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Report Highlights: Chinese fuel ethanol production is estimated at 1.45 million MT in 2007, a twelve percent increase from 2006. As a result of increased commodity prices and concerns about food security, the State Council did not approve the 5-year plan introduced last year by NDRC. A new plan is under development and Post intelligence suggest that in the plan China will base future fuel ethanol production on non-food feedstocks and target a 3-4 million metric ton increase in fuel ethanol production by 2010.

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Executive Summary

China's fuel grade ethanol production is estimated to rise to 1.45 million MT in 2007, an increase of 12 percent from 2006. Because of concerns for improved welfare for rural areas, improved energy security and environmental concerns, biofuels production will remain important in China in the near future, a fact reinforced by the Chinese government's investment in research and development of the sector. Last year a 5-year plan on biofuels production was introduced by the National Development Reform Commission (NDRC) that set ambitious goals for the sector. The State Council did not approve the plan, however, because of concerns of a recent runup in commodity prices and concerns that fuel ethanol should not compete with crops for human consumption. Now, plans are to increase ethanol feedstocks from non-arable lands making the use of tuber crops and sweet sorghum increasingly realistic. The original NDRC target of 5.22 million MT by 2010 has been scrapped but no new formal production targets have been set. A realistic goal given the new constraints on the sector has been suggested to be between 3 and 4 million MT by the 2010 target.

The 2006 report provided extensive insight into the background of Chinese ethanol production. For economy, this is not repeated in this report. However, this report contributes new insights into Chinese ethanol production costs and yields.

China's Biofuel Situation

China views biofuels as an essential and strategic component of a secure economy and diversified energy policy. To ensure development of biofuels, the central government takes an active role in regulating both the supply and demand sides of the biofuel market and has limited ownership of production facilities to state industry. With a propensity for command and control, the use of state-run industries to develop biofuel insures the central government adequate "regulation." The National Development and Reform Commission (NDRC) has been the leader in the biofuel development arena, guiding future energy production and consumption in China.

China's stated objectives for biofuel development are (1) the improving of the welfare of Chinese rural citizens in China; (2) strengthening China's energy security and reducing their oil dependence; (3) the mitigation of emissions noxious to the environment. The subtext is (1) farm support prices, (2) national security, and (3) membership and recognition in the international community.

While Chinese coastal areas boom, growth in inland areas proceeds at a much slower pace. Biofuel production is one of a series of programs to mitigate rural poverty. With most plants located in the northeast, currently ethanol provides an outlet for 10 percent of corn production of northeastern provinces' (Jilin, Liaoning, Heilongjian, Hebei, and Henan) corn production, particularly of low quality and older stocks, and could add crops for biofuel production on otherwise marginal land. With additional plants, Northwestern provinces (Xinjiang, Qinghai, Inner Mongolia and Gansu) could increase their agricultural market by growing sweet sorghum. With additional plants in southern China, the sugar cane, cassava and *Jatropha* production could be expanded to meet increased ethanol production objectives.

In 1975 when China became a net importer of oil, energy security became a concern. Now China depends on coal for 70% of its energy, with most of the remainder fuel oil use for transportation. Consumption in this sector is growing rapidly. Presently biofuels are approximately one million metric tons (MMT).

Taking leadership in the biofuel sector also fits into China's aspirations to be a leader in the global arena as it uses biofuel to reduce pollution and conserve its environmental assets, consistent with the Kyoto Protocol objectives.

Draft Five-year Plan Aggressive But Not Approved for Food Security Concerns

The 11th 5-year plan, that was to provide operational guidance to the biofuels industry, was originally scheduled for introduction in December 2006. The draft form of the plan indicated that by the end of a 5-year implementation period, 2006-2010, China's biofuel production would be 5.2 million metric tons (MMT). If implemented, this would have amounted to a 400% increase in fuel ethanol production from the 2006 figure of 1.3 MMT. The drafted 5-year plan also included a variety of programs to expand demand for ethanol.

