

Challenges Facing Animal Production in China*

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July 2000

Agricultural and Natural Resource Economics Discussion Paper 2/00

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* A paper presented to the 9th Congress of the Asian-Australian Association of Animal Production Societies, July 3-7 2000, University of New South Wales, Sydney, Australia. Edited in Proceedings of the 9th Congress of the Asian-Australian Association of Animal Production Societies and 23rd Biennial Conference of the Australian Society of Animal Production. Vol. B, pp.342-345.

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Abstract

Since the 1980s, China has made great progress in the animal production and has undertaken what amount to a livestock revolution, which is to be carried over into the next century. However the market and the structure of animal products become major constraints to its further development. It is forecast that the Chinese population will reach its peak of 1.6 billion people by the 2030s. How to feed such a huge population is a daunting task. This paper reviews the livestock revolution in China, comments on major constraints to its further development in China, and provides some policy suggestions that may assist the sustainable development of animal production in China.

1. Introduction

China is one of the largest agricultural and developing countries in the world, with 9.6 million square kilometers and 1.2 billion people. Since the 1980s, China has made great progress in agricultural and livestock development. It is an important fact that annual growth rate of grain (including cereal, soybean and tubers in Chinese statistics) from 1980 to 1998 was only 2.6%, while that of meat, egg and milk reached 8.7%, 12.1% and 9.8% respectively. So it may not an empty boast to state that a "livestock revolution" has being undertaken in China.

In recent years, animal production has met serious challenges in that the production of the major animal products have exceeded their consumption, the prices of animal products have dropped and the producers couldn't obtain their proper benefit. However, the increase in the Chinese population and the improvement of their living standards, will increase the demand for animal products, the further development of animal production may face a series of constraints. It is necessary to make up some policies and measurements for ensuring sustainability of animal production in China.

2. Review of the Livestock Revolution in China

In the past 18 years (1980-1998), China's animal production grew up like mushrooms. It is estimated that the meat output reached to 57.2 million tons in 1998, an increase of 4.5 times over 1980, the egg output reached to 20.2 million tons and was an increase of 7.9 times, the milk output reached to 7.4 million tons and was an increase of 5.4 times.

Table 1 shows that since the early 1990s the growth rate of Chinese population has been well under control. At the same time, the growth rate of meat, egg and fishery output continued to increase steadily and have reached to the highest level.

In the past 18 years, although Chinese population was a 26% increase, per capita output of meat multiplied by 3.5 times (from 13.1 to 46.1kg), egg 6.2 times (from 2.6 to 16.2kg) and milk 4.3 times (from 1.4 to 6.0kg). Table 2 shows that the present per capita output of meat in China exceeds the average level in the world, while that of eggs is similar to that of developed countries. However, per capita output of milk is still low: 6kg in 1998, which was equal to less than one-seventh of the average level in developing countries and to one forty-sixth of the average level in developed countries. It is estimated that per capita Chinese animal protein supply (about 20g/day) is lower than the average level of the world (about 25g/day).

In the past 18 years, the structure of meat production has a change markedly, the percentage of pork output to total meat output dropped from 88.8% in 1980 to 67.8% in 1998 (Table 3). Now, pork is still a major animal food in China.

3. Development Targets for the 21st Century

It is forecast that the global population will increase to 7.7 billion in 2020 and the most of population growth will take place in developing countries. Thus, demand for animal products will increase markedly, meat demand is projected to rise from 185 million tons in 1993 to 303 million tons in 2020, and milk demand from 413 million tons to 654 million tons. Of that global demand, 65% meat growth and 60% milk growth will be in Asia (Delgado, et al, 1999).

It is forecast that Chinese population will reach to its peak of 1.6 billion people by the 2030s. How to well feed such huge population is a daunting task. With the development of the economy and the rise of people living standards, China should further develop her livestock industry and cannot rely on importing a large quantity of animal products to feed 1.6 billion people. It is estimated that for the level of per capita animal protein supply to reach that of middle-ranking developed countries (45g/day) by the 2030s, the demand of meat, egg and fishery products will double when compared with that of recent years and that of milk will grow fourfold.

