### 3. Yan

**Distribution:** Originated in Langxi, Guangde, Xuancheng, Liu'an Prefectures, Anhui Province; also distributed in Jiangsu Province

**Population size:** over 180,000 geese were bred for breeding in 1981; over 83% were bred in Wanxi district.

**Major characteristics:** moderately body size, gray feather, gray back, wing, shoulder laced with white, gray white abdomen, round head, orange webs. The body weight is 109.3g for male and 106.2g for female. The body weight is 791.5g at the 30-day old for male, over 5000g at the 5~6 month old. Half evisceration rate is 86.1% for male and 83.8% for female. Evisceration rate is 72.6% for male and 65.3%



for female. Average egg number is 25~35 per year per goose. The age at first egg is 7-month. Average Egg weight is about 150g. The eggshell thickness is 0.6mm and eggshell color is milk white. Eggshell color is white. Egg shape index 1.5.

#### 4. Xupu

**Distribution:** Originated in Xushui River, a tributary of the Yuanshui River, Hunan Province; the central producing area is Xupu County, Hunan Province, distributed in Xupu County and Huaihua Prefecture, Hunan Province

**Population size:** 5400 geese were bred for breeding in 1980, 80,000 geese were bred for commercial production per year.

**Major characteristics:** large body size, compact body structure, closely feather, long body conformation, gray or white feather, yellow bay back, tail or neck, white abdomen, orange webs. The goose with white feather: orange beak, developed sarcoma. The goose with gray feather: moderately sarcoma. The body weight is 122g for the day-old goose. The body weight is 5890g for male and 5330g for female. Half evisceration rate at 6-month is 88.6% for male and 87.3% for female. Evisceration rate at 6-month is 80.7% for male and 79.9% for female. Average egg number is 30 per year per goose. Average Egg weight is about 213g. The eggshell color is white. Egg shape index is 1.28. Eggshell thickness is 0.62mm.

#### 5. Zhedong White

**Distribution:** Originated in Xiangshan, Dinghai, Fenghua, Yinxian, Shaoxing, Yuyao and Shengxian counties and cities, Zhejiang Province

**Population size:** over 130,000 geese are bred in 1980

**Major characteristics:** moderately body size, compact body structure, closely feather, long or long needle body conformation, white feather, extrude developed sarcoma, strong and long leg, long and slim neck, orange beak or webs, white feet. The body weight is 105g for the day-old goose. The body weight is 5044g for male and 3985.5g for female. Half evisceration rate at 70-day old is 81.1%. Evisceration rate at 70-day is 72.0%. Average egg number is 40 per year per goose. The age at first egg is 150-day. Average Egg weight is about 149.1g. The eggshell color is white.

#### 6. Sichuan White

**Distribution:** Originated in Wenjiang, Yongchuan, Leshan, Yibing and Daxian Prefectures, Sichuan Province, as well as Yongchuan Prefecture, Chongqing Municipality

**Population size:** 600,000 were bred in 1979

**Major characteristics:** pure white feather, closely feather, orange beak, shanks, webs, developed sarcoma for adult male goose, not-well developed sarcoma for adult goose. The body weight is 71.1g for the day-old goose. The body weight is 5000g for adult male and 4900g for adult female. Half evisceration rate at 6-month old is 86.3% for male and 80.7% for female. Evisceration rate at 6-month is 72.0% for male and 73.1% for female. Average egg number is 60~80 per year per goose. The age at first egg is 200~240-day. Average Egg weight is about 142.3g. The eggshell color is white.

#### 7. Taihu

**Distribution:** Taihu area of the Yangtse River Delta Region

**Population size:** 1,000,000 were bred in 1980

**Major characteristics:** pure white feather, some gray brown feathers on the eyes, waist or back, orange beak, shanks, webs, white feet, slight curcuma sarcoma. The body weight is 91.2g for the day-old goose. The body weight is 4500g for adult male and 3500g for adult female. Half evisceration rate is 78.6% for young goose, 85% for adult male and 79% for adult female. Evisceration rate is 64% for young goose, 72.0% for male and 73.1% for female. Average egg number is 60~123 per year per goose. Average Egg weight is about 135.3g. The eggshell color is white. Egg shape index is 1.4.

#### 8. Huoyan (also called Wulong, Balayan, Huo)

**Distribution:** Distributed in Laiyang City, Shandong Province; Changtu Counties, Liaoning Province; Tonghua County, Jilin Province; Yanshou County, Heilongjiang Province

**Population size:** 400,000 were bred in Changtu 1980

**Major characteristics:** slight and compact body conformation, moderately head size, smooth sarcoma, triangle-shape eyes, scar-gap on the upper eyelids, dewlap under forehead, oval-round body shape, wide back, extrude and round bread, red orange beak, shanks, webs or sarcoma, white feather. The body weight for the day-old goose is 70~77.7g at male and 68.4~78.5g for female. The body weight is 3700~4500g for adult male and 3500~4300g for adult female. Half evisceration rate at 5-month old is 78.3~81.2% for male. Evisceration rate at 6-month is 70.3~72.6% for male. Average egg number is over 100 per year per goose. Average Egg weight is about 120~130g. The eggshell color is white. Egg shape index is 1.41~1.48. Eggshell thickness is 0.45~0.51mm.

## 9. Wuzhong

**Distribution:** Originated in Qingyuan City, Guangdong Province; distributed in Huaxian, Fogang, Conghua, and Yingde Counties, Guangdong Province

**Population size:** 3,000,000 geese were bred in 1981, 330,000 geese were bred for breeding

**Major characteristics:** short and compact body conformation, flat back, well developed sarcoma for male, black stripe from the beak and lower eyelid to last neck vertebra, white feather on the two side of the neck, black bay feather on wing, shoulder or back, black shanks, webs. The body weight for the day-old goose is 81.4g. The body weight is 3420g for adult male and 2860g for adult female. Half evisceration rate is 87.4% for male and 87.5% for female. Evisceration rate at is 77.4% for male and 78.1% for female. Average egg number is over 29.6 per year per goose. Average Egg weight is about 144.5g. Egg shape index is 1.5. The eggshell color is brown.

## 10. Lingxian White

**Distribution:** Lingxian County, Hunan Province

**Population size:** 70,000 geese were bred per year, 5,000 geese were bred for breeding in 1980

**Major characteristics:** short and compact body conformation, moderately head size, small sarcoma for male, smooth and flat sarcoma for female, white feather, red orange shanks, beak, sarcoma or webs, white feet, yellow skin. The body weight for the day-old goose is 78.17g. The body weight is 4250g for adult male and 4100g for adult female. Half evisceration rate at 6-month is 84.15% for male and 83.95% for female. Evisceration rate at is 78.17% for male and 75.68% for female. The age at first egg is 158 day. Average egg number is over 45.48 per year per goose. Average Egg weight is about 142.51g. Egg shape index is 0.67. Eggshell thickness is 0.59mm.

## 11. Changle

**Distribution:** Changle County, Fujian Province

**Population size:** 27,300 geese were bred per year, 12,500 geese were bred for breeding in 1980

**Major characteristics:** dust color feather, a puce feather belt from the back of head and neck to the brown feather area on the back and tail, yellow or white skin, yellow shanks, webs. The body weight for the day-old goose is 99.4g. The body weight is 4380g for adult male and 4190g for adult female. Half evisceration rate at 70-day old is 83.43% for male and 82.25% for female. Evisceration rate at 70-day is 71.69% for male and 70.23% for female. The weight of liver is 103g for male and 78.80g for female. The weight of liver is 420.26g for force-feed goose and 398.31g for force-feed goose. Average egg number is 30~40 per year per goose. Average Egg weight is about 153g. Eggshell color is white. Egg shape index is 1.4.

## 12. Ili (also called Tacheng)

**Distribution:** Originated in Ili Kazak Autonomous Prefecture and Inner Mongolian Autonomous Prefecture of Bortala, Xinjiang Uygur Autonomous Region.

**Population size:** 60,000~80,000 geese were bred per year in 1985

**Major characteristics:** moderately body size, flat on the top of head, without extrude sarcoma and dewlap under forehead, short neck, broad and extrude breast, gray or white feather. Gray goose: dust color head, neck, back, and waist. Colorful goose: gray and white feathers combination. White goose: white feather. The body weight is 4300g for adult male and 3500g for adult female. Half evisceration rate at 8-month old is 83.6%. Evisceration rate at 8-month old is 75.5%. The age of the sex mature is 10 months. Average age at first age is 10-month. Average egg number is 101per year per goose. Average Egg weight is

about 153.9g. Eggshell color is white. Egg shape index is 1.5. Eggshell thickness is 0.60mm. The weight of the goose down is 192.6g per year.

### 13. Zi'e

**Distribution:** Originated in Suihua City, Songhuajiang Prefecture, Zhaodong City, Zhaoyuan and Zhaozhou County, Heilongjiang Province.

**Population size:** Not available

**Major characteristics:** Small body size. Long round body. Slender neck. Most have tassels on head with small knob. Orange beak, shank or web. Lower forehead drooped husk is smaller. Free from drooped abdomen. White plumage. Adult weight is 4.23kg for male and 3.41kg for female. Evisceration rate is 74.84% for male and 70.72% for female. Half evisceration rate is 80.65% and 83.78%, respectively. Age at first egg is 6-month old. Egg number is 100-180 per year per goose. Average weight is 131.3g. Eggshell color is white.

### 14. Yongkang Grey

**Distribution:** Yongkang and Wuyi Counties, Zhejiang Province.

**Population size:** Approximately 500,000 geese were bred in 1985, including 40,000 breeder geese.

**Major characteristics:** Surface color is gray or light gray. From neck to back, primary covert color is dark. Feather on two sides of neck and front of breast is gray. White abdomen. Comb hunch to form sarcoma. Canary skin. Jacinth web. Adult weight is 4.2kg for male and 3.7kg for female. Evisceration rate is 62%. Half evisceration rate is 82%. Age at first egg is 4~5-day old. Egg number is 40-60 per year per goose. Average weight is 145.4g.

### 15. Minbei White

**Distribution:** Originated in Songxi, Zhenghe, Pucheng, Chong'an, Jianyang and Jian'ou Counties, Fujian Province; distributed in Shaowu, Fuding, Zhouning, Gutian and Pinnan counties, Fujian Province

**Population size:** Approximately 600,000 geese were bred in 1982.

**Major characteristics:** Surface color is white. Saffron yellow beak, toes or web. Having caruncle on the top of head. Male have long neck and broad breast. Birth weight is 95g. Adult weight is 4kg for male and 3.6kg for female. Evisceration rate is 71.61% for male and 69.87% for female. Half evisceration rate is 81.66% and 82.87%, respectively. Age at first egg is 135-day old. Egg production is 3-4 litters per year per goose egg number are 30-40. Average weight is 136.5g. Eggshell color is white. Egg shape index is 1.42.

### 16. Lianhua White

**Distribution:** Originated in Lianhua County, Jiangxi Province.

**Population size:** Approximately 100,000 geese were bred in 1984.

**Major characteristics:** Small body size, broil type breed. Surface color is white. Saffron yellow beak or feet, canary skin. Having a hemisphere saffron yellow sarcoma on the back base of beak. Male have long neck. Male have bigger sarcoma. Female have smaller sarcoma. Birth weight is 101g for male and 99g for female. Adult weight is 4.5-5.5kg for male and 3.5-4.5kg for female. Evisceration rate is 78.9% for male and 76.48% for female. Half evisceration rate is 84.86% and 84.01%, respectively. Age at first egg is 250-day old. Egg number is 24 per year per goose. Average weight is 138g. Eggshell color is milk white.

### 17. Xingguo Grey

**Distribution:** Originated in Xingguo County, Jiangxi Province.

**Population size:** Approximately 4,600,000 geese were bred in 1997.

**Major characteristics:** Cyan beak. Gray head, neck, back, breast and abdomen. Yellow feet and Salmon yellow skin. Male have a sarcoma on the forehead after sex maturity. Birth weight is 93g. Adult weight is 6.8kg for male and 4.5kg for female. Evisceration rate is 68.83% for male and 69.41% for female. Half evisceration rate is 80.98% and 81.46%, respectively. Age at first egg is 180~210-day old. Average weight is 149g. Egg shape index is 1.42. Eggshell color is white.

### 18. Guangfeng Bailing

**Distribution:** Guangfeng County, Jiangxi Province.

**Population size:** Approximately 2,050,000 geese were bred in 1995.

**Major characteristics:** Moderate body size. Tighten and symmetric body. Surface color is white with

sheen. Beige skin. Orange beak shanks or web. Free from dewlap. Having orange sarcoma on forehead. The sarcoma is big and round for male, but is not evident for female. Adult weight is 4.2kg for male and 3.7kg for female. Evisceration rate is 77% for male and 69% for female. Half evisceration rate is 82.63% and 80.12%, respectively. Age at first egg is 180~210-day old. Egg number is 40-60 per year per goose. Average weight is 139g. Eggshell color is milk white. Eggshell thickness is 0.6mm. Egg shape index is 1.5. We can get plume 200g including 25g fluff when goose is dressed.

### 19. Fengcheng Grey

**Distribution:** Fengcheng and Nanchang Cities, Jiangxi Province.

**Population size:** Approximately 5,000,000 geese were bred in 1997.

**Major characteristics:** Medium body size, broiler type breed. Big eye. Gray back, waist, tail, wing. Broad, deep and chubby breast. Broad and flat abdomen. White skin. Saffron yellow shanks or web. Male have wide long neck, big sarcoma projects ahead. Female have flat sarcoma. Birth weight is 88g. Adult weight is 4.28kg for male and 3.5 for female. Age at first egg is 200~240-day old. Egg number is 35-40 per year per goose. Average weight is 158g. Eggshell color is white. To produce goose liver after forced feeding.

### 20. Baizi

**Distribution:** Jinxiang County, Shandong Province.

**Population size:** Not available.

**Major characteristics:** Small body size. Tighten constitution. Long body. Rising broad breast. According to feather color, having gray goose and white goose. Round and square head. Having sarcoma on forehead, which is big and prominent for male. "Black goose" have black beak. "White goose" have jacinth beak with a big dewlap under forehead. Jacinth and short leg. "Gray goose" have gray feet. "White goose" have white feet. Adult weight is 1.2kg for male and 3.6 for female. Age at first egg is 270~300-day old. Egg number is 100-120 per year per goose. Average weight is 160-220g.

### 21. Wugang Copper

**Distribution:** Wugang City, Hunan Province.

**Population size:** Approximately 300,000 geese were bred in 1980.

**Major characteristics:** Medium body size. Ellipse-shaped body. Thin neck. Surface color is white. Saffron yellow beak and blue gray web. Black toes. Birth weight is 945g. Adult weight is 5.24kg for male and 4.41 for female. Evisceration rate is 79.64% for male and 79.11% for female. Half evisceration rate is 86.16% and 87.46%, respectively. Age at first egg is 185-day old. Egg number is 30-45 per year per goose. Average weight is 160g. Eggshell color is milk white. Egg shape index is 1.38.

### 22. Yangjiang (also called Huangzhong)

**Distribution:** Yangjiang County, Guangdong Province.

**Population size:** No detailed information in 1983.

**Major characteristics:** closely plumage. Body is uniformly. Tighten body. Having a bay feather strip from head top to upper neck, which is like mane. So be called. Plumage is close to body. Gray back, wing or tail. Black sarcoma. Orange yellow web. Adult weight is 4.1kg for male and 3.1 for female. Evisceration rate at for 9-month is 74.1% male and 72.91% for female. Half evisceration rate is 82.23% and 82%, respectively. Age at first egg is 150~160-day old. Egg number is 26 per year per goose. Average weight is 141g. Eggshell color is white. Egg shape index is 1.4.

### 23. Magang

**Distribution:** Originated in Magang County, Guangdong Province. Also distributed in Foshan, Zhaoqing, Zhanjiang and Guangzhou Prefectures of the Guangdong Province.

**Population size:** Approximately 162,000 geese were bred in 1981.

**Major characteristics:** long head. Wide beak. Rectangle-shaped body. Gray feathers on the head and back, Gray wing feather or tail feather. Having a black striped feather on neck and back. Gray feather on breast, Whit feathers on abdomen. Black beak and sarcoma or web. Birth weight is 113g. Adult weight is 5.5kg for male and 4.8 for female. Evisceration rate is 76.2% for 9-month male and 77% for female. Half evisceration rate is 89.7% and 88.1%, respectively. Age at first egg is 140~150-day old. Egg number is 38-40 per year per goose. Average weight is 168g. Eggshell color is white. Egg shape index is 1.5.

## 24. Youjiang

**Distribution:** Originated in Baise Prefecture and Youjiang River valley, Guangxi Zhuang Autonomous Region.

**Population size:** 60,000 geese were bred in 1982

**Major characteristics:** Broad back or breast. Grown geese have dropped abdomen. Small, and flat head sarcoma. Free from dewlap. Having white goose and gray goose. Jacinth feet. Orange yellow web, Surface color is white or bay. Adult weight is 4.5kg for male and 4 for female. Evisceration rate is 74.71% for male and 72.26% for female. Half evisceration rate is 84.48% and 81.13%. Age at first egg is 360-day old. Egg number is 40 per year per goose. Average egg weight is 150g. Eggshell color is mostly white, minority of which is blue.

## 25. Gang'e (also called Tiejia goose)

**Distribution:** Originated in Anning River valley, Yi autonomous Prefecture of Liangshan, Sichuan Province; distributed in Sichuan Plain area.

**Population size:** Over 50,000 geese were bred in 1983.

**Major characteristics:** Large body size, Body rise ahead, male forehead sarcoma is developed. Bay back feathers, wing feathers or tail feathers sometimes are gray black feathers with white lacings, which shape are lorikeet. So be called curiae goose. Having narrower and narrower puce feather strap from head to the base of neck. Saffron yellow shanks or web. Black toes. Birth weight is 127g. Adult weight is 5kg for male and 4.5 for female. Evisceration rate is 76.8% for 5.6kg male and 75.5% for 4.9kg female. Half evisceration rate is 88.5% and 88.6%, respectively. Age at first egg is 180~200-day old. Egg number is 42~43 per year per goose. Average weight is 173.4g.

## 26. Zhijin White

**Distribution:** Zhijin County, Bijie Prefecture, Guizhou Province.

**Population size:** 250,000 geese were bred in 1995

**Major characteristics:** Surface color snow white. Tighten body conformation. Long bow-shaped neck. Birth weight is 102.5g. Adult weight is 4.5-5.5kg for male and 3.5-4.5 for female. Dressing percentage is 73.8% for male and 71.1% for female. Age at first egg is 240~270-day old. Eggshell thickness is 0.6mm. Egg shape index is 1.6. Feather production is 280-300 per year per goose.

## Cattle (*Bos Taurus*) and Zebu (*Bos Indicus*)

### 1. Qinchuan

**Distribution:** Originated in Guanzhong Prefecture of Shaanxi Province, distributing over 27 counties or cities in Guanzhong Plain, Shaanxi Province

**Population size:** Approximately 600,000 in 1988

**Major characteristics:** There are three coat colors of mauve, red and yellow in Qinchuan. The bull's head is comparatively big with broad forehead, flat face, big eyes and square mouth, while the cow is trim with short stub horns. The horn length is about 10cm for females and 14.5cm for males. The withers of the males are high and bread while the females' are low and bread. The cow's udder develops well. The average birth body height is 64cm and 66.7cm for females and males respectively. The withers height and body weight are 130.3cm and 381.3kg for adult females respectively, and 141.5cm, 594.5kg for males respectively. The draught powers are 475.5kg, 333.6kg and 281.2kg for the bull, the bullock and the cow respectively. The daily gain in the fattening period is 0.7kg, 0.55kg and 0.59kg for the bulls, the cows and the bullocks respectively. The average dressing percentage, meat percentage and meat yield of carcass percentage are 58.3%, 50.5% and 86.9% respectively. The muscle: bone ratio and the meat~fat ratio are 1:6.1 and 6.5:1, respectively. The eye muscle area is 97 cm<sup>2</sup> and the lean meat percentage is 76%. The milk yield is 715.8kg per lactation (about 7 months), and 3.2kg per day with the milk fat percentage of 4.7%. Bulls reach to sex maturity at the age of 12 months and begin to be bred at 2 years old. Cows are bred at 2 years old with one calf every parity. An evident heterosis is found.

### 2. Nanyang

**Distribution:** The Nanyang breed had its origin in the region of Nanyang, Henan Province, principally distributed in Nanyang city and in Nanyang, Tanghe and Dengxian counties

**Population size:** Approximately 800,000 in 1982

**Major characteristics:** The Nanyang is large~framed with strong constitution, well developed

muscle, thin skin and fine hairs. The Nanyang is yellow, red or yellow and white in color. The horns are mainly “radish horns”. The withers height and body weight are 144.9cm and 647.9kg for adult males respectively, and 126.3cm, 411.9kg for females respectively. The draught powers are 398.6kg, 348.3kg and 275.1kg for the bull, the bullock and the cow respectively. The average daily gain for the normal fattening ones is 813g. Every one-kilogram gain in weight is equivalent to 7.6 feed unit. Under the normal fattening condition, the dressing percentages and meat percentage are 55.6% and 46.6% respectively; 64.5% and 56.8% for those under fortified fattening, respectively. The muscle: bone ratio is 1:7.4. The eye muscle area is 95.3 cm<sup>2</sup>. The meat seems bright red with marbling. The females are managed to first mating at the beginning of 2 with reproductive rate of 66~85% and survival rate of 85~95%. The Nanyang has good adaptability to the environment. The paternal heterosis is evident.

### 3. Luxi

**Distribution:** Originated in Heze and Jining prefecture, southwest of Shandong Province

**Population size:** Approximately 400,000 in 1988

**Major characteristics:** The Luxi has uniform conformation, with tight fine constitution. The Luxi varies in color from light yellow to red and brown, and yellow is rather common. The majority of them have three pink points~eye socket, muzzle, underside of belly, and inner side of quarters. Horns are mainly “long men horns”. There are three types on the basis of body conformation – high shaft type, zhuadihu type, and the intermediate type. Adult males weigh on average 644.4kg and females 365.6kg with an average withers height of 146.3cm and 123.6cm respectively. The index of body measurement is about 110. The Luxi reaches sex maturity comparatively later than other breeds. The body weights and body height of the 1-year-old calf are 238kg and 111.1cm respectively. The average maximal draught power is 229.3kg. The average daily gain for the fattening ones is 610g. The dressing percentages and meat percentage are 57.3% and 49% respectively; the muscle: bone ratio and fat: meat ratio are 1:6.1 and 1:42.3 respectively; and the eye muscle area is 89.1 cm<sup>2</sup> (18 months basis). For the adult, the dressing percentages and meat percentage are 58.1% and 50.7% respectively; the muscle: bone ratio and fat: meat ratio are 1:6.9 and 1:37.1 respectively; and the eye muscle area is 94.2 cm<sup>2</sup>. The Luxi shows good breeding performance. The females reach sex maturity early and are able to be pregnant at the age of 8 months.

### 4. Jinnan

**Distribution:** Originated in Yuncheng and Linfen in Shanxi Province; the three counties~Wanrong, Hejin and Linyi, have the most cattle with best quality

**Population size:** Approximately 300,000 in 1981

**Major characteristics:** The Jinnan is tall, strong and vigorous, and ruggedly built. The Jinnan is mainly jujube red in color. Males have medium sized head and females have trim ones. The Jinnan has pink muzzle, windward horns, and short thick neck. Adult males weigh on average 607.4kg and female’s 339.4kg with an average withers height of 138.7cm and 117.4cm respectively. The average maximal draught powers underway are 275kg, 216kg and 289kg for the bull, the cow and the bullock respectively. The dressing percentage and meat percentage for adults are 52.3% and 43.4% respectively. The lactation period lasts 7~9 months with milk yield of 715.8kg and milk fat percentage of 5.5~6.1%. Cows show estrous sign from 9~10 months, and are managed to first breeding at 2 years old. In every cow dams lifetime, she can have 7~9 calves.

### 5. Bohai Black

**Distribution:** Wudi, Zhanhua, Lijing, Kenli of Huimin prefecture, Shandong Province

**Population size:** Approximately 20,000 in 1988

**Major characteristics:** The Bohai Black has low station, long wide body, and big heart girth. The Bohai Black is black in color with black muzzle and hooves. Horns are short. Male calves weigh on average 20.3kg and female calves 17kg while 426.3kg and 298.3kg for adult males and females respectively. The withers height is 129.6cm and 116.6cm for males and females respectively. The average maximal draught powers are 619kg and 378.7kg for the bull and the cow respectively. The average maximal carrying capacity of females is 3509kg. The dressing percentages and meat percentage for bulls are 53.1% and 45.4% respectively, and 50.1% and 41.3% for bullocks respectively. The muscle: bone ratios are 1:5.9 and 1:4.7 for bulls and bullocks respectively. Bulls reach maturity at 10~12 months old, and cows 8~10 months old. Cows are managed to first breeding at the age of 1~2, females at 1.5, and parity every year.

## 6. Jiaxian Red

**Distribution:** Distributed in Luoyang, Kaifeng, Jiaxian, Baofeng, Lushan and adjoining counties in Henan Province

**Population size:** Approximately 30,000 in 1982

**Major characteristics:** The Jiaxian Red has strong constitution and uniform conformation. And the conformation of the Jiaxian Red may be described as dual-purpose type (both draft power and beef). Three coat colors: red, light red and mauve, are found in the Miamian. And most of them are red. The bull has relatively short neck and thick wither. The Jiaxian Red has comparatively well developed dewlap, tuberositas hump, relatively drooping rump, rugged quarters as well as large, circinal and firm hooves. Cows' udders develop well. Adult males weigh on average 425kg and female's 364.6kg with an average withers height of 126.1cm and 121.2cm respectively. The average maximal draught powers are 405.6kg, 322.9kg and 407.3kg for the bull, the cow and the bullock respectively. Major body size is over 98% of adults. The dressing percentages, meat percentage, the eye muscle area and the muscle: bone ratio is 51.5%, 40.9%, 69cm<sup>2</sup> and 1:5 .1 respectively; and all the above dates are according to the unfinished adults. The Jiaxian Red is relatively early~maturing and reach maturity at 10 months of age. Bulls are managed to first breeding at the age of 1 .5~2, and cows at the age of 2. The cow's productive life is 12~13 years.

## 7. Jinan

**Distribution:** Originated in Daming, Weixian, Linzhang, Cheng'an, Guantao, Linxi, Weixian, Guangzhong and Pingxiang in Hebei Province

**Population size:** Approximately 50,000 in 1980

**Major characteristics:** The Jinan is medium~framed , with strong and tight constitution. Two coat colors of red and yellow are common .The bull has tuberositas hump and developed dewlap; and the cow has medium sized dewlap with no hump. The horns are relatively flat and long. The back and waist are smooth and straight, with relatively drooping rump and rugged quarters. Adult bulls weigh on average 396.2kg and cows 310.2kg and 383.6kg for bullocks with an average withers height of 127.8cm and 115.2cm for males and females respectively. The average maximal draught powers are 252kg, 151.7kg and 253.4kg for the bull, the cow and the bullock respectively. The Jinan is early~maturing .Cows show estrous sigh from 7~8 months, and both bulls and cows are managed to first breeding at 2 years old. And the productive lives are 10~12 years and 14 years for males and females, respectively.

## 8. Pinglu Mountainous

**Distribution:** Originated in Pinglu and Xiaxian Counties in Shanxi Province

**Population size:** Approximately 10,000~14,000 in 1982

**Major characteristics:** The Pinglu Mountain is undersized. The most common type is named "Boston ivy" with relatively long back and waist, and the supplementary type is named " lump cattle" with relatively short back and waist. Yellow and red are most common in color. The Pinglu Mountain has well developed thorax and rear quarters, relatively short quarters, and firm hooves resisting attrition. Adult males weigh on average 325kg and female's 268kg with an average withers height of 116.9cm and 109.2cm respectively. The average carrying capacity are 400~500kg. The average daily gain for the fattening cattle is 736.3g. The dressing percentages, meat percentage, meat yield of carcass percentage, muscle: bone ratio, eye muscle area, muscle crude protein and crude fat are 53.5%, 46.9%, 87.6%, 1:7.1,74.7 cm<sup>2</sup>, 17% and 29.2% for adults respectively. One parity every two years or two parities every three years.

