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Planting Seeds

Annual

2008

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Report Highlights:
China's planting seed supply for its main crops, including grain (rice, wheat, and corn), oilseeds (soybeans, rapeseed, and peanut), and cotton in MY08/09 is expected to be sufficient with surplus for hybrid corn and rice varieties. Imports of seeds for vegetable and fruit/melon are expected to continue growing in MY08/09, while imports of grass and sunflower seeds are forecasted to decline due to shrinking market demand and abundant supplies. Three new seed standards came into effect in 2008. In July 2008, China announced an additional $3 billion in state support for the development of agricultural biotechnology over the next 15 years.

Includes PSD Changes: No
Includes Trade Matrix: Yes
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Beijing [CH1]
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Executive Summary

China's planting seed supply for its main crops, including grain (rice, wheat, and corn), oilseeds (soybeans, rapeseed, and peanut), and cotton in MY08/09 is expected to be sufficient with surplus for hybrid corn and rice varieties. In MY08/09, hybrid corn and rice seed stocks are expected to decline, and prices are forecast to increase. Imports of seeds for vegetables and fruit/melon are expected to continue growing in MY08/09, driven by both the diversified demands of domestic consumers and vegetable exports. While imports of grass and sunflower seeds are forecast to decline due to shrinking market demand and abundant supplies. China's sunflower seed imports declined 29 percent in volume; this decline is expected to continue due to shrinking acreage. China's seed exports are forecast to continue growing in MY08/09 due mainly to China's low cost structure for seed breeding operations. China's hybrid rice seed (Rice Long Grain, H.S. 10061011) exports in MY07/08 increased 33 and 69 percent in volume and value respectively, mainly as a result of the hybrid rice acreage expansion in Indonesia.

The national policy on foreign investment in the seed sector still prevents any investment by foreign enterprises in the genetic engineering (GE) planting seed sector, while investment for "main crop" varieties is limited to a minority share. There have been no new amendments to China's Seed Law. Three new seed standards came into effect in 2008. In June 2008, the State Council of China released "Outline of the National Intellectual Property Rights Strategy", which defined new plant varieties as one of the major Intellectual Property Rights (IPR) areas for protection. In July 2008, China announced an additional $3 billion in state support for the development of agricultural biotechnology over the next 15 years.

Production

General situation

China continues to be one of the world's largest seed producers: self-sufficient in planting seeds for its main crops, including grain, major oilseeds, and cotton. This trend is likely to continue throughout MY08/09 and well after. Although official seed production statistics are not available, industry sources estimate annual seed use at 12.5 million metric tons (MMT). Commercial seeds are estimated at 3.5 MMT, hybrid corn seed takes the largest market share at one MMT, followed by hybrid rice seed at around 250,000 MT. China's total seed market value is estimated at $7.2 billion, among which, corn, rice, and vegetable seeds account for over 70-percent. Hybrid corn, hybrid rice, vegetable, and GE cottonseed are all commercially produced.

The seed self-sufficiency rates for rice, corn, wheat, and soybeans are close to 100 percent with abundant stocks, cotton seeds at 85 percent (the remaining 15 percent is likely to be met by international joint ventures (JVs) that develop seeds in China) and vegetable and fruit/melon seeds at 95 percent. The traditional practice of farmer-saved seeds for major crops continues to decline due to government subsidy programs that encourage the use of high quality seeds. According to China's Ministry of Agriculture (MOA), in MY07/08, high quality seed varieties covered 96 percent of the market, and accounted for about 40 percent of China's total agriculture production growth. China's low labor costs enables it to produce hybrid seeds for overseas markets at a lower cost compared to other countries.

Seed production and supply expected to be stable for MY08/09

Maintaining a stable supply of high quality seeds for major grain crops is a stated priority for China's relevant agencies. Industry sources expect seed production for all major crops in MY08/09 to meet domestic demand with surpluses for corn and rice. Additionally, high quality seed variety coverage exceeded 96 percent of the planted area. According to MOA,

hybrid corn and rice seeds production in MY07/08 exceeded demand due to better yields resulting from favorable weather conditions.