4. Constraints to Further Development

The constraints to further increases in animal production are in four major areas:

4.1. Feed Resources

Lack of feed grains -- In recent years the growth rate of grain production has decreased to a low level, while the output of feed grains (particularly maize) was not stable. A feature of the so-called "China's grain problem" is actually how much feed grains may be used to animal production.

Shortage of protein feed -- The output of soybean decreased year by year in China. In addition, large quantities of soybean and its meal imported to China each year; China is also

the largest importing country of fishmeal in the world.

Weak bases of feed industry -- Some feed additives rely on imported products.

4.2. Weak Bases of Market and Information Systems

China has just entered into market economy and has yet to perfect her market and information systems. There is also contradiction between small holders and large market.

4.3. Environmental Problems

There are two major problems: (1) serious degradation of the rangeland in northwestern China; (2) environment pollution from some large-scale and intensive livestock sectors.

4.4. Lack of Strong Macro-control

The legal system for livestock sector is not perfect and the agriculture administration does not maintain the necessary means for macro-control, some of which (e.g., investment, credit, tax rate and subsidy) depend on other departments.

5. Analysis of Animal Product Supply and Demand

5.1. A Huge Change

Before the early 1980s, the growth rate of food output was very low; the additional food supply couldn't meet the demand of population growth and let alone living standard improvement. The government had to adopt ration system certificates for buying grain rations, meat, and egg which left each person with limited quota of such essential staples. This was an inevitable outcome of implementing a planned economy.

In the 1990s, although the growth rate of grain output decreased to its low level, the output of major animal products continued to increase and reached much higher levels. There was a dramatic change in animal product supply and demand relationship. Now, Chinese animal product market has gone from shortage to plenty and from a seller's to a buyer's market. We will say that this is an inevitable outcome of developing a market economy.

5.2 A New Challenge

Although the animal production has retained a high growth rate in the 1990s, there have been fluctuations in pork and egg production with a 2-3 year cycle. The market and the structure of animal products may be two of important factors in such fluctuations. With the increasing output of animal products and the formation of buyer's market, the development of animal husbandry is being affected by market. The slowing growth of national economy and the reform of state enterprises, housing and public health systems in urban areas result in the slowing growth of animal product consumption.

At present, the levels of per capita pork consumption are the double of that of elsewhere in the world and the levels of per capita egg output achieve that of the developed countries. This

means that supply of pork (lard type) and egg slightly exceeded to their demand. On the other hand, a part of consumers are increasing the demand for high quality of animal products when they can obtain their enough quantities of animal products. The supply of milk, high quality pork (lean neat type), beef and mutton are still lower than their demand.

Thus Chinese animal production is facing some problems, such as, further adjusting and optimizing the structure of animal products and improving the quality of animal products.

6. Policy Suggestions

There are a number of ways in which China could consider improving the further development of animal production.

6.1. Formulating More Opening Policies

China is a large country producing agricultural and animal products, her products should entry into the large cycle of international economy. For accessing to the WTO China needs to formulate more opening policies, such as, further opening domestic market, properly more import of feed grains and feed protein to mitigate the lake of feed resources.

6.2. Adjusting and Optimizing the Structure of Animal Production

According to the demand of domestic and international market and the principle of optimizing resource disposition, it is necessary to adjust the structure of animal production. At present it should stabilize the pig and egg production, to accelerate the ruminant and broiler production.

6.3. Enhancing Construction of Market and Information Systems

It is necessary to set up diversified animal product markets step by step in the major producing regions and some suburbs of large cities. At same time, the agricultural and animal product information systems connected livestock and feed enterprises and special product markets should also be completed.

6.4. Accelerating the Course of Livestock Agribusiness

It is necessary to develop diversified livestock agribusiness groups and cooperative organizations, which can make producers (particularly small holders) combine with medium setups into a profit-oriented community to solve the contradiction between small holders and large market..

6.5. Strengthening the Macro-control to Livestock Sector

It is necessary to complete the laws and regulations relevant to livestock sector and to accelerate the reformation of the economic systems. The important role of government is to formulate and carry out the laws and regulations. Strengthening the legal system could solve the above environmental problems.