## 9. Yanbian (including Yanbian, Chaoxian and Yanjiang)

**Distribution:** Distributed in the Provinces of Jilin, Heilongjiang and Liaoning

**Population size:** Approximately 210,000 in 1982

**Major characteristics:** The Yanbian has strong constitution and well developed muscle. The Yanbian presents all shapes of yellow in color. The Yanbian has square head, broad forehead, thick scur (like Chinese characters of“一” or “八”) and thick tuberositas neck. And cows' horns are "long men horns" with well-developed udder. Adult bulls weigh on average 465.5kg and cows 365.2kg with an average withers height of 130.6cm and 121.8cm respectively. The average maximal draught powers are 425kg and 331kg for bulls and cows, with an average carrying capacity of 600kg and 400 kg respectively. Bulls advance 22 kilometers per day and cows 20 kilometers per day with a packing capacity on flats of 172.5kg and133.8kg respectively. The dressing percentage, meat percentage, average daily gain, eye muscle area and meat: feed

ratio are 57.7%, 47.2%, 813g, 75.8cm<sup>2</sup> and 1:4.5 respectively. The lactation period lasts 6~7 months, with milk yield and milk fat percentage of 500~7700kg and 5.8~6.6% respectively. The Yanbian reaches its maturity at 14 and 13 months of age for bulls and cows respectively. The survival rate of reproduction is 55.1~75.7%.

#### 10. Fuzhou

**Distribution:** The Fuzhou breed is native in the Fuzhou City, Liaoning Province, distributing in Jinxian and Xinjin Counties, Liaoning Province

**Population size:** Approximately 70,000 in 1980

**Major characteristics:** The Fuzhou has strong constitution, uniform conformation and rugged bones. They are light yellow or light red in color. Bulls have short head, broad forehead, as well as short ahead swept horns. And cows have trim appearance and "long men horns". The back and waist are smooth and straight, with relatively drooping rump, rugged quarters and hard hooves. Adult bulls weigh on average 764kg and cows 415kg with an average withers height of 147.6cm and 128.5cm respectively. Females weigh on average 32.8kg and cows 31.7kg at birth, and weights reach 152kg and 138kg at 6 months of age respectively. The average maximal draught powers are 426kg and 259kg being 57.5% and 62.4% of body weight respectively for bulls and cows. The average daily gain in fattening period, dressing percentage, meat percentage, and muscle: bone ratio and eye muscle area are 836g, 50.7%, 40.3%, 1:4 and 59.5cm<sup>2</sup>, respectively. The Fuzhou reaches its maturity at about 1 year of age. Parity every two years are more common.

#### 11. Mongolian

**Distribution:** Originated in Inner Mongolia; distributing in Provinces of Heilongjiang, Hebei, Shanxi, Shaanxi, Qinghai, Jilin and Liaoning, Xinjiang and Ningxia Autonomous Region

**Population size:** Approximately 3,000,000 in 1984

**Major characteristics:** The fore quarters develop better than the rear quarters. Black and yellow in color are usually found. Raccoon dog color and smoke, however, may be found. The Mango has short broad rugged head, long ahead swept horns, underdeveloped wattle and low withers. The back and waist are smooth and straight, with short narrow rear quarters, drooping rump, short quarters and hard hooves. The basal area of cows' udders is large and broad with small teats. The body weight and the body size vary among different grassland types. And the average withers height and body weight are 108.5~122.7cm and 206.3~365.5kg respectively. The Wuzhumuqin is the largest framed one, reaches 176.7kg at 1 year old, and stops growing at 6. The average milk yield of 100 days is 518kg, and the milk fat percentage is 5.2% with the highest record of 9%. The average maximal draught powers are 426kg and 259kg being 57.5% and 62.4% of body weight respectively for bulls and cows. The dressing percentage and meat percentage are 55.7% and 47.7% for adult cows, 53% and 44.5% for bullocks respectively. The average muscle: bone ratio and eye muscle area are 1:5.3 and 44.2 cm<sup>2</sup>, respectively. The average carrying capacity of the Menggu is 400~500kg. The reproductive rate and calf survival rate of are 50~60% and 90%, respectively.

#### 12. Kazak

**Distribution:** The Kazak cattle breed is native to the northern areas of Xinjiang Uygur Autonomous Region, distributing over Yili Kazakstan Autonomous County, Boertana Inner Mongolian autonomous county, the wide mountainous area and grassland in Changji Hui Autonomous Prefecture

**Population size:** Approximately 600,000 in 1982

**Major characteristics:** The coat colors of yellow and black are common. The Kazak has medium or small sized head, relatively depressed forehead, medium length thin neck, underdeveloped wattle, low and flat withers, and elliptic horns. The back and waist are smooth and straight, with narrow rear quarters, relatively pinched and drooping rump, and relatively low tail head. Cows' udders are small and bowl shaped. Adult bulls weigh on average 369.2kg and cows 301.5kg with an average withers height of 115.5cm and 119.9cm respectively. The average draught powers are 383kg for bullocks, and the highest will reach 586kg. The average dressing percentage, meat percentage, muscle: bone ratio and eye muscle area are 49.7%, 37.2%, 1:3.2 and 64.3cm<sup>2</sup>, respectively. The lactation period lasts 5~6 months, with milk yield 718.4kg(not including suckling the calves). The Kazak is managed to first breeding at 2 years old, and with the reproductive rate and survival rate of reproduction of 96.7% and 94.2% respectively.



### 13. Zhoushan

**Distribution:** Originated in Dinghai District of Zhoushan City, Zhejiang Province

**Population size:** Approximately 5,000 in 1980

**Major characteristics:** The Zhoushan is black in color. The Zhoushan has short glossy hair, short head, broad forehead, various horn shapes, well developed dewlap with an average length of 30cm, aerial humps for males, slightly protuberant humps for females, smooth straight back, smooth broad waist and a “mounting circle” in the back line. And the udder is a relatively big and sagging. The birth weights are 34kg and 36kg for the male and female calves. Adult bulls weigh on average 441.5kg, and cows of 336.4kg, with an average withers height of 138.4cm and 122.4cm respectively. The bullocks can culture 6~8 *mu* every day. One cattle can afford to 50~60 *mu*. The Zhoushan is managed to first breeding at 2 years old. Zhoushan cattle can have two parities every three years.

### 14. Wenling Humped

**Distribution:** Originated in Wenling County, Zhejiang Province

**Population size:** Approximately 10,000 in 1981

**Major characteristics:** The Wenling High Hump is yellow or brown yellow in color. This breed has huge head and broad forehead. The horns of bulls are thickset and patulous, with the shapes of “across shoulder pole horns” or “Long men horns”. The females have trium heads, short slim horns spreading upwards. The *Wenling High Hump* also has aerial humps, well developed fore quarters, under developed rear quarters, rugged bones, beefy muscles, broad deep thorax, broad waist, compact belly and well developed udder of a cow with equably distributed teats. The birth weights are 19.5kg and 18.9kg for the male and female calves. Adult bulls weigh on average 423kg, and cows of 290kg, with an average withers height of 128.2cm and 114.2cm respectively. The maximal draught powers are 335~455kg and 218kg for bullocks and cows respectively. The dressing percentage, the meat percentage, and the meat: bone ratio and the eye muscle area are 52.9%, 44.4%, 1:6 and 69.3cm<sup>2</sup>, respectively. The Weanling High Hump is managed to first breeding at 2 years old. Wenling High Hump cattle can have two parities every three years. The bullocks can plough 6~8 *mu* of farmland every day. One cattle can afford to 50~60 *mu*.

### 15. Taiwan

**Distribution:** Taiwan Province

**Population size:** hardly any purebred of Taiwan in 1981

**Major characteristics:** The Taiwan is not large~framed. They are light brown, crimson or black in color. The Taiwan has light fine head, biggish auris, small outwards spreading horns, small but evident hump, preferably developed mid body, under developed rear quarters, very slim cannon circumference and underdeveloped udder. Adult bulls weigh on average 280kg, and cows of 250kg, with an average withers height of 120cm and 110cm, respectively.

### 16. Wannan

**Distribution:** The Wannan breed is native to Anhwei Province, distributing over the vast hill and mountainous areas beyond the Yangtze River and areas on both banks of the Yangtze River

**Population size:** Approximately 48,000 in 1982

**Major characteristics:** The Wannan has relatively small and good conformation with slim quarters. There are two types of the Wannan breed: the rugged and the trim. The former has rugged head, short neck, well developed dewlap, thick~fleshed rear quarters, slender tail, and relatively short quarters; and the hump of cows is high. The latter is fine and slim type with slender and smooth neck; and the males with relatively hump. Adult bulls weigh on average 301.4~371.3kg and cows 233.9~301.3kg with an average withers height of 113.6~123.4cm and 107~121.1cm respectively. The average draught power is 150~300kg. The average dressing percentage and meat percentage are 50~55% and 45% respectively. The meat is fresh, tender and delicious. The milk yield in one lactation period is 300~400kg. The Wannan is managed to have first breeding at 10 months and 1 year old for males and females, respectively.

### 17. Guangfeng

**Distribution:** Originated in Guangfeng County, Jiangxi Province

**Population size:** Approximately 7,200 brood cows in 1981

**Major characteristics:** The Guangfeng has good conformation. There are four coat colors of yellow, black, brown yellow and brown black in Guangfeng, with the most of brown yellow and brown black. The Guangfeng has broad heavy head. Various horn shapes may be found in Guangfeng, just like of horns like Chinese character of “富”, “hawk claw horns”, “fire~fork horns” and “shoulder pole horns”. And most of the males have horns like Chinese character of “富”, and most of the females have “hawk claw horns”. Cows are light and narrow. Humps of bulls are aerial, with the top of it like steamed bread. The Guangfeng has well developed thorax, well developed udders for cows with uniform equably distributed teats and thickset quarters. Adult bulls weigh on average 276kg, and cows of 231kg, with an average withers height of 113cm and 107cm respectively. The Guangfeng shows good performance on meat production with an average dressing percentage of 46.98% and an average meat percentage of carcasses of 78.6%.

#### 18. Minnan

**Distribution:** Originated in Zhangpu, Longhai, Pinghe, Tong'an, Nan'an and Zhangzhou Prefectures in Fujian Province

**Population size:** 250,000 in 1981

**Major characteristics:** The Southern Fujian has good compact conformation and is thickly muscled. The females are often pale yellow, grass yellow or red yellow, while the males are black or with the back black. The head is a bit big. The horns are taper shape, splaying like character 八 and winding forwards and upwards. The bulls has well developed humps with an average height of 13~18cm and huge dewlaps with an average breadth of 18~20cm. The Southern Fujian has well-developed thorax, smooth straight waist and back, drooping rump, strong quarters and black round hooves. Adult bulls weigh on average 327kg, and cows of 258kg, with an average withers height of 116cm and 110cm respectively. When plowing farmland, the maximal draught power is 70.3kg. And the carrying capacity of 800~1200kg. The dressing percentage, the meat percentage, the eye muscle area and the meat: bone ratio is 52.8%, 44.4%, 57cm<sup>2</sup> and 1:5.4, respectively. Meat is tender and delicious. The daily milk yield is 2.4~2.8kg. The service period lies in the age of 1.5~2 years. The reproductive rate and the survival rate of reproduction are 33.1~36.3% and 86.2%, respectively.

#### 19. Dabie Mountainous (including Dabie Mountain and Huangpo)

**Distribution:** Originated in counties of Jinzai, Huoshan, Yuexi, Liu'an and Shucheng in Anhui Province and counties of Huangpo, Dawu, Yingshan and Luotian in Hubei Province

**Population size:** Approximately 200,000 in 1980

**Major characteristics:** The Dabi Mountain breed has compact and uniform conformation. Yellow in color are usually found, and brown are less common. Black, however, may be found. “Windward horns”, “pork horns” and “bamboo shoot horns” are found. The hump is evident and the dewlap develops well. The rear quarters are relatively broad and drooping, and the hooves are round, large and hard. Birth weight on average: male 18.7kg and females 15kg. Adult bulls weigh on average 322.1kg and cows 271.0kg with an average withers height of 115.2cm and 109.3cm respectively. The average maximal draught powers are 296.4kg, 220kg and 248.6kg for bulls, cows and bullocks respectively. The dressing percentage, the meat percentage, the meat yield of carcass percentage, and the muscle: bone ratio and the eye muscle area are 52.9%, 40.8%, 80.8%, 1:4.1 and 57.1cm<sup>2</sup>, respectively. The Dabie Mountain reaches its sex maturity from 12 to 18 months old. Bulls are managed to first use at 2.5 years old, and the reproductive rate is 37.8%.

#### 20. Zaobei

**Distribution:** Originated in the northern part of Zaoyang County in Hubei Province

**Population size:** Approximately 15,000 in 1981

**Major characteristics:** The Zaobei breed is medium~framed and relatively large, with uniform constitution, thin skin, fine hairs, rugged bones and well developed muscles. The coat colors of light yellow, red and grass white black are common. Horns are mainly “windward horns”. The males have short thick necks as well as well developed humps. The females have slender necked and well-developed udders. Adult bulls weigh on average 402.4kg and cows 303.9kg with an average withers height of 126.6cm and 115.2cm, respectively. The average draught powers are 467kg and 240kg for bulls and cows, respectively with an average carrying capacity of 1600~2000kg and 1000~1500kg respectively. At the age of 18~24 months, the average dressing percentage, meat percentage, muscle: Bone ratio and eye muscle area are 47.4%, 36.3%, 1:3.3 and 56.5cm<sup>2</sup>, respectively. The females are managed to first breeding at about 2 years old and male at 2. Two parities every 3 years.

## 21. Bashan (including Xuanhan, Yunba, Qinba, Miao, Xizhen, Pingli and Ciya)

**Distribution:** The Bashan breed is native to the counties of Dachuan and Xuanhan in Sichuan Province, Shiyan City in Hubei Province as well as Xixiang, Zhenba, Pingli, etc. in Shaanxi Province

**Population size:** Approximately 390,000 in 1981

**Major characteristics:** The Bashan breed has quadrate conformation, and well-developed muscles. The males are rugged, and the females are trim and compact. They are mainly yellow and red in color. The hump is high, and the dewlap is well developed. Males weigh on average 17~20.9kg and cows 18.8kg at birth. Adult bulls weigh on average 27.2~422.9kg and cows 261.1~329.6kg with an average withers height of 118.4~125.4cm and 111.6~114.4cm respectively. The average maximal draught powers are 470kg, 407.9kg and 396.4kg and for bulls, bullocks and cows respectively. And the average carrying capacity of cows is 974.8kg. The dressing percentage, meat percentage, meat yield of carcass percentage and the muscle: bone ratio are 53.9% and 54.8%, 44.3% and 46.2%, 82.2% and 84.4%, 1:4.6 and 1:5.4 for bulls and cows respectively. The pregnancy percentage is 91.7%, with the survival rate of calves about 80%. And the reproductive rate may reach about 80%.

## 22. Wuling (including Enshi, Xiangxi and Sinan)

**Distribution:** Originated in the border area of Hunan, Hubei and Guizhou Provinces

**Population size:** Approximately 1,140,000 in 1983

**Major characteristics:** Most of the Wuling breed cattle are yellow in color, and less with coetaneous and black. The Wuling breed is medium framed, with cuneiform horn shape and relatively long neck. The males has fleshy humps 6~8cm above the back line, and females with inconspicuous ones. The Wuling has drooping rump, rugged quarters with medium length, in tilted hock of hind limbs, upright style of the shoe, hard hooves and relatively long tail. Adult bulls weigh on average 294.7~334.3kg, cows 218.7~240.2kg and bullocks 345.9kg with an average withers height of 114.1~117.1cm, 103.9~106.1cm and 117.4cm respectively. The dressing percentage, meat percentage, muscle: bone ratio and the eye muscle area are 50.1% and 51.1%, 40.1% and 39.7%, 1:5.1 and 1:4.1, 58.6 cm<sup>2</sup> and 50.1 cm<sup>2</sup> for bulls and cows, respectively. Males reach their sex maturity at the age of 18~24 months, and females at the age of 10~12 months. The Wuling breed is managed to first breeding at about 2.5 years old. And the reproductive rate is 50%.

## 23. Panjiang

**Distribution:** Originated in the border area of Yunnan, Guizhou and Guangxi

**Population size:** Approximately 950,000 in 1982

**Major characteristics:** The Panjiang breed may be described as typical medium~framed cattle in the neighboring mountainous area. The Panjiang is mainly yellow in color, and less with brown and black. Some spotted ones, however, may occasionally be found. They have various horn shape and relatively long dewlap. The males' humps are evidently 8~15cm above the back line, and females' humps are inconspicuous. The Panjiang has deep and relatively narrow thorax, drooping rump, slender tail with relatively high tail head, straight fore limbs and evident tendons of hind limbs. Udders of cows are comparatively small with short thin teats. Adult bulls weigh on average 296kg; cows 237.2kg with an average withers height of 116.3cm and 108.5cm respectively. The average maximal draught powers are 195kg and 245kg for cows and bullocks respectively. The maximal draught powers of Guiding are 233kg, 278kg and 201kg for the bulls, bullocks and cows respectively. The dressing percentage, meat percentage, eye muscle area and the muscle: bone ratio are 52.1%, 40.9%, 61.2 cm<sup>2</sup> and 1:4.3, respectively. The Panjiang breed reaches its sex maturity at the age of 8~10 months. The females are managed to first breeding at about 2 years old and males at 2.5 years old. The reproductive rate is 34%, and in few regions, it may reach to 70%.

## 24. Leiqiong (including Xuwen and Hainan)

**Distribution:** Xuwen County, Guangdong Province and Qiongshan County, Hainan Province

**Population size:** 450,000 in 1982

**Major characteristics:** The Leiqiong is mainly yellow in color and black takes second place. The males have round horns with stubbed bases. While the females have short thin horn, and some of them with no horns. They have well developed dewlaps, and cows' inner side of the neck with skin drapes. The males have relatively well developed humps and dewlaps, relatively narrow rear quarters and relatively drooping rumps. The quarters are strong, and the tail is long with the trailhead beyond the hocks. The females have

well developed udders and attach well. Adult bulls weigh on average 282.4kg, and cows of 215.6kg, with an average withers height of 119.7cm and 104.8cm respectively. The carrying capacity of bullocks is 1000kg. The dressing percentage and the meat percentage are 49.6% and 37.3% respectively. The milk yield is 400~500kg with an average daily milk yield of 4~5kg. The Leiqiong is managed to breeding at the age of 2 years. The reproductive rate and the survival rate of reproduction are 84.7% and 87.8% respectively. That one parity every year is common.

## 25. Sanjiang

**Distribution:** Originated in Sanjiang, Baishi, Shuimo of Wenchuan County, Aba Autonomous Prefecture, Sichuan Province

**Population size:** Approximately 30,000 in 1981

**Major characteristics:** The Sanjiang breed is mainly yellow in color, following black and grass white. They have great head, broad forehead, short upward horns, well-developed dewlap and relatively high hump. The neck and shoulder are well~knit. The fore quarters develop well, the medium quarters are relatively long and the rear quarters are straight and smooth. Males weigh on average 17.5kg and cows 16.7kg at birth. Adult bulls weigh on average 375kg; cows 266.4kg with an average withers height of 119.3cm and 106.9cm respectively. The average maximal draught powers are 377.9kg, 264.3kg and 320kg for bulls, cows and bullocks respectively. For the aged weak cattle, the dressing percentage, meat percentage is 43.4% and 31.2% respectively. The Sanjiang breed reaches its puberty at 1~1.5, and are managed to first breeding at about 2 ~2.5. Sanjiang cattle can have two parities every three years. The reproductive rate is 55.4%, and the survival rate of calves is 78.6%.

## 26. Ebian Spotted

**Distribution:** Liangshan Yi Autonomous Prefecture, Sichuan Province

**Population size:** Approximately 10,000 in 1981

**Major characteristics:** The Ebian Spotted breed has thrifty condition and fleshy muscles. The Ebian Spotted is mainly yellow and white spotted in color. Bulls' heads are rugged while cows' are inclined and long. They have various horn shapes. Individuals without horns, however, may be found. The Ebian Spotted has short broad neck, well-developed dewlap, and highly attached tail with thick head, short firm quarters and small round hooves without hump. Adult bulls weigh on average 318.6kg; cows 254.5kg with an average withers height of 113.3cm and 105.8cm respectively. The average maximal draught powers are 247.1kg, 225kg, 257kg for bulls, cows and bullocks respectively. The Ebian Spotted breed reaches its sex maturity at the age of 14~18 months and is managed to first breeding at about 3 years old. Ebian spotted cattle can have two parities every three years. The survival rate of reproduction is 68.4% (on the basis of natural parturition and suckling)

## 27. Yunnan Humped

**Distribution:** Originated in the tropical and subtropical regions in the south, southeast and central of Yunnan Province, The central producing areas are Dehong Dai nationality, counties of Ruili, Luxi and Wanting of Jingpo nationality autonomous region, Xishuangbanna autonomous prefecture in Lincang region and some counties of Simao prefecture

**Population size:** 447,600 in 1980

**Major characteristics:** This breed has a tumor on the forward upside of the hump with an average height of 12~15cm. The coat color is miscellaneous. The colors of black, brown, red, yellow, gray and white may be found. All the males have horns, but most females have no horns or only have very short horns. And most of the horns are stubbed. The horn shapes of "long horns", "short horns" and inverse character "八" can be found in males. The bulls' dewlaps develop very well, extending to the belly. The body is round and long with the fore quarters well developed, strong and powerful and the rear quarters like a round canister. The birth weights are 13.3kg and 13kg for the male and female calves. Adult bulls weigh on average 291~301.6kg, and cows of 213.7kg, with an average withers height of 115.6~116.8cm and 107cm respectively. The average draught power is 50~60kg. The dressing percentage and the meat percentage are 52.3% and 39.6% respectively. This breed is managed to breeding at the age of 2 years. About 82.3% of them have parity every year.

## 28. Tibetan

**Distribution:** Distributed in the middle and lower reaches of Yarlung Zangbo River, east part of the

Himalaya Mountain and the lower reaches of Sanjiang River Valley, Tibet

**Population size:** Approximately 950,000 in 1982

**Major characteristics:** The conformation of the Tibetan is compact uniform. The Tibetan is mainly red as well as black and white spotted in color. Heads are flat and straight with mezzo size. The males' humps are relatively high. The cows' udders are small with orderly teats. The Tibetan has drooping rump, slender quarters and firm hooves. Adult bulls weigh on average 215.8kg; cows 197.7kg with an average withers height of 104cm and 99.9cm respectively. The lactation period lasts 267.9 days with an average milk yield of 205.4kg and a daily milk yield of 0.77kg. The dressing percentage, meat percentage, muscle: bone ratio and the eye muscle area are 42.8%, 34.1%, 1:4.6 and 49.6 cm<sup>2</sup>, respectively for adults. The females are managed to first breeding at about 2.5 years old and males 3.5 years old. The survival rate of calves is over 90%. Two parities every three years.

### 29. Taihang

**Distribution:** Originated in over 20 counties in the west mountainous area of Hebei Province; most Taihang cattle are distributed in counties of Laiyuan, Yixian, Tangxian, Quyang, Fuping, Xingtang, Lingshou, Pingshan, Jinjing, Zhanhuang, Lincheng, Neiqiu, Xingtai, Shahe, Wu'an, Shexian and Cixian, Hebei Province

**Population size:** Approximately 250,000 in 1982

**Major characteristics:** The Taihang is mini~framed with rugged conformation. The Taihang varies in color from an almost yellow to a very light fawn. Black and raccoon dog color, however, may be found. The Taihang has various horn shapes and the "windward horns" are common. The neck is slender with mezzo length. The females have relatively girth of paunches with underdeveloped udders however. The Taihang has drooping rump and long tail with many hocks. Adult bulls weigh on average 280kg; cows 200kg. At the age of 5, bulls have an average withers height of 104.2cm, 103.1cm and 111.8cm for cows and bullocks respectively. The dressing percentage and meat percentage are 40~42% and 33~37% respectively for adults. The females usually reach their puberty at 8 months old. The Taihang is managed to first breeding at about 1.5~2 years old. The survival rate of reproduction is 35~60%. It is common to have one parity every two years.

### 30. Dangjiao

**Distribution:** Originated in Chuansha, Nanhui and Fengxian counties, Shanghai Municipality

**Population size:** extremely small

**Major characteristics:** The Dangjiao has relatively short head, broad forehead, big mouth, high hump, long legs, short body and short tail. The Dangjiao varies in color along with seasons, being red black in autumn and black in other seasons. Adult bulls weigh on average 499.59kg and cows 427.27kg, with an average withers height of 134.8cm and 125.5cm, respectively. The Dangjiao is made into use for attractive power at age of 1.5 years, culturing 3~4 mu per day. The average dressing percentage is 40~50%. The duration of lactation is 3~4 months with an average milk yield of 168~224kg. The Dangjiao usually reaches their puberty at 2~2.5 years old and are managed to first breeding at about 3 years old. The interest us are 21 days with the estrus duration lasting 24 hours. The reproductive rate is over 80%.

### 31. Xuzhou

**Distribution:** Originated in Peixian and Tongshan Counties of Xuzhou Prefecture, Jiangsu Province

**Population size:** Approximately 74,000 in production area, 1980

**Major characteristics:** There are two types of the Xuzhou. One is named "High Feet" with light yellow color, and the other is called "Zhuadihu" with crimson coat. The horns are relatively broad and long head, and mainly "longmen horns". The males have stubby necks, and females have slender ones. The dewlap is underdeveloped while the hump is evident. An average withers height of the adults is 132cm. The males weigh on average 534kg at 4 years old, and cows 282kg at 2. The Xuzhou grows fast at 1~3 years old. The average maximal draught powers are 359kg. Meat is slim, tender and tasting delicious. The dressing percentage and meat percentage are 42.7~52.7% and 29.6~42.5% respectively. The duration of lactation is 6 months with an average milk yield of 360~630kg and an average daily milk yield of 2~3.5kg. The Xuzhou usually reaches their sex maturity at 8~10 months old and is managed to first breeding at about 1.5~2 years old. And the reproductive period is 11 years.

### 32. Ji'an

**Distribution:** The central producing area is located in Qingyuan, Ji'an, Taihe, Jishui, Anfu, Wan'an counties, Jiangxi Province

**Population size:** Approximately 500,000 of livestock on hand and about 220,000 of fertile cows in Ji'an City in 1997

**Major characteristics:** The Ji'an has compact and rugged conformation with thick strong bones. The coat is short and smooth, mainly yellow and brown black in color. The males have rugged heads, and females with trium ones. For males, the fore quarters are well developed, with partly tumor-shaped tuberos hump being. While for the females, the rear quarters are well developed with underdeveloped hump. The belly is bulgy; the quarters are rugged; and the tail is long over hocks. Adult bulls weigh on average 223kg and cows 233.7kg, with an average withers height of 107cm and 103.89cm, respectively. The average maximal draught powers are 181.76kg. The males reach their sex maturity at 1~1.5 years old, and females 1 year old. Bulls are managed to first breeding at about 3 years old and females after 2. Ji'an cattle can usually have two parities every three years. In the whole lifetime, the Ji'an may have 7~8 calves and 15 or 16 at most.