The plan was originally drafted in October of 2006 by a panel of relevant government agencies partnered under the NDRC. However, a run up in commodity prices generally, and grain prices specifically, lead to dissenting views on the 5.2 MMT target over food security. As a result of the lack of consensus, the State Council did not approve the 5-year plan on biofuels development. At provincial level, planning has been delayed in some areas by changes in provincial leadership.

Revised Plan Likely to Develop "Non-arable" Land

The central government has emphasized that a key element of the revised plan for biofuels will be a provision that ethanol feedstocks not compete with food and to this end, must be grown on non-arable land. With this new emphasis, industry insiders suggest that a more realistic target for ethanol production would be between 3 and 4 million MMT by the 2010 target.

In the past, corn has played a considerable role in Chinese ethanol production. However, as of 2007, while corn will remain important for existing plants, the government will likely not grant more licenses to corn based plants. Instead, there will be an increased shift toward ethanol production from cassava and sweet potatoes. Cellulosic ethanol production is being developed on an experimental basis until production costs become competitive with starch based production.

Ethanol production in China is subsidized, the processing facilities, together with other fast growing corn processors like starch, or sweetener manufactures were affected by the corn price run up in 2006.

Originally, areas targeted for expansion of ethanol feedstock production under the original 5-year plan included Heilongjiang, Hebei, Hubei, Jiangsu, Gansu, Guansi, Sichuan, Shandong, Henan, Xinjiang and other provinces. Areas with large amounts of unarable land that are capable of accommodating expansion in production include Inner Mongolia, Sichuan, Hunan and Jiangsu.

Currently, nine provinces participate in the fuel ethanol program. These 9 provinces will remain the priority for use of an E10 gasoline (with a fuel/ethanol mix rate of 10 percent). Five of these provinces have close to full use of E10 while four provinces have only partly adopted the product. Close to full adoption by these four provinces remains a priority of the government's fuel ethanol program.

In June 2007, NDRC will invite proposals for the construction of 10-15 pilot plants based on non-grain feedstocks. Privately and State-owned enterprises may submit proposals. Funding will be based on meeting specific technology and efficiency objectives. All production facilities must continue to sell their ethanol to the state owned China Petroleum and Chemical Corporation (SINOPEC) or the China National Petroleum Corporation (CNPC).

Ethanol Production

Table 1 shows the expansion in Chinese ethanol production for the 5 year period 2003-2007. Although Chinese ethanol production continues to expand, it has begun to taper off. Between 2006 and 2007 there was an 11.5% growth in Chinese ethanol production.

Table 2 provides a geographic breakdown of the production facilities within China in terms of production capacity. It also gives actual production data for 2005. The Jilin plant has the largest processing capacity in China at 600,000 metric tons (MT)/year output and is planning to increase processing capacity to 1 MMT by 2010, although this will be contingent on its ability to secure feedstocks sourced from unarable land. In 2007, a new plant will be opened in Guanxi using cassava as a primary feedstock. Its initial processing capacity will be 100,000 MT and is expected to reach 1 MMT by 2010. Plants in Hebei and Hubei are also scheduled to begin production in 2007. Processing capacity for the Hebei plant should reach 300,000 MT by 2010. Hainan province, an island with a strong tourism base, has expressed interest in converting to a biofuels based economy, asserting heavy industry and pollution would be detrimental to the tourism sector.

Table 1. An historical look at China's Fuel ethanol production

Year	Production Quantity	% Increase from Previous Year
2002 and before	Official fuel ethanol production began in 2004. There is little recorded fuel ethanol production before 2002.	NA
2003	<20,000 MT/year	
2004	300,000 MT/year	1400%
2005	920,000 MT/year	206%
2006	1,300,000 MT/year	41%
2007	1,450,000 MT/year	12%