MOA conducts a quality sample survey for grain crop seeds each year. The results from the latest survey conducted in November of 2007 showed that seeds that met the national quality standard were 94 percent for hybrid corn and 99 percent for hybrid rice. The survey included 138 corn samples from 93 seed companies and 88 hybrid rice samples from 61 seed companies nationwide. For corn seed, all samples are tested for cleanliness, germination percentage, and moisture content but only 94 percent qualify for seed variety purity. Hybrid rice seed is in a similar situation. MOA concluded that the most prominent quality concern for hybrid corn and rice seed is variety purity.

Rice – According to MOA, the 2008 hybrid rice seed area is estimated at 63,000 Hectares (Ha) with production at 209,000 MT. Together with the 82,000 MT of carry-in stocks, total supply will likely reach 291,000 MT during MY08/09. Hybrid rice seed demand in MY08/09 is forecast at 244,000 MT, with ending stocks of 47,000 MT. Sichuan, Hunan, Guangxi, Jiangsu, and Hainan provinces are major hybrid rice seed producers in China, accounting for 72 percent of the total hybrid rice seed acreage. According to MOA, the average price of hybrid rice seeds in 2008 decreased 3 percent ($0.05/1b) from 2007. Two-line hybrid rice seed producing acreage is expanding year by year driven by higher prices; this trend is expected to continue through 2009. Industry sources indicate hybrid rice's planted area for 2008 is estimated at 1.8 MHa, expanding slightly from the previous year and accounting for 59 percent of China's total rice area, as compared to the 55 percent in 2007. China's northeast area (Heilongjiang, Liaoning, and Jilin provinces) usually plant conventional (not hybrid) single crop japonica varieties due to its cold climate.

Corn— According to MOA, the 2008 hybrid corn seed area is estimated at 200,000 Ha with production at 1.02 MMT. Together with the 610,000 MT of carry-in stocks, total supply will likely reach 1.63 MMT by MY08/09. Hybrid corn seed demand is forecast at 1.1 M MT, with ending stocks of 530,000 MT. MOA reported that the average price of hybrid corn seeds in 2008 increased 6 percent ($0.04/1b) from 2007 as a result of declining stocks. Industry is satisfied with the current availability of stocks compared with previous years; for example, the 900,000 MT in 2006 and 700,000 MT in 2007; plus abundant stocks in 2008. Gansu, Xinjiang, Inner Mongolia, Liaoning, and Heilongjiang provinces are major hybrid corn seed producers in China, accounting for 76 percent of total acreage. Hybrid corn varieties dominate China's seed corn use.

MOA forecasts that the prices of both hybrid rice and corn seeds will increase in 2009 because: 1) hybrid rice and corn seeds were lower priced in recent years due to fierce competition drawing down prices as a result of abundant supplies in the market; 2) the over supply situation is expected to ease in 2009; and, 3) government procurement prices for hybrid rice and corn seeds will increase. MOA also announced its ideal expectation of hybrid corn and rice seeds: for hybrid corn seeds, plantation acreage is at 247,000-253,000 Ha, stocks at 250,000-300,000 MT; for hybrid rice seeds, plantation acreage at 83,000-87,000 Ha, stocks at 40,000 MT.

Wheat--The majority of wheat seeds are conventional varieties, most of which are produced in China's northern provinces. Industry sources reported that about 70 percent of wheat farmers purchased commercial seeds as a result of the national seed subsidy program.

Cotton – The cotton seed breeding sector is increasingly industrialized and commercialized. In 2007, the planted area for biotech (BT) varieties was 3.8 MHa, accounting for 69 percent of China's total cotton planted area. In the Yellow River region, BT varieties coverage reached close to 100 percent according to provincial government sources. Some industry

sources estimate that the market share for domestic BT cotton varieties for 2008 continued to dominate at 80 percent although no official data is available. Some Chinese sources claim that Chinese-produced BT cotton varieties are more suitable and tailored to the local environment and lower in price compared to imported varieties.

