

Current Agricultural Policies Highlight Concerns About Food Security

Grain supply and demand conditions are watched closely by citizens and leaders in China much like U.S. citizens follow interest rates and the stock market. This article examines the special role grain plays in China's culture and describes a new policy called the "governor's "grain bag" responsibility system," which aims to increase China's grain self-sufficiency rate. Grain production has risen in the last 2 years, and China's grain imports have fallen. But the policy also has reduced efforts to specialize production, increased internal trade restrictions, and altered foreign trade patterns. [Frederick W. Crook (202) 219-0002]

China's leaders are transforming their largely centrally planned economy into a "socialist market economy" with China characteristics. Transformations include using markets to guide producer and consumer decisions while the central government retains political control and uses macroeconomic mechanisms to manage the economy. While markets and market forces have become increasingly important to China's rural economy, government intervention remains significant in agriculture.

Food policy objectives have been remarkably stable in China since the early 1980s. These objectives are listed on the left side of the page and on the right side are listed some of the policy tools administrators have to reach their often contradictory objectives (1).

Policy Objectives	Policy Tools
Insure urban food supply	Adjust production, consumption, and marketing.
Raise farm income	Adjust prices and reduce taxes.
Stabilize prices	Adjust the money supply, investment, and savings.
Encourage food self-sufficiency	Adjust production, consumption, and stocks.
Accumulation of grain reserves	Build or use stocks.
Participate in world trade	Adjust imports or exports.

As with the food policy objectives of many countries, some of China's objectives are mutually exclusive or at least difficult to accomplish simultaneously. At various times over the past 40 years, the central government has emphasized the achievement of certain objectives while neglecting others. And changes in policies have sometimes had dramatic effects on China's agricultural economy, production, consumption, stocks, and trade.

Grains Play a Special Role in Food Security Issues

In both ancient and modern times, China's leaders tend to define food security as grain security. Grain supply and demand conditions, stocks, and prices in China have a special place. Whereas U.S. politicians and citizens are constantly aware of movements of the "Dow Jones index" and the "prime rate," politicians and citizens in China are concerned about grain production, grain prices, and grain stocks. For example, the Book of Rites compiled centuries B.C., "warns that a country without stocks for nine years' requirements has insufficient reserves; with less than six years' reserves the situation 'becomes tense;' and with less than three years' stocks, the government will not survive." (3) In 1776, the Qing dynasty had a well regulated grain storage system and organized a large bureaucracy to manage the granaries which regularly stocked millions of tons of grain. Modern China's leaders have carried on this emphasis on grains.

From the mid-1950's to the early 1980's, China's rural economy was organized into people's communes that controlled all aspects of rural life. Government-owned institutions managed the circulation of agricultural products from farm gate to consumers, and the century-old open marketing system was closed. The government's Grain Bureau purchased, transported, stored, milled, and retailed grain, primarily to feed urban consumers.

Then, in the early 1980's, the government disbanded the commune system, allowed the old open marketing system to revive, and set up the household land contract system in which farm households were permitted to sign long term land contracts to cultivate specific plots. As long as farm households delivered specified quotas to local Grain Bureaus—thus paying their taxes and meeting government grain procurement requirements—the households were free to produce whatever they wanted and were permitted to sell their goods through local open markets.

The central government raised the purchase price of wheat to encourage farmers to produce more, but the Grain Bureau retail shops in the urban areas continued to sell flour at low prices that had largely remained constant since the early 1960's. By the late 1980's, China's government found that over 20 percent of total national govern-

ment revenues were used to finance the gap between the purchase and retail price of grain.

Starting in 1992, the central government introduced market reforms to reduce the burden of the grain subsidies and to improve the economic efficiency of grain markets. By the end of 1993, these market reforms accelerated, as 28 out of 31 provinces began to phase out the grain ration system that allowed urban consumers to purchase grain at low fixed prices. Thus, to many observers, it looked like China would steadily pursue an economic course based on free markets and comparative advantage.

Government Re-emphasized the Importance of Grain

Three factors seem to have pushed China's leaders from 1994 to 1996 to reassert government control over grain markets, veer away from the principle of comparative advantage and restrict market operations.