Table 2. Current and Future Fuel Ethanol Production

Location (Province, City)	Company Name	Principal Feedstock	Actual 2005 Production (MT/year)	2007 Production Capacity	Supply Location	Supply Volume (MT/year)
Heilongjiang, Zhaodong	China Resources Alcohol Co.	Corn	100,000	150,000	Heilongjiang	150,000
Jilin, Jilin	Jilin Fuel Ethanol Co.	Corn	300,000	600,000	Jilin	100,000
					Liaoning	200,000
Henan, Nanyang	Henan Tian Guan Fuel-Ethanol Co.	Wheat	200,000	200,000	Henan	86,842
					Hubei (9 cities)	113,158
					Hebei (4 cities)	
Anhui, Bengbu	Anhui BBKA Biochemical Co.	Corn	320,000	320,000	Anhui	100,000
					Shandong (7 cities)	220,000
					Jiangsu (5 cities)	
					Hebei (2 cities)	
Guangxi	China Resources Alcohol Co.	Cassava	0	110,000	Guangxi	110,000
Hebei	China Resources Alcohol Co.	Sweet potato, corn et al.	0	230,000	Hebei	230,000
Hubei	Tian Guan Fuel-Ethanol Co.	Rice	0	100,000	Hubei	100,000
Total:			920,000	1,710,000		

*Note 1: The list of cities for each province runs as follows:

- **Hubei:** Xiangfan, Jingmen, Suizhou, Xiaogan, Shiyan, Wuhan, Wichang, Huangshi, and Ezhou
- **Hebei:** Shijiazhuang, Baoding, Xingtai, and Handan (locations supplied by Henan)
- **Shandong:** Jinan, Heze, Zaozhuang, Linyi, Lioacheng, Jining, and Tai'an
- **Jiangsu:** Xuzhou, Lianyugang, Hual'an, Yancheng, and Suqian
- **Hebei:** Canzhou and Hengshui (locations supplied by Anhui)

*Source: Law Concerning Testing for the Extensive Use of Ethanol Blended Gasoline for Automobiles and the Regulations Concerning the Conduct of Testing for the Extensive Use of Ethanol Blended Gasoline for Automobiles

Ethanol Production Economics

Table 3 outlays production costs for ethanol by the three primary feedstocks, corn, tubers (cassava and sweet potatoes), and sweet sorghum. Sweet sorghum based ethanol production incurs the lowest costs at \$523.00 per MT.

Table 3. Ethanol Production Costs

Feedstock	Cost for ethanol by feedstock	Cost US Dollar \$1=Y 7.6530
Corn	5000 Yuan / MT	\$653 / MT
Tubers	4000-4500 Yuan / MT	\$523-\$588 / MT
Sweet Sorghum	4000 Yuan / MT	\$523 / MT

On a per weight basis sweet sorghum has relatively low yields as much of the plant is composed of cellulose which cannot be economically processed with current technologies (Table 4). It takes 15 MT of sweet sorghum to produce 1 MT of ethanol. On a per weight basis, dry tubers have the lowest conversion ratio to ethanol because of a low water weight and high starch composition.

Table 4. Feedstock/Ethanol Yield

Feedstock	Yield Feedstock/Ethanol (MT)
Corn	3.2 to 1
Dry Tubers	2.9 to 1
Fresh Tubers	7.8 to 1
Fresh Sweet Sorghum (whole plant*)	15 to 1

*Note: the whole sweet sorghum plant has a sugar content level ranging between 15-20%.

The comparative advantage of sweet sorghum as a feedstock is its high crop yield with production ranging between 60 and 90 MT per hectare which translates into ethanol yields of 4-6 MT per hectare. Additionally, sorghum has the added benefit of 3-4 MT of sorghum grain production per hectare. These grains are an additional source of profit for the farmer and are used primarily to produce baijiu, a Chinese hard liquor. Dried distillers grains with solubles (DDGS) also represents a valuable byproduct in corn based ethanol production which is sold as a feed supplement for livestock. For corn, there are three tons of DDGS produced for every ton of ethanol. In China, DDGS can be sold between RMB1200-1400 (\$153-180) per MT. DDGS from tuber based ethanol production is low in protein and not a desirable livestock feed. There is no DDGS byproduct from sweet sorghum production.

	Crop Yield MT / ha	Ethanol Yield MT / ha	Sorghum Grain MT / ha	DDGS MT / ha
Corn	5	1.6	NA	4.8
Fresh Tubers	25	3	NA	NA

Fresh Sweet Sorghum	60-90	4-6	3-4	NA
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Biodiesel

There is no national standard on biodiesel use as a transportation fuel, and currently no national or provincial programs to promote the use of biodiesel in transportation. Post forecasts that the Chinese government will not promote fuel use biodiesel in the near future.