Seed industry reform and consolidation continues

Seed production and marketing continues to be fragmented, but the trend for restructuring the sector is quickly accelerating. Industry sources report that China has over 7,200 licensed seed trading entities, declining from the 8,500 in 2006. Over 100 entities integrate seed breeding, production, and nationwide sales network; 70 entities registered for seed import/export. On May 19, 2006, China's State Council issued GuoFaBan (2006) No. 40 decree on "Recommendations on Expediting Seed Management Reform and Strengthening Marketing Supervision". The Decree mandates that the "Complete Segregation of all Seed Trading Entities from Agricultural Administrative Agencies" should be completed before the end of June 2007, as traditionally most seed trade entities were affiliated with agriculture bureaus (more background provided in CH6104). According to the latest information released by MOA in December 2008, 1,986 state-owned seed entities have segregated from agricultural administrative agencies accounting for 85 percent of total agricultural administrative managed seed entities. MOA also reported that more than 8,600 seed cases were disposed, and 3,000 seed varieties ceased production since Guofaban (2006) No. 40 Decree was released.

The fragmented seed market is the result of China's old planned economy, which created a model of segregated research/development, breeding, and marketing activities. Better integration of variety research and development, seed breeding, and the distribution chain remain a key goal for policy makers, industry associations, and research institutes. Although in recent years there has been significant consolidation in the industry, it may take years before flagship enterprises replace the thousands of small players. Industry contacts estimate the market share of "the 10 largest" seed enterprises at 20 percent. Industry sources also indicated that the consolidation trend within the seed industry has been slow and chalked with inefficiencies due to their low research and development capacity. A few of these companies have established comprehensive variety development, seed breeding, and marketing systems. Few, however, have their own research and development facilities. Some of these companies exclusively handle seed sales and marketing. The traditional seed breeding and distribution model still prevails. Developers are mostly state or provincial sponsored agricultural research institutes and universities, while seed companies are responsible for breeding and marketing seeds to farmers. It is worth noting that researchers and developers are increasingly involved in seed breeding and marketing through established breeding enterprises. Some new seed companies also have set up independent research facilities, which enable them to develop their own new varieties and retain intellectual property rights.

Agricultural Planted Area and Yields

Total sown area for all crops is generally stable at more than 150 million hectares. Grains and oilseeds take up the largest share, but the planted area for vegetable and other horticultural products is increasing. Total sown area for all crops is unlikely to fluctuate dramatically because of the limited availability of arable land per capita. However, the planted area designated for individual crops may vary slightly from year to year in response to the market situation.

The table below indicates China's grain targets by 2020 according to China's National Framework for Medium-to-Long-Term Food Security (2008-2020), which was released by the State Council in November 2008.

Table 1. China's Grain Targets by 2020

	2007 (MHa)	2010 (MHa)	2020 (MHa)
Cultivated land area	122	>=120	>=120
- for grain plantation	74.7	>73.3	>73.3
*Grain sown area	106	105	105
- for **cereal	85.9	84.6	84
Oilseed sown area	11.3	12	12
Grain yield (kg/ha)	4,743	4,875	5,250
Total grain production	501.6	>=500	>540
(MMT)	456.3	>=450	>=475
- of which, cereal			

(** cereal includes rice, wheat, corn, sorghum, millet, etc; grain includes cereal, soybean, and tubers)

Table 2. Agricultural Crop Sown Area in Million Hectares

Year/ Crop	Rice	Wheat	Corn	Soybeans	Cotton	Rapeseed	Tubers	Peanut	Vege-tables	Sun-flower
2002	28.2	23.9	24.6	9.6	4.2	7.1	9.9	4.9	17.4	NA
2003	26.5	22	24	9.5	5.1	7.2	9.7	5.1	18	1.2
2004	28.4	21.6	25.4	9.6	5.7	7.3	9.5	4.7	17.6	0.9
2005	28.8	22.8	26.4	9.6	5.1	7.3	9.5	4.7	17.7	1
2006	28.9	23.6	28.5	9.3	5.8	6.0	7.9	4.0	16.6	1
2007	28.9	23.7	29.5	8.7	5.9	5.6	8.1	3.9	17.3	0.7

Crop yields remain stable, despite new hybrids and innovations in the planting seed sector. Some experts suggest that as more farmers migrate to cities, the reduction of in-farm labor, coupled with inadequate rotation could inhibit genetic improvements and ultimately output. Still, China's cotton yield remains high and is likely to increase further along with the adoption of biotechnology. If the government is to achieve its target by increasing its yield by 11 percent by 2020, then it must encourage the development and planting of new high-yielding varieties that require fewer inputs.

