

# Input Supplies Adequate for 1997

*China's input supplies, such as chemical fertilizers, pesticides, and plastic sheeting, will be adequate to sustain crop and livestock production for 1997. The institutional framework for delivering inputs is complex at present, and while government institutions continue to play a strong role, markets play an increasingly important role too. Farmers are mechanizing some farm operations to reduce tiresome tasks and to overcome labor shortages.*

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## **Diverse Institutions Supply Farm Inputs**

In 1997, a wide diversity of state, collective, and privately owned business firms made farm inputs available to farm families. Business institutions providing inputs supporting grain and cotton production tended to have greater government involvement, and conversely, there was less government involvement in supplying inputs for such crops as vegetables and fruits. In 1995, provincial governments were given authority to manage the sales of key agricultural inputs to farmers as one means to implement the "governor's "grain bag" responsibility system." Manufacturing firms within provinces were to sell their output to the provincial government-owned "agricultural materials companies" (AMCs), which in turn sold products to county AMCs, which sold items to township AMCs and supply and marketing cooperatives, which in turn retailed goods to farmers.

In 1995 and 1996, however, AMCs in some provinces had too much monopoly power, which caused blockages in the movement of much-needed inputs at farm levels. In 1997, the central government suggested AMCs at all levels be subjected to competition. While provincial farm input factories were to sell most of their output to provincial AMCs, these factories were also authorized to sell some of their output to a variety of entities such as township AMCs, township level supply and marketing cooperatives, and to AMCs in other provinces (6). AMCs tend to handle the sales of chemical fertilizers, pesticides, plastic sheeting, diesel fuel, and gasoline.

Seed companies have been set up by provincial, prefectural, and county governments. These seed companies to some extent compete with each other to supply seeds for major crops. Seed for less important crops are supplied by vendors in open markets. Farmers continue to save some seed from the current crop for next year's planting.

Thermal stations generate about 82 percent of China's electrical power. Hydroelectric stations, some very large and many small local stations, generate 17 percent of the power. Nuclear power stations now generate about 1 percent of China's electrical power output. Local governments own and manage electrical supply companies which distribute electrical power to rural households and collect electrical fees.

Large farm machinery, such as tractors, combines, trucks, seeders, and plows, are manufactured by central government, provincial, and city-owned factories. AMCs and Supply and Marketing Cooperatives retail these machines.

When parts break or wear out, farmers can also go to these stores to purchase spare parts.

Enterprises in county seats, township and town seats, and in rural open markets supply farmers with a wide variety of inputs such as plastic pipe, cement, nails, seeds, and hand tools.

## **Chemical Fertilizers**

Investment in chemical fertilizer plants boosted China's production to 28.4 million tons in 1996 (nutrient-weight basis), an increase of 11.3 percent over 1995 (table 9).

Plans called for chemical fertilizer imports in 1996 of about 27 million tons (product-weight basis). But central control of fertilizer imports relaxed, and provinces and local companies actually imported much more than that (6).

According to State Statistics Bureau estimates, farmers applied 38.5 million tons of chemical fertilizers in 1996 (nutrient-weight basis), an increase of 6.5 percent over 1995. This quantity includes both domestically produced fertilizers and imported product.

An SSB survey of agricultural production inputs, conducted in spring 1997, found fertilizer supplies adequate in most provinces (1). The output target for the year 2000 is 28.4 million tons (nutrient-weight basis), a target which already has been reached. Plans call for expanding output capacity to produce nitrogen, phosphorous, and potassium fertilizers.

## **Plastic Sheeting**

In 10 years, the quantity of plastic sheeting used by farmers in China more than doubled, from nearly 300,000 tons in 1987 to 700,000 tons in 1996. Farmers use plastic sheeting in a wide variety of ways, including covering greenhouses. It is common now to see large areas of land near towns and urban areas with plastic covered greenhouses. The expansion of greenhouse area likely will continue in 1997. For example, in 1997, Henan provincial leaders intend to expand area under greenhouses by 1.67 billion square meters to raise vegetable output and provide higher incomes for farmers.

For more land-extensive crops, there is a nationwide program to raise young rice and corn seedlings under plastic sheeting. By giving the young plants a head start, farmers can raise corn in areas that have a short growing season. Also, in even warmer areas, the use of plastic sheet-

**Table 9--China's major manufactured farm inputs, 1994-96**

Item	Unit	1994	1995	1996
Year end stocks:				
Lrg-med tractors 1/	1,000s	690	670	680
Hand tractors	1,000s	8,235	8,633	NA
Rural trucks	1,000s	760	800	800
Machinery production:				
Lrg-med tractors 2/	1,000s	46	63	83
Hand tractors	1,000s	1,355	2,063	1,937
Rural electricity				
consumption 3/	Mil. KWh	147,370	165,550	183,400
Fertilizer output 4/	1,000 tons	22,728	25,481	28,357
Nitrogen 4/	1,000 tons	17,363	18,592	21,536
Phosphate 4/	1,000 tons	5,044	6,626	6,166
Potassium 5/	1,000 tons	321	263	655
Fertilizer applied	1,000 tons	33,179	35,922	38,278
Cultivated land 6/	1,000 ha.	94,910	94,971	94,344
Chemical pesticides	1,000 tons	290	417	427
Plastic sheeting 7/	1,000 tons	375	614	700

1/ Large or medium sized tractors with a capacity of 14.7 Kw or more.

2/ Wheeled and crawling tractors of 14.7 Kw capacity or more.