### 33. Jinjiang

**Distribution:** The central production area of Jinjiang Cattle is located in Gao'an City and Shanggao County in Jiangxi Province, distributing mainly over Wanzhai, Yifeng, Gao'an, Shanggao and Xinjian areas

**Population size:** 435,000 of livestock on hand in the central production area and about 266,000 of fertile cows in Ji'an according to incomplete statistics in 1997

**Major characteristics:** The Jinjiang has compact and rugged conformation with strong large bones and the joints are evident. The skin is smooth and flexible. The coat color is uniform and mainly yellow. The coat is short and dense. The males have thick horns and mainly fork horns, short thick neck and huge dewlap; the females have tender horns and mainly hawk's paw horns, long slim neck and relatively small dewlap. The hump is evident. The back is broad, smooth and straight. In the prophase (2 for males, 3 before females), the Jinjiang grow rapidly, slowly in the evening. Adult bulls weigh on average 269kg and cows 202kg at the age of 5. The average withers height of adults is 110cm. The average maximal draught power is 186.6kg. In the country extensive grazing system, the dressing percentage and meat percentage are 45.9% and 39.7% respectively at the age of 7. The males show libido at about 1 year old, reach their sex maturity at 2 years old and are managed to breeding. After 7~8 years, the males are usually gelded for tractive power. Females have 2 parities at the age of 3~10 years, and one parity every 2~3 years over 10 years old.

### 34. Meng Mountainous

**Distribution:** Originated in the Yimeng mountainous area in central and south of Shandong Province

**Population size:** Approximately 150,000 in 1999

**Major characteristics:** The Meng Mountain has compact conformation and strong constitution, with well developed fore quarters and relatively small body type. Black, yellow and coetaneous are primarily found in color. The horns are mainly "Longmen horns" and "shoulder pole shaped horns". The males have short thick necks, well-developed muscles, and evident humps. The females have trim head; relatively long neck, and whorls on the forehead. The nibble body is smooth and straight with sprung ribs. The belly is well developed and not sagging. The rear quarters are chubby; the tail is long beyond the hocks; and the tail is spindle shaped. The quarters are strong with big hard hooves. Adult bulls weigh on average 477.8kg and cows 310.3kg with an average withers height of 128.1cm and 114.7cm respectively. The average weigh at birth are 21.3kg and 20.7kg for the males and females calves respectively. The maximal draught powers are 255.4kg and 186.8kg for the males and females respectively. For fattened cattle's, the dressing percentage, meat percentage, the yield percentage of carcass and the eye muscle area are 56.2%, 46.2%, 81.7% and 72.3cm<sup>2</sup>, respectively.

### 35. Nandan

**Distribution:** Originated in Nandan County, Sanbao of Tian'e County, Bogong of Hechi County, and Xianan of Huanjiang County in Guangxi Zhuang Autonomous Region

**Population size:** Approximately 16,000 in 1981

**Major characteristics:** The body of Nandan is low, rugged and relatively short with back line. The Nandan is yellow and jujube red in color. Light yellow or black is found under the quarters. For the

males, there are two horn shapes of “bamboo shoot” and “hawk claw”. Horns of the females are short and small. The head is short and broad and the dewlap develops well. The breast is a relatively sagging and the rump is drooping and round. The females have underdeveloped udders. The tail is long beyond the hocks. Adult bulls weigh on average 355kg and cows 260kg with an average withers height of 122cm and 110cm respectively. The Nandan can plough 0.65 *mu* of farmland per hour for males, 0.41*mu* per hour for females. The dressing percentage and the meat percentage are 52.2% and 41.2% for males, 45.2% and 35.5% for females raised in counties respectively. The females reach their sex maturity at 2.5 years old, and are managed to breeding at 3~3.5 years old. The reproductive rate is 74.5% with the survival rate of calves of 84.8% and the survival rate of reproduction of 63.6%. The milk yield of parity is 285kg.

### 36. Weizhou

**Distribution:** Originated in the two islands of Weizhou and Xieyang of Beihai City in Guangxi Zhuang Autonomous Region

**Population size:** Approximately 1892 in 1981

**Major characteristics:** The Weizhou is yellow, brown or black in color. The Weizhou has head with proper length, flat forehead, wide round horn floor, and horn shape like character“八”. The neck is thick and short with well-developed dewlap. The hump of the males is evident with an average height of 12.4cm. For the males, the thorax is deep and broad with smooth straight back and waist t, drooping rump and well-developed muscles. For the females, the udder is uniform, and the quarters low and thin. Adult bulls weigh on average 280kg and cows 200kg with an average withers height of 115cm and 100cm respectively. The maximal draught powers are 565kg of the bullocks. The dressing percentage of males, the muscle: bone ratio and the eye muscle area are 56.9%, 1:5 and 74.5cm<sup>2</sup>, respectively. The males reach their sex maturity at 6~8 months old, and are managed to breeding at 2 years old, while those of females are 8~10 months old and 1.5~2 years old, respectively. The reproductive rate is 76.2%

### 37. Ganzi Tibetan

**Distribution:** Originated in 18 counties of Ganzi Autonomous Region, Sichuan Province

**Population size:** Approximately 380,000 in 1995

**Major characteristics:** The Ganzi Tibet is low and small, with uniform constitution, strong bones and compact muscles. The color of the coat is relatively diversiform. And the horn shapes are multifarious. Those for tractive power are relatively large~framed. The males have broad head, flat forehead, short thick neck and well-developed dewlap. The females have relatively long thin neck, under developed dewlap. The Ganzi Tibet has proper length of the body, smooth straight back and waist, quarters with proper length, uniform teats of middle size without additional teats. The dressing percentage is 48.6%. The milk yield from 9~10 years of age is on the tiptop and comparatively steady. The milk yield of different ages in Aug. is the highest. For most cows, they will have two parities every three years. The average survival rate of calves is 86.8%. And the cows show strong maternal ability.

### 38. Liangshan

**Distribution:** Originated in the counties or cities of Liangshan Yi Autonomous Prefecture and the counties of Panzhihua city, Sichuan Province

**Population size:** Approximately 690,000 in 1995

**Major characteristics:** The Liang Mountain is mini~framed with comparatively short body, uniform, compact and strong conformation. There are many coat colors of the Liang Mountain, with the most of yellow, spotting, red purple and black. The Liang Mountain have horns with shapes of “Baozi horns”, “sharp horns”, “taro horns”, “Zhaoyang horns”, and etc. The head and the neck are of proper length. For bulls, the dewlap is well developed with wrinkles and high hump; the fore quarters are higher than the rear quarters. For cows, the dewlap is less with low thin withers; the rear quarters are higher than the fore quarters. The thorax is broad and deep with smooth straight back and waist, drooping rump of middle length. The cow’s udder is small with uniform teats. The Liang Mountain is usually used for attractive power from 3~4 years old lasting 15~18 years. Every year, the Liang Mountain can be used for tractive power for 60~130 days. The dressing percentage is 50.9%. The cows are mainly managed to breeding during the period from Apr. to Oct and can have two parities every three years.

### 39. Pingwu

**Distribution:** The central producing area is located in the 25 townships of Pingwu County in Sichuan

Province.

**Population size:** Approximately 1,218 in 1995

**Major characteristics:** The Pingwu is large~framed and has uniform conformation. They are yellow or red yellow in color. And few of them have black back line. Heads of the males are heavy; horns are mainly short and small with the tines outward. The dewlap develops well; the hump is evident (especially for males). The rump is flat, straight, relatively drooping and under developed. The tail is light, proper in size and near the tarsus. The dressing percentage is 49.1% for adults. The lactation period last 180 days with a milk yield of 115kg. Cows are often estrous in seasons of spring and fall. The twinning rate is 5%, with the survival rate of calves of 90.8%.

#### 40. Chuannan Mountainous

**Distribution:** Originated in the remote area in the southern Sichuan basin; Yingjing, Gulin, Xuyong and Qianjiang counties are the main producing area

**Population size:** Approximately 330,000 in 1981

**Major characteristics:** The Chuannan Mountain is mini~framed with strong, compact conformation. They are mainly yellow in color. The heads are a relatively long and the horn shapes are various. Adult bulls weigh on average 323.2kg, cows 260kg and bullocks 321.9kg with an average withers height of 115.9cm 108.1 and 116cm respectively. The maximal draught powers are 346.6kg, 226kg and 301kg for the bulls, cows and bullocks respectively. The dressing percentage, the meat percentage, and the muscle: bone ratio and the cooked meat rate are 50%, 41.9%, 5.7:1 and 61% respectively. The daily gain for the 1-year-old bullocks in fattening period is 478g. The daily milk yield is 0.6~1.8kg. The Chuannan Mountain reaches its puberty at 1.5 years old, and is managed to breeding at the age of 3~4 years. The survival rate of calves is as high as 93%.

#### 41. Wuchuan Black

**Distribution:** The central producing area is Wuchuan County, Zunyi Prefecture, Guizhou Province.

**Population size:** Approximately 45,000 in 1996

**Major characteristics:** The Wuchuan Black is all black in color. And the Wuchuan Black is medium~framed with strong constitution, uniform body, and compact conformation. The horns are black and comparatively small. And the horns of males are usually “radish horns”, while those of the females are often “*qiangcai horns*”. The neck is broad and short; the hump is well developed with middle or relatively high height; the quarters are strong and upright and the joints are firm. The dressing percentage and the muscle: bone ratio is 52.9% and 1:4.9 respectively. The Wuchuan Black reaches its sex maturity at the age of 2 years, and the cows are usually used for 10~15 years. The survival rate of calves is over 90%. The maximal draught power for 5 meters is 285kg.

#### 42. Liping

**Distribution:** Originated in Liping, Congjiang and Jinxiu counties in southeast Guizhou Province.

**Population size:** Approximately 300,000 in 1983, foundation stock of 120,000

**Major characteristics:** The Liping is black or yellow, less brown in color. Black and white as well as yellow and white may also be found. The head is of middle size and the bulls' are a relatively broad. The males have broad flat forehead, big round mouth and deep muzzle. Horns of the females are short tender upswept and usually black brown. Horns of the males are rugged and mainly “bamboo shoot horns”. The females have long thin necks. The males have short necks with well-developed dewlaps and tall hollow humps as well. The Liping has broad deep thorax, flat straight back and waist and firm hooves. Adult males weigh on average 288.1kg and female's 196.2kg with an average withers height of 107.6cm and 98.9cm respectively. The maximal average draught powers are 168kg, 134kg and 173kg for the bulls, cows and bullocks respectively. Under the extensive managing system in countryside, the weight at birth is relatively light, 11.8kg and 11.5kg for bulls and cows respectively. The Liping reaches sex maturity comparatively earlier than other breeds and is managed to breeding at 1~1.5 years old for males and 2 years old for females. The cows are usually used for 15~20 years. The dressing percentage and the meat percentage are 50.1~53.6% and 48.5% respectively.

#### 43. Weining

**Distribution:** Weining, Hezhang, Bijie and Nayong Counties in Guizhou Province.

**Population size:** Approximately 300,000 in 1993



**Major characteristics:** The Weining is mainly yellow, less yellow brown and black in color. However, white and yellow may also be found. The Weining has long and trium head, flat straight forehead, broad anemoscope, square mouth, short neck and under well developed dewlap. The horns are of various horn shapes, mainly “radish horns” and “hawk claw horns”. The Weining has comparatively tall hump for bulls, flat and straight for cows. The thorax is deep but not broad enough. The Weining has smooth straight back and waist, full waist, relatively drooping but high rump, slender but firm quarters, upright fore quarters and firm hooves. The rear quarters often have narrow or forward hooves. The tail attaches highly and is long beyond the hocks. Adult males weigh on average 269.3kg and female’s 200.6kg with an average withers height of 110.8cm and 102.2cm respectively. The Weining reaches sex maturity comparatively later than other breeds and is managed to breeding at 3 years old for females. Those two parities every three years is more often. The survival rate of calves is over 90%. Under the extensive managing system in rural areas, the dressing percentage and the meat percentage are 52.8% and 44.6%, respectively.

#### 44. Dengchuan

**Distribution:** Originated in Eryuan County and Dengchuan Prefecture, Yunnan Province

**Population size:** Approximately 40,000 in 1981

**Major characteristics:** The Dengchuan has trim constitution and the various parts of the body combine well. The Dengchuan is mainly yellow in color. The Dengchuan has short small head and short slender horns. The bulls have relatively high humps, and cows without humps. The back and waist is smooth and long, and the fore thorax is relatively narrow. The Dengchuan has big deep thorax, drooping rump, slender tail beyond hocks, small udder with short teats. Adult males weigh on average 239kg and female’s 227.5kg, with an average withers height of 107.8cm and 103.5cm respectively. The milk yield of 300 days is 838.3kg with the daily maximal milk yield of 110kg, milk fat percentage of 5.58%, and dry matter percentage in milk of 14.83%. The dressing percentage are 46.4%, 37.8% and 37.9% for bulls, cows and bullocks respectively with the meat percentage of 35.9%、27.6%、27.4% respectively and the eye muscle area of 64.2cm<sup>2</sup>, 51.8cm<sup>2</sup> and 60.4 cm<sup>2</sup>, respectively. The reproductive rate is 82.5%。

#### 45. Diqing

**Distribution:** Originated in Zhongdiandeqin and Weixi Counties, Diqing Tibet Autonomous Prefecture in the northwest of Yunnan Province

**Population size:** Approximately 58,000 in 1980

**Major characteristics:** The Diqing is mini~framed and has relatively short body. The Diqing is mainly black or yellow brown in color. The Diqing has long narrow head, erect horns, thin slender neck, flat withers, deep narrow fore thorax, narrow drooping rump, long slender tail, short slender quarters, evident joints, and small udder with short teats. The adult weigh on average 212.9kg, 185.5kg and 258.4kg for the bulls, cows and bullocks respectively, with an average withers height of 102.1cm, 97.6cm and 108.9cm respectively. The carry capacity of the bullocks is 60kg. The location period is 220~250 days, with the milk yield of 416~480kg and the milk fat percentage of 5.7%. The dressing percentage, the meat percentage and the muscle: bone ratio are 46.3%, 32% and 1:2.4 of bulls, 54.7%, 37.29%, 1: 2.4 of cows respectively, and 54.9%, 40 .9%、1: 3.7 of bullocks. One bull is bred to eight cows. The reproductive rate of cows is 78.3% with the survival rate of calves of 76.4%.

#### 46. Zhaotong

**Distribution:** Originated in the eleven counties of Zhaotong City, Yunnan Province

**Population size:** Approximately 29,200 in 1980

**Major characteristics:** The Zhaotong is mini~framed and has uniform constitution and uniform conformation. The Zhaotong is mainly yellow, light yellow, grass white, black or red in color. The Zhaotong has a head of proper length. The bulls have short rugged horns and evident hump while the cows are without humps. The fore quarters develop better than the rear quarters. The Zhaotong has relatively drooping rump, medium sized quarters with hocks lying inside a relatively and slender tail with low tailhead. The adults weigh on average 259.2kg, 211.1kg and 310kg for the bulls, cows and bullocks respectively, with an average withers height of 111.6cm, 104.2cm and 115.1cm respectively. The average draught power is 96.7kg with the maximal power of 311.1kg. The eye muscle area is 51.3cm<sup>2</sup>. The meat is tender, sweet~smelling and without the smell of mutton. The pressed skin is tough and tensile with close texture. The reproductive rate of cows is about 50% with a calf survival rate of 84.2%.

#### 47. Lhasa

**Distribution:** Originated in Linzhou and Duilongdeqing Districts of Lhasa City, Tibet Autonomous Region

**Population size:** Approximately 162,500 in 1998

**Major characteristics:** The Lhasa is mini~framed and has uniform constitution and uniform conformation. The skin is thin and the coat is short. 42.1% of them are black; 31.4% of them are black and white; and the others are brown yellow, yellow white or brown. The Lhasa has a flat smooth head of proper size. Heads of cows are trim while those of bulls are strong and relatively broad. The horns are small, winding forth, upwards, forward and then twisted from the horn bases to the horn spire. The humps of bulls are tuberos. The Lhasa has well-developed thorax, relatively short body, slender bones and middle-developed rear quarters. The quarters of males are strong and long, and those of the females are relatively short. The hooves are firm with a wide face. Adult males weigh on average 187.6kg, and female's 170.9kg, with an average withers height of 101.6cm and 96.2cm respectively. The average lactation period is 267.8 days with the milk yield of 206.2kg. The dressing percentage and the meat percentage are 442.8% and 34% respectively. The Lhasa is managed to breeding at 2.5 years old. Lhasa cows can have two parities every 3 years. The survival rate of calves is over 90%.

#### 48. Chaidamu

**Distribution:** Dulan and Wulan Counties and Ge'ermu City in the edge of the Chaidamu Basin in Qinghai Province

**Population size:** Approximately 18,200 in 1980

**Major characteristics:** The Chaidamu has strong compact constitution, quadrature body shape for concurrent use. The Chaidamu has short wide head, horns mainly winding outwards and upright then, short thin dewlap without plica, short narrow drooping rump, big round belly, relatively low quarters and firm hooves of medium size. Adult bulls weigh on average 344.6kg, and cows 232kg, with an average withers height of 115.4cm and 101.8cm respectively. The dressing percentage of adult bullocks, the meat percentage and the meat: bone ratio is 51.9%, 40.33% and 1:3.6 respectively. The average monthly milk yield of the first calves is 63.7~64.4kg, and delivered cows of 72.4~72.6kg, with a milk fat percentage of 4.2%. The maximal carry capacity is 200~250kg with the maximal yield of 500kg. The cows are managed to breeding at 2~3 years old, and bulls at 2 years old. The estrus cycle is 10~25 days, and the estrus period is 36~48 hours.

#### 49. Aletai White Head

**Distribution:** The Aletai White Head is distributed in Bu'erjing, Habahe and Aletai Counties, Xinjiang Uygur Autonomous Region; with Bu'erjing County as the central producing area.

**Population size:** Approximately 3,000 in 1985

**Major characteristics:** The Aletai White Head is medium sized. They are white of head and red brown of body. And the belly, the thorax, the udder, the rear quarters and the trailhead are white. 60% of the Altai White Head are without horns. The Altai White Head has heavy head, wide forehead, deep thorax, wide broad withers, huge belly, rump with proper size, middling developed udder with teats of proper size and strong straight firm hooves. Adult bulls weigh on average 585kg, and cows 365.8kg, with an average withers height of 120cm for cows. The average dressing percentage is 48.9%. The average milk yield of 150 days is 693.8kg. The Altai White Head is managed to breeding at about 2 years old. And the survival rate of reproduction is 70~75%.

#### 50. Apeijiaza

**Distribution:** the county of Gongbujiangda of Linzhi region in Tibet autonomous prefecture

**Population size:** 4,286 on hand including 2,602 brood cows in 1999

**Major characteristics:** This breed is mini~framed with compact constitution. They are mainly black and white. The Apeijiaza has a head with moderate size, broad forehead, long straight narrow bridge of nose, big eyes with evident double eyes. The horns are short, relatively slim and smooth. Horns of bulls wind ahead upwards like the letter of "V" and horns of cows wind right upwards like a semi~arc or the inverse character "八". The earlap is big and thick, with rare hairs on the spinouts end. The anemoscope is relatively small, humid with small nares. The base of neck is low and narrow, with underdeveloped muscles. The dewlap is well developed. Humps of bulls are evident. The back is long and smooth. The fore thorax is underdeveloped. The udders of cows are more developed than other scalpers and full of

glands. The teats are endopleura and often like a columniation. The rear quarters are narrow, fleet and short. The tail is long beyond the hind shank. The quarters are straight and long and relatively slim with evident tendons. The hooves are small, round and firm with tight sews. Adult bulls weigh on average 243.1g, and cows of 213.1kg with an average wither height of 106.1cm and 101.7cm respectively. The lactation period of cows is 209 days with an average unit milk yield of 539kg.

### 51. Rigeze Humped

**Distribution:** the grass roots of south Tibet of Rigeze region in Tibet autonomous prefecture and the south foot of the Himalaya Mountain

**Population size:** unclear

**Major characteristics:** This breed is huge than other Tibet's with long body. They are complex in color. Completely black, black and white is in the majority. Those with white belly, white switch or white head are usually can be found too. However, we can even found red, brown, and gray in color and those color based spotting. This breed is usually used for tractive power, with the average draught power of 400kg. The average lactation period is 265 days in the 1~6 parities. And the dressing percentage is 67.42 ±0.70%.

### 52. Zhangmu

**Distribution:** the county of Nielamu of Rigeze region in Tibet autonomous prefecture, lying between the mountains of Himalaya and Laguigang

**Major characteristics:** This breed is mini~framed with compact shapely constitution. There are various colors of black, yellow, white, brown, sandy, red, grass whitened, and most of them with white spots in. Humps of bulls are evident than those of cows, and few of them are tall and big. Usually the dewlap is underdeveloped. The neck is of proper length, and looks a bit thin and weak. The back is often smooth and straight with small switch. Their milking performance is outstanding, and the lactation period of the fresh cow is 6~7 months, with milk yield of ore than 2000kg, and the milk fat percentages of 6~8%. The cows show good performance on producing meat, with the average dressing percentage of 50%. The cows reach their sex maturity at the age of 12~18 months old. And the breeding season is not evident. They often are in continuous estrus all the year round with the reproductive rate of 70% and the survival rate of over 80%.

## Water Buffalo

### 1. Shanghai

**Distribution:** The Shanghai is distributed over counties of Jiading, Baoshan, Fengxian and Chongming etc.

**Population size:** Approximately 35,000 in 1980

**Major characteristics:** The Shanghai is rugged with strong constitution, well-developed muscle, thin skin and crude hairs. They are light gray in color. The body weight of adult buffalo is 600~650kg, some reach 1000kg. The bull is 142.3cm in height and the cow 140.8cm. They are mainly used for tracling. In 8 hours they can plough 6~8 Chinese acre field, and the maximum is 10 Chinese acre. The female daily produce 5~10kg milk with 5.5~9% milkfat percentage. The dressing percentage and the meat percentage of the adult buffalo are 50% and 40%, respectively. The age at mating is 2.5 years for the male and female. The female on the average give birth 2 times in 3 years.

### 2. Haizi

**Distribution:** The Haizi is distributed over northern region of Jiangsu provience.

**Population size:** Approximately 18,000 in 2001

**Major characteristics:** Most of the Haizi are cyan in color with a dark brown line along the backbone. If the buffalo's coat color is dark, their limbs usually are white. The Haizi has large head with broad and extrude forehead, big and agile ear, long and creasy neck, arched hump beyond withers, smooth and long back and lion, deep chest, smoothly drooping rump, crude tail root and big and round hoofs. The height of adult bull is 143.7cm and that of adult cow 134.2cm. The adult bull weights 586.4kg, and cow 496kg. They have good trailling quality. The maximum drough power is 515kg for the bull, 630kg for the cow and 820kg for the beef steer. The bull's dressing percentage is 42.9%, meat percentage 32.8%. That of the beef steer is 50.9% and 39.9%, respectively. The age reaching puberty of the cow is 12~16 months

and the age for the first mating is 31~36 months.

### 3.Mountainous

**Distribution:** Mountain region of Ningzhenyang in Jiangsu Province.

**Population size:** Approximately 180,000 in 1980

**Major characteristics:** The Mountain buffalo is medium sized with strong limbs and hard hoofs, compact structure. They are good at walking the mountain roads. Their coat color is slaty cyan or bricked gray. The horns are large with bamboo basket or dustpan shape and bend to the upper back. The Mountain buffalo appears high long withers with broad forechest, broad flat back, drooping rump, strong crude limbs, small hard hoofs, and low crude tail root, tail short of hocks. The adult bull and cow are 132.6cm and 127.6cm, respectively. The body weight is 447.3kg for the bull and 407.3kg for the cow. The maximum draught power is 610kg for the bull, 557.3kg for the cow and 536.7kg for the beef steer. Their dressing percentage is 47.%, meat percentage 35.6%, age at puberty 15~18 months, age at first mating 29 months, cycling phase 18.8 days, oestrus 27.1 hours and reproduction phase 13 years.

### 4.Wenzhou

**Distribution:** Pingyang, Ruian, Taishun, Wencheng, Yonghe, Wenzhou, Leqing countys in the Wenzhou district of Zhejiang Province.

**Population size:** Approximately 41,000 in 1981

**Major characteristics:** The Wenzhou is short but strong with compact structure and well developing muscles. Their coat color is cyan gray in a great measure and some is black or yellow brown. The Wenzhou appears quadrate heads with white star at the inner eye pit, a caruncle in the middle jaw belly, Chinese character “八”, lunat or arc shaped horns, proper sized neck, flat straight back line, large round belly, sharp drooping rump, well developed back part and breast, strong crude limbs with distinct tendon, hard round hoofs. The body weight of calf at birth is 23.6kg for the male, 21.9kg for the female. The body weight and height of adult bull are 517.3kg and 126.5cm as those of adult cow are 496.1kg and 123.34cm. The lactation period is 239.9 days, milk production 500~1000kg, sex average dressing percentage 43%, meat percentage 32~33%. The average draught power is 80~110kg with maximum draught power at 5~9 years. The age at maturation is 2~2.5 years for the male, 2.5~3 years for the cow. The age at first mating is 3~3.5 years for the male, 3.5 years for the female. The cycling period is 21.5 days, oestrus phase 24~48 hours.

### 5.Dongliu

**Distribution:** regions along the rivers in Anhui Province with Dongzhi, Guichi, Shusong County as the central production region.

**Population size:** Approximately 30,000 in 1981

**Major characteristics:** The Dongliu is medium~sized with rugged bones and red, strong fore quarters and strong constitution. The muscles are compact and well developed and the rear quarters are underdeveloped. They are mainly black gray and black brown taking second place. However, we can find few white ones. And there is a crescent neck belt on the chest below the neck. The horns are half~moon shaped winding ahead or entad. The hooves are big, round and firm. Adult bulls weigh on average 550kg, and cows of 500kg, with an average withers height of 131.8cm and 126.1cm respectively. The maximal draught powers are 340~440kg and 220~320kg for bulls and cows respectively. The normal draught power in sloughing is 110~135kg. The dressing percentage, the meat percentage and the meat: bone ratio are 41.3~42.6%, 30.8~31.4% and 1:2.9~1:2.8. The lactation period is 9~10 months, with an average daily milk yield of 2kg. The males reach their sex maturity at the age of 17~24 months, and females of 17 months. Cows are managed to breeding at 3 years old with the reproductive rate of 46.1% and the survival rate of 77.8%.

### 6.Fu'an

**Distribution:** Fu'an, Xiapu, Fuding county in Fujian Province, distributed in Ningde, Luoyuan, Lianjiang, Gutian, Fuzhou and Minqing county.

**Population size:** Approximately 70,000 in 1981

**Major characteristics:** The Fuan is high and large with strong crude limbs, well developed muscles, cyan black, cyan gray or light brown coat color, gray white or white belly and limbs beyond hock, a round of black band at the hoofs and limbs beyond knee knots, deep neck, slightly high withers, short flat smooth

back lion, large but not drooping belly, round hard hoofs. Some one's hocks of rear limbs are a relatively in tilted. The adult bulls weigh on average 523kg, and cows 456kg, with an average height of 129cm and 125cm, respectively. Their drailling power is big and persistent. The drough power of the bull is 145kg with the maximum 220kg,as 158kg and 275kg for the beef steer respectively. The dressing percentage of beef steer is 55.3~67.7% with meat percentage 33.2~37.2%. Their lactation period is 150~300 days, milk yield 375~600 kg, average daily milk yield 2.66kg. The age at first mating is 2.5~3 years for the bull, 3 years for the cow. The reproduction rate and survival rate are 60.1% and 95.1% respectively.

### 7.Xinfeng Mountainous

**Distribution:** The central production region is Xinfeng county in the south of Jiangxi Province, distributing over Nankang, Dayu, Kan, Longnan, Dingnan, Quannan, Anyuan, Chongyi and Yudu county.