Table 3. Agricultural Crop Yields in Metric Ton per Hectare

Year/Crop	Rice	Wheat	Corn	Soybeans	Cotton	Rapeseed	Peanut
2002	6.2	3.8	4.9	1.7	1.17	1.48	3.01
2003	6.1	3.9	4.8	1.6	0.95	1.58	2.65
2004	6.3	4.3	5.1	1.8	1.11	1.81	3.02
2005	6.3	4.3	5.3	1.7	1.13	1.79	3.08
2006	6.2	4.55	5.4	1.7	1.29	1.83	3.25
2007	6.4	4.6	5.2	1.6	1.29	1.87	3.30

Trade

China imported 27,127 MT of planting seeds in MY07/08, valued at $136 million, increased 2 and 11 percent respectively from the previous year. Vegetable/fruit, grass (rye grass, fescue, clover, and kentucky) and sunflower seeds are the top three categories of China's seed imports. In MY07/08, China's seed exports totaled 42,623 MT, and were valued at $113

million, an increase of 28 and 29 percent respectively from the previous year. Vegetable/fruit and rice seeds also contributed to the largest shares of China's seed exports.

Grass and sunflower seed imports are expected to decline in MY08/09

Although most industry sources expect grass seed imports to increase in the longer term, because of pastureland restoration projects in the western provinces and landscaping in China's burgeoning cities continues, the market for MY08/09 is looking bearish due to the gloomy macroeconomic financial situation worldwide. Although China committed $580 billion in their economic stimulus plan, which includes tremendous investment into infrastructure, grass plantation usually comes second to building roads or other public projects. Industry doubts the grass seed demand from China's road building plan will occur in 2009. Golf courses, the other large consumer of grass seed, will not be well funded in 2009 as most of China's golf courses receive financial support from real estate agencies. China's real estate market is also experiencing a decline due to the financial crisis.

China's sunflower planting seed imports declined 29 percent in volume in MY07/08 from the previous year, and the decline is expected to continue in MY08/09 due to the shrinking sunflower acreage. Domestic oil seed prices soared in 2007, oil seeds including sunflower acreage expanded in 2008. However, profitability in 2008 was low because of abundant supplies. Industry forecasts China's sunflower acreage will decline about 30 percent in 2009, which will result in lower sunflower seed imports in MY08/09.

Vegetable seed imports are expected to slightly increase in MY08/09

Vegetable and fruit/melon seeds are produced throughout China which enables them to be bred and marketed to suit local preferences and requirements. However, imports of various vegetables and fruit/melon seeds are also expected to continue growing to meet the diversified demands of consumers. Export-oriented vegetable seed production is concentrated in the eastern China provinces, mainly in Shandong. Seed breeding is outsourced to China by foreign companies mainly from Japan, EU, and the United States because of relatively lower production cost.

China's vegetable seed imports for MY08/09 are forecast to increase slightly over the previous year. Increased vegetable seed imports reflect a more diversified demand for varieties by consumers with higher disposable incomes. The trend is also driven by strong growth of vegetable exports. China has been the largest vegetable exporter. Japan is the largest market for China's vegetable seeds, distantly followed by the United States. China's vegetable exports are expected to continue increasing despite a depressed world economic outlook. Many industry experts believe vegetable seed imports will continue growing in next few years, especially the most popular varieties of onions, asparagus, squash, egg plant, and tomato. Japan continued to be the largest supplier of vegetable seeds to China with a total export value of $17 million in MY07/08, up from $15.5 million in MY07/08, followed by the United States at $9.6 million. Thailand ranked as the highest seeds exporter to China in terms of volume at 2,843 MT in MY07/08.

In MY08/09, seed imports from the United States are forecast to decline mainly due to weak demand for grass and sunflower seeds. MY07/08 imports from the United States declined to $48 million from the $51 million in MY06/07. This decrease is attributed to the decline in sunflower seed imports, which dropped by 44 percent to $7.7 million in MY07/08 from the previous $13.8 million in MY06/07.