First, inflationary pressures in late 1993 and early 1994 and a sharp rise in rice prices in 1994 undermined the government's resolve to carry out market reforms. While there may have been local rice imbalances, on a national basis there does not appear to have been a huge gap between demand and supply. A major factor underlying the general rise in prices was the large increase in the money supply, as the Ministry of Finance was required to issue more money to bail out inefficient state-owned enterprises and to increase wages and bonuses to largely urban workers. In 1994 and 1995, anti-inflationary measures were instituted, including price controls. Price stability has always been important to China's central leaders, many of whom witnessed the devastation of hyperinflation at the end of World War II. When the objective of price stability came into conflict with raising farm incomes, China's leaders chose their traditional urban bias of pursuing price stability.

Second, while rural reforms brought relatively rapid increases in grain production in the 1980's, the rate of increase slowed in the 1990's, and leaders became concerned about the decrease in the area sown to grains.

Third, in 1994 and 1995, analysts in and outside of China questioned the country's capacity to produce enough grain to meet growing consumption requirements. It is possible that these reports had a sobering effect on the central leaders, pushing them to limit market reforms and initiate the "governors' "grain bag" responsibility system," a policy designed to promote adequate supplies of domestic grain at provincial levels whenever possible.

Basic Features of the Governors' "Grain Bag" Responsibility System

In late 1994, the central government initiated a new grain policy (*mi dai zi shengzhang fuzezhi*), hereafter referred to as the "grain bag" policy in which provincial governors were given specific responsibilities concerning grain supply and demand. The policies apply to all grain crops—especially to wheat, corn, and rice. Under this policy, governors are responsible for:

- stabilizing area sown to grains;
- guaranteeing investment in inputs like chemical fertilizers to stimulate grain production;
- guaranteeing that certain quantities of grain are put into stocks;
- insuring that transfers of grain in and out of a province are completed;
- stabilizing urban residents' concerns by supplying grains and edible oils;
- stabilizing grain and edible oil prices;
- controlling 70 to 80 percent of commercial grain sales;
- developing means to control grain markets;
- raising commercial sales as a share of grain sales;
- controlling grain imports and exports; and
- raising the level of grain self sufficiency.

The policy may be a temporary measure to bridge the gap between the former policy of heavy government involvement in the planned purchase and planned supply system (1955-1994) and greater use of the market system. Government leaders hope the "grain bag" policy will give impetus to greater use of the market while still preserving some elements of government control.

Provincial governors begin to implement their responsibilities by having each county Grain Bureau office draw up a county total grain output and total grain demand balance sheet. These balance sheets are probably sent to the provincial Grain Bureau office which estimates and plans grain transfers between grain deficit and surplus counties within the province. The governor then has the data to estimate his provincial total grain output and total grain demand to determine his grain surplus or deficit status. These balance sheets are delivered to the appropriate office in the Ministry of Internal Trade.

If the province is grain deficit, then the governor must first attempt to increase supplies by stabilizing or increasing the area sown to grain (keeping in mind the overall agricultural development goals, i.e., livestock, cash crops, forestry, etc.), increasing the supply of inputs to raise yields, and providing subsidies to grain producers. Second, the province provides a list for the amounts and kinds of grains to be purchased domestically or imported. Third, the governor purchases domestic grain through wholesale markets or receives imported grain from the central government.

If the province produces a grain surplus, then the governor maintains efficient grain production and supports grain sales to deficit provinces.

With regard to natural disasters, local resources should be used first. If the local government cannot handle the situation, then the State Administration for Grain Reserves will provide assistance. The central government took this course to reduce its financial exposure. The financial responsibility for managing grain and edible oil has been transferred from the central government to provincial levels.

To achieve these objectives, governors will use their provincial Grain Bureaus which will perform policy and commercial operations. Policy operations consist of purchasing grains (oilseeds) at fixed quota prices (below market prices), transporting, storing, milling, transferring and retailing grain. Losses incurred by the policy divisions in the Grain Bureau while performing these operations will be subsidized by the central government. For 1995, the central government planned to purchase 50 million tons of grain via this operation. With regard to the old grain and edible oil rationing system (1953 to 1993), urban families were issued grain books which entitled them to purchase fixed quantities of grain and edible oils at low fixed prices in government-operated grain stores. Grain coupons were issued as a means of implementing this distribution system. In 1993 the coupon system ended (9).