**Population size:** according to incomplete survey, about 208,00 in 1997 including 109,000 reproductive cows.

**Major characteristics:** The Xinfeng mountain is a relatively short with black or brown coat hairs. The head is proper sized with flat forehead. The head top of the most of them is slightly drooping form forehead to the occipital so as to shape the "round head top". The horns are long and bending entitled and ret rally. The neck of bull is shorter than that of cow with 1~2 uniform cycles. They appear absurd accordion, flat broad back lion, deep chest width, short strong limbs, well-developed muscle tendon, big hard hoofs, and crude tail root, tail short of hock. The height of adult buffalo (6 years old) is 119.1 cm for the bull, 115.9 cm for the cow. The bull weights on average 327 kg, cows 344 kg. The maximum drought power is 272.5 kg for the bull and 236.8 kg for the cow. The cow reaches puberty at 1.5 years, can be mated at 3 years, can managed to breed till 12~14 years, produces 7~8 calfs in whole life with maximum of 16 calfs. The bull reaches sex maturity at 1.5 years old, mates at 3~4 years old, managed to breed till 14 years old.

### 8.Xiajiang

**Distribution:** Xiajiang County in Jiangxi Province.

**Population size:** according to incomplete survey, about 208,000 in 1997 including 109,000 reproductive cows.

**Major characteristics:** The Xiajiang has good trailing quality and is tolerant crude rising. They are middle sized with long narrow head. The root of horns is crude with quadrate shape, extending backwards and outwards then bending intiltedly so as to result in the half moon shape. The neck is crude and short for the bull, thin round for the cow. All the bull and cow have the acromion, flat broad back lion, deep chest width. The belly of bull is compact while that of cow is big and round. The breast of the cow is medium sized with slightly long teats. They have broad flat tail root with short tail. The limbs are short but strong with big and round hocks. The height of adult buffalo (6 years old) is 141.3 cm for the bull, 133.4 cm for the cow. The cow reaches puberty at 1 years, can be mated at 3 years, can managed to breed till 12~14 years, produces 6~8 calfs in whole life. The bull reaches sex maturation at 1.5 years, mates at 4 years. After 14 years that will be eliminated.

### 9.Xinyang

**Distribution:** The central production region is Xinyang district in Henan Province with Luoshan, Xinyang and Guangshan county as the central region, distributing over region along Huaihe river, Jianbo county of Nanyang district, Miyang, Zhengyang, Shijiaoshan region of Zhumadian district.

**Population size:** Approximately 248, 900 in 1980

**Major characteristics:** The Xinyang belongs to swamped type buffalo with large size, compact constitution, and symmetry structure. The coat hair is yellow gray or black gray in color. The head is slightly long with broad forehead. The horn root is crude with quadrate shape. The horns appear conoid shape, bending backwards to the upside. The neck is crude short, chest width deep, back flat and broad, rump broad drooping, breast underdeveloped with crude long teats, tail short of hock, limbs short and strong. The height of adult buffalo is 127.1 cm for the bull, 123.6 cm for the cow. The bull weights on average 533.7 kg, cows 490 kg. The maximum drought power is 412.2 kg for the bull and 386.4 kg for the cow. The dressing percentage of adult buffalo is 47.3%, meat percentage 37.6%, and eye muscle 50.4 cm. The age at the first mating is 2.5 years for the bull, 2.5~3 years for the cow. The reproductive rate is 81.2%.

## 10.Enshi Mountainous

**Distribution:** Enshi, Jianshi, Badong, Lichuan, Xuan'en, Xianfeng, Laifeng, Hefeng County of the Enshi district in Hubei Province.

**Population size:** Approximately 77, 800 in 1979

**Major characteristics:** Most of the Enshi is cyan; some is reedy, only a few are white. They have distinct nick grains. The head is proper sized with broad flat forehead. Mountain~typed horn is thin short, flat dam~typed horn long with wide horn root and big radian. The rump is drooping. The breast of cow is underdeveloped with short teat. The forelimbs are straight, back limbs crook and in tilted. The height of adult buffalo (6 years old) is 122.8~133.2 cm for the bull, 121.4~131.5 cm for the cow. The bull weights on average 434.9~524.7 kg, cows 409.9~434.9 kg. They have the common trailing quality can daily plough 3 Chinese acre field. The meat percentage is 31~33%. The age at first mating is 3 years for the bull, 2.5~3 years for the cow. The reproductive rate is 41.7%, survival rate 96.4%.

## 11.Jianghan

**Distribution:** counties over the Jianghan plate in Hubei Province, east and West Lake in the suburb of Wuhan and Hannan burear of farm administration.

**Population size:** Approximately 700,000 in 1980.

**Major characteristics:** The Jianghan has compact body constitution, symmatry body structure, large body and good power. Most of their coat hairs are cyan or cyan gray. The head is proper sized with flat face, broad forehead and riddle horns. The neck is proper sized with distinct acromion, but without drooping peel. They appear flat broad back lion, big round belly, drooping and proper sized rump. The breast of cow is small with short teats. The forelimbs are straight, back limbs intilted. The height of adult buffalo is 130.3 cm for the bull, 127.2 cm for the cow. The bull weights on average 544.6 kg, cows 519.4 kg. The Jianhan have good trailing quality with 500~8000 kg carring capacity and 1000 kg drought power. Under the grazing condition, the daily gain is 960.5 g for the bull, 516.5g for the cow. After fast finishing, the dressing percentage of 2-year buffalo is 48.5%, meat percentage 36.9%, fat percentage 54.1%, the ratio of bone to meat 1:3.5. The meat is delicious. The age at first mating is 3 years for the bull, 2.5~3 years for the cow. The cycle period is 27.7 days, oestrus phase 4~5 days. Most of the cow produces 3 parities in 5 years or 2 parities in 3 years. The lactation period is 8~12 months, milk yield 800 kg, and daily milk yield 3.5kg.

## 12.Binhu

**Distribution:** Linxiang, Yueyang, Xiangyin, Huake, Nanxian, Yuanjiang, Gaiyang, Hanshou, Li county, Linli, An'xiang, Changde countys along the Dongting lake over Hunan and Jiangxi Province.

**Population size:** Approximately 493,000 in 1980, 26.37% is reproductive cow over 3 years.

**Major characteristics:** The Binhu have large body, crude bone, well developed muscles with black gray, cyan gray, white coat color. They have long head and wide forehead with 7.28 cm head in length, 23.1 cm forehead in width. Most of the horns are "plate horns". The neck of bull is short and wide without drooping peel. The withers are slightly high. The breast of cow is small with back attachment location. The tail root is short, tail short of hock. The height of adult buffalo is 127.8 cm for the bull, 124.8 cm for the cow. The bull weights on average 498.8 kg, and cows of 472.8 kg. The birth weight is 27.5 kg for the bulls, 25.5 kg for the cows. They show good performance on tractive power with the maximal draught power of 400kg and the carring capacity of 900~1000kg. The dressing percentage and meat percentage is 46.2% and 37.23% for the beer steer, 48.5% and 37% for the cow respectively. The lactation period is 6~8 months, milk yield 500 kg, milkfat percentage 9.4%~10.6%. The age at first mating is 2.5~3 years for the bull, 3 years for the cow. The cycling period is 22.4 days, oestrus phase 36~48 hours. The birth rate is 58.6%, survival rate 87.7%.

## 13.Xinglong

**Distribution:** Southwest or northwest region of Wanning County in Hainan Province.

**Population size:** Approximately 2894,100 in 1982.

**Major characteristics:** The size of Xinglong is large, coat color gray black or black, only a few white. There is a "V" shaped white band under the neck. Their horns are crude and long with long archer shape and bending backwards to the upper side. The body is broad and long with a relatively sunken at the lion. The rump is drooping and limbs are strong. The height of adult buffalo is 129.4 cm for the bull, 123.7 cm for the cow. The bull weights on average 503.7 kg, cows 457.1 kg. The carring capacity is 500~600

kg. The maximum drought power is 800 kg. The dressing percentage is 52.7%, meat percentage 41.4%, reproductive rate 81.7%, survival rate over 85%. The cow reaches puberty at 2~3 years. The age at first mating of bull is 3 years. Most of them produce one parity in two years.

#### 14.Fuzhong

**Distribution:** Fuchuan, Zhongshan countys in Guangxi Zhuang Autonomous Region

**Population size:** 57,393 in 1981.

**Major characteristics:** The Fuzhong has large sized body, compact body constitution, developed summarily. The coat color is black gray and slate cyan. There is a white lobular band on the chest under the neck. The head is proper sized with crude quadrate horns root, bending backwards so as to appear half moon shape. The back and lion are flat and broad. The rear part of cow is well developed with slightly drooping rump, smooth breast with symmetry column teats. The limbs are crude and strong with hard round hoofs. The height of adult buffalo is 123.8 cm for the bull, 124.5 cm for the cow. The bull weights on average 419.9 kg, cows 415 kg. In 1 hour the bull can plough 0.76 Chinese acre fields, the cow 0.66 Chinese acre fields. After ploughing, the bull and cow need 2.4 hours and 1.8 hours respectively so that its breath, pulse and body temperature recover to the normal condition. The average dressing percentage and meat percentage is 44% and 32.5% respectively. The age to reach sex maturation is 2.5 years for the bull and 2.5~3.5 years for the cow. The age at first mating of cow is 3.5~4.5 years. The reproductive rate is 61.3%; survival rate of the calf is 94%.

#### 15.Xilin

**Distribution:** Xilin, Longlin, Tianlin County in Guanxi Zhuang Autonomous Region

**Population size:** Approximately 59,300 in 1981.

**Major characteristics:** The Xilin belongs to altiplano mountain type buffalo with high body and strong limbs. The coat color is major is gray black. The head is proper sized with flat broad forehead. The horns can be divided into 4 classes: near roundness, half roundness, fraction, right. Some have drooping horns. The back and lion are broad long with distinct withers. The rump is large and drooping. Some are tine rump. The breast mainly is flesh color with short teats and underdeveloped. The limbs are crude strong. The forelimbs are wide and camber shaped. The hocks of rear limbs are in tilted. The hoofs are round and big. The height of adult buffalo is 126.1 cm for the bull, 120.1 cm for the cow. The bull weights on average 485.4 kg, cows 400.5 kg. The beer steer can plough 0.48 Chinese acre fields in 1 hour. The dressing percentage and meat percentage is 47.1% and 37.6%, respectively. The age at reaching sex maturation is 2 years for the bull, 1.5 years for the cow. The age at first mating is 3 years for the bull, 2.5 years for the cow. The average reproductive rate is 54.7%, survival rate 73.8%.

#### 16.Fuling

**Distribution:** Fuling, Nanchuan, Wulong, Fengdu, Dianjiang countys in Sichuan Province, distributing over Changshou, Jiangbei, Ba county, Jiangjin, Hechuan countys.

**Population size:** Approximately 415,000 in 1981.

**Major characteristics:** The Fuling is small sized with compact body constitution, well-developed muscles, and agility action. Their coat color almost are brown, some are white. The head of bull is heavy and short, but that of cow is comeliness. The horns root is wide flat. The horns bend entitled so as to appear the Chinese number 8 shape. The neck is proper sized. The withers is a relatively higher than rear part. The rump is broad drooping. The tail is proper sized with thick root. The limbs are crude and strong. The height of adult buffalo is 128.1 cm for the bull, 125 cm for the cow. The bull weights on average 491.7 kg, cows 446.5 kg. The maximum drought power is 406.8 kg for the bull and 397.3 kg for the cow and 508 kg for the beer steer. The dressing percentage, meat percentage and meat: bone ratio of the old buffalo without finishing is 42.3%, 33.3% and 3.4:1, respectively. The reproductive rate is 65.3%, the survival rate 95%. The daily gain of calf during the lactation period and at 1 year is 635g and 604g, which shows that the Fuling grows fast before 1 year.

#### 17.Yibin

**Distribution:** Yibin, Yibin city, Gao, Jiang'an, Changning and Xingwen County in Sichuan Province.

**Population size:** 213,600.

**Major characteristics:** The Yibin is small sized with compact body constitution, crude bone, and shapely body structure. Most of their coat color is cyan gray, small part of them is white. There is 1 or 2 half moon shaped white bands under the neck. Their head is proper sized with flat forehead, long frank nose, "pouch"

shaped mouth, meniscus shaped horns bending backwards. The neck is long and substantiated. The dewlap is underdeveloped. The back and lion are flat, chest width deep. The limbs are relatively short but strong. The hoofs are hard and appear grail shape. They grow fast before 2 years. The maximum drought power is 371.7 kg for the bull and 299.2 kg for the cow. The dressing percentage is 40.2%. They can produce 260 kg milk during 1 lactation period. The survival rate of calf is 95.8%.

### 18. Dechang

**Distribution:** Dechang, Xichang, Mianning and Huili countys along the Anning river in the Liangshan state and Miyi county in Dukou city in Sichuan Province.

**Population size:** Approximately 192,000 in 1981.

**Major characteristics:** The Dechang is large sized with compact body constitution, fast growth, and good trailing quality. Their coat color almost is brick gray. There are many buffalos with 1 meter or more horns. The width of horns can reach 180 cm. The head is medium sized with flat but slightly upheaval forehead, wide horn roots and big horns structure. The fore part is well developed. The chest width is deep but proper sized. The withers is a relatively higher than crossing part. The back is flat but the lion short. The bell is round and substantiated. The rump is drooping, tail root wide, tail proper sized, limbs crude and strong, and hoofs big and hard. The height of adult buffalo is 130.5 cm for the bull, 127.6 cm for the cow. The bull weights on average 527.3 kg, cows 490 kg. The maximum drought power is 445.6 kg for the bull and 464 kg for the cow. The dressing percentage, meat percentage and ratio of meat to bone of the old buffalo are 45.4%, 35.8% and 4.1:1, respectively. The age reaching sex maturation is 1.5~2 years for the bull, 2.5~4.3 years for the cow. The age at first mating is 3 years for bull and cow. The reproductive rate is 37.1%, and the survival rate of calves is 90.4%.

### 19. Guizhou White

**Distribution:** Guizhou Province with Shijing, Longquan, Heba, Tuxi, Yonghe and Minyang towns in Fenggang County as the central production region, distributing over neighbour countys such as Meitan, Yuqing, Zunyi, and Wuchuan etc.

**Population size:** Approximately 3,000 in 1997.

**Major characteristics:** Their coat hairs are white and polishing with pink skin. The mouth appears "red mouth". The body is compact and shapely. The head of bull is heavy and short, but that of cow is slightly comeliness. The horns appear disc shape bending backwards. The back is flat, rump long and drooping, and limbs crude strong. The hoofs are hard and most of them appear "timber bowl hoof" and amber color. The tail is beyond hock. The dressing percentage, meat percentage and ratio of bone to meat are 49.7%, 38.5% and 1:4.7, respectively. The bull commonly start to breed at 2.5~3 years, while the quality of breeding reaches maximum at 5~10 years. The cow reaches sex maturation at 1.5~2 years. The gravidity period is 310~330 days. Their oestrus and mating appears distinct seasonable. The cow can produce 8~10 calves in whole life. The survival rate at weaning is 98.8%.

### 20. Guizhou

**Distribution:** Guizhou Province.

**Population size:** Approximately 1461,000 in 1983.

**Major characteristics:** The Guizhou can be classed into large, medium and small sized, belonging to swamp type buffalo. Their appearance and body form are basically consistent and can be subordinate to trailing type of coarseness, tighten, beefy. The coat color almost is gray, but some are reedy. There are 1~2 "V" shape white bands under the neck. The coat color at the belly and below os side of the limbs is light and gray white while that at nose, horns and hoofs is gray black. The shape of the horns is like disc. The forehead of Guizhou is broad, nose face long, neck long thin. The withers is a relatively higher, chest deep broad, back flat, body short wide, belly large round, rump long drooping, limbs short wide, tail short, the hocks of rear limbs intilted. The hooves are hard and always appear bowl shape. The height of adult buffalo is 118~127 cm for the bull, 117~123 cm for the cow. The bull weights 414~483 kg, cows 393~435 kg. The bull reaches sex maturation at 1.5 years and can mate at 3 years. The cow reaches sex maturation at 10~12 years, mates at 2.5~3 years. Their maximum drought power can reach the 65.9% of their own body weight. The body weight after slaughter, dressing percentage, meat percentage is 130.8kg, 47.5%, 36.7%, respectively.



## 21. Dehong

**Distribution:** Luxi, Lianghe, Longchuan, Ruili, Yingjiang, counties and Wanding town, some counties in Linlun and Baoshan district.

**Population size:** Approximately 113,000 in 1980.

**Major characteristics:** The Dehong has large strong body with crude bone, sparse coat hairs, and variable spin hairs. The coat color is black, brick gray and white. The head is poorer sized while that of bull is a relatively heavy. There are many types of horns shape such as “xiaqi horns”, “luosai horns”, and “pai horns”. The chest is deep wide. The back is flat. The rump is medium in length and drooping while some rumps are flat. The tail root is wide with high attachment site. The top of tail can reach the hock. The limbs are thick and short, the hoofs hard. The height of adult buffalo is 131.1 cm for the bull, 126.5 cm for the cow and 135.2 cm for the beer steer. The bull weights 571.3 kg, cows 500.3 kg and the beer steer 627 kg. The average drought power is 140~187kg with the maximum drought power 240~400 kg. The dressing percentage, meat percentage of the beer steer is 48.1% and 39.1%. The bull reaches sex maturation at 1.5 years while the cow at 2~2.5 years. In the rural the reproductive rate is 50%~65%, the survival rate of calf 40%~80%.

## 22. South-east Yunnan

**Distribution:** Yunhonghe, Yuanchun, Yuanyang, Jinping, Pingbian, Hekou, Wenshan state in Honghe state, some counties in Yuxi, Qujing districts in Yunnan Province

**Population size:** Approximately 483,400 in 1980

**Major characteristics:** The coat color of Dian southwest is brick gray and white. The head is proper sized. The horns can be classed into “close horn” (small horn width) and “open horn” (large horn width and short horn). The back is flat, belly large round. The rump is flat or drooping. The breast of cow is large with wide teats. The tail is short with thick root. The limbs are thick and strong. The body formation can be classed into small and large types. The height of large type is 120.5~127.4 cm while that of small type is 115~118.3 cm. They show good trailing quality. The dressing percentage, meat percentage, eye muscle region and ratio of bone to meat of the bull are 48.9%, 42%, 60.9 square cm and 1:6.3, respectively. For the rural ones, the reproductive rate is 40%~76%, and the survival rate is 60%~80%.

## 23. Yanjin

**Distribution:** Yanjin, Weixin counties in the Shaotong district of Yunnan Province.

**Population size:** Approximately 5,900 in 1980.

**Major characteristics:** The coat color of Yanjing is cyan, cyan gray and brown gray while the white is rare. The head is proper sized. The thick horns bend backwards and entitled. The chest is wide. The tail is fall short of hock. The height of adult buffalo is 122.8 cm for the bull, 121.3 cm for the cow. The bull weights on average 406.1 kg, cows 393.1 kg. The maximum drought power for the bull and beer steer is 366.7 kg and 360 kg while the average drought power 135kg and 120kg, respectively. The bull reaches sex maturation at 1.5~2 years. The age at mating is 3 years for the bull, 2~3 years for the cow. The reproductive rate is 52.6%, the survival rate of calf 87.3%.

## 24. Shannan

**Distribution:** Xixiang, Mian county, Hanzhong, Chenggu, Yang county, Ningqiang, Nanzheng, Ankang, Hanyin, Shiquan county in Hanzhong, Ankang basin in Shanxi Province

**Population size:** 27,042 in 1988 including 6,000 reproductive cows

**Major characteristics:** The body of Shannan is wide, small and short. The bone is strong and knot distinct. The skin is tile gray, the hairs sparse, crude, black or gray in color. The buffalo with all white is rare. There is 1 white band at the laryngeal and 1 lunette white band at the chest. The skin from back~end of stemma to the breast and inner side of limbs is flesh with hoariness, a relatively dense and thin hairs. The head is long, forehead narrow, molar developed. The eye pit stands out and the eyes are round and big. Most of the flat and four arises horns are big grail ones with wide root, bending parallels backwards so as to appear basket shape. The ears are short, flat and medium sized. The mouth is flat with black nose. The neck is thin and long while the chest with drooping peel is broad. The withers are distinct and there is no crest. The back is flat and short, the belly round and big. The rump is flat and a relatively drooping. The scrotum without neck is small. The foreskin cling to the belly closely till fore side of haulm, then droop so as to appear cylinder shape. The breast of cow is small. The short tail attaches to relatively higher site and fall short of hock. The limbs are short and strong. The hoofs are hard and round. The weight, height and

body length is 442.7kg, 126.6 cm, and 131.9cm for the bull. As for the cow they are 398.5kg, 124.8cm and 130.3cm, respectively. The maximum drought power on the average is 301.1 kg for the bull and 250 kg for the cow and 310 kg for the beer steer. The bull reaches sex maturation at 2~2.5 years as the cow at 2 years. They can be managed to mate at 2.5~3 years. The survival rate is 32.6%.

### **Yak (*Bos Grunniens*)**

#### **1. Jiulong**

**Distribution:** Jiulong, Kangding county in Sichuan Province.

**Population size:** Approximately 30,000 in 1981, including 10,000 brood cows

**Major characteristics:** There are two types of tall and hirsute in Jiulong. The fuzz yield of hirsute type is 5~10 times that of average yak. The Jiulong has broad forehead and rather short head. Forelock grows thickly and curlily. Males and females both have horns, with big space between. The skirt hairs on quarters, chest and sides of belly extend to the ground. They are mainly black in color (nearly 3/4), and few are black alternates with white. The Jiulong has short thick neck, relatively high withers with hump, very deep thorax, smooth straight back and loin, not wide but little drooping rump, short tail lowly attached, relatively short quarters. Males and females weigh on 15.9kg and 15.5kg at birth respectively with a monthly gain of 460g. At the age of 3.5 years old, males weigh on average 272.6kg and females of 243.1kg with an average withers height of 113.7cm and 110.1cm respectively. The dressing percentage, meat percentage, meat: bone ratio and eye muscle area are 54.6%, 46.1%, 1:5.5 and 88.6cm<sup>2</sup> for bullocks respectively, 57.6%, 47.9%, 1:4.8 and 83.7 cm<sup>2</sup> for males and 56.2%, 48.5%, 1:6.0 and 58.3 cm<sup>2</sup> for females respectively. The carrying capacity is 60~70kg. The lactation period is 5 months with milk yield of 346.9kg and the milk fat of 5~7.5%. In Hongba region, the fleece weights are 13.9kg, 1.8kg, and 4.3kg for males, females and bullocks respectively, with half hair and half undercoat. The females is managed to first breeding at 2~3 years old, and males at 4~5 years old. Usually, two parities every three years. The reproductive rate is 68.4% and the survival rate is 61.8%.

#### **2. Qinghai-Tibet Plateau**

**Distribution:** Zaiduo, Zhiduo and Quma of Yushu Zang Tibet autonomous prefecture in Qinghai Province, Maduo county of Guoluo Zang Tibet autonomous prefecture, Tianjun county in Ge'ermu city of Kazakstan autonomous prefecture and the Qilian county of Haibei autonomous prefecture.

**Population size:** Approximately 3,460,000 in 1981.

**Major characteristics:** Genes of wild yak are mixed into this breed, so which get some characteristics of the wild yaks. Black and brown hair covers 71.8% of the whole body. The wither is high long and wide. Short hair of white or staining white in color covers over lip, eye pit and back. This breed has compact fine constitution, well developed fore quarters; the hindquarters are not good as the fore ones. The Qingzang Plateau has big head, wide horns, soft and deep skin, the head of female yak is long with broad forehead and horn, udders are relatively like bowl and dish, nipples are short and relatively. Adult males weigh on average 443.4kg, and females of 256.4kg, with an average withers height of 129.2cm and 110.9 cm respectively. The dressing percentage of the steer is about 53%, meat percentage is 42.5%. Lactation period usually is 150 days, annual milk yield is 274 kilogram, dairy output is about 1.38~1.70 kg, milk fat percentage is about 6.4~7.2%. Adults annual fleece weight is about 1.17~2.62 kg. Half of them have coarse wool and the half have fine wool. The diameter of coarse wool is about 64.8~72.9 micron. The diameter of both types of fair is about 38.4~39 micron, diameter of fluff is about 16.8~20.3 micron. Length of coarse is about 18.3~34 centimeter, length of fine wool is about 4.7~5.5 centimeter. Carrying capacity is 50~100 kilogram, the maximal capacity is 304 kilogram. The time of male sexual mature is two years old, female is 2~2.5 years old. Survival rate of production is about 60%, the probability of one parity every year is 60%, with double calves rate of 3%.

#### **3. Tianzhu White**

**Distribution:** the Tianzhu Tibetan Autonomous County in Gansu Province

**Population size:** Approximately 30,000 in 1981

**Major characteristics:** The Tianzhu White has compact fine constitution, well developed fore quarters, and the hindquarters are not good as the fore one. Fair covering all body is white and the skin is pink. Head of male is big and forehead is wide. Forelock grow thickly and cur lily. Horns are wide and long. Head of

Female is trim and forehead is comparatively narrow, horn is thin and long. Horn bends outside and hind out. Neck is wide and Dewlap is underdeveloped. The wither is apparently high and chest is deep. The rump looks like the roof or be narrow, the quarters grow very short. Adult males weigh on average 264.1kg, and females of 189.7kg, with an average withers height of 120.8cm and 108.1cm respectively. The average carrying capacity is 75kg with the maximal of 100 kg, being able to walk 30~40 kilometers. The dressing percentage meat percentage and the meat: born ratio are 52%, 42.5% and 1:2.4 for bulls respectively, 52%、39.6% , 1:3.7 for cows respect and 54.6%,41.4% , 1:4.07 for bullocks. Annual fleece weight of males is 3.6 kg, with the maximal yield of 6.0 kg, the under wool yield is 0.4 kg, and the weights of tail fair is 0.6 kg; 1.2 kg, 0.8 kg and 0.4 kg respectively for females, 1.7kg, 0.5kg and 0.3 kg respectively for bullocks. The tail length males and female are 52.3cm and 44.7cm respectively. The annual milk yield is 400 kg, with the maximal daily milk yield of 4.0kg, and the milk: fat ratio of 6.8%。 Males are managed to breeding at 3 years old, and females at 2~3 years old. Male~female ratio reaches 1:2~25, and the reproductive rate is 56.4~75.6%

#### **4.Maiwa**

**Distribution:** the county of HongYuan of Aba Zang autonomous state in Sichuan Province and along the counties of Waqiemaiwa and Ruorgai

**Populating size:** Approximately 600,000 in 1981, more than 200,000 in producing areas, including 70,000 brood females

**Major characteristics:** The Maiwa is black in color. This breed has a head with proper size, and wide flat forehead. Forelock grow thickly and tortuous. Most of them have horns, which direct to rearward and bend inward. The Maiwa has thin neck, low, and thin dewlap, flat and straight back and loin, big and not sagging abdomen, narrow slant croup, short legs, and small firm hooves. Males weigh 13.1kg at birth, and females of 11.6kg. Adult bulls weight on average 413.8kg, and females of 221.8kg with an average withers height of 126cm and 106.2cm respectively. The average carrying capacity is 100 kg and they can walk consecutively up to 30 kilometers for 7~10 days. The dressing percentage, meat percentage of bullocks is about 55.2% and 42.8% respectively. The lactation period is six months with the milk yield of 365 kg, the milk :fat ratio of 6~7.5%, dry substance of 17.9%, lactose of 5.04%, lacto protein of 4.91%, and the ash of 0.77%. Shearing once a year. The average fleece weights are 1.43kg and 0.35kg for males and females respectively. Bulls grow fairs of 38cm on shoulder, 47.5 cm on quarter, 37 cm covering loin, 10.5 cm on back and over 60 cm on tail. The males are managed to first breeding at 3~4 years old, females at 3 years old. Two parities every three years. The survival rate of reproduction is 43.7%. And the hybrid vigor rates are +7.5%, +7.5% and +3.4% of body length, body weight and cannon circumference.