Seed exports are expected to rise in MY08/09

Seed exports are forecast to continue growing in MY08/09 due mainly to China's low cost structure for seed breeding operations. Total seed exports for MY07/08 rose rapidly to $113.5 million from the $88.3 million for MY06/07. Vegetable, rice, and fruit/melon seed export values continue to rank the highest, accounting for 40, 23, and 10 percent, respectively.

China's hybrid rice seed (Rice Long Grain, H.S. 10061011) exports in MY07/08 amounted to 19,781 MT, valued at $26.5 million, up 33 and 69 percent respectively from the previous year. Indonesia is the largest contributor to the jump, who imported 2,700 MT in MY07/08, while only 126 MT in MY06/08. According to industry sources, Indonesian government has promoted Chinese hybrid rice to increase local grain production. The promotion made great progress in 2008, and the industry is expecting hybrid rice seed exports to Indonesia to increase rapidly with the hybrid rice acreage expanding in Indonesia. Some media reported that the Indonesian government plans to expand its hybrid rice acreage to one million Ha by 2009, which presents a demand for 15,000 MT hybrid rice seeds. At present, Vietnam is the largest market for China's hybrid rice seed, accounting for about 60 percent of China's total rice seed exports. Industry contacts reported that hybrid rice seed exports to other Asian countries are likely to increase steadily in the foreseeable future due to China's technical advantages and the successful adaptability of China's hybrid rice to climate and the local environment.

In MY07/08, the United States, the Netherlands, and South Korea were the three largest export markets for China's vegetable seeds in terms of value. South Korea, however, ranked first in volume. Strong exports reflect China's price advantage in seed breeding whether these are imported (for re-export) or new domestic varieties. According to MOA, contracted seed breeding by foreign seed trade companies is increasing along with the improved implementation of regulations on the "Protection of New Plant Varieties".

Marketing Entry and Promotion

China's onerous investment, import, and marketing laws and regulations for the planting seed sector remain unchanged. The national policy on foreign investment in the seed sector (CH2012 and CH7048) still prevents any investment by foreign enterprises in the GE planting seed sector, while investment for "main crop" varieties is limited to a minority share. Many foreign seed companies, however, have established representative offices in China. They normally work with a few importers, but establish vast networks and relationships with seed wholesalers and vendors in regions or markets with the best potential. When introducing new varieties to China, companies usually demonstrate seed quality in trial plots before they decide which varieties to market to farmers. Demonstration trials are the best way to showcase farmers the advantages of newly developed varieties. This is commonly done by domestic seed enterprises. Local officials/experts and farmers are usually invited and briefed, especially during harvest season. Another effective tool is to provide free seeds to farmers or farmer cooperatives for trial planting. For instance, seed traders in China's western provinces introduced several sunflower varieties from the United States and other countries for trial planting before they decided to select which varieties to import. For the most part, farmers purchase seeds from local county or village level seed stations. Seed vendors mainly promote the seeds that have the highest profit margins; therefore, it is important to note that price is an important concern when marketing seeds to small-scale household farmers.

In recent years farmer cooperatives have facilitated the dissemination and trade of BT cotton seeds. A newly adopted legislation passed by the National People's Congress is expected to

benefit farmer cooperatives on production and marketing. Cooperatives will also help farmers become more self-sufficient and market-oriented.

Trade shows are another way to expose farmers to new varieties. For example, China's National Agriculture Technology Extension Center/MOA and the China Seed Association both sponsor an annual national seed fair with support from the leading (mainly domestic) seed companies. The fair principally focuses on main crops but also include vegetable and fruit seeds/varieties. The 2008 fair was held in Zhengzhou, Henan Province, in October. Shouguang in Shandong Province, is the largest vegetable producer in China, and it is also the origin of greenhouse in China. Shouguang has hosted "China (Shouguang) International Vegetable Sci-tech Fair" since 2000. The Fair opens April 20 each year, the largest vegetable fair in China, presents great opportunity for vegetable/melon seed traders. More information on the fair is available at: http://www.intvegetable-fair.com/

Policy Issues

No new amendments to China's Seed Law

In August 2004, China published changes to Articles 17 and 33 of its Seed Law (GAIN CH4063 and CH0031). The Seed Law Implementation Measures (CH1052) and the Interim Articles from Crop Seed (seedling) Import and Export (CH4060) were not affected. Nevertheless, MOA said some problems surfaced along with the rapid development of the seed sector. Industry sources said the problems focus on "new variety approval structure", "market access mechanism" and "market management system". In response to some questions raised by the industry, on January 26, 2006, MOA issued a circular clarifying the definition and coverage of some articles of the Seed Law. There have been no reports on additional amendments to the Seed Law thereafter.