In 1995, various provinces used different systems, such as grain books, grain coupons, or controlled markets to help low income families obtain low-priced grains in the government owned grain stores. In making these purchases, low income families do not have a lot of choice...they buy whatever product is on the shelf. Usually the grain there tends to be older and of lower quality. Higher income urban residents purchase their grain in open markets and this grain tends to be fresher and of higher quality (2).

This new policy has made it more difficult to generalize about China's grain economy. Whereas before, there was one policy for the whole country, now individual provinces can have different policies, for example, they can add subsidies to the grain purchase price. For example, in 1995 the fixed-quota price for corn in northeast provinces was 660 RMB/ton, 820 RMB in the North China Plains area, and 920 RMB in South China. Also, provinces can use different methods to handle grain supplies for urban poor. As an example, in 1995 the author visited three provinces and found three different systems to disburse grain to urban poor people. One simply allowed open markets to function, the second used grain coupons, and the third used grain books (2).

The policy has been implemented for only about 2 years, which means that few materials have been published to serve as a basis for evaluation. However, general observations can be made on the policy's effect on China's agricultural economy.

Area Sown to Grain and Other Crops

From a national point of view, cultivated area dropped steadily from 99.5 million hectares in 1979 to 94.3 million in 1996. Sown area decreased from 148.4 million hectares in 1979 to 143.6 million in 1985, but increased since

then. There was a slight dip in sown area in 1993 but then rose to 152.2 million hectares in 1996. China's multiple cropping ratio decreased slightly in the early 1980s but increased in the late 1980s and early 1990s. The ratio increased from 1.562 in 1994 to a record 1.61 in 1996. The dominant trend in crop land use has been a reduction in the percentage of area sown to grain and an increase in area sown to economic and other crops. But in 1996, area sown to grains increased and area sown to cotton, edible-oil crops, and hemp decreased (8).

Provincial leaders used various measures to boost grain sown area by 517,000 hectares in 1995 and 2.3 million hectares in 1996. Using 1995 data (the most recent available) we separated provinces into grain surplus, self-sufficient, and grain deficit categories and then compared changes in area sown to various crops from 1994 to 1995 (6 and 10). To classify the provinces into surplus, self-sufficient, and deficit categories, we relied on the research completed by the late Professor Kenneth Walker and Nicholas Lardy (6 and 10). Grain surplus provinces produce more grain than required in the province and are in a position to transfer grain to other provinces. Grain production in self sufficient provinces just equals requirements. Grain requirements in deficit provinces are greater than production.

Grain surplus provinces responded to the new policy by increasing area sown to grain by 123,000 hectares. They reduced area sown to wheat, increased area sown to rice, expanded area sown to corn by 745,000 hectares, reduced area sown to soybeans, cotton, tobacco, and other crops, but expanded area sown to vegetables.

Grain self-sufficient provinces in 1995 increased the area sown by 250,000 hectares. As a group they decreased area sown to wheat, but increased area sown to rice and corn. They increased area sown to oilseed crops and vegetables but reduced area sown to soybeans, cotton, and other crops.

Grain deficit provinces in 1995 increased area sown to grain crops by only 57,000 hectares. Area sown to wheat, rice, and corn increased, with the largest increase in area sown to corn. They also increased area sown to oilseeds, cotton, and vegetables, but reduced area sown to soybeans.

In summary, it appears self-sufficient and deficit provinces responded to the "grain bag" policy by increasing area sown to grain while surplus grain provinces pursued a diversification strategy. Leaders in surplus provinces could say, "We have grain surpluses, let us diversify our rural economy and follow our comparative advantage." Demand for feed grains spurred surplus, self-sufficient, and deficit provinces to expand area sown to corn.

Central leaders worried about the relative slow growth of grain production in the early 1990s and formulated the "grain bag system" to boost production.

Increased Supply of Inputs

Central and provincial authorities implemented policies such that investment in agriculture increased. In 20 prov-

inces, investment in agriculture increased by about 15 percent. Some provinces allocated 15 percent of the investment in the agricultural sector to agricultural extension.