Present Production Limited

The biodiesel production in 2007 is estimated at around 300,000 metric tons. Almost all of the production is based on animal fat or waste vegetable oil from oil crushing plants or restaurants. The product is low quality, not adequate for fuel use. The higher quality product is used as a low quality solvent, or more commonly, as an additive to coal in thermal power plants or rural industrial cafeterias, where coal is used for cooking.

Currently, biodiesel plants are small-scale, ranging from 100 to 20,000 MT production. They usually operation for only a few months a year due to lack a sufficient supply of feedstock. The lack of feedstock is the result of the short supply of edible vegetable oils. China is the largest importer of soybeans and imports significant quantities of other oil based products. Feed competes for demand for animal based fat. As a result, Post forecast that the Chinese government will not provide incentives for biodiesel production in the foreseeable future.

Potential Tree Nut Use for Biodiesel in the Long-term

The State Forestry Administration plans to develop 12 million mu (or 800,000 Ha) of oil bearing tree nuts, principally in Sichuan, Yunan, Guizhou, Chongqing, Hebei, Shaanxi, Anhui, Henan, Hubei, Jiangxi during the 11th five year plan (2006-2010). Post estimates that while these trees will take more than five years to provide a sustainable supply of feedstocks, the could support as much as 6 MMT of biodiesel production.

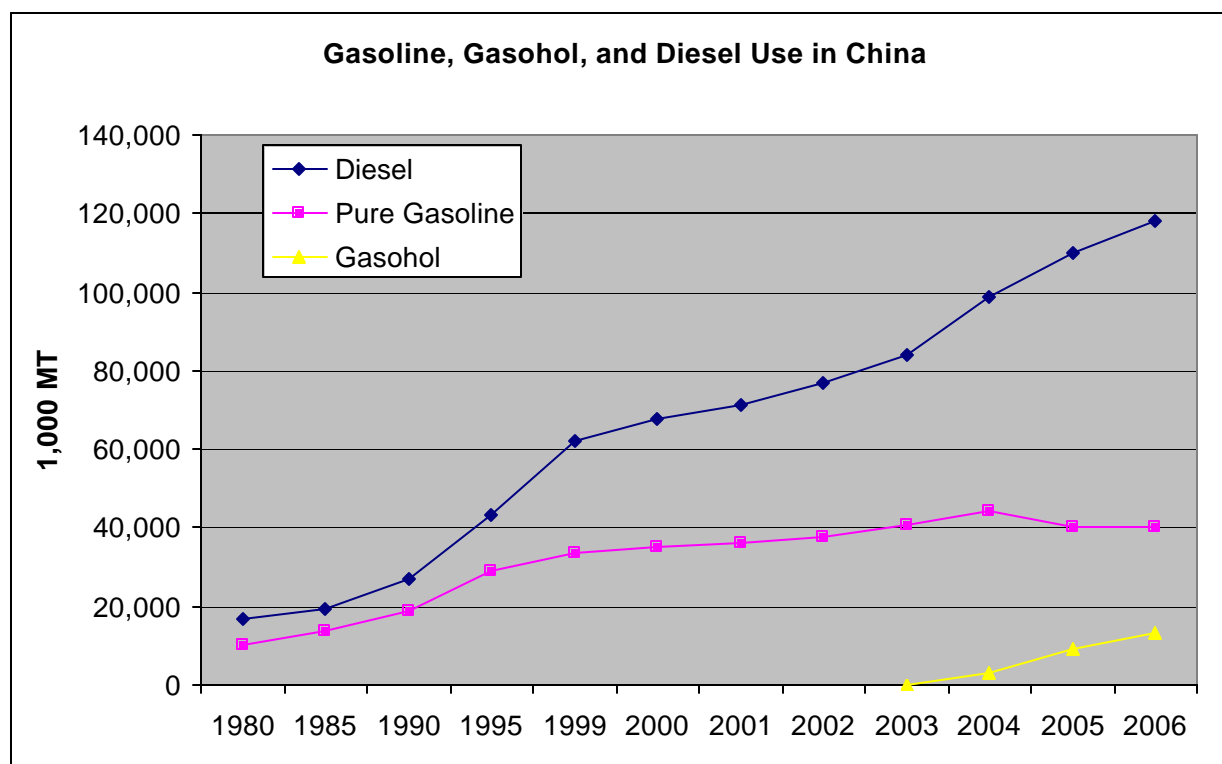
Besides the edible oilseed, other potentials inputs include Jatropha nuts, Chinese pistachio, Xanthoceras Sorbifolia Bunge, Cornus Wilsoniana Wanaer, Fufang vines, Yousha bean, and Chinese dogwood nuts.