Industry sources report there is no significant improvement to the enforcement of the Seed Law and relevant rules and regulations. Industry sources reported that the low threshold for new variety review and approval provoked IPR infringement. Along with the increased applications for new varieties, more "new varieties" share similar characters and traits.

Labeling – China's National Standard "General Directive for Labeling of Agricultural Seeds" took effect on November 1, 2006. In general, the standard was a combination of the existing rules and regulations. As of this report, there have been no complaints by seed traders on the enforcement of the standard.

Three new seed standards came into effect

Seed of food crops – Part 1: Cereals (GB4401.1-2008), Seed of economic crops – Part 1: Fiber species (GB4407.1-2008) were published on April 14, 2008 and came into effect on September 1, 2008. Seed of economic crops – Part 2: Oil species (GB4407.2-2008) was published on June 28, 2008 and came into effect in December 1, 2008. An unofficial translation of these standards as a GAIN report will be published shortly.

Agricultural commodity import regulations remain in place

China's Animal and Plant Quarantine Law (CH1051), its Implementation Regulations (CH3110), the Administrative Measures (CH2039), and the "Items on Handling Review and Approval of Entry Animal and Plant Quarantine" (CH4020) establish procedures for importers wishing to purchase propagating material, including seed. Essentially, importers must apply for a Quarantine Import Permit (QIP) before signing any contract. Only with a QIP (valid for six months), is it permissible to sign a contract to import seeds.

Planting seed phytosanitary and licensing restrictions

Corn and soybean seed imports from certain countries including the United States are still prohibited because of quarantine restrictions on "Stewart's Wilt" and "Phytophthera Megasperma". (Additionally, China has not yet approved any biotech corn and soybean varieties for environmental release). As for other planting seeds, both the requirements for "main crops" variety approval, as well as licensing requirements for seed production and marketing, place arbitrary restrictions on the seed trade.

Exporters of U.S. planting seeds should contact the USDA Foreign Agriculture Service Planting Seeds Group (www.fas.usda.gov/cots/seeds.html), APHIS officers (www.aphis.usda.gov/is/tst/RegionThree.html), and the American Seed Trade Association (www.amseed.com/) and the Oregon Seed Council (forages.oregonstate.edu/organizations/seed) to understand the process and regulations for planting seed exports to China. Exporters should be aware, however, that final import approval of any product is subject to the importing country's rules and regulations as interpreted by border officials at the time of product entry. Therefore, it is particularly valuable to ensure that importers are familiar not only with published rules but also the customary practices.

Seed tariffs and the value added tax (VAT)

China has tariff-rate quotas for seed wheat, rice, corn, and a few other non-grain commodities[1]. In-quota wheat, corn, and rice seed is subject to a 1 percent tariff rate, while all other planting seeds enter tariff-free. Out-of-quota tariffs for seed corn are 20 percent, while out-of-quota tariffs for wheat and rice are 65 percent (See CH6036).

The VAT-free policy on seed imports took effect in 2006, and will remain in place during China's "11th Five-Year Plan" (2006-2010) period. The VAT exemption procedure, however, lacks transparency and efficiency. Industry sources report that, in the current VAT-free regime, within each year of the plan, usually during April or May, the relevant government offices send circulars or other internal notices to customs officials confirming what products and companies have VAT-free status. There are also tedious procedures for a company to be registered in the importation of seeds. This confusing system leads to an unstable market because importers and the companies they represent cannot book seeds for shipment from the beginning of the year to the time the Customs Offices are notified by the above-mentioned VAT Exemption Circular/Notice.

Plant variety protection (PVP) background and development

China became the 141st member of International Plant Protection Commission (IPPC) on October 20, 2005. The official liaison office is affiliated with MOA. China has legally recognized the 1978 version of the International Convention for the Protection of New Varieties of Plants (UPOV) effective since October 1, 1997 (CH7023). MOA and SFA are responsible for reviewing PVP applications. China's UPOV membership obligates China to honor, sui generis, the breeders' rights for registered and approved novel, distinct, uniform and stable (DUS) seeds.