According to a Ministry of Agriculture survey, 19 of 25 provinces added subsidies to their fixed-quota grain purchase price and added subsidies for chemical fertilizers as well. The average subsidy for fixed-quota grain purchase price ranged from 40 to 420 RMB per ton. The average support for chemical fertilizers ranged from 100 to 640 kilograms of chemical fertilizer per ton of grain sold under the fixed quota purchase system (7).

Chemical fertilizers applied increased from 33.1 million tons on a nutrient-weight basis in 1994 to 35.9 million tons in 1995 and 38.2 million tons in 1996, an 8.1 percent and 6.5 percent increase, respectively. Chemical pesticide production increased from 268,000 tons in 1994 to 360,000 tons in 1995 and 427,000 tons in 1996 (1 and 8).

In 1995, provincial governments allocated funds to strengthen water control facilities to improve farmers' ability to overcome floods and droughts. Provincial leaders also mobilized the rural labor force in corvee projects to construct water works (7). In 1996, 50 million hectares were effectively irrigated, an increase of 1.5 percent over 1995 (8).

In 1996, investment in the agricultural sector (agriculture, forestry, animal husbandry, fishery, and water conservation) was 33.5 billion RMB, up by 27.5 percent from 1995 and its share of total investment rose from 1.8 to 1.9 percent. The country invested 301.2 billion RMB in transportation and communications, up 22.1 percent from 1995, and its share of total investment rose from 17 to 17.3 percent (8).

Grain Production Rose Under the "Grain Bag" Policy

Central leaders worried about the relatively slow growth of grain production in the early 1990s and formulated the "grain bag system" to boost production.

Grain Distribution (Marketing) Under the "Grain Bag" Policy

The "grain bag" policy specified that provincial governors were to insure that grain transfers in or out of the province are implemented and that food grain requirements for urban residents, universities, and the military are supplied.

In past years, the central government (the Grain Bureau) worked out transfers of grain between grain surplus and grain deficit areas. Imported grain was transferred to the Grain Bureau in some grain deficit provinces.

With the "grain bag" policy, the central government seems to be trying to partially retire from the grain transfer business. Provincial governors now have the responsibility to maintain balance between supply and demand within their own provinces. Essentially, they are supposed to use "markets" to buy and sell grain to achieve grain balances. In some areas of the country private, traders (including grain mills) are increasing their grain market activities. For exam-

ple, in the next article Luo and Crook argue that in recent years private rice traders in south China have become an important source of rice supplies for large coastal cities.

Provincial authorities have responsibility to manage special grain stocks and grain risk funds to stabilize local grain markets. They can best implement these policies if they erect provincial grain boundary measures. For example, Heilongjiang province restricted the outflow of soybeans, and Jilin controlled the outflow of corn (5). The two-level stock system and two-level grain risk fund (national and provincial) did not function too well because national interests did not always parallel provincial interests. The conflict between Beijing and the provinces led to poor policy implementation (5).

Professor Ke Bing-sheng, China Agricultural University, has pointed out that the central government has had difficulties implementing market policies because of the many different institutions involved. For example, he notes that the following organizations are involved in managing the "grain bag" system: the State Administration for Grain Reserves, the State Planning Commission, the Ministry of Finance, the Ministry of Internal Trade, the Ministry of Agriculture, and the State Commission for Economic Cooperation and Trade (5).

In 1995, the central government took two measures to achieve a grain balance. First, it imported 19.8 million tons of grain. Second, it transferred 2 million tons of stored corn from northern to southern provinces to reduce the price of feed stuffs (9).

Several marketing problems arose in 1995. First, some areas emphasized local grain balances only and set up measures to restrict grain flows among administrative units. Second, some provinces implemented the "grain bag" responsibility system by contracting responsibilities all the way from the province, prefecture, county, township, and to villages. Third, some producing provinces only were concerned with achieving their own balances within their own provinces. They relaxed their efforts to expand grain production for the benefit of the whole country (7, p. 69).