Biodiesel Trade Is Minimal

Because of the high price, China does not currently import biodiesel. According to one trade source, in 2006, a southern Chinese processing facility imported palm oil and exported biodiesel to the U.S. Because of rising price for palm oil, the company stopped processing for export at the end of 2006. Official Customs data is not available for biodiesel trade, but Post estimates that total exports were approximately 10,000 MT in 2006.

Fuel Use in China

Diesel is the primary fuel consumed in China with close to 120 million MT consumed in 2006. Pure gasoline consumption was approximately 40 million MT in 2006. Both diesel and gasoline consumption in China have increased substantially since 1980 with a six-fold and four-fold increase in consumption, respectively. Pure gasoline use has plateaued somewhat over the last four years as gasohol (E10) consumption has grown. During this timeframe, automobile use in China has increased on average 11.8 percent annually.



Source: China Energy Statistical Yearbook

Trade in Ethanol

Chinese ethanol exports have been trending up over the last 5 years and jumped dramatically in 2006, in reaction to higher world petroleum prices. In 2006, more than half of China's imports - 4.5 million liters - are from itself. This is a result of Chinese production being sent to tariff-free zones and "imported." The "imported product is counted towards imports instead of reducing exports. Chinese ethanol exports were just over one billion liters in 2006 (795,000 MT). Most exports of ethanol from China are undenatured – principally towards Japan and Korea where it is used for alcohol production.

Ethanol imports to China have been relatively minor and, except for 2005, generally balanced between denatured and undenatured ethanol.

China Ethanol Export in 2001-2006 in 1,000 LTR						
HTS#	Description	2002	2003	2004	2005	2006
	Total Ethanol	115,248	284,101	96,912	162,204	1,017,779
220710	Undenatured	99,748	276,084	91,596	158,654	970,721
220720	Denatured	15,500	8,017	5,316	3,550	47,058
China Ethanol Import 2001-2006 in 1,000 LTR						
HTS#	Description	2002	2003	2004	2005	2006
	Total Ethanol	3,558	4,316	4,253	19,590	7,972
220710	Undenatured	1,435	2,258	2,021	15,936	5,930
220720	Denatured	2,122	2,058	2,232	3,654	2,042

Japan and Korea are the predominant export destinations for Chinese ethanol averaging 95.5 and 69.4 million liters during the 5 year period 2002-2006. The United States imported

substantially more Chinese ethanol in 2006 (31 million liters) than in the previous years. Total exports of ethanol from China averaged 335 million liters during this time frame.

Country	2002	2003	2004	2005	2006
World	115,248	284,101	96,912	162,204	1,017,779
Japan	81,971	152,755	49,975	79,375	113,665
Korea, South	18,874	80,664	16,881	39,144	191,642
United States	2	0	0	10	158,398
El Salvador	0	0	0	0	138,437
Singapore	372	15,189	46	5,063	59,923
Jamaica	0	0	0	0	66,367
Others	14,030	35,494	30,010	38,612	289,347

China imports small amounts of ethanol from several trade partners with South Africa and Japan being principle among them.