Government Offices Responsible for PVP Applications and Development	
Ministry of Agriculture PVP Office	State Forestry Administration's PVP Office
No. 11 Nongzhanguannanli	No. 18 Hepingli Dong Jie
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[1] This is allowed under China's WTO accession agreement.

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MOA reports that from the time it began accepting applications in 1999 through November 30, 2008, the PVP office received 5,441 applications for new PVP. At present, 1,866 applications have been completely reviewed and approved. The greatest number of applications and approvals are for major field crops including corn, rice, wheat, soybeans, and rapeseed (in this order). See table 5 below for details on PVP applications and approvals from MOA. Agricultural research institutes and universities/colleges filed 50 percent of the applications as compared to the 45 percent by domestic seed enterprises and individuals. Additionally, 24 out of the 264 foreign applications received for new PVP were reviewed and approved. Till now, the Netherlands has applied for 123 new plant varieties in China, followed by the United States at 38 and South Korea at 30.

Table 5. MOA PVP Applications and Approvals

Plant	Application	Approval
Rice	1,662	703
Corn	2,004	717
Wheat	507	184
Cotton	203	0
Soybean	179	49
Other major crops	250	78
Vegetable	242	66
Flower	247	28
Fruit	134	41
Others (pasture and tea)	13	0
Total	5,441	1,866

At present, there is one MOA distinctiveness, uniformity, and stability (DUS) testing center, 14 DUS sub-centers, and 21 State Forestry Administration (SFA) testing agencies around the country. According to MOA and SFA, more new testing laboratories will be established in the "11th Five-Year" period. To ensure scientific and authoritative determination of plant variety rights, China formulated guidelines for testing 80 new varieties of plants, including corn, rice, poplar and peony, of which 18 have been promulgated and implemented as the "national or industrial standards".

On January 18, 2006, the National Technical Committee for New Plant Variety Testing Standardization was established. The committee is affiliated with MOA but includes experts from SFA and the Ministry of Science and Technology (MOST), and is aimed to lend technical support for PVP management practices.

On October 10, 2007, MOA published "The Implementation Rules for the Regulations on Protection of New Plant Varieties (Agriculture Part)". The new rules governing the application and review process for the registration of new plant varieties falling under the responsibility of MOA took effect on January 1, 2008. These rules do not apply to plant genus and species that are registered by the SFA. Please refer to CH7088 for unofficial translation of the document.

Intellectual property rights (IPR) issues for planting seed enterprises

In June 2008, the State Council of China released "Outline of the National Intellectual Property Rights Strategy", which defined new plant varieties as one of the major IPRs. The Outline stated new plant varieties issue as below:

New Varieties of Plants

Establish an incentive mechanism to support the cultivation of new varieties of plants and to facilitate the transformation of innovative findings in breeding of new plant varieties. Establish a number of breeding bases who own rights in new varieties of plants. Improve technology support systems related to new varieties of plants. The work of formulating the guidelines for the conduct of tests of new varieties of plants needs to be expedited. The examination and testing level needs to be raised.

Make the balance of interests among resource suppliers, breeders, producers, and business operators more rational, with the emphasis on the protection of lawful rights and interests of farmers. Strengthen the awareness of the need to protect the new plant variety rights among breeding bases and farmers to ensure that the variety rights owners, producers, and sellers of new varieties and farmers have all benefited.

Despite the implementation and enforcement of IPR laws and regulations, IPR infringement and counterfeit cases occur frequently. According to MOA, cumulatively IPR infringement and counterfeit cases reached 299 and 564 as of the end of 2004, respectively. Though no official statistics are available for recent years, industry sources said the situation has seen slight improvement in the past two years. It is increasingly popular for seed traders to purchase new varieties directly from the developers including research institutes and universities. China's industry sources report that trademark and copyright registration would facilitate marketing and IPR protection.

GAIN report CH2049 provides information on how to access UNOFFICIAL English translations of China's Copyright Law, Trademark Law, and Patent Law along with the Implementation Regulations or Enforcement Measures for each of the aforementioned.

