

Chapter 16

Livestock Husbandry in Chinese Mountain Areas

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INTRODUCTION

Over 85% of mainland China is mountainous, including mountain, plateau, and hill areas. Over 80% of ethnic minorities and the vast majority of the 30 million impoverished live in mountainous regions.

The biophysical conditions of mountainous regions due to their unique geographic and climatic features are very complex and significantly affect the economy and society of these regions. Poor accessibility and fragility restrict opportunities for development, and useful resources (timber, minerals, water, and so on) cannot be harnessed easily. The unsystematic ways of exploiting these resources by lowland policy-makers damage the mountain's ecological systems. The areas are underdeveloped and inhabited mainly by the poor. This paper examines animal husbandry as a useful option for developing and using fragile mountain areas.

THE SITUATION AND TRENDS

Although China accounts for only 7% of the world's cultivated area, it supports 22% of the global population. Experts forecast that by 2030 Chinese total grain production will reach 600 million tonnes, but the production per capita will be only 380 kg, as the population will reach 1.6 billion. The average per capita grain production in mountain areas will be far lower due to unfavourable environmental conditions and low productivity. Nevertheless the mountains have potentials for several other products and activities that can be harnessed to reduce poverty in these regions.

According to a report published by the National Bureau of Statistics in 1993, the total area under cultivation in China is 14.3 million mu (6 mu = 1 acre), accounting for 9.9% of the total mainland area of 14.4 billion

mu. Of this, forest land accounts for 1.9 billion mu or 13.9%; and grassland accounts for 6.0 billion mu or 41.7%. The per capita average cropland is only 12 mu; average per capita grassland is 5 mu; and average per capita forest land is 1.5 mu. All these per capita figures are lower than world averages. Two thirds of the country's surface area is mountainous or hilly. Arid and semi-arid regions account for about half the total land area, while the eastern humid and semi-humid area is occupied by more than 90% of the Chinese population. The population density is 225/km². Space is very limited, particularly in areas on the coast and in the plains.

The major sources of food are farm land, grassland, and the ocean. Meat, provided by livestock husbandry based on grass-feed, is an important source of food. However, the average meat output per mu of grassland in the northern pastoral area and southern grassland was only 250g in 1993. Animal husbandry is still a backward and low-productivity option, but it has great potential. The Chinese northern grassy marshland and grasslands have similar productivity levels to the temperate zone grasslands in North America, but the livestock production per unit area is only 1/27th that of North America.

Six provinces (Inner Mongolia, Gansu, Qinghai, Ningxia, Xinjiang, and Tibet and the mountain areas of Sichuan) that rely mostly on livestock husbandry have grassland totalling around 4.1 billion mu, with total livestock numbering about 235 million sheep units. Livestock husbandry plays a key role in the economic structure of Qinghai and the Tibetan plateau, as it accounts for about 40% of the total agricultural output. Although governments supply grain, people in pastoral areas depend on livestock husbandry for other necessities. Even in farming areas, households follow animal husbandry as a sideline income activity.

This paper will take the livestock situation in Sichuan as an example. In 1999 Sichuan produced 65.4 million pigs, 2.3 million cattle, 10 million sheep, and 640 million poultry. The production of meat was 6.1 million tonnes, of eggs was 943.1 thousand tonnes, and of milk was 283.9 thousand tonnes. The total livestock husbandry output reached 35.9 billion RMB (according to constant 1990 prices). The value of livestock products (pig, poultry, meat, and eggs) from Sichuan ranked No.1 in 12 western provinces.

Sichuan has also one of the five largest pastoral areas. Its grassland of 306 million mu ranks fourth among the 12 western provinces. It is located in the Changjiang River basin, and is a mountainous district. It includes 11.5 million mu of cultivable land that on sloping land of over 25°.

Sichuan's livestock husbandry sustains half of the agricultural economy and serves as the pillar of the rural economy; it is also the main source of income for farmers. Cash earnings from selling livestock products represent 61% of the total family income. Livestock products account for 52.7% of the total agricultural and livestock products traded by the county. Finally, foreign exchange earned by exporting livestock products accounts for 53.3% of the total export of agricultural and livestock products.

Economic development in mountain areas is transforming animal husbandry from a sideline to a main industry, from a subsistence activity to a moderately intensive commercial activity. This is manifested by improvement of livestock breeds, increasing use of scientific methods, and commercialisation of products to obtain better economic benefit.

EFFECT OF REFORM ON ANIMAL HUSBANDRY IN MOUNTAIN AREAS

Research-based improved breeding and management, and market-oriented processes, have helped the livestock industry. Other policy changes—like returning farmland to forest or grassland, and protecting natural forest for environmental regeneration—have provided more supportive arrangements for the livestock economy in mountain areas.