Country	2002	2003	2004	2005	2006
World	3,558	4,316	4,253	19,590	7,972
South Africa	0	0	0	11,610	1,240
Japan	1,765	1,827	1,900	1,807	1,802
China	1	1	15	0	4,497
Australia	20	33	1,877	108	66
New Zealand	0	0	36	1,298	54
Korea, South	21	24	40	992	29
United States	9	31	25	35	149
Germany	7	7	32	31	91
Singapore	32	54	35	16	10
United Kingdom	29	32	9	31	15
Others	1,674	2,307	283	3,660	20

Ethanol Feedstock Production Data

Total ethanol production in MY06/07 is estimated at 7 MMT. Among them, 1.4 MMT is denatured for fuel ethanol use, about 2.5 MMT for food use. The remainder is used for industrial and surgical use. About 50 percent of total ethanol production is based on grains (mostly corn, but including sorghum, wheat and rice) with the remainder based on tubers, including cassava and sweet potatoes. Future increases in grain based ethanol production are in question following the mandate that these feedstocks come only from non-arable lands.

Corn

Corn production for MY06/07 is estimated at 142 MMT, up 5 percent from previous year. Favorable weather and increased acreage contributed to the high yield. Corn acreage in MY06/07 is estimated at 27 million Ha. Corn production in MY07/08 is forecast at 143 MMT, 1 MMT higher than the previous year. Yields are forecast to be higher than average but lower than the previous year. Corn area for MY07/08 is forecast to up slightly over the previous year as farmers shift to corn in response to higher corn prices.

Post analysis concludes that MY05/06 crop was down slightly from the previous year and has adjusted post's previous estimate up 1 MMT to 135 MMT. Post does not accept Chinese official reporting of 139.3 MMT. According to the official report, this record production increase was the result of a 2.5 percent increase in yield, favorable weather conditions and increased acreage. Based on Post intelligence, Post concludes that actual production was down from the previous year and the increased production number reflects an adjustment based on reporting of previously unreported acreage (black land).

Corn use in China is likely to increase as increased demands are made, particularly from the livestock sector for which corn is a major feed source.

CORN	Revised	Revised	Revised	Revised	Estimate	Forecast	UOM
	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	
Market Year Begin	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	MM/YYYY
Area Harvested	24,634	24,068	25,446	26,358	27,000	27,600	(1000 HA)
Beginning Stocks	84,788	64,973	44,852	36,555	35,255	30,855	(1000 MT)
Production	121,300	115,830	130,290	139,365	143,000	146,000	(1000 MT)
TOTAL Mkt. Yr. Imports	29	2	2	62	100	100	(1000 MT)
Oct-Sep Imports	29	2	2	62	100	100	(1000 MT)
Oct-Sep Import U.S.	0	1	2	115	0	0	(1000 MT)
TOTAL SUPPLY	206,117	180,805	175,144	175,982	178,355	176,955	(1000 MT)
TOTAL Mkt. Yr. Exports	15,244	7,553	7,589	3,727	4,500	3,000	(1000 MT)
Oct-Sep Exports	15,244	7,553	7,589	3,727	4,500	3,000	(1000 MT)
Feed Dom. Consumption	96,000	97,000	98,000	101,000	103,000	105,000	(1000 MT)
FSI Consumption	29,900	31,400	33,000	36,000	40,000	43,000	(1000 MT)
Total Consumption	125,900	128,400	131,000	137,000	143,000	148,000	(1000 MT)
Ending Stocks	64,973	44,852	36,555	35,255	30,855	25,955	(1000 MT)
Total Distribution	206,117	180,805	175,144	175,982	178,355	176,955	(1000 MT)
Yield	4.92	4.81	5.12	5.29	5.3	5.29	(MT/HA)

Sugar Cane

Ethanol yields from sugarcane are among the highest of any feedstocks. Sugarcane is the predominant feedstock for ethanol exporting countries, most notably Brazil, Thailand, South Africa and Australia. China is a net sugar importer and as a result, the government has not encouraged its use as a feedstock.