Grain marketing data for 1995 and 1996 are not yet available. At the moment, we cannot tell if government entities achieved the goal of controlling 70 to 80 percent of commercial grain sales.

Grain Stocks Under the "Grain Bag" Policy

The "grain bag" policy specified that provincial governors were to guarantee that certain quantities of grain are put into

Table 10--Grain output, 1993-96

Year	Production	% change
	Million metric tons	
1993	456	na
1994	445	-2.4
1995	467	4.9
1996	490	4.9

stocks. The State Council has asked producing provinces to store the equivalent of 3 months of grain consumption and consuming provinces to store a 6-month supply. On-farm grain stocks rose by about 25 million tons in 1995. It may be that as market prices fell during 1996, farmers panicked and began to unload on-farm grain stocks which they could sell to government-owned grain stations at the fixed quota price. But, given the record 1996 grain crops and the great difficulties local grain bureaus had in raising funds to purchase grains, our best guess is that on-farm grain stocks rose substantially in 1996. Recent news accounts from China note that government grain stocks rose by 51 million tons at the end of 1996 (9).

Authorities in China regard state stocks, that is those controlled by the State Administration for Grain Reserves and provincial governors, as state secrets. Generally, these stocks are estimated to be around 135 million tons (3).

In the past few years, authorities have organized a very complex grain reserve system. Essentially six institutions participate in storing grain: 1) the State Administration for Grain Reserves (SAGR); 2) the Grain Bureau's program policy divisions (fixed quota procurement and urban grain stores); 3) the Grain Bureau's commercial divisions (open market procurements and commercial operations); 4) rural economic collectives (old communes and village storage); 5) grain processing mills (rice, wheat, feed mills); and 6) farm households who have their on-farm grain stocks.

The State Administration for Grain Reserves (SAGR) tried to use grain stocks to dampen price fluctuations in two cases. In the first case, the SAGR allocated 15 million tons of stocks in 1995 to constrain price increases in grain markets. According to several sources inside China, this effort met with only partial success because of the timing of the stock release and the manner in which stocks were released into the market. In the second case, the state transferred 6 million tons of corn from Manchuria to central and south China in 1995 and 1996 to constrain feed grain price increases (9).

Grain Prices Under the "Grain Bag" Policy

The "grain bag" policy specified that provincial governors were to stabilize grain prices. Urban retail prices for flour and rice did rise from 1993 to 1995, but large grain crops

in 1995 and a record crop in 1996 increased supplies and prices leveled off. In 1996, there were two prime price developments. First, to encourage grain production the government increased the fixed quota procurement price for wheat, rice, and corn. For example, the procurement price for rice rose 36 percent from US\$129 per ton in January 1996 to US\$176 in August. Second, during 1996, the central government through the State Administration of Grain Reserves and provincial governments through their "Grain Bureaus" sought to dampen price swings in grain markets. In the first half of 1996, the market prices of wheat, rice, and corn rose and these government entities used various means to arrest the price increases. But as farmers began to reap record grain crops, market prices for these grains began to fall. During the last half of 1996, SAGR and provincial "Grain Bureaus" tried to keep grain prices from falling. For a more detailed examination of wheat, rice, and corn prices see the article on grains below.

International Trade Under the "Grain Bag" Policy

The "grain bag" policy specified that provincial governors were to do all in their power to increase grain production and buy domestic grain to balance gaps between demand and supply. If governors still had a deficit in their grain balance then the central government was to arrange for grain imports.

With the implementation of the "grain bag" policy in 1995, 1996, and 1997 grain imports decreased substantially.

But in 1995 and 1996, oilseed, oil meal, and edible vegetable oil imports rose substantially. In 1996, China imported nearly 3.5 million tons of edible vegetable oil, accounting for about one third of domestic consumption (see oilseed article below). These import figures highlight the importance of grain in the consciousness of China's leaders—leaders said nothing about importing one-third of their domestic consumption of edible oil, but feel it is a great feat to have imported less than 2 percent of their grain requirements.