6.6. Enhancing the Scientific Research and Technique Extension

Finally, the government should increase input to scientific research and technique extension in the livestock sector to improve animal productivity and product quality.

References

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Table 1 Population and Major Agricultural Product Output in China

(1980—1998)

Year	Population (million)	Grain output (‘000 ton)	Meat output (‘000 ton)	Egg output (‘000 ton)	Milk output (‘000 ton)	Wool & other fibre (‘000 ton)	Fishery output (‘000 ton)
1980	987.1	320 560	12 764	2 566	1 367	191	4 500
1985	1 058.5	379 110	19 265	5 347	2 894	191	7 050
1990	1 143.3	446 240	28 570	7 946	4 751	262	12 370
1995	1 211.2	466 618	[41 000]	16 767	6 728	316	25 172
1996	1 223.9	504 535	45 954	19 652	7 358	343	32 881
1997	1 236.3	494 171	52 688	18 953	6 811	289	36 018
1998	1 248.1	512 295	57 238	20 185	7 445	318	39 065

Yearly growth rate (%)

1980-85	1.41	3.4	8.6	15.8	16.2	0.0	9.4
1985-90	1.55	3.3	8.2	8.2	10.4	6.4	11.9
1990-95	1.16	0.9	7.5	16.1	7.2	3.8	15.1
1995-98	1.00	3.2	11.8	6.4	3.4	0.2	15.8

[] Estimated figures.

(In 1998)	Population (million)	Cereal (‘000 t)	Meat (‘000 t)	Egg (‘000 t)	Cow milk (‘000 t)	Wool (‘000 t)	Fishery (‘000 t)
China	1 248.1	456 247	57 238	20 185	6 621	277	39 065
World	5 924.4	2 054 370	216 200	51 764	466 350	2 440	94 630
C/W (%)	21.1	21.2	23.3	41.1	1.4	11.8	40.2

Sources: "China Statistical Yearbook" 1997 & 1999. "Production Yearbook" 1997, FAO.

Table 2 Per Capita Output of major Animal Products in China and in the World

(1980-1998)

	Meat	Egg	Milk	Wool & other fibre
Per capital output in China (kg)				
1980	13.1	2.6	1.4	0.20
1985	18.3	5.1	2.7	0.18
1990	25.2	7.0	4.2	0.23
1995	34.0	13.9	5.6	0.26
1996	37.7	15.4	6.0	0.28
1997	42.8	15.4	5.5	0.23
1998	46.1	16.2	6.0	0.26
Per capital output in the world (kg)				
1997	37.8	8.9	93.5	0.42*
1992	33.5	7.1	95.3	0.53*
Dd Cs †	80.5	14.7	277.4	1.47*
Dg Cs †	19.2	4.8	40.1	0.23*

† Dd Cs-Developed Countries; Dg Cs-Developing Countries

* Only wool output

Sources: "China Statistical Yearbook" 1997 & 1999;

"Production Yearbook" 1992 and 1997, FAO

Table 3 Structural Changes in Meat Production in China (1980-1998)

Unit: 1,000t

Year	Grand meat	Pork	Beef	Mutton	Poultry & Others
1980	12 764 (100.0)	11 341 (88.8)	269 (2.1)	444 (3.5)	[710] (5.6)
1985	19 265 (100.0)	16 547 (85.9)	467 (2.4)	593 (3.1)	1 658 (8.6)
1990	28 570 (100.0)	22 811 (79.8)	1 256 (4.4)	1 068 (3.7)	3 435 (12.0)
1995	[41 000] (100.0)	[28 450] (69.4)	[3 240] (7.9)	[1 560] (3.8)	[7 750] (18.9)
1996	45 954 (100.0)	31 580 (68.7)	3 557 (7.7)	1 810 (3.9)	9 007 (19.6)
1997	52 688 (100.0)	35 963 (68.2)	4 409 (8.4)	2 128 (4.0)	10 188 (19.3)
1998	57 238 (100.0)	38 837 (67.8)	4 799 (8.3)	2 346 (4.1)	11 256 (19.7)

*[] Estimated figures.**Source: "China Statistical Yearbook" 1997 & 1999*