	Revised	Revised	Revised	Revised	Estimate	Forecast	UOM
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SUGAR	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	
Market Year Begin	10/2001	10/2002	10/2003	10/2004	10/2005	10/2006	MM/YYYY
Beginning Stocks	1,004	869	2,021	2,323	1,757	1,118	(1000 MT)
Beet Sugar Production	1,090	1,327	638	655	877	1,150	(1000 MT)
Cane Sugar Production	7,215	10,053	10,096	9,171	8,569	10,000	(1000 MT)
TOTAL Sugar Production	8,305	11,380	10,734	9,826	9,446	11,150	(1000 MT)
Raw Imports	1,234	710	1,031	1,172	1,000	900	(1000 MT)
Refined Imp. (Raw Val)	141	132	204	188	300	200	(1000 MT)
TOTAL Imports	1,375	842	1,235	1,360	1,300	1,100	(1000 MT)
TOTAL SUPPLY	10,684	13,091	13,990	13,509	12,503	13,368	(1000 MT)
Raw Exports	9	10	10	12	10	10	(1000 MT)
Refined Exp. (Raw Val)	451	110	57	340	175	300	(1000 MT)
TOTAL EXPORTS	460	120	67	352	185	310	(1000 MT)
Human Dom. Consumption	9,355	10,950	11,600	11,400	11,200	11,400	(1000 MT)
Total Use	9,355	10,950	11,600	11,400	11,200	11,400	(1000 MT)
Ending Stocks	869	2,021	2,323	1,757	1,118	1,658	(1000 MT)
Total Distribution	10,684	13,091	13,990	13,509	12,503	13,368	(1000 MT)

Wheat

Post estimates wheat production in MY06/07 is 103 MMT, up 6 percent from the previous year. Good weather and MoA's production support programs contributed to good yields and crop quality better than the previous year. The acreage in MY06/07 is estimated to be 23.3 million Ha, up 2 percent from the previous year.

The planted area in MY07/08 is forecast to be 23.2 million Ha, down slightly from the previous year. Wheat production in MY07/08 is forecast to be 101 MMT, down 2 MMT from the previous year. The drought on the northern China plains hindered wheat planting during November 2006. In northern Shandong province the drought even caused some wheat farmers to miss the planting season and, according to provincial agricultural department officials, planting area is forecast down 5 percent from the previous year. The wheat acreage in Shandong accounted for 14 percent of national total wheat acreage in MY05/06. The lack of winter rainfall and warmer weather is forecast to reduce yields for the MY07/08 crop.

	<i>Revised</i>	<i>Revised</i>	<i>Revised</i>	<i>Revised</i>	<i>Estimate</i>	<i>Forecast</i>	<i>UOM</i>
WHEAT	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	
Market Year Begin	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	MM/YYYY
Area Harvested	23,910	22,000	21,626	22,792	23,400	23,000	(1000 HA)
Beginning Stocks	76,588	60,378	43,293	38,819	34,890	35,440	(1000 MT)

Production	90,290	86,490	91,950	97,450	103,500	100,000	(1000 MT)
MY Imports	418	3,749	6,747	1,018	550	500	(1000 MT)
TY Imports	418	3,749	6,747	1,018	550	500	(1000 MT)
TY Imp. from U.S.	89	1,466	1,786	407	0	0	(1000 MT)
Total Supply	167,296	150,617	141,990	137,287	138,940	135,940	(1000 MT)
MY Exports	1,718	2,824	1,171	1,397	2,500	2,000	(1000 MT)
TY Exports	1,718	2,824	1,171	1,397	2,500	2,000	(1000 MT)
Feed Consumption	6,500	6,000	4,000	3,500	4,000	3,500	(1000 MT)
FSI Consumption	98,700	98,500	98,000	97,500	97,000	96,000	(1000 MT)
Total Consumption	105,200	104,500	102,000	101,000	101,000	99,500	(1000 MT)
Ending Stocks	60,378	43,293	38,819	34,890	35,440	34,440	(1000 MT)
Total Distribution	167,296	150,617	141,990	137,287	138,940	135,940	(1000 MT)
Yield	3.78	3.93	4.25	4.28	4.42	4.35	(MT/HA)

Lignocellulosic

Canada-based organic and natural food company SunOpta announced that it is selling what will be the first cellulosic ethanol plant in China. Cellulosic ethanol can be produced from basically any organic matter (agricultural waste, grasses, sewage, sludge, switchgrass, plant stalks, trees—virtually anything that contains carbon), instead of solely from traditional feedstock (corn, wheat, rice, sugar). Generally, cellulosic ethanol is not commercial viable, but China will test this with the first cellulosic ethanol production plant up and running by 2008. When viable, NDRC plans to retrofit current ethanol production plants for lignocellulose production.