#### **5.Tibet High Mountainous**

**Distribution:** the northwest of Qinghai-Tibet Plateau in Tibet and the the Three River valley in the south of Tibet

**Population size:** Approximately 2,500,000 in 1981

**Major characteristics:** There are two types of mountain and grassland classified by body conformation and appearance, with horn shapes of "holding head" and spreading outwards and upwards respectively. There are mainly black and spotted in color. The Tibet High Mountain has relatively heavier head and wide flat forehead. Most of them have horns. The Tibet High Mountain has deep chest, flat straight back and loin. The belly is big but not sagging. The Tibet High Mountain has narrow and little drooping rump, short tail and small round hooves. Adult males weigh on average 280.7~299.8kg and females of 187.3~196.9kg with an average withers height of 1117.9~121.7cm and 103.5~106cm respectively. The daily milk yield is 1~1.5kg with annual ghee yield of 9~10kg. The lactation period is 305~396 days with milk yield of 137.7~230.2kg. The percentages of dressing for bullocks and cows are 53.2% and 46.3% respectively. The average carrying capacity is 50~80kg. The fleece weights are 1.6kg, 0.5kg and 1.7kg for males, females and bullocks. The average under wool yield is 0.5 kg. The Tibet High Mountain reaches sex maturity at three years old. The males are managed to breeding at 3.5 years old and females at 4.5 years old. The reproductive rate is 30.7~50.8%. That 1 parity every 2 years are common.

#### **6.Muli**

**Distribution:** the Muli Zang autonomous county in Sichuan Province

**Population size:** Approximately 65,700 in 1995

**Major characteristics:** The Muli is pure black or white spotted in colour. This breed has big head with wide forehead, small neat ears. The males and females both have horns. The neck is thick without dewlap of males, but thin of females. Males' humps are aerial and round, but females are low and thin. The Muli has deep but wide chest, flat straight back and loin, short quarters and firm hooves. The fleece yield includes coarse hair and under wool. The average daily milk yield is 1.06kg, and 407.4kg during one lactation period. Milk fat ratio is higher in last year than that in the same year, with the maximal yield in August. The dressing percentage is about 53.2%. Males can be managed to first breeding at 4 years old. The service year of males and females are 6~8 years and 13 years respectively. The breeding season of females is from July to October every year. Survival rate of calves is 97.2%.

### **7.China-Burma**

**Distribution:** Zhongdian and Deqin of Diqing Zang autonomous state in Yunnan Province

**Population size:** Approximately 26,200 survivors in 1980

**Major characteristics:** This breed has vigorous and beefy constitution with cuneiform body types. Bulls like to fight but female looks docile. They all have long slim horns in black or gray color, spreading outwards and upwards with the top of the horns relatively ahead or backwards. They have wide forehead, concave face, big round eyes protrude out, relatively small ears drop down gently, thin neck without dewlap, long flat and straight back and loin, long deep chest, deep heavy body, drooping rump and short quarters, long and rung shaped tail with short hairs on. Hairs are long, especially those on quarters and belly extending to the earth.

Males' forequarters are higher than rear quarter. Females' Chests develop well, with shorter legs than males' and forequarters and rear quarters of the same height. Indexes of body length, chest girth, and limb length of bullocks are higher than females and males. Adult bulls weigh on average 234.6kg; females of 192.5kg and bullocks of 294.9kg, with an average wither height of 113.1cm, 105.2cm and 119.6cm respectively. The lactation period is 210~220 days, with an average milk yield of 202~216kg and the milk fat ratio of 6.2%. The milk yield of a female offspring of a bull is 529~575kg every year, with that milk fat ratio 4.9~5.3%. The dressing percentage and meat percentage of the unfitted ones are about 47.8% and 35.6% respectively. Females are managed to first breeding at 4 years old. The productive rate is 66% and the survival rate of calves is 92.8%.

### **8.Pali**

**Distribution:** Pali town in Yadong county of Rigeze region in Tibet autonomous prefecture

**Population size:** Approximately 4,087 in 1996

**Major characteristics:** The Pali is mainly black in color. Deep brown, yellow-brown and black and white may also be found usually. However, few in pure white are found. The Pali has big head with flat forehead, short thick neck, high and wide withers, deep portray, flat straight back and loin, not fleshy but compact rump, and short strong legs. Length between horns is wide, some reaches 50 cm. Females are managed to first breeding at 3.5 years old, with an average service age of 13 years. That 1parity every 2 years is common. The dressing percentage is 51.6%. The daily milk yield is 1.6 kg (in August). Average under wool yield is 0.6kg, and the average ghee yield is 12.5~15 kilogram by every female.

### **9.Sibu**

**Distribution:** the Sibu gully 20 miles from Mozhugongga County in Tibet autonomous prefecture

**Population size:** Approximately 3,500 in 1995

**Major characteristics:** The Sibu is large framed and quadrature shape. The Sibu has deep wide chest, horns extending outwards and upwards with the top spreading backwards and large space between two horns. Most of them have flat straight back and loin, big but not dropping belly, but most of them have underdeveloped rear quarters. The dressing percentage is 49.9%, the daily milk yield is 1.8kg, the milk fat rate is about 5.9~10.7%. The Sibube reaches sex maturity at 3.5 years old, and is managed to first breeding at 4 years old. The breeding seasons varies from June to Oct. every year. Most of them have parity every year.

### **10.Liangya**

**Distribution:** Jiali county of Naqu region in Tibet autonomous prefecture

**Population size:** Approximately 128,547 in 1995

**Major characteristics:** The Liangya is complex in color with the pure black of 60%. The Liangya has rugged head, short wide forehead, relatively concave face, high wide thick withers for males, and little

lower withers for females; big and not dropping belly, drooping rump and strong quarters. Females are managed to first breeding at 3.5 years old, producing one offspring every two years. Females normally service for breeding for 15 years, mating frequently in June and August. Survival rate of calves is 90%. The maximal milk yield is during June and August because grass grows exuberantly but the milk fat ration is low at that time. The dressing percentages are 55% and 49%~54% for males and females respectively.

### **11. Xingjiang**

**Distribution:** Aljin Mountains, Kunlun Mountains and Pamirs in the south foot of Tianshan; alpine area at the altitude of 2400-4000 meters, and few in Hami region of East Tianshan

**Population size:** Approximately 56,000 in 1985

**Major characteristics:** The Xingjiang has rugged head, short broad forehead, aerial withers, deep thorax and short thick quarters. Long hairs cover the whole body, with hairs under belly skirt shaped and tail hairs broom shaped. They are mainly black, brown, gray in color. Black and white, and 好白花班 are in the next place. Those in Hami area are mostly pure black, and then gray or Black and white in color. Adult males weigh on average 288.2kg, and females of 210.6kg, with an average withers height of 122.8cm and 112.7cm respectively. The average dressing percentage is 47~59%. The females have an average daily milk yield of 2.6kg. The average fleece weight is 1.3kg with an average under wool yield of 0.4kg. The Xingjiang is managed to breeding at 2.5~3 years old. The reproductive rate varies in different regions, and be about 37~97%. The average survival rate is over 90%.

## **Bos Frontalis**

### **1. Dulong**

**Distribution:** Provinces of Yunnan and Tibet

**Population size:** few in 1995

**Major characteristics:** This breed is good at ascent and prefers living in groups. They are grazed outside throughout the entire year. The male are fierce. The females hide themselves in the jungles or brushwood in the parturient period, leaving alone. The Dulong is large-framed. The whole body is black or dark brown in color with the under part of quarters white. The horn bases are rugged, gradually being taper shaped upwards, protruding out from both sides of head and relatively bending upwards. The horns are about 40cm long with the space between two horns of 100cm. The males have fleshy necks with evident dewlaps and relatively low withers. The female Dulong will lead their calves back to group 5~6 days post partum. The Dulong is fed common salt 1 time or 2 times in one month. Adult males weigh on average 400~500kg, and 350~400kg of adult females. The meat quality is good. The dressing percentage is high. The Dulong reaches its sex maturity lately and usually at 4 years old. Parity every year.

## **Sheep**

### **1 Mongolian**

**Distribution:** Inner Mongolia (50%), Gansu province (30%), east north of China, Qinghai province, Sinkiang

**Population size:** 20,000,000 sheep were bred per year

**Major characteristics:** short fat tail sheep, one of the four local sheep types, strong and compact body, adapt to stock management. Body weight: ram, 47~70kg; ewe, 32~54kg. Wool quality: fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Wool length: 6.5~7.5cm, spring. Fleece weight: ram, 1.5~2.2kg; ewe, 1~1.9kg. Fineness: fine wool, 22um; coarse wool, 44um. Dressing percentage: moderately large gelded ram, over 50%; 6-month old gelded ram, 46%. Fat weight of tail: 1.4~3.1kg. Reproduction ability: one lamb per year per ewe; the rate of two-lamb is 3~5%.

### **2 Tibetan**

**Distribution:** Tibet; Qinghai province; Gannan district, Gansu province; Ganzhi, Aba Tibet, Liangshan Yi autonomous district, Sichuan province; Yungui plateau

**Population size:** 28,000,000 sheep were bred in 1980

**Major characteristics:** plateau-type or grass-type, short and thin tail type sheep, one of the four local

sheep types. Grass-type is better than plateau-type sheep. The wool of grass-type is the origin material of the high quality carpet wool. Good abilities adapt to plateau pasture area. Body weight: adult ram, 51kg; adult ewe, 43kg. Wool quality: fleece is composed of down hair, heterotopias fibers, coarse wool and kemp; fleece weight is 1.3kg for male, 0.9kg for female; hair plait length is 20~23cm with maximum length 50cm; Fineness is 20um for fine wool, 40~45um for heterotopias wool, 60~80um for coarse wool. The weight proportion: fine wool, 66.7%; heterotopias fibers, 19.5%; coarse wool, 11%. Clean content: 70%. Meat production: dressing percentage is over 46% for adult gelded ram. Reproduction ability: one lamb per year per ewe; all is single lamb per lactation.

### **3 Kazakh**

**Distribution:** the north foot of the Tian Mount, the south of the Aletai Mount, Hami district, Sinkiang; the march with the Sinkiang, Gansu and Qinghai province

**Population size:** 1,500,000 sheep were bred in Sinkiang in 1980

**Major characteristics:** fat tail sheep, one of the four local sheep types. Graze in four seasons. Good abilities adapt to pasture area. Body weight in spring: adult ram, 60kg; adult ewe, 45.8kg. Wool quality: fleece wool is composed of fine wool, heterotopias fibers, coarse wool and kemp. Fleece weight: ram, 2.63kg; ewe, 1.88kg. Wool length: ram, 14.8cm; ewe, 13.3cm. The weight proportion: fine wool, 41~55%; heterotopias fibers, 14~20%; 12~24% for coarse wool, 13~21% kemp; clean content is 58~69%. Dressing percentage: adult gelded ram, 47.6%; one and half year old gelded ram, 46.4%. The weight of the fat tail: adult gelded ram, 2.3kg; one and half year old gelded ram, 1.8kg. Lambing percentage: 102%.

### **4 Ujumqin**

**Distribution:** east, west of Ujumqin, Labahanar district of Inner Mongolia

**Population size:** 1,000,000 sheep were bred per year

**Major characteristics:** short fat tail sheep, high production of meat or fat. Strong abilities of fat cumulated under the condition of grazing in four seasons. Body weight: adult ram, 74kg; adult ewe, 58kg; 6-month old ram, 39.6kg; 6-month old ewe, 36kg. Wool quality: fleece wool is composed of down hair, heterotopias fibers, coarse wool and kemp. Fleece weight in spring: ram, 1.87kg; ewe, 1.45kg. The weight proportion: fine wool, 46~55%; heterotopias fibers, 1.63~2.68%; coarse wool, 21.5~33% for; kemp, 9.46~30.6%. Clean content: 72.3%. Dressing percentage: adult gelded ram, 53.6%; 6-month old gelded ram, 50%. The weight of the fat tail: adult gelded ram, 4.4kg, 6-month old gelded ram, and 1.7kg. Lambing percentage: 100%.

### **5 Bayinbuluke**

**Distribution:** Yourduoshi basin, Sinkiang

**Population size:** 530,000 sheep were bred per year

**Major characteristics:** short fat tail sheep, meat-fat type coarse wool sheep, not good at production wool. Body weight: adult ram, 70kg; adult ewe, 43kg. Wool quality: fleece is composed of down hair, heterotopias fibers, coarse wool and kemp. Fleece weight in spring: ram, 1.6kg; ewe, 0.9kg. Dressing percentage: adult gelded ram, 46.6%; 6-month old gelded ram, 44.1%. Lambing percentage: 102%.

### **6 Altai Fat-rumped**

**Distribution:** Fuhai, Fuyun, Qinghe, Altay, Burjin, Jibunai, Habahe, Sinkiang

**Population size:** 1,290,000 sheep were bred in 1985

**Major characteristics:** fat tail sheep, grazing in all seasons. Strong abilities of fat cumulated under the condition of grazing in four seasons. Body weight at the autumn: adult ram, 93kg; adult ewe, 67.6kg. Fleece weight is 2.0kg for adult ram, 1.6kg for adult ewe. Wool quality: fleece is composed of down hair, heterotopias fibers, coarse wool and kemp. The weight of wool production: adult ram, 2.0kg; adult ewe, 1.6kg. The weight proportion is 60% for fine wool, 40% for heterotopias fibers, and 7.8% for coarse wool, 28.73% kemp; clean content is 71.24%. Meat production: dressing percentage is 52.9% for adult gelded ram, 50% for 18-month old gelded ram. The weight of the fat tail is 7.1kg for adult gelded ram, 4kg for 18-month old gelded ram. Reproduction ability: lambing percentage is 110%.

### **7 Hetian**

**Distribution:** Yutian, Luopu, Hetian, Moyu, Minfeng, Cele, Pishan County, Singkang

**Population size:** 1,072,000 sheep were bred in 1980

**Major characteristics:** using as the coarse material of fleece. Strong abilities of fat cumulated under

the condition of dryness, hotness, and lower nutrition level. Body weight: adult ram bred in Choteau, 39kg; adult ram bred in plain, 36kg; adult ewe bred in Choteau, 29kg; adult ewe bred in plain, 29kg. Wool quality: fleece wool is composed of down hair, heterotopias fibers, coarse wool and kemp. The wool weight is 1.6kg for adult raw, 1.2kg for adult ewe. The wool length is 18cm in the spring, 11.3cm in the autumn. The fleece weight proportion: fine wool, 25.3%; heterotopias fibers, 35.5%; coarse wool, 6.5%; kemp, 4.7%. Clean content: 70%. Meat production: dressing percentage is 42% bred in Choteau, 36.8% bred in plain. Reproduction ability: lambing percentage is 102%.

### **8 Guide Black Fur**

**Distribution:** south of Sinkiang

**Population size:** 20,000 sheep were bred in Guinan county

**Major characteristics:** short fat tail sheep, mainly using to produce black lamb fur. Body weight: adult ram, 56kg; adult ewe, 43kg. Wool quality: fleece is composed of down hair, heterotopias fibers, coarse wool and kemp; clean content, 70%; wool length, 4~7cm; 1.7 wool crispness per cm. Meat production: dressing percentage is over 46% for adult gelded ram, 43.4% for adult ewe. Lambing percentage: 101%.

### **9 Mingxian Black Fur**

**Distribution:** Mingling county, Guans province

**Population size:** 10,400 sheep were bred in 1981

**Major characteristics:** short fat tail sheep, mainly using to produce black lamb fur, adapt to cold and darkness environment. Body weight: adult ram, 31kg; adult ewe, 27.5kg. Wool weight is 0.75kg and could be used to produce felt. Wool length with 3~5 wool crimp nesses per cm is 7cm. Meat production: dressing percentage is over 44% for adult gelded ram. Lambing percentage: 100%.

### **10 Tan**

**Distribution:** Ningxia, Ganshu, Inner Mongolia, and Shaanxi

**Population size:** 2,500,000 sheep were bred in 1981

**Major characteristics:** short fat tail sheep, mainly using to produce black lamb fur, wool elasticity and resilience, used as the coarse material for carpet, firm type, adapt to barren condition. Body weight: adult ram, 47kg; adult ewe, 35kg. Wool length: ram, 11.2cm; ewe, 8.9cm. Wool weight: ram, 1.6~2.0kg; ewe, 1.3~1.8kg. Fineness: 17um, 26.6um. Wool quality: clean content, 65%. The lamb fur of Tan sheep is white, soft and beautiful with wave shape wool. Wool crispness is 5~7 per section wool. Meat production: dressing percentage is 45% for adult gelded ram, 40% for adult ewe. The rate of lamb fur of Tan sheep is 50%. Lambing percentage: 102%.

### **10 Fat-tailed Han**

**Distribution:** Liaocheng district, Shandong province; Heilonggang district, Hebei province

**Population size:** 47,000 sheep were bred per year

**Major characteristics:** long fat tail sheep, one of the four famous sheep breeds, lambskin is thin and slight, devious meat quality, strong reproduction ability. Body weight: adult ram, 72kg; adult ewe, 52kg. Fleece is composed of down hair, heterotopias fibers, coarse wool and kemp. Wool weight: ram, 3.8kg; ewe, 2.7kg. Average wool length at spring: ram, 10.4cm; ewe, 10cm. Clean content, 45%. The wool weight proportion is 95% for fine wool and heterotopias fibers, 5% for coarse wool. Fineness: shoulder wool, 26um; side of body wool, 26.6um. Wool quality: clean content, 45%. The lamb fur of Tan sheep is white. Wool crispness is 6~8 per section wool. Meat production: dressing percentage is 62~69% for adult ram, 55~64% for one-year old ewe. The weight of fat tail is 10.5kg. Reproduction ability: lambing percentage is 190%.

### **12 Small-tailed Han**

**Distribution:** North-east, South, East of Heibei province; West-east of Shandong province; North of Anhui province; North of Jiangsu province

**Population size:** 770,000 sheep were bred in 1980

**Major characteristics:** short fat tail sheep, strong reproduction ability, grow fast, high meat performance, stability of heretibility. Body weight: adult ram, 94kg; adult ewe, 49kg. The body weight of the one-year old ram is 64.6% of the adult ram, accordantly, 84.9% for adult ewe. Fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Wool weight: ram, 3.5kg; ewe, 2.1kg. Average wool

length: ram, 13.3cm; ewe, 11.5cm. The wool weight proportion is 67% for fine wool, 10% for heterotopias fibers, 22.8% for coarse wool and kemp. Clean content is 45%. Wool crispness is 6~8 per section wool. Meat production: dressing percentage is 55.6% for one-year old ram, 50.6% for 3-month old ram. Reproduction ability: lambing percentage is 230%.

### **13 Tong**

**Distribution:** Weinan, Xianyang, Yan'an district, Shanxi province

**Population size:** 36,000 sheep were bred in 1981

**Major characteristics:** long meat fat tail sheep, short mature period, good wool quality, low wool production, low fertility. Body weight: adult ram, 44kg; adult ewe, 39kg. Wool quality: fur is homogeneity, wool length is over 9cm. Wool weight: ram, 1.4kg; ewe, 1.2kg. Fineness: 23.6um for ram, 23um for ewe; white lambskin with pear form. Meat production: dressing percentage is 57.7%. Reproduction ability: one lamb per lactation parity, less two lambs per lactation parity.

### **14 Lanzhou Fat-tailed**

**Distribution:** Suburb of Lanzhou city, Gansu province

**Population size:** over 10,000 sheep were bred in 1981

**Major characteristics:** long fat tail sheep, meat-fat type breed. Body weight: adult ram, 57.89kg; adult ewe, 44.35kg. Fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Wool weight: ram, 2.5kg; ewe, 1.3kg. Wool weight proportion: fine wool, 65~67.2%; heterotopias fibers, 17.5~17.7%; coarse wool, 4.4%; kemp, 10.7~17.5%.

### **15 Hu**

**Distribution:** Wuxing, Tongxian, Jiaying, Changxing, Deqing, Haiyan, Yuhang, Haining county, Suburg of Hangzhou, Zhejiang province; Wujiang, Wuxian, Wuxi, Changshu, Jiangying, Chuzhou, Taichang, Kunshan, Yixing county, Jiangsu province; Shanghai city

**Population size:** over 1,700,000 sheep were bred in 1980

**Major characteristics:** short fat tail sheep, lambskin-type breed; grow fast, oestrus in the four seasons; high rate of fecund. It is the special lambskin breed in Chain and famous for beautiful lambskin. Body weight: adult ram, 48.7kg; adult ewe, 36.5kg. Fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Wool weight: ram, 1.65kg; ewe, 1.17kg. Wool weight proportion is 80.1~90.32% for fine wool, 0.47~0.56% for heterotopias fibers, 19.26~9.03% for coarse wool, 0.17~0.09% for kemp. Lambskins with wave-shaped ripples have larger-ripple type, moderately-ripple type or small-ripple type. The lambskin quality is good for which has moderately ripples or small ripples or small-large ripples. The ripple length: small ripple, 1.0~2.0cm; small-medium ripple, 2.6~3.0cm; medium ripple, 3cm. Dressing percentage: adult sheep, 40~50%. Lambing percentage: 229%.

### **16 Guangling Fat-tailed**

**Distribution:** Guangling, Hunyuan, Yanggao, Huaiyuan county, Datong district, Shanxi province

**Population size:** over 100,000 sheep were bred in 1978

**Major characteristics:** meat-fat type breed; grow fast, short sex mature period; large fat tailed, delicious meat quality. Body weight: adult ram, 52kg; adult ewe, 43kg; one-year old ram, 33.40kg; one-year old ewe, 31.50kg. Fleece weight is 1.38kg for adult male, 0.83kg for adult female, 1.06 for one-year old ram, 1.21kg for one-year ewe. The weight proportion is 53.5% for fine wool, 15.3% for heterotopias fibers, 30.6% for coarse wool, 0.6% kemp. Down hair length is 24.5um, Meat production: dressing percentage is over 53.6% for adult gelded ram, 50% for 6-month old gelded ram. The weight of the fat tail is 4.4kg for adult gelded ram, 1.7kg for 6-month old gelded ram. Lambing percentage is 100%.

### **17 Jinzhong**

**Distribution:** Jinzhong basin, Shanxi province

**Population size:** 525,000 sheep were bred in 1978

**Major characteristics:** short fat tail sheep, coarse wool type breed; grow fast, tender mean quality, low wool production with poor wool quality. Body weight: adult ram, 47.5kg; adult ewe, 30.9kg. Wool weight: ram, 1.11kg; ewe, 0.76kg. Wool length: coarse wool, 10.17cm; down hair, 6.28cm. The wool weight proportion is 73% for fine wool, 11% for heterotopias fibers, 16% for coarse wool. Clean content is 62%. Meat production: dressing percentage is 52% for adult gelded ram. Reproduction ability: one lamb per lactation parity, less two lambs per lactation parity.



### **18 Wadi** (also called North-Lu)

**Distribution:** Dezhou, Huimin district, Dongying city and Weifang city, Shandong province

**Population size:** 500,000 sheep were bred per year

**Major characteristics:** sheepskin could be used to produce, short tail fat breed. Wool weight proportion is 51% for fine wool, 16% for heterotopias fibers, 30% for coarse wool, 3% for kemp. Wool weight is 1.5~2.0kg. Wool length at the spring is 7~9cm. Clean content is 51~55%. Meat production: dressing percentage is 50%. Reproductive rate is 120%.

### **19 Sishui** (also called North-Lu)

**Distribution:**

**Major characteristics:** short tail fat breed. The ram has large helix horns and ewe without horn. Fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Wool weight proportion is 42~52% for fine wool, 23~49% for heterotopias fibers, 41~29% for coarse wool. Wool weight is 1.5~2.0kg. Wool length at the spring is 13~16cm. Clean content is 63~66%. Meat production: dressing percentage is 48%. Reproductive rate is 105%.

### **20 Yuxi Fat-tailed**

**Distribution:** Luoyang district, north of Nanyang district, west of Kaifeng and Xuchang district, Henan province

**Major characteristics:** Body weight: day-old male lamb, 3.4kg; day-old female lamb, 3kg; shearing top, 24kg; shearing ewe, 19kg; adult ram, 35.5kg; adult ewe, 27kg. Wool is pooled twice per year. Wool weight is 2kg for ram, 1.4kg for ewe. Wool length is 6.45cm. Fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Meat production: dressing percentage is 51%. Reproductive rate is 107%.

### **21 Taihang**

**Distribution:** Anyang, Xinxiang district, Henan province

**Population size:** 314,000 sheep were bred in 1986

**Major characteristics:** moderately body size, firm type, and helix horns for most of rams, horn or for most of ewes. The proportion of sheep with white wool throughout body is 79%. Wool quality: heterogeneous fleece, pooling wool per year. At the spring: wool weight is 0.81kg for ram, wool length is 11.3cm; wool weight is 0.80kg for ewe, wool length is 11.2cm. At the autumn: wool weight is 0.71kg for ram, wool length is 7.7cm; wool weight is 0.71kg for ewe, wool length is 7.7cm. Dressing percentage is 51%.

### **22 Weining**

**Distribution:** Weining county, Guizhou province

**Population size:** over 100,000 sheep were bred in 1993

**Major characteristics:** coarse wool breed, heterogeneous wool, narrow body shape, and higher front of body than rear. Most of rams have horns. The fleece color is white on the major body part, black or yellow brown spots on the head and lower four-leg. The ram or ewe stop to develop until 2.5-year old. Total wool weight with 3 times pooling is 0.7kg per year per ewe, 1.3kg per year per ram. Clean content: ram, 70%; ewe, 67%. Dressing percentage is 45.3% for gelded sheep. Reproduction ability: one lamb per ewe per year. Reproduction survival rate is 55~62%.

### **22 Diqing**

**Distribution:** Diqing state, Yunnan province

**Population size:** 128,000 sheep were bred in 1980

**Major characteristics:** Tibet sheep, short coarse wool breed. Body weight: adult ram, 41kg; adult ewe, 36kg; gelded sheep 33.5kg. Fleece is composed of fine wool, heterotopias fibers, coarse wool and kemp. Wool weight: adult ram, 0.82kg; adult ewe, 0.57kg. Wool length at spring: ram, 6.36cm; ewe, 4.46cm. Meat production: dressing percentage is 43% for gelded sheep. Reproduction ability: one lamb per year per ewe seldom is 3 lambs every two year,

### **24 Tengchong**

**Distribution:** Mingguang, Yunhua, Guyong, Ruidian, Zhonghe, Jietou district, Yunnan province

**Population size:** 37,700 sheep were bred in 1980

**Major characteristics:** Tibet sheep system, coarse wool breed, and long taper shape tail. Body weight: shearing top, 38kg; shearing ewe, 33kg; adult ram, 52kg; adult ewe, 51kg. Average wool weight is 1.28kg. Wool length: adult ram, 5.45cm; adult ewe, 5cm. Clean content: ram, 72.3%; ewe, 60%. Fleece is composed of fine wool and heterotopias wool. Quality number is 50. Reproductive rate is 101%.

### **25 Zhaotong (also called country coarse sheep)**

**Distribution:** Zhaotong, Ludian, Qiaojia, Yanjin, Dagan, Yongshan, Huanjiang, Zhenxiong, Yiliang, Weixin, Shuifu County, Yunnan province

**Population size:** 223,000 sheep were bred in 1980

**Major characteristics:** short tail breed, heterogeneous fleece. Body weight: day-old, 6-month year old, shearing hog, 3-year old is 3.1kg, 26kg, 25.5kg, 40.6kg for ram and 2.8kg, 24kg, 31.7kg for ewe, respectively. Wool weight is 0.8~1.0kg. Wool weight proportion is 66% for fine wool, 23.2% for heterotopias fibers. Fineness: fine wool, 27.7um; heterotopias fibers: 58.6um, Wool length: 7~10.5cm. Clean content: 77%. Dressing percentage: 46%. Lambing percentage: 90%.