Imports of chemical fertilizers increased dramatically; from 10.2 million tons in 1993 to 12.7 million in 1994, to 19.9 million in 1995, and 18.6 million tons in 1996. In 1996, China imported 6 million tons of urea (2.76 million tons nutrient-weight basis); 3.4 million tons of potassium

Table 11--China's international grain trade, 1994-96

Commodity	Imports				Exports			
	1994/95	1995/96	1996/97	1997/98	1994/95	1995/96	1996/97	1997/98
	Million metric tons							
Wheat	10.2	12.0	3.5	3.5	0.0	0.0	0.2	0.2
Rice	2.0	0.8	0.8	na	0.0	0.2	0.8	na
Corn	4.3	2.0	0.1	0.1	1.5	0.5	2.5	2.0
Barley	1.5	1.4	1.5	na	0.0	0.0	0.0	0.0
Total	17.98	16.15	5.85	na	1.56	0.72	0.78	na

Sources: USDA, WASDE database. Data on a marketing year basis.

chloride(2.04milliontonsnutrient-weightbasis);420,000 tons of potassium sulphate; 7.2 million tons of compound fertilizers(4.6milliontonsnutrient-weightbasis);and1.49 million tons of other chemical fertilizers not specified. In 1996, China's chemical fertilizer imports accounted for about one-fourth of domestic consumption. In this case authorities encouraged fertilizer imports to support the "grain bag" responsibility system and to be less dependent on foreign sources of grain.

Conclusion

Two questions are addressed in this review of the "grain bag" policy. First, there is the question of how the "grain bag" policy was actually implemented. How well were policy objectives met? Second, there is the question of whether the "grain bag" policy, which stresses self-sufficiency, serves China's long-run interests.

Many "grain bag" Policy Objectives Achieved

Table 12 below summarizes our preliminary assessment of how the "grain bag" policy objectives were achieved. At present, our general conclusion is that governors implemented the prescribed policies: grain area rose, grain output increased, and urban areas had adequate supplies of grain.

Self-sufficiency Versus Participation in International Trade

The implementation of this policy indicates the government's emphasis on grain self-sufficiency, intervention and control of the grain economy, and reassertion of its old objectives to support its urban constituents. And in a like manner, it indicates a turning away from emphasis on comparative advantage in production decisions, economic efficiency, participation in world grain markets, and open domestic markets. Given China's large population and limited arable land, it is likely that in the next decade or two China will begin to pursue a strategy of producing agricultural products which use less land and more labor. For example, China could produce high value fruits, nuts, vegetables, specially processed foods, condiments, and specialty meat products for both the domestic and international mar-

ket, and could import land-extensive crops such as grains and oilseeds. The "grain bag" policy arrests this fundamental adjustment. Currently, the costs may not be very great, but over many years the adjustment may be very costly for China.

Perhaps central leaders hoped their "grain bag" policy would support economic trends toward greater market involvement. But, in fact, some governors pressed the policy down their administrative structure to prefecture, then to county, and to township. These measures would certainly stress local self-sufficiency. The "grain bag" policy appears to have been successful in raising grain output, but it would be foolish to think that the increase has come at little or no cost. This policy has arrested economic factors encouraging farmers to specialize in producing labor intensive horticultural crops where China has a comparative advantage. The policy encourages farmers to raise land extensive grain crops in which China has less advantage.

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Table 12--Summary of grain bag policy objectives and results for 1995 and 1996.

Grain Bag Policy Objective	Results for 1995	Results for 1996
1. Stabilize or increase grain area	Grain area increased	Grain area increased
2. Increase supply of inputs (chemical fertilizers)	Increased 8.1 percent	Increased 7.1 percent
3. Raise yields	Increased from 4.06 mt/ha to 4.25	Increased
4. Increase grain production	Increased 4.9 percent	Increased 4.9 percent
5. Guarantee grain stocks	Increased 25 million tons	Increased 52 million tons
On-farm stocks	Increased	Increased
6. Enforce grain transfers	NA	NA
7. Stabilize grain supplies for urban residents	Yes	Yes
8. Stabilize grain and oil prices	Partial	Partial
9. Raise government share of commercial grain sales	NA	NA
10. Central government control over grain trade	Yes	Probably
11. Raise level of grain self-sufficiency	Increased from 96.3 percent in 1994 to 96.7 percent in 1995	Self sufficiency of 99 percent

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