Cassava

The Guangxi Zhuang Autonomous Region in southern China plans to build a fuel ethanol production facility capable of producing one million MT of fuel ethanol by 2010. The plant is a joint venture between China Resources Alcohol Co., a subsidiary of the China National Cereals, Oils and Feedstuffs Corp. (COFCO), and SINOPEC. (COFCO holds 85 percent of shares, while SINOPEC holds the remainder.) The plant is scheduled to begin operations in October of 2007 at a production capacity of 110,000 MT per year. The initial output will supply Guangxi. When at maximum capacity, the plant hopes to provide fuel ethanol to all of southern China (Yunan, Guizhou, Guangdong, Hong Kong, and Macao), principally using Cassava.

Total cassava production in China at present is estimated at 13.3 million MT. Guangxi already produces over 60 percent of China's total cassava output. Cassava alone, some scholars predict, could supply as much as 4 million MT of fuel ethanol in China. Production is estimated to expand greatly in the next few years: Guangxi government expects to expand

its acreage planted for cassava from 260,000 ha to over 660,000 ha. However, post estimates that the expansion could be constrained by the availability of arable land or competing cash and grain crops.

Thailand, the world's top cassava producer, already converts some of the tuber into fuel ethanol.

China's Cassava (071410) Imports from the World by Metric Ton 2001-2007							
	2001	2002	2003	2004	2005	2006	2007
Total Imports	1,950,043	1,760,294	2,368,260	3,442,412	3,335,415	4,950,435	2,037,214
Thailand	1,629,870	1,425,371	1,874,362	2,734,389	2,695,576	3,864,203	1,515,564
Vietnam	156,996	212,878	453,132	522,296	411,573	941,274	482,707
Indonesia	163,155	122,040	40,766	185,728	228,265	144,784	36,543

*Note: 2007 data is for January to March only.

Sorghum

Post estimates sorghum production is up almost 10 percent in MY06/07 to 2.8 MMT, and area up almost 4 percent to 590,000 Ha, over the previous year. MY07/08 sorghum area and production is forecast up slightly from the previous year. Sorghum is mostly planted on marginal land with no irrigation.

While some sorghum is used for feed, the majority, approximately 2 MMT, is used for hard liquor (ethanol-based) production. Hard liquor consumption is forecast to rise as consumer incomes rise and effective marketing campaigns by distillers promote the gift-giving of traditional Chinese alcohol. Promotions include significant prime time TV advertisements in recent years.

Currently, neither MoA nor provincial authorities cover sorghum as an important feed grain, nor is it a crop with production assistance.

	<i>Revised</i>	<i>Revised</i>	<i>Revised</i>	<i>Revised</i>	<i>Estimate</i>	<i>Forecast</i>	<i>UOM</i>
SORGHUM	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	USDA Official	
Market Year Begin	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008	MM/YYYY
Area Harvested	843	722	568	570	590	600	(1000 HA)
Beginning Stocks	131	547	247	156	185	225	(1000 MT)
Production	3,327	2,865	2,328	2,546	2,700	2,600	(1000 MT)
TOTAL Mkt. Yr. Imports	2	3	9	9	10	10	(1000 MT)
Oct-Sep Imports	2	3	9	9	10	10	(1000 MT)
Total Supply	3,460	3,415	2,584	2,711	2,895	2,835	(1000 MT)
Exports	88	168	28	26	30	25	(1000 MT)
TY Exports	88	168	28	26	30	25	(1000 MT)
Feed Dom. Consumption	725	750	400	400	370	290	(1000 MT)

FSI Consumption	2,100	2,250	2,000	2,100	2,270	2,340	(1000 MT)
Domestic Consumption	2,825	3,000	2,400	2,500	2,640	2,630	(1000 MT)
Ending Stocks	547	247	156	185	225	180	(1000 MT)
Total Distribution	3,460	3,415	2,584	2,711	2,895	2,835	
Yield	3.95	3.97	4.1	4.47	4.58	4.33	(MT/HA)