### **26 Hanzhong**

**Distribution:** Ningqiang, Lueyang and Mianxian county, Shanxi province

**Population size:** 40,000 sheep were bred in 1981

**Major characteristics:** new breed, homogeneity fleece, high meat production performance, and high reproductive ability. Body weight: ram, 35kg; ewe, 31kg. Wool weight: adult ram, 1.8kg; adult ewe, 1.4kg; gelded sheep, 2kg. Wool length: 8~10cm. Fineness: 30~38um. Dressing percentage: 48%. Lamb percentage: 14%.

### **27 Bashibai**

**Distribution:** Yuming County, Singkang

**Population size:** 11,000 sheep were bred in 1960

**Major characteristics:** short mature period, red brown fleece, less kemp and more down hair. Body weight at the autumn: ewe, 80~85kg; ram, 120kg. Short mature period. The body weight is 30kg at 2-month old, 68.3kg for ram and 56.9kg for ewe under normal breed environment. Dressing percentage: 50%. Wool weight is 3~3.5kg per year.

### **28 Cele Black**

**Distribution:** Cele County, Sinkiang

**Population size:** 5,000

**Major characteristics:** lambskin type breed, high reproductive ability. Body weight in 1959: ram, 45kg; ewe, 35kg. Wool weight: ram, 1.5kg; ewe, 1.2kg. Wool length: 8~11cm.

### **29 Kerkezi**

**Distribution:** Kerkezhi district, Sinkiang

**Population size:** 4,020,000 sheep were bred in 1958

**Major characteristics:** black fleece, appearances look like Kazakh sheep. Ram has horns and ewe has small horn. Average body weight: ram, 40~60kg; ewe, 35.0kg. Wool weight: ram, 1.5~2.0kg; ewe, 1.0~1.5kg. Dressing percentage: 50%. Tail weight: 2.0kg. Reproductive percentage: 86.9%.

### **30 Tashikurgan (also called Bashi)**

**Distribution:** Tashikurgan antonymous county, Sinkiang

**Population size:** 10,000 sheep were bred in 1985

**Major characteristics:** meat-fat type, fat-tailed breed, large body size, short mature period, bearing, grow fast. Average body weight: ram, 69.3kg; ewe, 54.1kg. Tail length: ram, 20.7cm; ewe, 16.3cm. Tail width: ram, 26.0cm; ewe, 20.7cm. Tail thickness: ram, 14.0cm; ewe, 9.8cm. The lamb body weight at the 3-month is 22.5kg, only 30~40% of the adult sheep. Dressing percentage: 50~60%. The proportion of body fat weight and tail fat weight to carcass weight is 30~40%. Wool weight: ram, 1.75~2.75kg; ewe, 1.5~2.0kg. Stape length: 5~9cm. Lambing percentage: 105%.

### **31 Duolang**

**Distribution:** west-south edge of the Takelamagan desert; Maigaiti, Bachu, Yuepu, Shace county, Sinkiang

**Population size:** 100,000 sheep were bred in 1985

**Major characteristics:** meat-fat type breed, large body size, grow fast, high reproductive rate. Average body weight at the day-old sheep, shearing hog, adult hog is 6.8kg, 59.2kg, 98.4kg for ram and 5.1kg, 43.6kg, 68.3kg for ewe. Dressing percentage: adult ram, 59.8%; adult ewe, 55.2%. Wool weight: adult ram, 2.6kg; adult ewe, 1.6kg. Wool weight proportion to whole wool weight is 60~70% for down hair. Time of sex mature: male, 6~7-month; female, 6~8-month.

## Goat

### 1 Tibetan

**Distribution:** Ganzhi, Abazhou, Sichuan province; Yushu, Guoluozhou, Qinghai province; all over Tibeta autonomous region.

**Population size:** 7,000,000 goats were bred in 1983, 74%, 20% and 6% of which were in Tibet, Sichuan, Qinghai, respectively.

**Major characteristic:** Good mutton fatness. Fat content: uniform. Adult weight: male, 29kg; female, 25kg. Fleece weight: 6~8-month, male, 0.5kg; female, 0.25kg. Down hair weight: 0.11-0.25kg. Down hair length: 4.4-5.8cm. Down hair fineness: 14  $\mu$  m. Down hair content: 28-37.2%. Dressing percentage: gelded ram, 51-54%; female, 45%. Lambing percentage: 110-135%.

### 2 Xinjiang

**Distribution:** Kashi, Hetian, Talimu river valley; Aletai, Changji, Hami, Sinkiang Wenwur autonomous region.

**Population size:** 3,890,000 goats were bred in 1985.

**Major characteristic:** Most fleece wool color: white, black or colors. In Hami district: Adult weight: male, 58kg; female, 36.8kg; shearing top, 30.4kg; shearing ewe, 25.7kg. Down hair weight: adult male, 0.310kg; adult female, 0.196kg. Down hair fineness: 14  $\mu$  m. Dressing percentage: gelded ram, 40%. Milk production: 115 days, 107kg. Lambing percentage: 116-120%.

### 3 Inner Mongolia Cashmere

**Distribution:** Yikezhaomeng, Alashanmeng, Inner Mongolia autonomous region.

**Population size:** 2,000,000 goats were bred.

**Major characteristic:** Down hair: fine, soft. Big elongation. High neat down content. Having two types: "long wool" or "short wool". Adult weight: male, 47.8kg; female, 27.4kg. Fleece weight: male, 0.57kg; female, 0.26kg for. Down hair weight: male, 0.4kg; female, 0.3kg. Down hair length: male, 3.5cm; female, 3.9cm. Wool elongation at break: male, 7.6cm; female, 6.6cm. Down hair fineness: 15  $\mu$  m. Down hair content: 70%. Dressing percentage: gelded ram, 47%; female, 45%. Lambing percentage: 103-105%.

### 4 Hexirong Cashmere

**Distribution:** Jiuquan, Wuwei and Zhangye district, Gansu province.

**Population size:** 230,000 goats were bred in 1981.

**Major characteristic:** Producing white down hair. Adult weight: male, 38.5kg; female, 26kg. Fleece weight: male, 0.317kg; female, 0.383kg. Down hair weight: male, 0.324kg; female, 0.28kg. Down hair length: male, 4.9cm; female, 4.3cm. Down hair fineness: 15  $\mu$  m. Wool strength: 3.6g. Wool elongation at break: 44%. Dressing percentage: 44%. Down fair content: about 50%. Reproductive ability: low. Lactation number: one year, 1. Lambing percentage: 130-143%.

### 5 Liaoning Cashmere

**Distribution:** Liaoning province.

**Population size:** 156,000 goats were bred in 1981.

**Major characteristic:** Down-meat type goat. Good ability to produce down hair. Body size: large. Enduring coarse foddors. Adult weight: male, 53.5kg; female, 44kg. Fleece weight: male, 0.5kg; female, 0.43kg. Down hair weight: male, 0.54kg; adult female, 0.47kg. Down hair length: male, 5.60cm; female, 5.28cm. Wool length: male, 9.28cm; female, 8.14cm. Down hair fineness: 16.5-17.3  $\mu$  m. Down hair content: 70-74.6%. Wool strength: 4.59g. Wool elongation at break: 51%. Dressing percentage: adult male, 51-52%; female, 49%. Lambing percentage: 118%.

## 6 Taihang (also called Wu'an, Hebei; Lichengdaqing, Shanxi; Taihanghei, Henan)

**Distribution:** Taihangshan district, Shanxi; Henan; Hebei province.

**Population size:** 2,410,000 goats were bred in 1980, 48%, 42% and 10% of which were bred in Shanxi, Hebei and Henan, respectively.

**Major characteristic:** Black fleece wool. Little wool is mottle. Adult weight: male, 37kg; female, 30kg; shearing top, 22.5kg; shearing ewe, 22kg. Fleece weight: adult male, 0.4kg; adult female, 0.35kg. Down hair weight: adult male, 0.28kg; adult female, 0.16kg. Down hair fineness: male, 11.2cm; female, 9.5cm. Down hair length: male, 2.36cm; female, 2.86cm. Wool elongation at break: male, 3.01cm; female, 3.36cm. Down hair fineness: 14  $\mu$  m. Dressing percentage: in Hebei, 47.3%; in Shanxi, 50%. Lambing percentage: 130-143%.

## 7 Zhongwei

**Distribution:** Gansu; Zhongwei, Tongye district, Ningxia and Inner Mongolia Autonomous Region

**Population size:** 266,000 goats were bred in 1981.

**Major characteristic:** Lamb skin, wool and down hair is material for rare clothes. 80% of them are white; the others are black or brown. Adult weight: in autumn, male, 44.6kg; female, 34.1kg; shearing top, 30.8kg; shearing ewe, 28.6kg. Fleece weight: male, 0.4kg; female, 0.3kg. Down hair weight: male, 164-240g; female, 140-190g. Wool fineness: 14  $\mu$  m. Dressing percentage: adult male, 42%; adult female, 50%. Milk production: one day, 0.3kg. Lactation period: 6 months.

## 8 Jining Grey

**Distribution:** Heze and Jining districts, Shandong province.

**Population size:** 555,000 goats were bred in 1981.

**Major characteristic:** Having lambskin with special color and pattern. Grow quickly. Fecund. Fleece wool color: white, black. Characteristic of figure is "si qing yi hei". Adult weight: male, 29-30kg; female, 22-26kg; shearing top, 18.7kg; shearing ewe, 14.4kg. Birth weight: male, 1.4kg; female, 1.3kg. Type of ripple: wave form, glide form, piece form and Dressing percentage: wether, 57%; female, 52%. Lambing percentage: 173%.

## 9 Huanghuai

**Distribution:** Border of Henan, Anhui and Jiangsu provinces

**Population size:** 7,100,000 goats were bred in 1980, 50%, 36% and 14% of which were bred in Henan, Anhui and Jiangsu province, respectively.

**Major characteristic:** Short sex-maturing period. High reproductive rate. Growth quickly. Short rare white fleece. Dressing percentage: 7~10-month female, 47%; adult female, 52%. Lambing percentage: 227-239%.

## 10 Shaannan White

**Distribution:** Ankang, Ziyang, Baihe, Zhenba, Pingli, Luonan, Shanyang, Xunyang and Zhen'an counties, Shanxi province.

**Population size:** 555,000 goats were bred in 1981.

**Major characteristic:** Good meat-producing ability. Fleece: white luster, short or long. "Short fleece": rare wools, early maturity, easily fatten. "Long fleece": pugnacious. Adult weight: 33kg; female, 27kg. Dressing percentage: 6-month, 45.5%; 1.5-year, 60%; 2.5-year, 52%. Meat: fine, tend. Shearing weight: at adult, "long fleece", male, 0.32kg; female, 0.28kg; wether, 0.35kg. Good reproductive ability. Lambing percentage: 173%.

## 11 Motou

**Distribution:** Yunyang and Enshi districts, Hubei province; Shimen, Cili, Zhijiang, Xinghuang and Sangzhi counties, Hunan province.

**Population size:** Over 220,000 were bred in 1980.

**Major characteristic:** Short sex maturing period. Good reproductive ability. Fleece: short, thick, white. Adult weight: male, 43.8kg; female, 33.7kg; gelded ram, 47.4kg. Growing quickly when young. Body weight of shearing wether is 73% of adult weight. Good fattening performance. When pastured, dressing percentage: adult wether, 62.6%; 7-month goats, 52%. Milk production: one year, 1-1.5kg. Lambing percentage: 191-200%.

## 12 Yichang White

**Distribution:** Changyang, Badong, Wufeng, Enshi, Yunyang, Jingzhou, Xiangyang and Xiaogan counties, Hubei province

**Population size:** Over 1,300,000 were bred in 1981, 850,000 of which is in central producing area.

**Major characteristic:** Fine muscular texture. Adult weight: male, 36kg; female, 27kg. Dressing percentage: shearing wether, 47%; adult gelded ram, 56%. Lambing percentage: 173%.

## 13 Chengdu Grey (also called Sichuan Tong)

**Distribution:** Chengdu city, Peng Xian County, Guan Xian County, Chongqing, Dayi and Qianglai counties, Sichuan province

**Population size:** Over 400,000 were bred in 1980.

**Major characteristic:** large body size. Good meat-producing ability. Bay fleece is like. Adult weight: male, 43kg; female, 36.6kg. Dressing percentage: 52%. Milk production: one day, 1-1.2kg.

## 14 Jianchang Black

**Distribution:** Huili, Huidong counties, Sichuan province

**Population size:** Over 400,000 were bred in 1980.

**Major characteristic:** Sex maturing period is short. Good meat-producing ability. Black fleece wool. Having bending pattern on lambskin. The pattern is lustrous and can be use for making leather. Poor productive ability. Adult weight: male, 31kg; female, 29kg. Dressing percentage: adult gelded ram, 51%. Lambing percentage: 116%.

## 15 Banjiao

**Distribution:** Wanyuan, Chengkou, Wuxi and Wulong counties, Sichuan province; Shanxi province; Guizhou province.

**Population size:** 170,000 goats were bred.

**Major characteristics:** large body size. Good fattening performance. High reproductive ability. White or black Fleece wool with some mottles. Adult weight: male, 41kg; female, 30kg. Dressing percentage: adult gelded ram, 56%; shearing hog, 55%. Lambing percentage: 184%.

## 16 Guizhou White

**Distribution:** Yanhe, Sinan, Wuchuan county, Guizhou province.

**Population size:** Over 900,000 goats were bred in 1981.

**Major characteristics:** Good ability to produce meat. High reproductive ability. Coarse short white fleece. Adult weight: male, 32.8kg; female, 30.8kg. Dressing percentage: adult gelded ram, 58%; shearing wether, 53.3%. Lambing percentage: 274%.

## 17 Longlin

**Distribution:** Longlin county, Guangxi province.

**Population size:** 30,000 goats were bred in 1980.

**Major characteristics:** Major color of fleece wool is white, black or colors. Adult weight: male, 57kg; female, 44.7kg; gelded ram, 72kg; 8-month male, 31.67. Dressing percentage: male, 53%; female, 47%; gelded ram, 58%; 8-month male, 48%. Lambing percentage: 195%.

## 18 Fuqing

**Distribution:** Fuqing, Pingtan, Fuding, Xiapu, Luoyuan, Lianjiang, Minhou, Yongtai County, Fujian province.

**Population size:** 68,000 goats were bred in 1979.

**Major characteristics:** Good meat quality. The smell is light. Heat-resistant. Damp-resistant. Brown or taupe fleece. Adult weight: male, 28kg; female, 26kg; 1.5-year gelded ram, 40.5kg. Dressing percentage (with skins): male, 56%; female, 47.6%. Lambing percentage: 170%.

## 19 Leizhou

**Distribution:** Xuwen Shengjiang district, Guangdong; Counties in Leizhou Peninsula; Hainan province.

**Population size:** 300,000 goats were bred in 1980.

**Major characteristics:** Short coarse black fleece. Long-legged or short-legged bodily form. Adult

weight: male, 50kg; female, 43kg; gelded ram, 48kg. Dressing percentage: 42-46%; 50%, be fattened. High reproductive efficiency. Lactation number: 2 per year; sometimes 3 per year. Lambing percentage: 100-200%.

## 20 Yangtse River Delta White

**Distribution:** Nantong, Suzhou, Zhenjiang district, Jiangsu province; Jiaxing, Hangzhou, Ningpo, Shaoxing district, Zhejiang province; each county around Shanghai city.

**Population size:** Approximately 3,180,000 goats were bred in 1980, 82% of which were in Jiangsu.

**Major characteristics:** Good ability to produce meat and wool. Straight wool has, which is flexible. Adult weight: male, 28.6kg; female, 18.4kg. Body weight: shearing top, 16.4kg; female, 14.9kg. Dressing percentage (with skins): adult, 45.9%; shearing hog, 48.7%. Dressing percentage (without skins): 35-45%. Is good material for making leathers? Lambing percentage: 224%.

## 21 Chengde Horn Down

**Distribution:** Chengde, Qinhuangdao, Tangshan, Pingquan, Kuancheng County, Hebei province.

**Population size:** without detailed information.

**Major characteristics:** having three kinds of color: black, white or mixture of black and white. Most of them are black goats. Horns or horns. Having wattle on lower mandible. Cylinder-shaped body shape. Broad back or waist. Front of breast develops well. Well-muscle. When pastured, adult weight: male, 54.5kg; female, 41.5kg. Wool weight: female, 251g. Down hair weight: female, 114g. Age at sexual maturity: commonly 5-month old; male, 1.5-year old. Mating age: female, 12-month. Lambing percentage: 164%. Survival rate: 70-80%.

## 22 Lvliang Black

**Distribution:** Sienna altiplano west of Shanxi province.

**Population size:** 2,260,000 goats were bred in 1979.

**Major characteristics:** Black fleece color. Two-layer fleece. The upper layer is long coarse wool, which have two types: "black type" or "blue back". Adult weight is 26.4kg for male and 28.8kg for female. Body weight at one-year: male, 16kg; female, 14kg. Fleece weight and down weight: male, 433g and 9.4g; female, 234g and 77g. Fineness of down hair:  $14\mu\text{m}$ (80 zhi). Down hair length: 2.78cm. Dressing percentage: adult gelded ram, 52.6%; shearing wether, 45.8%. Lambing percentage: 94-105%.

## 23 Daiyun

**Distribution:** Datian, Longxi, Anxi, Hui'an, Yongchun, Dehua County, Jiangxi province.

**Population size:** 200,000 goats were bred in 1982, 40% of which were bred in Hui'an county.

**Major characteristics:** Good ability to heat-resistant, damp-resistant. High ability to produce meat. Majority of fleece color is black. Goats in seaside district have larger body size than in mountainous area. Adult weight: male in seaside district, 33.2kg; male in mountainous area, 28.4kg. Dressing percentage (with skins): 50.6%. Height reproductive efficiency. Lambing percentage: 231%.

## 24 Ganxi

**Distribution:** Yuanzhou, Yifeng, Tonggu County, Jiangxi province.

**Population size:** 55,000 goats are bred in 1995.

**Major characteristics:** Small body size. Straight wide forehead. Major fleece color is white, some of which is bay. Adult weight: male, 33kg; female, 29kg. Body weight: shearing top, 19kg; shearing ewe, 18-19kg. Age at sexual maturity: male, 4~5-month. Age at first mating: male, 7~8-month; female, 6 months. Lactation percentage: 200%. Lactation number: 2~4 per year. Dressing percentage at 10~12-month: 46%. Lambing percentage: 164% per year per ewe.

## 25 Guangfeng

**Distribution:** Guangfeng, Yushan, Shangrao County, Jiangxi province.

**Population size:** 55,000 goats are bred in 1995.

**Major characteristics:** Small body size. Long face. Wide forehead. Having horns for male and female. Having beard on mandible for male and female, which is longer for male than for female. White fleece. Body weight: shearing tug, 24kg; shearing ewe, 19.5kg. Body weight at 3-year: male 30.2kg; female, 28.3kg. Age at sexual maturity: male, 4~5-month old. Age at first mating: female, 6 months; male, 12 months. High reproductive efficiency. Lactation percentage: 127%. Lactation number: 1.5 per year.

Dressing percentage at 8~10-month: 46%.

## 26 Yimeng Black

**Distribution:** Mountain Tai, Mountain Yimeng district, center and south of Shandong province.

Major producing area is Tai'an, Laiwu, Zibo, Linyi, Weifang, Xintai, Laiwu, Mengyin, and Fei County.

**Population size:** 3,000,000 goats are bred.

**Major characteristics:** Large body size. Short face. Wide forehead. Having beard lower mandible. Straight back. Deep breast. Round ribs. Having horns for male and female. Fleece colors: black fleece, 68%; blue gray and bay, 21.3%; "erhualian", 10.7%. Black fleece wool. Two side of bridge of nose is white or red. Fleece from abdomen to legs is white or bay. Body weight at one-year: male, 17.4kg; female, 14kg. Adult weight: male, 31.36kg; female, 26.7kg. Down content: adult male, 225g; adult female, 117g. Dressing percentage: one-year male, 43%. Age at sexual maturity: female, 4~5-month; male, 6~7-month. Mating age: female, 8~10-month; male, one-year. Lactation number: 1 per year. Lambing percentage: 110%. Lamb survival rate: over 95%.

## 27 Lubei White

**Distribution:** Binzhou, Dezhou, Dongying, Shandong province.

**Population size:** 20,000,000 goats are bred.

**Major characteristics:** white fleece. Having beard lower mandible. Portion of having horns and no horns is 59% and 41%, respectively. 80% of them have wattles. Male: front of body develop well, straight back. Female: broad front of body, rear develop well. Dressed weight: shearing top, 5.03kg. Dressing percentage: shearing top, 44.24. Adult weight: male, 41.07kg; female, 31kg. Mating age: female, 4~5-month; male, 6~7-month. Reproductive efficiency: 232%.

## 28 Funiu White

**Distribution:** Funiu coteau southwest and west of Henan province including Lushi, Lianchuan, Song, Lingbao, Yiyang, Luojin, Ruyang, Yinchuan, Xichuan, Zhechuan, Neixiang, Suoping, Nanzhao county.

**Population size:** Approximately 960,000 goats were bred in 1983.

**Major characteristics:** White fleece is common. Texture of board skin is coarse, pore on which is not consistence. Pull of skin is large and flexibility is low. Can be used for making leather. Adult weight: male 33.4kg; female 26kg. Down hair weight: 50-150g per goat. Fleece weight: 1.0-1.5kg per goat. Coarse wool length: 10-20cm. Dressing percentage: adult male, 44.4%; adult female, 35.4%; wether, 48.2%. Lambing percentage: the northern, 121%; the southern, 174.4%.

## 29 Xiangdong Black

**Distribution:** Liuyang, Pingjiang, Liling, Zhuzhou, Changsha County, Hunan province.

**Population size:** Approximately 130,000 goats were bred in 1980, 45,000 of which were bred in Liuyang.

**Major characteristics:** Early mature breed. Adult weight: male, 24kg; female, 25kg. Body weight: shearing tug, 17kg; shearing ewe, 16kg. Dressing percentage: gelded ram, 44%; female, 41%. High reproductive efficiency. Lactation number: 2 per year. Lambing percentage: 171-199%.

## 30 Du'an

**Distribution:** Du'an Yao autonomous county, Long'an, Laibin, Longsheng County, Guangxi province

**Population size:** Approximately 800,000 goats were bred.

**Major characteristics:** Fleece color is complex, most of which is white or bay. Small body size. Adult weight: male, 25kg; female, 26.5kg. Body weight: shearing top, 16kg; shearing ewe, 16kg. Dressing percentage: adult male, 39.4%; adult female, 43.6%; gelded ram, 49.4%. Twinning rate: 30%. Percentage of single-lamb: 70%.

## 31 Baiyu Black

**Distribution:** Baiyu county, Sichuan province

**Population size:** Approximately 135,500 goats were bred in 1995.

**Major characteristics:** Black fleece. Black skin. Small body size. Firm constitution. Symmetric body.

Moderate head size. Head shape is isosceles triangle. Narrow forehead. Protruded nose bridge. Rams have horns. Few of ewes have horn. Moderate horn extending behind. Month-shaped horn. Moderate upright ear. Extending neck without wattles. Moderate neck size. Rectangle-shaped body formation. Straight back. Deep breast. Moderate abdomen. Sloping rump. Strong leg. Firm hoof texture. Short rectangle-shaped tag. Moderately developed muscle. Adult weight: male, 34kg; female, 25kg. Height at withers: male, 63cm; female, 54cm. Age at sexual maturity: 6~8-month old. Flock-life of ram: 7-8 years. Flock-life of ewe: 8-10 years. Lambing percentage: 85.7%. Survival rate: 85.7%.

### 32 Ya'an Dairy

**Distribution:** Ya'an city, Sichuan province

**Population size:** Approximately 17,000 goats were bred.

**Major characteristics:** White short wide coarse wool. Free from bottom down. Pink flexible skin with black spots sometimes. Large body size. Firm body. Symmetric body. Be suit for milking. Male: Large body size, chubby front, broad deep breast, broad back and compact abdomen, big testicles, Female: big udder capacity, broad udder base, udders attach tightly, texture of udder is soft and flexible, moderate papilla size distributing symmetrically, the space of papilla is wide. Strong bones, thin muscle, strong constitution. Adult weight: male, 78.5kg; female, 48.9kg. Height at withers: male, 83.2cm; female, 68.7cm. Lactation period: 278.7 days. Milk production: a lactation period, 691.7kg. Age at sexual maturity: 10-month old. Lactation number: 1 per year. Lambing percentage: 186.3%. Survival rate of lamb: 96%.

### 33 Gulin Grey

**Distribution:** Gulin county, Sichuan province

**Population size:** 5,000 goats were bred in 1983.

**Major characteristics:** Early sexual maturity. High reproductive efficiency. Fleece color: gray; bay; brown bay. Body weight: male, 39.81kg; female, 36.6kg. Dressing percentage: adult wether, 57%; female, 43%. Lambing percentage: 214%.

### 34 Chuandong White

**Distribution:** Wan xian, Da Xian County, each county in Fuling district, Sichuan province

**Population size:** 700,000 goats were bred.

**Major characteristics:** Good adaptability. High reproductive efficiency. Large population. Distributing extensively. Large body size and small large size. "Large body size": distributing in Hechuan county; white. "Same body size": distributing in Fengjie, Wushan, Yunyang county. Adult weight: "large type" adult male, 33.41kg; female, 30.8kg. Adult weight: "litter type" male, 19.2kg; female, 20.9kg. Dressing percentage: "large type", 50%. Lambing percentage: 202%.

### 35 Fengqing Horn Down Black

**Distribution:** Fengqing county, Yuanan province

**Population size:** Approximately 175,367 goats were bred in 1997.

**Major characteristics:** Black fleece. Hornless. Large body size. Long legs. Symmetric body structure. Long head or neck. Wide flat forehead. Straight bridge of nose. Male: long fleece on legs, male character is evident, having beard on mandible, ears extend evenly, straight back, front of body is higher than rear column-shaped tag, tag having a high angle above horizontal, nice bone and muscle, firm body. Female: short fleece is common, long fleece on hind leg, most of them have wattle, and udders develop moderately. Adult weight: male, 33.5kg; female, 30kg. Height at withers: male, 60cm; female, 58cm. Age at sexual maturation: 4~6-month. Estrus: throughout the year. Lactation number: 1 per year. Flock-life of ram: 3-4 years. Flock-life of ewe: 5-6 years. Dressing percentage: 6-8 month, 53.6%. Meat percentage: 37.7%.

### 36 Guishan (also called Lunan dairy)

**Distribution:** Lunan, Luliang, Shizhong, Yiliang, Mile and Luxi County, Yunnan province

**Population size:** 200,000 goats were bred in 1980

**Major characteristics:** Meat-meat type breed. Adult weight: male, 43.6kg; female, 43.5kg. Body weight at one-year: male, 28.3kg; female, 24.4g. Lactation period: 5-6 months; sometimes, 7 months. Milk production: a lactation period, excluding nurturing lambs, 45-90kg. Milk fat percentage: 5%. Dressing percentage: 44-44.3%. Lambing percentage: 156%.



### 37 Linchang Long-wool

**Distribution:** Linchang, Fengqing, Weishan county in Dali state, Yunnan province.

**Population size:** 5,000 goats were bred in 1980

**Major characteristics:** There is no detailed information is reported. Black fleece. Long thick fleece. Fleece on neck develop well. Adult weight is 44kg for male and 39.56kg for female.

