

Ag Decision Maker

A Business Newsletter for Agriculture

Vol. 8, No. 12

www.extension.iastate.edu/agdm

October 2004



Is China About to Drop Out of the Corn Export Market?

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(third in a series)

The answer to this question is of great importance to the U.S. livestock and poultry industries, feed manufacturers and dealers, the renewable fuels industry, grain elevators and exporters, as well as grain producers and the farm supply sector (as indicated in the first two articles in this series). For more than two decades, China has usually been the world's

second or third largest corn exporter. In 2002-03, it accounted for 19 percent of world corn exports. For more than 20 years, traders and analysts have speculated that China would soon become a significant corn importer.

Many analysts in the grain trade as well as USDA economists now believe such a shift is about to occur. Unfortunately, it is doubtful that even the Chinese government knows for certain whether the anticipated shift soon will occur. A shift likely would cause extreme tightness in U.S. corn supplies, necessitating a reduction in domestic corn feeding, processing, and/or exports to other countries.

This article reviews trends in Chinese corn production, utilization, and other developments that will affect its future corn exports and/or imports. Past failures of projected shifts

in Chinese corn trade are reasons for caution in assessing its future corn trade patterns.

Exports have been the most volatile component of U.S. demand for corn since the late 19 century. While long-term agricultural economic models have consistently indicated that U.S. corn exports will trend upward in the years ahead, U.S. corn exports have been in a downtrend for more than two decades. If this trend continues, the U.S. likely will have enough corn to supply the

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Handbook Update

For those of you subscribing to the *Ag Decision Maker Handbook*, the following update is included.

Farmland Value Survey (Realtors Land Institute)
— C2-75 (2 pages)

Please add this file to your handbook and remove the out-of-date material.

* This information first appeared in *Feedstuffs*, Vol. 76, No. 30, July 26, 2004.

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growing ethanol demand for the next few years. However, China is a key variable in long-term U.S. corn export prospects.

Available data indicate Chinese corn stocks have fallen sharply in the last four years and may continue to decline. With its 2002 entry into WTO, many government and industry analysts expect China to cut its corn exports to zero and become a net corn importer within the next one to two years.

If these changes take China out of the corn export market, foreign grain users will turn to the U.S. to fill corn needs historically supplied by the Chinese. This scenario could trigger a potential increase in U.S. corn export demand from 2003-04 levels of 300 to 600 million bushels. That, with currently planned expansions in processing for ethanol, would create by 2008 the need for 5.5 to 8.0 million more corn acres than farmers intended to plant in 2004. These projections assume the U.S. has favorable growing seasons each year. The additional acres, if taken from soybeans, would reduce U.S. soybean plantings by 7 percent to 11 percent from current levels.

Longer term Chinese corn production trends

The reader should be cautioned that our analysis is based on the best available Chinese agricultural data developed by USDA's Foreign Agricultural Service. Our analysis draws conclusions with the assumption that current data are accurate and reliable, an assumption that history says may not be true.

Production practices

By western standards, China's corn production methods are seriously out of step with modern technology. Its corn yields were in a strong uptrend for more than three and one-half decades until the last four years. Since then, the nation's corn yield has reached a plateau of about 76 bushels per acre, just over half a normal U.S. average yield. Factors limiting yields include genetics, weed and pest control, soil fertility management, and rainfall/irrigation water supplies. Note that China has re-

cently asked a major U.S. seed company to assist in improving its corn genetics.

USDA July projections for China's 2004 crop imply that yields are likely to remain near last year's sharply below-trend level again this year. A major premise of this article is that the future of Chinese corn exports or imports rests heavily on the supply side, as opposed to a widespread view that its corn trade will be primarily demand driven.

Weather factors

Factors behind the abrupt departure of China's corn yields from the long-run trend are not entirely clear. Weather has been unfavorable in northern China in recent years. Much of the corn and soybeans in the region normally are irrigated from rivers and reservoirs. Irrigation water supplies appear to have been low—partly because of limited rainfall—and have contributed to low yields. Weekly FAS rainfall and soil moisture charts for China are available from my Web site <http://www.econ.iastate.edu/faculty/wisner/>. Click on "Weekly Foreign Precipitation Maps" in the left-hand column.

China's corn production for the year ahead and in future years as well as exports/imports will be influenced strongly by rainfall patterns and irrigation water management. Another major influence on its corn yields will be the rate at which China is able to accelerate adoption of currently available production technology. With a population of 1.3 billion persons, the Chinese government is well aware of the importance of food security. It recognizes the need to keep the population well fed to maintain internal peace, as well as the risk of losing some political independence if it depends too heavily on imported food from a small number of nations.

Acreage swings

Harvested acreage has shown large swings from year to year, probably in response to weather problems. The data show a slight decline in corn harvested acreage in the past four years, reflecting competition for land from other crops and urban uses. An abnormally dry northern

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China growing season also may have led to higher than normal abandonment of corn acres. Analysts who project that China is on the verge of becoming a corn importer implicitly assume that static or slowly increasing corn yields will continue in the years ahead. China has had other multi-year periods of relatively flat yields before resuming the long-term uptrend. If China's average corn yield were to rise to two-thirds that of the U.S., with current harvested acreage, its production would be about 2.85 billion bushels above the August USDA projection for 2004.

Potential impacts on U.S. corn exports

Whether or not China's corn yields resume their uptrend will have a major impact on its trade position and on the U.S. corn supply-demand balance. A return to a trend yield in 2004 with harvested acreage at last year's level would produce about 820 million bushels more corn than USDA's World Agricultural Outlook Board projected in August. That, in turn, would be large enough to reverse the downward trend in Chinese corn carryover stocks and maintain Chinese corn exports.

Historical Chinese corn exports

In recent years, China has been a net exporter of 300 to 600 million bushels of corn annually. In the mid-1990s, it temporarily shifted to a net corn import position, contributing strongly to the \$5 per bushel corn and \$7 per bushel wheat prices of 1995-96. If China drops out of the corn export market, much of the demand normally supplied by its corn would shift to the U.S.

When considering the possibility of China shifting from corn exporter to importer, consider the extreme difficulty of forecasting Chinese grain trade.

USDA's annually released 10-year projections model has indicated for a number of years that China would become a major corn importer, but so far that forecast has not materialized. Chinese corn imports since the late 1980s have consistently been at or near zero, except for 1994-95 and 1995-96.

Ten year projections of net Chinese corn exports were made from large-scale agricultural models of the USDA and FAPRI. Results from both models were issued in early 2004. USDA's model sees Chinese corn exports steadily declining over the next several years, with the country reaching a net corn import position in 2009-10.

A May 2004 USDA publication sees the shift occurring sooner than indicated by the 10-year projections. FAPRI's model shows the shift to a net corn importer occurring in 2005-06, with a net reduction in Chinese corn trade from 2004-05 to 2007-08 of 492 million bushels. If the projections materialize, changes in Chinese demand will remove 492 million bushels of corn from the world market, most of which would need to be offset by the U.S. USDA's model places the net change at 319 million bushels.

Chinese pork and poultry trends

China's largest users of corn are swine and poultry. In these sectors, available data indicate feed conversion efficiencies have increased substantially in the last decade as western production technology has been adopted and protein levels in rations have increased rapidly. There is a gradually slowing rate of increase in production in these two industries, in contrast to a widely held view that Chinese livestock and poultry production have been expanding rapidly.