Since the reform and open policies, the growth in value of the outputs of animal husbandry has been higher than that of plantation. The proportion of animal husbandry in agricultural gross output value rose to 31% in 1998 from 18% in 1980. Animal husbandry has developed into an important source of work and cash income for small farmers and herders. About 50% of their annual income comes from animal husbandry. Animal husbandry also helps in effective use of agricultural by-products. The earlier structure of grain plus cash crops has been restructured to a new model of grain plus forage plus industrial crops. This change has promoted development of a forage industry and industries for processing livestock products.

Animal husbandry has changed from a traditional household sideline production activity to a main industry in rural areas. Before the reform and open market policy, the proportion of animal output in the agricultural output (by value) was only about 10–15%. By 2001, it had increased to about 37%. At present animal husbandry income generally represents over 30% of total household income. In some less-developed regions in the mountains, it exceeds 50%. Animal husbandry has thus helped small farmers and herders to break out of poverty and become prosperous. The Sichuan animal husbandry output is now about 43% of the total value output from farming, forestry, and fishing put together. By 2005 it is expected to exceed 50%. Similarly positive changes were recorded under

the investigation of the several grasslands in Hubei, Hunan, and Yunnan (Zhang Shixing by academicians from biology, Ministry of Chinese Academy of Sciences in 1996).

The traditional small-scale model of animal husbandry in China is changing towards a model focusing on economies of scale and intensive farming. With the land contracting system and a series of policy measures (such as allowing private farming, choice for self-management, and free market pricing) rural areas have better economic conditions for specialised livestock farming. This has led to transformation of livestock farming from a sideline to a main activity, and conversion of traditional animal rearing systems into commercialised activity. The economic return obtained is more and more visible in a slow-developing region. This kind of model is disseminated and applied along with a variety of improved conditions. In the context of consumers changing focus from quantity to quality of food and choice for organic products, the market for animal husbandry products from mountain areas is increasing.

The shortage of supplies of animal products in China has also changed, and animal husbandry can feed the market with satisfying products. The days of animal product shortages and fixed quantity of supply have changed into a period of free purchase and sale, as well as liberal supply. Similarly the days of 'oxen for ploughing, pigs for New Year, the chickens' and ducks' eggs for oil and salt' have become a part of the past in rural areas. At present, meat, eggs, milk, and wool products are rich in quality. The producer has a very big market, and the consumer has a wide choice.

In many regions, animal husbandry, fruit, and vegetable production are not mere sidelines, but are the main production activity. Consequently, the per capita income of small farmers had risen to about 2000 yuan in 2001. Reforms in rural areas have liberated productive forces.

IMPORTANCE OF MOBILE ANIMAL HUSBANDRY

The livestock economy of the mountains, especially in minority regions, is based on transhumance and nomadic activities. The Mongol tribes of the Inner Mongolian plateau and the Zhunge'er basin, the Tibetan nationality on the Qing-Zang plateau, and the Uyгур nationality in Xinjiang were nomadic people in the past and still practise that system. People use natural resources in accordance with the norms of the nomadic system. This kind of activity has also contributed towards regeneration of grasslands.

People herd livestock on the grasslands and live where there is water and grass. This also helps keep the grasslands fertilised with animal manure

and helps regenerate them. Unless there is an excessive increase in human or livestock population, or conflicts among nomadic tribes, the harmonious situation of nomadic husbandry and the grasslands can be maintained with stable and increased animal production. However, many high-elevation areas are not conducive to nomadic animal husbandry due to high seasonal variability in the availability of fodder and water and longer and longer distances for migration. These factors obstruct market-based opportunities for development.

Therefore mobile husbandry in the Qing-Zang plateau, despite good natural resources, has not gained from market-based processing. This is a big challenge. How to put scientific mobile husbandry into practice? Possible solutions require the following: first, make nomadic people accept improved breeds of cattle and sheep to reduce the number of animals and relax the pressure of the migratory system on the region's ecology. Second, improve the grassland scientifically and establish settlements to ensure a sedentary life for nomads. Finally, use the grass resources in a regulated manner. Such measures will help raise the productivity of nomadic animal husbandry and improve marketing prospects.

ANIMAL HUSBANDRY AND DECLINE OF THE GRASSLANDS

There are abundant natural resources in China, but the population is too large. Different kinds of resources are exploited. With the increasing population, many people started cultivating virgin land with steep slopes. This has led to severe problems of runoff and soil erosion. Particularly in the loess plateau (the windblown sandy region) and the southwest, cultivated land has reached 45% of the total area, and over-grazing of the reduced grazing lands has led to 30–50% declines in the productivity of natural grasslands.

Solutions to these problems lie in using science and technology in breeding selection, reducing herd size, market orientation of livestock production systems, and education and capacity building among households raising animals. The government has taken some steps in these directions.