### 38 Longling (also called Longling yellow)

**Distribution:** Longling county, Yunnan province

**Population size:** 25,000 goats were bred in 1980

**Major characteristics:** Meat-skin type breed. Fleece color: henna, tan. Body size: large. Grow quickly. Fatten: easily. Good ability for enduring heat and damp. Adult weight: male, 49kg; female, 42.5kg. Body weight: shearing top, 36.7kg; shearing ewe, 33kg. Milk production: excluding nurturing lambs, 0.25kg. Area of skin: big, tenacious. Dressing percentage: gelded ram, 53.6%. Lambing percentage: 122%.

### 39 Maguan Horn Down

**Distribution:** Maguan county, Yunnan province

**Population size:** 2,000 goats were bred in 1980

**Major characteristics:** Reproductive efficiency: high. Fleece wool color: variegated. Adult weight: male, 24.5-54.6kg; female, 18.7-57kg; gelded ram, 58-95kg. Dressing percentage: 42%. Lactation number: one year, two. Twinning rate: over 84%. Small population. Crossing with other breeds to produce meat-type lambs.

### 40 Yunling

**Distribution:** Yunnan province

**Population size:** 5,164,000 goats were bred in 1980

**Major characteristics:** Meat production is good. Fleece: black. Lamb skin: thin, tight. Adult weight: male, 31.7-35.2kg; female, 27.9-38.2kg. Body weight: shearing tug, 21.1-22.7kg; shearing ewe, 17.1-20.5kg. Dressing percentage: shearing tug, 53.5%. Reproductive efficiency: high. Lactation number: one year, one; sometimes, two. Twinning rate: 50%; in special district, 70%.

### 41 Zhaotong

**Distribution:** Qiaojia, Yiliang, Lundian, Dagan, Yongshan, Zhenxiong, Zhaotong district, Yunnan province

**Population size:** 353,000 goats were bred in 1980

**Major characteristics:** Meat-skin type. Having good adjustability. Adapt to coarse fodder. Dressing percentage: high. Firm body. Adult weight: male, 32.8kg; female, 35.3kg. Body weight: shearing tug, 24kg; shearing ewe, 21kg. Area of skin: big, tenacious. Dressing percentage: 6-month, 48%; one-year, 55%; adult, 57%. Lambing percentage: 170%.

### 42. Ziwuling Black

**Distribution:** North of Shaanxi province and east of Gansu province.

**Population size:** 3,000,000

**Major characteristics:** Middle-small size with the rectangular shape, covering by coarse wool and down hair inside. The color of wool is black. Weight at 1-year-old: male, 13.58 kg, 14.98 female, kg. Adult weight: male, 27.22kg; female, 21.26kg. Down hair production: adult gelded ram, 0.45kg; female, 0.3kg. Lambing percentage: 100-105%

### 43 Chaidamu

**Distribution:** Chaidamu basin west to Haixi, Qinghai province.

**Population size:** 430,000 goats were bred in 1981

**Major characteristics:** Wool, milk and meat type breed. Fleece color is complex, 50% of which is white, the rear of which is greenish bay, reddish bay, black or colorful. Two-folded fleeces. Length of coarse wool: 10cm. Length of down hair: over 4cm. Adult weight: male, 30.7kg; female, 26.7kg. Down hair production: adult gelded ram, 0.28kg; female, 0.19kg. Length of down hair: 7.09cm. Wool fineness: 14  $\mu$  m. Clean content: 42.6%. Milk production: 0.42kg. Milk fat percentage: 4.7%. Dressing percentage: adult gelded ram, 42.6%. Reproduction rate: lower. Lactation number: one year, one. Lambing percentage: 100%.

## Horse

### 1 Mongolian

**Distribution:** Inner Mongolia; some countries or pasturing area in east north, north and west north of China

**Population size:** 1,700,000 horses, 1982

**Major characteristics:** firm type, moderately body size, stability and strong four legs. The coat colors of horse are complexity. Gray, bay, chestnut, black is the most common colors. Adult body size for male: Height, 130cm; Length, 132cm; Breast circumferences, 156cm; Cannon circumferences, 17.5cm; 127cm, 132.5cm, 153cm, 16.8cm for female, respectively. Average adult body weight: 300kg. The ability of durance is very strong. It takes 7h and 32m to precede 120km of long-distance contest. Average rate of running is 1m and 21.3s per 1000 meters. Packing ability power: 300~450kg. Abilities of adaptability: pick hay under the 40cm thickness snow; survival under the abominable conditions. Age at sexual maturity: 1~1.5 years old. It grows until 5 years old. Reproduction: mating age, 3-years old. Reproductive life: 15~18 years old. Average reproduction survival rate: 50%.

### 2 Xini

**Distribution:** Ewenki Autonomous Banner, Hulun Buir League, And Inner Mongolia Autonomous Region

**Population size:** 10,000 horses, 1982

**Major characteristics:** firm type, fine head, well muscled. Bay, chestnut, black are the most common colors. Adult body size: Height, 147cm; Length, 152cm; Breast circumferences, 172cm; Cannon circumferences, 19.8cm for male; 134cm, 145cm, 168cm, 18.6cm for female, respectively. Speed: 1m and 15s per 1000 meters; 15m and 9.9s per 10km. The maximum draft power: 1000kg. It takes 1h and 20m to walk 10km with the maximum draft power. All indexes of the physiology would become normal levels after resting 30~40minutes. It can dig snow and pick grass in winter. It can resist the nature disaster and has strong ability of adaptation.

### 3 Elenchus

**Distribution:** Oroqen Autonomous Banner, Inner Mongolia Autonomous Region; Huma County, Aihui and Xunke County, Heilongjiang Province

**Population size:** less 1000 horses

**Major characteristics:** moderately body size, coarse constitution. Gray the most common colors, the second are bay, but other colors also could be seen. Adult body size: Height, 129.6cm; Length, 133cm; Breast circumferences, 159.8cm; Cannon circumferences, 18.2cm for male; 129.8cm, 137.8cm, 159.3cm, 17.7cm for female, respectively. The horse has meekness temperament, steadiness steps, and smartness action, draft power in the hilly country. Trot: 20km/h. It can carry 100~150kg quarries after riding one day for hunting. Strong ability of cold-tolerant: stay over in the open air under the -40~-50°C environment. It also can climb quickly on the slope with 60~70 angles and go down hills with high angle slopes in the dark evening. It has strong abilities of endurance of drought. Reproduction ability: one foal per year per horse. It grows until 6~7 years old.

### 4 Hequ

**Distribution:** Yellow River area among Qinghai , Ganshu and Sichuan Province.

**Population size:** 60,000 horses, in 1982

**Major characteristics:** firm type, coarse constitution, large head size, flat back and waist. Black, bay, gray are the most common colors. Adult body size: Height, 137.2cm; Length, 142.8cm; Breast circumferences, 167.6cm; Cannon circumferences, 19.2cm for male; 132.4cm, 139.6cm, 164.7cm, 17.8cm for female, respectively. Boday weight: male, 346.2kg; female, 330.3kg. It has large drafting ability power and good endurance with moderately speed. It can renew quickly after being tired. The maximum draft power: 370~500kg. Speed: 1m and 17s per 1000 meters. It can walk 50km per day carrying with 100~120kg. Age at sexual maturity: 2 years old. Conception rate: 70.14%. The rate of reproducing foal per year is 41.39%. The rate of reproduction one foal every two years is 52.69%. It has strong ability of adaption. It fatten fast in summer and lose fat slowly in winter or autumn.

### 5 Datong

**Distribution:** drainage area of Datong River, Qinghai Province

**Population size:** 60,000 horses, in 1980

**Major characteristics:** small body size, firm type, well muscled, moderately four long legs, coarse constitution. Adult body size: Height, 131.1cm; Length, 140.1cm; Breast circumferences, 160.3cm; Cannon circumferences, 17.5cm for male; 126.1cm, 135.7cm, 151.3cm, 15.9cm for female, respectively. Body weight: male, 270.3~409kg; female, 216.0~371.4kg. It is popular by its pace and suited for riding. Speed: 1m56s per 1200 meters; 5h20m per 70km; walking 48km spending 8 hours carrying with 500kg. The maximum draft power: 265.05kg. It can adapt to the tableland environment on the 3500meters high altitude. Dressing percentage: 47.3%. Meat percentage: 39.1%. Conception rate: 75~95%. Survival rate of young foal: 80~90%.

## 6 Chakou Post

**Distribution:** Tibetan Autonomous County of Tianzhu, Yongdeng and Gulang County, Ganshu province

**Population size:** 24,000 horses, in 1980

**Major characteristics:** moderately head size, long but not high withers, medium long back, wide but short waist. Bay is the most common colors, but gray, chestnut and black also can be seen. Adult body size: Height, 122.9cm; Length, 135.3cm; Breast circumferences, 159.8cm; Cannon circumferences, 18.5cm for male; 129.9cm, 136.23cm, 158.6cm, 17.21cm for female, respectively. Body weight: male, 320.5kg; female, 303.9kg. Speed: 1m and 53.7s per 1200 meters for riding; 2m and 48.2s per 1200 meters for pace. The maximum draft power: 346kg. Carrying capacity of single horse: 1000kg. It has strong ability of adaption to bad environment, durance, and disease-resistance.

## 7 Yanqi

**Distribution:** Hewing, Heshuo, Yanqi and Bohu County, Mongolia Autonomous Prefecture of Beyinguoleng, Xinjiang Uygur Autonomous Region.

**Population size:** 98,000 horses, in 1980

**Major characteristics:** closely relationship with Mongolia horse; long head, medium height and long withers, long and flat back. Bay, chestnut, black are the most common colors. Adult body size: Height, 142.4cm; Length, 144.9cm; Breast circumferences, 168.7cm; Cannon circumferences, 19.5cm for male; 135.2cm, 141.5cm, 161.4cm, 17.7cm for female, respectively. Speed: 1m23s per 1000 meters for riding; 2h48m per 50km for riding. The maximum draft power: 400kg. It can produce 4.36kg milk per day. Carrying capacity of single horse: 1600kg. The milk production on the 90-day is 392.4kg. Dressing percentage: 45.7%. Mating age: male, 3 years old; female, and 4 years old. Conception rate: 53.5%.

## 8 Kazakh

**Distribution:** Kazak Autonomous Prefecture of Ili, north foot of Mount Tianshan, west of Zhunkeer and Aertai, Xinjiang

**Population size:** 500,000 horses, in 1985

**Major characteristics:** moderately head size, flat back and waist. Bay, chestnut, black are the most common colors, but gray also could be seen. Adult body size: Height, 140.0cm; Length, 144.2cm; Breast circumferences, 167.0cm; Cannon circumferences, 19.3cm for male; 133.7cm, 139.5cm, 161.7cm, 17.3cm for female, respectively. Speed: 1m and 17s per 1000 meters. The maximum draft power: 438.6kg. Dressing percentage of adult mare: 47.06%. Meat percentage for mare: 33.67%. Conception rate: 90%. It has strong ability of adaptation and can survive at the cold climate.

## 9 Balikun

**Distribution:** Kazak Autonomous County of Barkol, Yiwu and Hami County, Xinjiang

**Population size:** 15,000 horses, in 1985

**Major characteristics:** dual-purpose breed, coarse and compact body type, wide and weightily head, flat and short back and waist, wide and deep breast. Bay, chestnut is the most common colors, but gray or pintoi also could be seen. Speed for riding: 2'34s per 1600 meters. The maximum draft power: 300kg. The period of producing milk is 180 days. Average milk production is 7.7kg. The milk production on the 120-day is 928.7 kg. Dressing percentage: 56.95%. Meat percentage: 42.61%. Mating age: male, 3~4 years old; female, 3 years old. Reproduction survival rate: 52.2%.

## 10 Tibetan

**Distribution:** Tibetan Automous Region; Tibetan Autonomous Prefecture of Yushu, Tibetan Autonomous Prefecture of Golog, Qinghai Province.

**Population size:** 27,000 horses

**Major characteristics:** moderately body size, compact and firm type, dryness, moderately head size, small and agility ears, flat bridge of a nose. Bay, chestnut, gray are the most common colors. The body height: male, 129.4cm; female, 127cm. Speed for riding: spend 6 hours for 90km with trot, 8 hours for 90km with walk with trot. Packing ability power: 80~100kg. Age of sexual maturity: 3 years old. Mating age: male, 4 years old; female, 4~5 years old. Most mares reproduce one foal every two years. The proportions of foal's height, length, breast circumferences, cannon circumferences to adult male horse are 60%, 48%, 46%, 60%; The proportions of filly's height, length, breast circumferences, cannon circumferences to adult female horse 62%, 49%, 48%, 62%. It grows fast until one year old.

### 11 Jianchang

**Distribution:** Yi Antonymous Prefecture of Liangshan, Hanyuan County, Ya'an Prefecture, Yanbian County, Dukou Prefecture, Sichuan Province

**Population size:** 70,000 horses, in 1980

**Major characteristics:** small body size, coarse and compact type, dryness, and slim four legs. Bay, chestnut, black are the most common colors. Adult body size: Height, 116cm; Length, 118cm; Breast circumferences, 131.5cm; Cannon circumferences, 15.7cm for male; 114cm, 116cm, 130cm, 14.6cm for female, respectively. Adult body weight: male, 216kg; female, 205kg. Packing ability power: 70~75kg. The maximum draft power: 235kg. Speed: 1m47.6s per 1000 meters. Mating age: male, 3~4 years old; female, 3 years old. Reproductive life: over 20 years old. It can grow fast at one year old. The proportion of one-year old colt height to adult colt is 91%.

### 12 Yunnan

**Type:** local breed

**Distribution:** west or east of Yunnan Province, Bai Autonomous Prefecture of Dali, Heqing County, Yunnan Province

**Population size:** 710,000 horses, in 1980

**Major characteristics:** small and short body size, symmetry body conformation, slightly weightly head, wide or slightly concave forehead, flat nose, short neck, low and flat withers. Bay, chestnut, black, gray are the most common colors, but white also can be seen. Packing ability power: male, 60~100kg; female, 40~60kg. It can be concatenation used for 15 days and walk 30km per day. Sexual maturity age: 1.5~2 years old. Mating age for mare: 3 years old. Reproduction life: 15 years old. Adult body size: Height, 119cm; Length, 120cm; Breast circumferences, 140cm; Cannon circumferences, 16cm for male; 118cm, 122cm, 141cm, 15cm for female, respectively.

### 12 Guizhou

**Distribution:** Xingyi City, Yi-Hui-Miao Autonomous County of Weining, Guizhou Province

**Population size:** 502,400 horses, in 1983

**Major characteristics:** small body size, firm type, rectangular body. Bay, chestnut are the most common colors. Adult body size: Height, 116.1cm; Length, 114.3cm; Breast circumferences, 132.7cm; Cannon circumferences, 15.2cm for male; 113.2cm, 113.9cm, 129.4cm, 14.6cm for female, respectively. Packing ability power: male, 108.36kg; female, 91.83kg. Carrying capacity of single horse: 551.7kg. It can be concatenation used for 15 days and walk 30km per day. Speed: 1m20s per 1000 meters. Sexual maturity age: 1.3~2 years old. Mating age: 3 years old. Reproduction rate: 71.0%. Reproduction survival rate: 91.6%. Reproductive life: 16 years old.

### 14 Bose

**Distribution:** Bose and Hechi Prefecture, Guangxi Zhuang Autonomous Region

**Population size:** 200,000 horses, in 1980

**Major characteristics:** firm type, dryness; slightly weightly and straight head; concave and wide jaws; small and fore-erect ears; moderately long neck, wryneck or closed to normal neck; moderately withers. Adult body size: Height, 114cm; Length, 114cm; Breast circumferences, 134cm; Cannon circumferences, 16cm for male; 113cm, 116cm, 135cm, 15cm for female, respectively. Estrus time: 10-month old for mare. Mating age: 2.5 years old. Reproduction rate: one fetus per year or two fetuses every three years. The proportions of 1~40-year-olds male horse's height, length, breast circumferences, cannon circumferences to adult male horse are 91.43%, 92.76%, 97.04%, 99.20% respectively; The proportions of 1~4-year-old female horse's height, length, breast circumferences, cannon circumferences to

adult female horse 93.41%, 95.41%, 95.57%, 99.82%, respectively.

#### **14 Lichuan**

**Distribution:** Lichuan County, Hubei Province

**Population size:** 130,000 horses, in 1979

**Major characteristics:** firm type, short and strong body, fine and dryness. Gray, bay, chestnut, black all could be seen. Adult body size: Height, 125.7cm; Length, 124.1cm; Breast circumferences, 141.8cm; Cannon circumferences, 11.6cm for male; 118.9cm, 119.4cm, 135.2cm, 15.6cm for female, respectively. Adult body weight: male, 292.6kg; female, 277.1kg. The packing ability power is the proportion of the body weight 14.85%~27.27%. Sexual maturity age: 1 year old. Mating age: male, 3 years old; female, and 2 years old.

#### **16 Jinjiang**

**Distribution:** Jinjiang County, Nan'an County, Si'an County, and Fujian Province

**Population size:** 1,000 horses, in 1982

**Major characteristics:** Average adult body height: female, 124.3cm; male, 125.0cm. Adult body weight: female, 284.2kg; male, 274.1kg. Bay is the most common color. The proportion of 2-month old horse's height to adult horse is 71.6%. Speed: 5.7km per hour carrying with 1000kg; 70~80km per day for riding; 8km per hour for riding.

#### **17 Yongning**

**Distribution:** north of Lijiang Prefecture, Zhongdian County, Tibetan Autonomous Prefecture of Deqen, Yunnan Province

**Population size:** over 4,000 horses

**Major characteristics:** large body size, firm type. Bay, chestnut, black, gray are the most common colors. Adult body size: Height, 120cm; Length, 123.3cm; Breast circumferences, 147.4cm; Cannon circumferences, 17.6cm for male; 121cm, 122cm, 146cm, 17.8cm for female, respectively. It can walk 40~50km per day carrying with 50~70kg. Packing ability power: 1900kg. It has good ability of adoption and lives in open year in four-seasons.

#### **18 Wenshan**

**Distribution:** Guangnan, Funing and Maguan County, Zhuang-Miao Autonomous Prefecture of Wenshan, Yunnan Province

**Population size:** over 144,000 horses, in 1980

**Major characteristics:** firm type, compact body conformation, symmetry body structure, and well-developed body structure. Bay, chestnut, gray are the most common colors. Adult body size: Height, 112.2cm; Length, 112.8cm; Breast circumferences, 134.8cm; Cannon circumferences, 15.8cm for male; 108.9cm, 110.3cm, 131.2cm, 15.0cm for female, respectively. Speed: 2m21.6s per 1000 meters. The maximum draft power: 330kg. Packing ability power: 64.75kg. Mating age: female, 2 years old. The estrus cycle: 20~25 days. Duration of estrus: 5~7 days. The reproductive survival rate: 98%.

#### **19 Zhongdian**

**Distribution:** Zhongdian County, Yunnan Province. Dazhongdian, Xiaozhongdian, Gezhan, Niru County, Yunnan Province

**Population size:** 7,100 horses, in 1980

**Major characteristics:** belongs to Tibet horse family; small body size, firm type, weightly head, flat back and waist. Bay, chestnut are the most common colors, the second are black. Adult body size: Height, 119.6cm; Length, 121.3cm; Breast circumferences, 138.7cm; Cannon circumferences, 15.2cm for male; 117.2cm, 124.2cm, 138.9cm, 14.7cm for female, respectively. Adult body weight: male, 242kg; female, 248.7kg. Packing ability power: 60kg. It can walk concatenation for 5 months with 30km per day. Speed: 1m40.5s per 1000 meters. Mating age: 4~5 years old. Reproductive rate: 91.66%. Reproductive survival rate: 87%.

#### **20 Ganzhi**

**Distribution:** Tibetan Autonomous Prefecture of Garze and Tibetan Autonomous Prefecture of Aba, Sichuan Province

**Population size:** 170,000 horses, in 1980

**Major characteristics:** compact body conformation, firm type, and dryness. Bay, chestnut, black are the most common colors. Adult body size: Height, 125.9cm; Length, 132.1cm; Breast circumferences, 152.3cm; Cannon circumferences, 17.3cm for male; 122.0cm, 131cm, 150cm, 16.6cm for female, respectively. Adult body weight: male, 312.0kg; female, 298.6kg. Carrying capacity for single horse: 500kg. Packing ability power: 80kg for carrying long distance; 100kg for carrying short distance. Speed for riding: 13h51m per 100km, which pass over 8 mounts with 4500 altitudes. Sexual maturity age: male, 2 year old; female, 1.5 years old. Mating age: male, 4~5 years old; female, 3~4 years old. The reproductive survival rate: 93%.

### 21 Mingling

**Distribution:** Guangpin, Yangguan and Daijiaba District, Ningqiang County, and Shanxi Province

**Population size:** 3,301 horses, in 1981

**Major characteristics:** west-south type, compact and firm type, endurance of hardness environment, small body size, adapt to coteau natural conditions; fine head, extra blood vessal; small and agility ears; alertness and meekness temperament; low withers; moderately developed fore-breast, flat back; well-muscled rear end; well developed muscle sinew in four legs; strong feet; long cercus. They are different colors. Adult body size: Height, 113.6cm; Length, 113.3cm; Breast circumferences, 127.5cm; Cannon circumferences, 14.4cm for male; 113cm, 115.2cm, 128.5cm, 13.9cm for female, respectively. The body weight of the 3 years old mare: 167.5kg. Packing ability power: 263kg. Speed: 5.45km per hour carrying with 263kg. Sexual maturity age: 2.5 years old. Mating age: 3 years old. The mare can reproduce one fetus every two years.

### 22 Yushu

**Distribution:** Tibetan Autonomous Prefecture of Yushu, Qinghai Province

**Population size:** 60,000 horses, in 1980

**Major characteristics:** small body size, narrowly body conformation. Gray, bay is the most common colors. Adult body size: Height, 126cm; Length, 130cm; Breast circumferences, 147cm; Cannon circumferences, 15.7cm for male; 126cm, 133cm, 151cm, 15.7cm for female, respectively. Speed: 1m48.7s per 1000 meters. The maximum draft power: 240kg. Packing ability power: 245kg. The maximum carrying capacity: 750kg. Mating age: male, 3~4 years old; female, 4 years old. It has one fetus every two years. Reproduction survival rate: 56.9%. The proportion of foal height to adult stallion is 62.81%. The proportion of filly height to adult mare is 67.34%. It can adapt to tableland environment with 4500 altitudes.

### 23 Chaidamu

**Distribution:** Dulan, Geermu and Wulan County, Qinghai Province

**Population size:** 50,000 horses, in 1978

**Major characteristics:** belongs to Mongolia horse family, draught-ride type; moderately body size, strong and round body conformation, short four legs, wide and short head, firm type. Gray is the most common color, but chestnut, gray, black also could be seen. Adult body size: Height, 131cm; Length, 140cm; Breast circumferences, 162cm; Cannon circumferences, 18.1cm for male; 129cm, 139cm, 162cm, 17cm for female, respectively. It is good at walking on the wetland. Speed: 1m22s per 1200 meters. Packing ability power: 340kg. It spends 7.5hours to walk 39km carrying with 500kg. Mating age: mare, 3 years old. Onse mare has one fetus every two years. Reproductive life: male, 15 years old; female, and 17 years old.

## Donkey

### 1 Guanzhong

**Distribution:** Guanzhong Plain, Shanxi Province

**Population size:** 10,630 donkeys, in 1981

**Major characteristics:** large and high body size, symmery body structure, firm type, and rectangle body shape. Black is the most common color. Adult body size: Height, 133.2cm; Length, 135.4cm; Breast circumferences, 145.0cm; Cannon circumferences, 17.0cm for male; 130.0cm, 130.3cm, 143.2cm, 16.5cm for female, respectively. Adult body weight: jackass, 263.6kg; jennet, 247.5kg. The maximum draft power: jackass, 246.6kg; jennet, 185.63kg. It speeds 11m9s for male, 11m45s for female walking 1km carrying with 690kg. Pakcing ability power: 150kg. Sexual maturity age: 1.5 years old. Mating age: 2.5 years old.

Reproductive life: male, 18 years old; female, and 15 years old. Conception percentage: jackass mate jennet, 80%; jackass mate mare, 70%.

## 2 Dezhou

**Distribution:** Lubei Plain, Shandong Province; Jidong Plain, Hebei Province

**Population size:** 260,000 donkeys, in 1981

**Major characteristics:** large and high body size, symmery body structure, and firm type. The colors are “Sanfen” or “Wutou”. “Sanfen”: black with three white (nose, eye socket, abdomen). “Wutou”: throughout is black. Adult body size: Height, 136.4cm; Length, 136.4cm; Breast circumferences, 149.2cm; Cannon circumferences, 16.5cm for male; 130.1cm, 130.8cm, 143.4cm, 16.2cm for female, respectively. Production ability: carrying capacity for single donkey, 750kg. The maximum draft power is it’s body weight’s 78%. Sexual maturity age: 12~15 months old. Mating age: 2.5 years old. Estrus cycle: 22.9 days. The first estrus time is 7~11 days after the past partum. The proportion of the one-year old jackass height to adult jackass is over 85%.

## 3 Jinnan

**Distribution:** Xiaxian, Wenxi, Yuncheng Prefecture, Shanxi Province

**Population size:** 13,000 donkeys, in 1983

**Major characteristics:** large and high body size, firm type. Black is the most common color, but gray, chestnut also could be seen. Adult body size: Height, 133.4cm; Length, 128.7cm; Breast circumferences, 140.2cm; Cannon circumferences, 15.7cm for male; 133.4cm, 130.4cm, 142.4cm, 15.4cm for female, respectively. Adult body weight: male, 236.2kg; female, 221kg. It can walk 30~40km per day carrying with 500kg. Dressing percentage: 52.7%. Meat percentage: 40.4%. Sexual maturity age: 8~12 month age. Mating age: 2.5~3 years old. The proportion of the one-year old donkey height to adult donkey is 90%.

## 4 Guangling

**Distribution:** Guangling and Lingqiu County, Shanxi Province

**Population size:** 13,000 donkeys, in 1982

**Major characteristics:** large and high body size, firm type, strong and round conformation, and symmetry body structure. Black is the most common color, but gray, pure black also could be seen. Adult donkey body sizes are three types: large-type, medium-type, small-type. Height of adult donkey: large-type, 130cm; medium-type, 110-129cm; small-type, 110cm. The proportions of the large-type, medium-type, small-type, respectively, are 24.7%, 72.3%, and 3%. The maximum draft power: 152.5kg. Carrying capacity: 400~500km. Dressing percentage: 45.1%. Meat percentage: 30.6%. Sexual maturity age: 15 month age. Mating age: male, 3 years old; female, and 2.5 years old.

## 5 Jiami

**Distribution:** Jiaxian, Mizhi and Suide County, Shanxi Province

**Population size:** 28,000 donkeys, in 1981

**Major characteristics:** medium body size, symmetry body structure, and rectangle body conformation. Adult body size: Height, 125.8cm; Length, 127.2cm; Breast circumferences, 136.0cm; Cannon circumferences, 16.7cm for male; 121.0cm, 122.7cm, 134.6cm, 14.8cm for female, respectively. Adult body weight: male, 217.9kg; female, 205.8kg. The maximum draft power: male, 152.5kg; female, 173.75kg. Packing ability power: female, 69.86kg. It speeds 4h37m to walk 20km carrying with 359.36kg. Dressing percentage: 49.18%. Meat percentage: 35.05%. The rate of bone to meat: 1:3. The meat is devious with fine muscle fibers. Sexual maturity age: 2 years old. Mating age: 3 years old. The proportion of one-day old donkey’s height to adult donkey is 64.1%.