3/ Not all for agricultural production. 4/ Effective nutrient weight.

5/ Numbers in parenthesis derived. 6/ China Statistical Yearbook.

Cultivated land is under reported, so actual arable land is higher than reported here (See 1993 China Report, pp. 33-39). 7/ China Daily, April 13, 1997.

ing permits farmers to raise more than one grain crop a year, i.e., winter wheat and summer corn or rice.

The expanded use of plastic sheeting has also brought some environmental problems. Local officials are wrestling with the problem of how to dispose of used plastic sheeting. A common scene now in rural areas is piles of old sheeting dumped on waste land or bits of plastic caught up in bushes and fences, flapping in the breeze.

### **Mechanization**

The use of farm machinery is increasing for very specialized farm operations.

**Moving water**—While one can still see manpowered water lifting machines in operation in China today, the largest share of water for irrigation and drainage comes from diesel and electric powered pumps. Currently, there are over 9 million pumps being used in China to pump water. Diesel engines provide power for about 48 percent of the water pumped. Electric motors account for the remaining 52 percent. In 1996, rural electric power consumption totaled 183.4 billion kWh, presumably a good portion of this electrical energy is used by farmers to irrigate and drain their fields.

**Plowing land**—Farmers are still turning over their land with shovels and hoes and using draft animals. But, currently 36 percent of total sown area is plowed with the use of small, medium, and large tractors. This is especially true in those areas in which farmers must harvest one crop and plant the next one with enough time to mature the second crop.

**Seeding cropland**—Most farmers continue to seed their crops by hand, either by hand sowing or by pulling small

hand drawn seeders. Currently, about 20 percent of the total sown area is machine planted.

**Harvesting crops**—The great burden of harvesting crops continues to be done by hand. But labor shortages in some areas of the country where planting and harvesting must be completed within a tight framework have encouraged farmers to purchase harvesters. Currently about 11 percent of the total sown area is machine harvested (4).

**Hauling products**—At present huge quantities of bulk materials are carried by hand, wheel barrows, small hand carts, and bicycles. Wagons and carts pulled by draft animals are still a common sight. But an increasing share of materials are beginning to be hauled by machines. Annual sales of motorcycles in rural areas are 3 to 4 million. The number of motorcycles per hundred rural households increased sharply from 1 in 1990 to 8 in 1996. Small tractors powered with 10 to 15 horsepower diesel engines have become the prime beasts of burden in rural China. A large portion of the more than 8 million of these small tractors participate in some transportation service during each calendar year (3). The number of agricultural use trucks rose from 624,000 in 1990 to 790,000 in 1995.

### **Market Information and Communication**

The Ministry of Agriculture and the State Administration for Grain Reserves currently are publishing commodity supply and use information for producers, consumers, millers, and government authorities. For example, the Ministry of Agriculture published its second situation and outlook report entitled *Report on China's Agricultural Development '96*. The State Administration for Grain Reserves publishes monthly reports which contain price data for various agricultural commodities. Currently, the United States Department of Agriculture has a program with eight ministries and bureaus in China to assist officials in Beijing prepare supply and use tables for rice and cotton and write short reports analyzing market supply and demand conditions for these products.

Almost all townships and towns and 53 percent of administrative villages are now connected with telephone lines (5). This has greatly improved efficiency of communication, and local producers are now in a better position to understand market conditions to purchase inputs and market their commodities. For example, small rice millers in Hunan province use telephones to conclude polished rice contracts with retailers in Canton. They then purchase paddy rice, mill it, and truck it to Canton in a few days time (see article on "The Emergence of Private Rice Marketing in South China").

In 1996, all but one county (in a remote part of Tibet) is linked by a road network. More than 97 percent of towns and townships and 79 percent of administrative villages can be reached by car and truck. This means that farmers have greater access to inputs and information than ever before. These rural road networks have greatly aided the market circulation of goods and services in the last decade. Improvements can be made in the road system, as currently only 23 percent of China's roads are paved with asphalt or concrete (2).

### References

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### China's 1997 Agricultural Census

In January 1994, China's State Council made a decision to undertake its first agricultural census in 1997. China's leaders have begun to understand the importance of obtaining basic agriculture and rural data to formulate better policies at various levels and to promote the development of agriculture, rural areas, and even the national economy. China's first agricultural census has received technical and financial support from international organizations and many countries, including FAO of the United Nations, the United States, Italy, and Japan. [Francis Tuan (202) 219-0471]

The main contents for the first census include:

1. The characteristics of rural households and non-household holdings.
2. Rural population and personnel characteristics.
3. Stock and flow of land in agriculture, forestry, and fisheries.
4. Stock and flow of rural labor.
5. Stock and flow of capital in agriculture, forestry, and fisheries.
6. Community environment.
7. Living environment of rural residents.
8. General characteristics of non-household holdings.

China's State Statistical Bureau (SSB) estimated that the census will require 30,000 administrative organizers and 6,000,000 enumerators. The results of the agricultural census will begin to be published about 6 months to a year after the surveys. The publications will be released on a continuous basis as soon as results are compiled. This will be different from the fixed-schedule publication as practiced in most other countries.

The census will help foreign researchers and investors, as well as China's officials to better understand China's agricultural sector. For instance, agricultural land use will be surveyed and estimated and, therefore, we expect the SSB to officially announce the actual cultivated land area shortly after the completion of the census. This will have a critical impact on the adjustment of over-stated yields of different crops or on the potential of yield growth of China's many crops in the future. [Francis Tuan (202) 219-0471]