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**Staff Report # AGES870928**  
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December, 1986, CIMMYT, Mexico City, Mexico

## CHINA'S PAST AND FUTURE ROLE IN THE GRAIN TRADE

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China's grain production, consumption, and trade are key factors in the world grain market. In the sixties, China emerged as a major wheat importer, and observers expect this situation to continue, mainly because China has 20 percent of the earth's population but only 7 percent of the earth's arable land. However, China's wheat imports dropped off sharply in the mideighties and there is much uncertainty surrounding China's future role in the grain trade.

The purpose of this seminar is to report on a paper that analyzes China's historical role in the world grain markets; studies the impact of the 1979 reforms on China's grain production, consumption, and trade; and evaluates the probable participation of China in the grain trade in future years. China is so large that regional differences in climate, level of government, and growth rates in grain production are substantial. Because of this regional heterogeneity, it is important to attempt to disaggregate analysis of China's grain economy whenever data allow. While data availability limit the regional detail desired, an effort is made to address these regional differences in the statistical analysis in this paper.

Using regional consumption and production models, a grain balance sheet (table 1) is constructed. The first scenario, with a high rate of increase in grain prices and a low production growth rate, suggests that China's grain production will be in surplus and the surplus will continue to increase in the nineties. However, this scenario is rather unlikely, given the government subsidy burden that would be involved and the low population growth rate that is used.

The third scenario with low grain prices and a high population growth rate projects serious shortages of grain in China. The projected shortfall is 44.6 million metric tons (mmt) in 1990, increasing to 75.7 mmt in 1995 and 118.3 mmt in 2000. Such drastic shortages, however, would lead undoubtedly to government preventive action. For example, when China's grain production declined by 6 percent in 1985 (from 1984 levels), due in part to slowed rates of increase in grain prices, the Government immediately announced a plan to permit farmers to sell more grain in the free markets and for them to obtain subsidies from village industries.

The second scenario, which is considered most probable, assumes medium increases in both grain prices and the population. It suggests China's grain supply will not be completely adequate. The grain shortfall is projected to increase from 20.2 mmt in 1990 to 26.1 mmt in 1995 and then to 36.0 mmt in 2000.

For many reasons, the Chinese Government would like to reach a level of self-sufficiency in grain. However, under current circumstances, grain self-sufficiency is not likely to be reached unless there is some major technological development. In this study, the most likely annual shortfall is projected at less than 30 mmt for most of the nineties. A large part of this deficit may be reduced with imports. Past experience indicates grain imports are not in conflict with the Government's policy toward grain self-sufficiency, for this level of imports is well within China's capability in terms of transportation and balance of payments.

The composition of imports may also change. Projections show that further increases in grain consumption will come mainly from an increased feed requirement of about 3 mmt per year, a rate which may exceed increases in coarse grain production. Since the share of wheat in total grain output is not expected to decline, future grain imports will most likely be in feed grains.

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Table 1--Projected domestic grain balance sheet for China, 1990-2000

Item	: : Output	: : Consumption <sup>1/</sup>	: : Seed	: : Industrial : uses	: : Changes : in stocks	: : Deficit
Million metric tons						
Scenario 1: <u>2/</u>						
1990	467.1	433.7	16.9	4.2	3	-9.3
1995	534.0	485.8	16.0	5.2	3	-24.0
2000	595.3	543.3	15.1	6.2	3	-27.7
Scenario 2: <u>3/</u>						
1990	440.7	436.9	16.5	4.2	3	20.2
1995	489.6	491.8	15.7	5.2	3	26.1
2000	540.7	552.8	14.7	6.2	3	36.0
Scenario 3: <u>4/</u>						
1990	417.4	438.0	16.8	4.2	3	44.6
1995	443.6	495.5	15.5	5.2	3	75.7
2000	465.0	559.7	14.4	6.2	3	118.3

<sup>1/</sup> The figures for total grain consumption are expressed in unprocessed form by applying an 82% milling rate to food grain, a 4.1 feed-to-meat ratio, and a 97.1 spirits-to-grain ratio and then summing them up.

<sup>2/</sup> High rate of increase in grain purchasing prices and low growth rate for population. The assumed population growth rate is: 1.1% for 1985-90; 1.0% for 1991-95; and 0.9% for 1996-2000. The assumed price growth rates are: 6% for 1985-90; 5% for 1991-95; and 4% for 1995-2000.

<sup>3/</sup> Medium growth rates for both population and grain prices. Population: 1.25% for 1985-1990; 1.1% for 1991-95; and 1.0 for 1996-2000. Prices: 5% for 1985-1990; 4.5% for 1991-95; and 4% for 1996-2000.

<sup>4/</sup> Low rate of increase in grain purchasing prices and a high rate for population growth. Population: 1.3% for 1985-90; 1.2% for 1991-95; and 1.1% for 1996-2000. Prices: 4% for 1985-90; 3.5% for 1991-95; and 3% for 1996-2000.

## Conclusions

China has played an important role in the world grain market in the past, but, given its recent economic reforms, its future participation is uncertain. This seminar reports on a study that evaluated China's historical role in the grain trade; analyzed the impact of economic and policy variables on grain production, consumption, and trade; and based on alternative policy scenarios, projected China's future levels of trade.

Imports in the early eighties were required because of increased rural grain resales to farmers who were adjusting to the policy changes. In the mideighties, stocks built up and there is no short-term pressure for increased imports. Chinese grain yields were quite responsive to price increases under the 1979 reforms. However, budgetary pressures will limit further increases in grain prices so that the growth in China's grain yields will slow. As the total population continues to increase, China's area sown in grain will decline. This is a serious problem in China.

The Chinese will gradually shift their food consumption toward more meat and other indirect grain consumption. Therefore, China may continue to import a limited amount of grain, but imports will shift from wheat to feed grains. China's grain production target under the seventh 5-year economic plan is 520 mmt and this does not appear to be overly optimistic.