## 6 Miyang

**Distribution:** Miyang City, Tanghe, Sheqi, Fangcheng, Suiping, Yexian, Xiangxian and Wuyang County, Henan Province

**Population size:** 17,000 donkeys, in 1983

**Major characteristics:** medium body size, firm type, and square-shped body conformation. The hair of donkey is black except of white-eye sockets, white mouse, and white abdomen. Adult body size: Height, 119.5cm; Length, 118.0cm; Breast circumferences, 129.8cm; Cannon circumferences, 15.0cm for male; 119.2cm, 119.8cm, 129.6cm, 14.3cm for female, respectively. Adult body weight: male, 189.6kg; female, 188.9kg. The maximum draft power: male, 205.0kg; female, 185.1kg. Carrying capacity: 500kg. It can

walk 40~50km carry with 100~150kg per day. Sexual maturity age: male, 1~1.5 years old; female, 9~12 months. Mating age: male, 2.5~3 years old; female, 2~2.5 years old. Conception percentage: 70%. Adult donkey dressing percentage: 48.29%. Meat percentage: 34.91%. The meat is devious.

### **7 Qingyang**

**Distribution:** Qiangyang, Ningxian, Zhengning, Zhenyuan and Heshui County, Qiangyang Prefecture, Gansu Province

**Population size:** 3,900 donkeys, in 1980

**Major characteristics:** large body size, firm type, square-shaped body conformation, symmetry body structure. Black is the most common color. Body size for 3 years old donkey: Height, 113.6cm; Length, 115.2cm; Breast circumferences, 123.5cm; Cannon circumferences, 14.1cm for male; 113.2cm, 116.1cm, 125.3cm, 13.6cm for female, respectively. Packing ability power: male, 100~120kg; female, 80~90kg. They can walk 40km per day. Birth weight: male, 27.48kg; female, 26.71kg. The proportions of young donkey height to adult donkey are 62.7% for male, 67.6% for female, respectively. Mating age: over 2 years old.

### **8 Xinjiang (included Kashi donkey, Kuce donkey, Tulufan donkey)**

**Distribution:** Keshen, Hotan, Aksu, Turpan and Hami Prefecture, Xinjiang Uygur Autonomous Region.

**Population size:** 1,088,800 donkeys, in 1985

**Major characteristics:** small body size, symmetry body structure, short and strong four legs. Black, bay is the most common colors. Adult body size: Height, 102.2-119.5cm; Length, 105.5-121cm; Breast circumferences, 109.7-129.0cm; Cannon circumferences, 13.3-16.8cm for male; 99.8-119cm, 102.5-124.5cm, 108.3-135.0cm, 12.8-16.5cm for female, respectively. Carrying capacity: 560~700kg. Packing ability power for short distance: 150kg. They are also used to ride and drag. Speed: 4m and 8s per 1000 meters carrying with 150~160kg. Mating age: female, 2 years old; male, 2~3 years old. Conception rate: 90%.

### **9 North China**

**Distribution:** drainage area of Yellow River, Huai River and Hai River

**Population size:** 3,000,000 donkeys, in 1983

**Major characteristics:** compact body structure, fine head, four slim and dryness legs. Gray is the most common color, but black, white, chestnut also could be seen. The height is lower than 110cm. They are larger body size in plain than in mountainous area. Adult body weight: 130~170kg. They are used extensively for various kinds of works. Sexual maturity age: male, 18~24 months old; female, 12~18 month. Reproductive life: 13~15 years old. One jennet have 8~10 orphans in whole life. Dressing percentage: 47.7%. Meat percentage: 33.3%. The meat quality: dark-red, fine flesh, devious.

### **10 South-west**

**Distribution:** West of Sichuan Province; Tibetan Autonomous Prefecture of Garze, Tibetan Autonomous Prefecture of Aba, Sichuan Province

**Population size:** 28,000 donkeys, in 1980

**Major characteristics:** compact body structure, wide and long head, four strong legs. Gray, chestnut is the most common colors. Adult body size: Height, 89.5cm; Length, 92.5cm; Breast circumferences, 98.2cm; Cannon circumferences, 11.8cm for male; 94.4cm, 97.3cm, 105cm, 12.0cm for female, respectively. Adult body weight: male, 83.4kg; female, 100.1kg. Packing ability power: 50~70kg. Carrying capacity for single donkey: 300~500kg. Using for draught life: 20 years old. The meat quality: fine fibers, devious. "Dragon meat, Donkey meat". Dressing percentage: male, 45.33%; female, 43.87%. Meat percentage: male, 34.31%; female, 31.65%. Reproductive survival rate: 50.62%.

### **11 Yangyuan**

**Distribution:** Yangyuan, Weixian, Xuanhua Zhuolu County and Huai'an County, Hebei Province

**Population size:** 17,100 donkeys, in 1979

**Major characteristics:** compact body structure, symmetry body structure. Black, blue, gray, brone are the most common colors. Adult body size: Height, 135.8cm; Length, 135.5cm; Breast circumferences, 149.0cm; Cannon circumferences, 17.4cm for male; 119.6cm, 120.6cm, 136.8cm, 14.7cm for female, respectively. Carrying capacity: 500kg. Two donkeys can plough 3 acres per day. Dressing percentage of



1.5~2.5 years old donkey: 56.05%. Meat percentage: 39.05%. Meat quality: lustrous slight red, without fishy smell. Sexual maturity age: 1 year old. Mating age: male, 3 years old; female, and 2 years old. One jennet has 5~8 offsprings in whole life. Conception rate: jennet, 70%; reproductive donkey, 95%.

## 12 Taihang

**Distribution:** Taihang mountain and Yan mountain regions, Hebei Province; Shanxi Province; Henan Province. The central producing area is: Yixian County, Fuping County, Jingjing County, Lincheng County, Xingtai County, Wu'an County, Shexian County, Qianxi County, and Zunhua County.

**Population size:** 1,000,000 donkeys, 1982

**Major characteristics:** firm type, dryness body, square-shaped, large head size, long ear, and strong legs. French is the most common color, pinkish black and black are the second. Adult body size: Height, 102.4cm; Length, 101.7cm; Breast circumferences, 115.9cm; Cannon circumferences, 13.9cm for male; 102.5cm, 101.1cm, 113.4cm, 13.7cm for female, respectively. Speed: 70km/day carrying with 75kg. Age at first mating: 2.5-3 years old. Reproductive life: 20 years old.

## 13 Linxian

**Distribution:** Linxian County, Shanxi Province.

**Population size:** 4227 donkeys, in 1979

**Major characteristics:** firm body shape; massy constitution; medium body size; symmetric body structure. Black is the most common color with "four whites". Adult body size: Height, 117.7cm; Length, 119.8cm; Breast circumferences, 127.8cm; Cannon circumferences, 15.1cm for male; 117.3cm, 119cm, 128cm, 14.3cm for female, respectively. Adult body weight: male, 179.5kg; female, 179.5kg. Maximum draft power: male, 162kg; female, 161kg, which is 83.1%, 74.3% of body weight. Speed: 30km/day carrying 300-350kg. One horse can plough 3-5Mu per day. Age at first mating: 3 years old. Reproductive life: 15 years old.

## 14 Kulun

**Distribution:** Hure Banner and Naiman Banner, Jirem League. Inner Mongolia Autonomous Region

**Population size:** 22,000 donkeys

**Major characteristics:** compact body structure. Legs are sound. Coat color is back or grey. White rim of the eye and back mouth are the most common. Adult body size: Height, 120cm; Length, 118.6cm; Breast circumferences, 130.6cm; Cannon circumferences, 16.8cm for male; 110.4cm, 111.2cm, 125.1cm, 14.9cm for female, respectively. Good ability to pack, ride, draft. One horse maintains 4-6 hours carrying 200-250kg. Speed: 10km/h. Reproductive life: 3-15 years old. Meat percentage: Approximately 34%.

## 15 Huaibei

**Distribution:** Fuyang and Suxian County, north of Huaihe River, Anhui Province.

**Population size:** 317,300 donkeys, in 1981

**Major characteristics:** China North breed; firm type; compact; dry legs. Grey is the most common color. It has back stripe and transverse stripe. Adult body size: Height, 108.5cm; Length, 111.4cm; Breast circumferences, 117.3cm; Cannon circumferences, 12.9cm for male; 106.6cm, 109.7cm, 117.4cm, 12.4cm for female, respectively. Maximum draft power: male, 138kg; female, 132.2kg. Adult dressing percentage: 43.02%. Meat percentage: 30.16%. Age at sexual maturity: male, 1-1.5 years old; female, and 1-2 years old. Age at first mating: male, 4 years old; female, and 2.5-3 years old. Birth body height is 63.5% of adult height.

## 16 Subei

**Distribution:** Xuhuai District, Jiangsu Province.

**Population size:** 77,400 donkeys, in 1981

**Major characteristics:** firm type; small body size. Blue is the most common color, grey and black the second. Adult body size: Height, 105.8cm; Length, 108.1cm; Breast circumferences, 123.4cm; Cannon circumferences, 13.6cm for male; 106.5cm, 109cm, 122.6cm, 12.0cm for female, respectively. Adult weight: 111.8kg. Packing ability power: 50-75kg. It can maintain 5-7 days at the speed of 40-50km/day carrying 85-90kg. Age at sexual maturity is 12-18 months old. Age at first mating is 2.5 years old. Reproductive life: 16 years old. Lactation numbers in all lifetime: 11. Dressing percentage: 41.69%.

## 17 Yunnan (South-west donkey)

**Distribution:** Xiangyun, Bin chuan, Midu, Yi-hue Autonomous County of Welshman, Monishing and Yuanmou County, Yunnan Province.

**Population size:** 132,000 donkeys, in 1981

**Major characteristics:** firm type, head wide, small body size. Black, gray, pinto is the most common colors. Adult body size: Height, 93.6cm; Length, 92.2cm; Breast circumferences, 104.3cm; Cannon circumferences, 12.2cm for male; 92.5cm, 93.7cm, 107.8cm, 12.0cm for female, respectively. They are mainly used to carry and draft. Speed: 30km/day carrying with 50-70kg. Carrying capacity: 400-500kg. Age at sexual maturity: male, 1.5-2 years old; female, and 2-3.5 years old. Lactation numbers in three years: 2. The best reproductive ability is in 5-15 years old. Dressing percentage: 48.6%. Fine flesh. Flavor is fresh.

### 18 Shanbei

**Distribution:** Yulin Prefecture and Yan'an Prefecture, Shanxi Province.

**Population size:** 132,000, 1981

**Major characteristics:** firm type, large head size, lower and flat neck, small eyes, long ears, the lower front body, straight back, croop short and sloping, large abdomen, dryness legs, joints evident, hoof matter massy, temper tamed. They can be used as riding, drafting, carrying, milling. Black, gray, pinto is the most common colors. It has back stripe and transverse stripe. Adult body size: Height, 106cm; Length, 107cm; Breast circumferences, 116cm; Cannon circumferences, 13cm for male; 106cm, 109cm, 117cm, 13cm for female, respectively. Reproductive life is 12~13 years. Lactation number is 8 in all lifetime. Reproductive life: 12~13 years old.

### 19 Tibetan

**Distribution:** Gonggar, Nedong, Lhunze, Xigaze, Gyangze and Bainang County, Nujiang, Lianchangjiang and Jinshan rives valley, Xinjiang Uygur Autonomous Region.

**Population size:** 99,700 donkeys, in 1981

**Major characteristics:** small body size, compact body structure. Constitution: firm, dryness. Black, gray are the most common colors. "Grey donkey" have transverse stripe, zebra stripe. Adult body height: male, 98.7cm; female, 98.8cm. They are good at working and can be used to carry, draft, and ride. Packing power: female, 100kg. Carrying capacity: male, 100kg. Age at sexual maturity: 3 years old. Age at first mating: 4 years old. Birth body height: male, 71.4cm, female, and 69.2cm. Good adaptability; cold resistant; disease-resistant.

### 20 Liangzhou

**Distribution:** Wuwei Prefecture, and Hexi Prefecture, Gansu Province.

**Population size:** 1,088,888 donkeys, in 1980

**Major characteristics:** moderate head size, flat and straight back, long and strong legs. Black, gray are the most common colors. Most of them have back stripe, transverse stripe. Adult body size: Height, 101.8cm; Length, 109.5cm; Breast circumferences, 112.8cm; Cannon circumferences, 14.0cm for male; 101~105cm, 106~112.5cm, 114~124cm, 13~14cm for female, respectively. Carrying capacity: 50-70kg. It can walk 30-50km per day carrying with 250-300kg. Age at sexual maturity: 3 years old. Estrous cycle: 19-22 days. Reproductive life: male, 12 years old; female, and 16 years old.

### 21 Qinghai

**Distribution:** Tibetan Autonomous Prefecture of Haidong, Tibetan Autonomous Prefecture of Hainan, Tibetan Autonomous Prefecture of Haibei, and Tibetan Autonomous Prefecture of Huangnan, Qinghai Province

**Population size:** 150,400 donkeys, in 1980

**Major characteristics:** short and small body shape, square-shaped body conformation, flat and straight back. Grey is the most common color, black, blue are the second. Low feed intake, pain-tolerant, disease-resistant. Adult body size: Height, 105cm; Length, 106cm; Breast circumferences, 113.7cm; Cannon circumferences, 13.2cm for male; 102cm, 103cm, 112cm, 12.2cm for female, respectively. Adult weight: male, 137.5kg; female, 135.8kg. Packing ability power is 70kg, maximum carrying capacity 680kg. Dressing percentage 47.24%. Meat percentage: 33.98%. Age at first mating: 4 years old. Reproductive survival rate: 25-35%. Reproductive life: 18 years old.

## Camel

### 1 Alashan Bactrian

**Distribution:** Inner Mongolia Autonomous Region.

**Major characteristics:** Hair colors: apricot yellow, purple, brown, white. The coat colors correlate with environments. Body: can be divided into coarse-compact type, fine-compact type, firm type; high-square body shape, medium body size; short and wide head; big and bright eyes; deep and wide breast; short back and long waist; long and slim four legs; strong arthritis's; veins that stand out; seven cetin mats on the breast, elbows, wrists or knees throughout the whole body; taper-shaped humps; height of humps: 30~40cm; space of two humps: 30~40cm; small square-shaped mamma. Types divided by ecology: desert-type, Gobi-type. Average camel height: male, 172.3cm; female, 168.8cm. They can produce fluff, milk and be used as work, meat. Reproductive life: 20 years old. One female camel has 7~10 offs pings.

### 2 Shunite Bactrian

**Distribution:** Xilin Gol League, Ulanqab League, And Inner Mongolia Autonomous Region.

**Population size:** 80,000 camels

**Major characteristics:** Hair colors: Apricot yellow, purple red are the most common colors, second are the brown, the few are white. Body: firm and heavy bone; well-muscled; thick fine hair; strong and compact type with some fine-compact types; large body size (maximum body height: 206cm); long body shape (maximum length: 183cm); deep and wide breast (maximum breast circumferences: 280cm); weightily bones (maximum cannon circumferences: 26cm); large humps (maximum late hump circumferences: 150cm). Neck: length, 1m; flat two sides; upper-thin and below-thick; fore-narrow and back-wide; “乙”-curved. They can produce fluff, milk and be used to work, produce meat. One female camel has 8~9 offs pings in all lifetime.

### 3 Qinghai camels

**Distribution:** Caidamu District, Qinghai Province.

**Population size:** 28,100 camels, in 1981

**Major characteristic:** The basic coat color is sandy beige and puce, which proportion is 59% to the whole population. Proportion of apricot yellow is 35%; gray chestnut is 6%, few white. Most of them have firm body, few fine and compact types. Adult body size: Height, 195cm; Length, 173cm; Breast circumferences, 229cm; Cannon circumferences, 24cm for male; 133cm, 173cm, 229cm, 24cm for female, respectively. They can be used to produce camel wool, milk and meat. Reproductive life: over 20 years old. Lactation number: one per two years; tow per three years. Reproductive Survival rate: more than 90%.

### 4 Xinjiang Bactrian

**Distribution:** Zhunga'er Basin, Talimu Basin, Altay Prefecture, Hotan Prefecture, Mongolia Autonomous Prefecture of Beyinguleng.

**Population size:** 14,420 donkeys, in 1980

**Major characteristic:** Nanjiang type or Beijing type. “Beijing type”: Body is low and wide, head short and small, mouth tine, eye socket arched, eyeball protruded, bridge of nose hunched, forehead wide, neck medium in size with “乙-curved”. Humps are 20-40cm in height and taper-shaped. Front hump is high and narrow, hind hump lower and broad. Having “coarse-firm type” and “fine-compact type”. Brown is the most common color, yellow is the second. Proportion of brownish yellow to the whole population is 42.6%, canary 29.5%, yellow 23%, white 5%. “Beijing type”: Fine and compact body conformation, fine and small head, cuniform-shaped head, shapred mouth. Lips: long and agile. Bridge: flat and straight. It is half ovum-shaped upper lip end. Eyelash length: 3-5cm. Forehead is wide and concave. Diameter of hind hooves is 16-18cm. Hump base is wide, whose circumferences is 100-110cm. Spaces between humps: 25-40cm. Hump height: 30cm. Proportion of brown to the whole population is 38%, yellow and grassy yellow is 22%, red is 31%, milk white and white is 8%, mouse color is 1%. It can be used to produce fluff, milk, and meat. One female can produce 6-9 camels in all lifetime.

## Rabbit

### 1 Sichuan White

**Distribution:** Sichuan Province

**Major characteristics:** skin-meat type, Chinese white rabbit breed. They have strong abilities of adaptation, fertility and disease-resistance. Small body size, compact body structure; fine head, fine mouse, without wattles; red eyes; short and small ears; thick and erect ears. 4 pairs nipples. Performance test results: 2 rabbits with 3 pairs of nipples, with the proportion 5.41%; 4 rabbits with 4 nipples, with the proportion 83.78%; 4 rabbits with 5 nipples, with the proportion 10.81% in 37 rabbits. Fine fleece; Closed and short fleece. White is the most common color, but black, yellow, bay also could be seen. Adult body size of female rabbit: body weight, 2.35kg; length, 40.4cm; chest girth, 26.7cm; ear length, 10.9cm; ear width, 5.6cm; ear thickness, 1.05mm. Mating age: female, 4-month old; male, 6-month old. Maximum lactation number per year: 7. Largest litter size: 11.

### 2 Wanzai

**Distribution:** Wanzai County and Yuanzhou County, Jiangxi Province

**Major characteristics:** “Fire-rabbit” (also called Yueyue rabbit) with black wool; “Wood-rabbit” (also called four-season rabbit) with bay. Fine head; fine mouth; small and erect ears with wool; blue eyes (red rabbit with white colors); flat back and waist; short tail; coarse and short closely wool. Four pairs nipples, some five nipples. Adult body weight: black-type, 1.75~2.25kg; Bay-type, 2.5~3kg; Length, 38~50cm; Chest girth, 25~34cm. Sexual maturity age: 100~120 days old. Mating age: 145~160 days old. Lactation number per year: 5~6. Average litter size: 8. They grow fast and could be slaughtered at 8-month old. Dressing percentage: 62.5%. Protein percentage in the meat: 20.4%. Meat has low cholesterol.

### 3 Fujian Yellow

**Distribution:** Fujian Province

**Major characteristics:** small body size; coarse and short fleece; small and erect ears. Iris color: red, black, blue. Four pairs nipples are most common, but 5 pairs also could be seen. Adult body weight: 2kg. The rabbit in the coastal is heavier than mountains. Sexual maturity age: female, 4 month old. Mating age: 8-month old. Lactation number per year: 3~4. Litter size: average, 6; maximum, 9. Dressing percentage with 1.5~2kg: 54%. Slaughter weight: 1.6~1.7kg.

### 4 Yunnan Spotted

**Distribution:** Yunnan Province

**Major characteristics:** good abilities of adaptation, disease-resistance; grow fast; short and erect ears; fine mouth; without wattles; red or blue eyes for white-type; blue or black eyes for other color types. White is most common color, but gray, black, black with white, bay etc also could be seen. Ear length: 7~10cm; Ear width: 4~6cm; Ear thickness: 0.1~0.15cm. Adult female body weight: 2kg. Mating age: 6~7 month old with 1.4~1.5kg. Lactation number per year: 7~8. Survival rate: over 90%. Dressing percentage: 58.7% at 8-month old; 60.5% at one year old.

## Red Deer

### 1 Northeast

**Distribution:** Northeast China; Inner Mongolia Autonomous Region; Northwest China; Xifeng County and Tieling County, Liaoning Province.

**Main characteristics:** flat and straight back; flat shoulder and rump; naked bridge of nose with taper-shaped; without fluff among or hind of nostril; long fluff under neck; long legs; short tail. The length of neck to body length is 1/3. Male: have horns; eyebrow branch extends ahead which make a right angle with trunk. Trunks are long, sloping behind, and inner curved. Hair color is taupe in winter. Mouth and mandible are nigger-brown, cheek brown, forehead bay black. Outside of ear is yellow, inner of ear white, neck and back tan with black-brown back stripe. Hair color on body lateral and abdomen is light and brown-brown. Outside of legs is brown, inner light. Having yellow ocher spot on rump. Tail is yellow ocher. Summer-wool begins to take place of winter-wool in from April to May. Summer wool is short without fluffs, russet. Winter wool begins to grow in September, whose density is maximal in December. Adult body buck: body length is 140cm, body height 137.8cm, and breast circumferences 163.8cm. Adult hind doe: body length is 114.1cm, body height 120.8cm, and breast circumferences 139cm. Age at first

mating: male, 5 years old; female, and 16-18 months old. Mating season is September and October. Gestation is about 250 days. Litter size is 1-2. Antlers begin to grow when buck is 2 years old, but not branch off. Antlers begin to branch off when buck is 3 years old.

## Nyctereutes Procyonoides

### 1 Ushuli

**Distribution:** North of Yangzi River

Major characteristics: large body size; dark and long hair; thick fine wool. Fox-shaped body shape, but fatness and short body shape; short tail; short and slim four legs; long and spuff fleece; walk using toes; blue gray or blue yellow fleece. They always live in pairs, one cavity-one male-one female, sometimes one male with several female or one female with several male. They always sleep in the cavity and look for food at nightfall or dawning. Artificial feed move about in all day and egest on the fixed position. Wild type always egest near the door of the cavity. They moult one time per year in spring. Adult body weight: male, 5.4~10kg; female, 5.3~9.5kg. Adult body size: length, 58~67cm; height, 28~38cm; tail length, 15~23cm for male, respectively, 57~65cm, 25~35cm, 11~20cm.

Natural life: 8~16 years old. Working life: 7~10 years old. Reproductive life: male, 1~4 years old; female, 1~6 years old; breed, 4~5 years old.

## Bee

### 1 Zhong (*Apis cerana cerana*)

**Distribution:** every Province except of Xinjiang

Queen body length: 14~19mm. Forewing length: 9.5~10mm. Proportion of width of head to chest and abdomen: 95:116:125. Black or brown red body colors with black or dark yellow short fine wool. Drone: body length, 11~14mm; forewing length, 10~12mm; proboscis length, 2.31mm; rate of width of head to chest and abdomen: 112:140:129; black or black brown body color; short gray fine wool. Worker: body length, 10~13mm; forewing length, 7.5~9mm; proboscis length, 4.5~5.6mm; rate of width of head to chest and abdomen: 96:101:106; various body colors; yellow stem on the antennal, but yellow, brown or black small shields. They have short gray fine wool.

Major sub-types of the Chinese bee:

#### a. East *Apis cerana cerana*

Worker: body length, 11~12.5mm; proboscis length, 5~5.3mm; forewing length, 8.1~8.75mm; forewing width, 3~3.1mm; black with yellow abdomen body color; inner diameter of the nest: 4.7~4.9mm. Average rate of nit production on the reproduction period of queen: 700~1100. They can adapt to cold winter, hot summer or various bee types but distributing in different areas ecology conditions. They also can use honey fountain in early spring or late autumn and strong abilities of defending nest. East-type also could be classified into Liangguan-type, Hunan-type, Yungui-type, North-type, and Changbaisan-type.

#### b. Hainan *Apis cerana cerana*

Worker: body length, 10~11mm; proboscis length, 4.65~4.7mm; fore-wing length, 7.79~7.92mm; fore-wing width, 2.9~2.95mm; black with yellow abdomen body color; inner diameter of the nest: 4.6mm. Its body size is the least. Yellow chest and abdomen; yellow small shields; yellow spots on the abdomen except of brown black in winter. They can easily migrate and distribute in Guangdong, Hainan Province.

#### c. Aba *Apis cerana cerana*

Worker: body length, 12~13.5mm; proboscis length, 5.3~5.6mm; forewing length, 8.8~9mm; forewing width, 4.9~5.1mm. The body size is the largest. Brown black chest and abdomen; yellow small shields; black on the abdomen except of brown spot in summer; poorly swarm. They seldom migrate. The queen bee can lay eggs stabilization and distribute in Aba, Ganzhi district of Sichuan Province.

#### d. Tibet *Apis cerana cerana*

Worker: body length, 11~12mm; proboscis length, 5.1mm; forewing length, 8.6mm; forewing width, 3mm.; gray yellow or gray black body color.

#### e. South of Yunnan *Apis cerana cerana*

Worker: body length, 11~13mm; proboscis length, 4.6~4.9mm; forewing length, 7.9~8.9mm; index of cubitus, 3.78~4.4; inner diameter of worker nest, 4.4mm; brown yellow body; small yellow shields. Small maintain quantities. They can easily migrate. Mainly distribute in Xishaungbanna, Dehong district of Yunnan Province.

## 2 North-east Black

It is a transition type of the Russian black bee and Caucasian bee. It was introduced from Russian to east north of China from later 19<sup>th</sup> century. At present, they are distributed in Heilongjiang Province and mountains in the east of Jilin Province.

Queen: black body, dark brown zone on the abdomen. Worker: black body, some bees with yellow spots on the note, fawn fine wool; proboscis, 6.4mm. Drone: strong body, black body color. Queen has strong ability of laying eggs. Swarm ability is weak than Caucasian bee. Not only queen bee can use large honey fountains, but also can use honey fountains by two and threes. Strong ability of directional: can easily find nest. Endurance of cold: safety lives through the winter. The cover type of nest is "medium type". They are fierce than Bika bee and don't endure hot weather.

## 3 Hunchun Black

The parental is the Russian Far East black bee. It was introduced from Russian to Huichun city and east areas of Jilin Province from early 20<sup>th</sup> century. Then, they gradually formed into local breed. At present, there are only a small numbers of bees.

Queen: black body, dark brown or brown zone on the abdomen. Worker: black body, Italy bee-shaped; proboscis, 6.4~6.6mm; index of cubits, 1.83~1.98. The total length of the third and fourth note is 4.6~4.7mm. Drone: large body size, black body color. Drone has strong ability of laying eggs and gathering honey. Not only queen bee can use large honey fountains, but also can use honey fountains by two and threes. Indurations of cold: safety lives through the winter. They are mild temperament and resist mites. There are hetero Huichun black bee

## 4 Xinjiang Black

**Distribution:** Ili Prefecture, Tacheng Prefecture, Altay Prefecture, Xinjiang Uygur Autonomous Region; It was introduced to China from Russian in early 20<sup>th</sup> century.

Worker bee: brown black body color, some yellow spots on the second, third nota. Drone: pure black throughout the body. Queen: black-type or brown black-type. They have been bred for several decades in Xinjiang and adapt to local climate and honey fountains. Strong abilities of cold-resist live through cold winter. Large body size, strong ability of gathering honey and like to pluck gum; weak ability of swarming; Rapaidly reproduction and resist mites. Disadvantages: termagancy temperament, like to sting people.

They can use large amount of honey fountains and scattered honey fountains. Swarms cau produce 150kg honey per year and produce 50~80kg honey for lacking of honey fountains. In 27 of May in 1980, Xinjiang state pronounced bulltein to establish "Nature protect district for Xinjiang black bee" from Huocheng city to Jingxian County. Because of lacking festive rules of protecting, large amount of west bee breeds live in the nature protect district. Pure origin Xinjiang black bees become gradully less and less.