Biotechnology and planting seeds

In July 2008, China's Premier Wen Jiabao announced an additional $3 billion in state support for the development of agricultural biotechnology over the next 15 years. This signals China's intent to use biotechnology as a key means to address food security concerns and re-affirm its position that the technology can be used safely. This strong pro-biotech policy suggests that major food crops may soon break free from a long regulatory limbo and be permitted for planting. A move to allow the planting of biotech food crops (rice, corn, and soybeans, in particular) could significantly alter Chinese production and the rural economy in the coming years. However, concerns still remain about the transparency in China's biotechnology regulatory and approval system and its ability to evolve with this rapidly changing technology. Premier Wen Jiabao also stated his support for the development of transgenic engineering in an interview with Science Magazine, and indicated that science should not be linked with trade barriers when asked about EU's opinion on GE crops. Please refer to CH8063 for more information on China's biotechnology updates.

In the decade since China first allowed the commercial planting of four GE crops since 1997, the government has moved cautiously, granting only two further approvals for small-market species: poplar trees and papaya in 2005 and 2006 respectively. Currently, just one GE

crop—insect-resistant cotton—is now planted widely. Although there are no official statistics, some experts reported the development of over 100 transgenic crops with about 60 already in field trials, including rice, corn, wheat, soybeans, and peanuts. Although BT cotton has been widely planted, China has yet to approve any major food crop for environmental release. MOA is drafting 51 transgenic crop testing and safety evaluation standards in anticipation of increased transgenic crop development. MOA also requires authorized domestic institutions to conduct environmental safety (field trials) and food safety (animal feeding) tests to verify data provided by the seed developer.

GE crops and seeds need to be approved by the National Biosafety Committee (NBC) after environmental and food safety evaluations by MOA and government affiliated institutes. Once granted MOA safety approval, GE seeds must then undergo examination for distinctness, uniformity, and stability (DUS) by PVP examiners. China's PVP office drafted new DUS testing guidelines for corn and rice, thereby lending speculation that if GE corn and rice events receive safety approval, the process for PVP testing for those seeds can move forward quickly and transparently.

The approval process so far has proved cumbersome and lacking transparency. China's biotechnology regulations require foreign introduced GE events to first receive approval abroad and then undergo subsequent evaluation in China. This is a painstaking process not only for commercial shipments containing GE commodities, but also for the adoption of future GE seeds in countries that export to China. The barriers include requirements 1) that product must be fully approved in the originating country before the application can be submitted for approval in China; 2) unprecedented testing for products already approved in other countries, a requirement that foreign seed developers provide viable seeds for developing detection methods; 3) the lack of specific regulatory guidelines to approve stacked events; 4) and holding only two periods per year for acceptance of applications.

Many scientists and economists recognize the potential benefits of commercializing GE planting seeds. Analysts point out that not only will state-sponsored research institutes benefit from licensing technology to seed companies, but farmers would also benefit from lower direct and indirect costs, increased yields, and lower pesticide applications. Official studies demonstrate both the economy and the environmental benefits, including the elimination of hundreds of accidental pesticide poisonings.

Trade Tables

Table 1 China's Imports from the World in Volume & Value

	MY(Jul-Jun)	Volume (KG)			Value (US$)		
HS Code	Planting Seeds	MY05/06	MY06/07	MY07/08	MY05/06	MY06/07	MY07/08
	Total	24,587,807	26,614,093	27,126,615	106,100,000	122,381,000	135,984,000
10019010	Wheat	0	0	0	0	0	0
10020010	Rye	0	0	0	0	0	0
10030010	Barley	0	0	0	0	0	0
10040010	Oats	0	0	0	0	0	0
100510	Corn	71,910	97,732	102,840	1,099,000	1,758,000	1,963,000
10061011	Rice,long grain	0	0	999,012	0	0	316,000
10061019	Rice, other	2,000	200	93	68,000	3000	1000
10070010	Sorghum	363	2,487	20,355	3,000	4000	35,000
10089010	Other cereals	0	0	0	0	0	0
12010010	Soybean seeds	1,047	135	157	8,000	1000	1000
12021010	Peanuts	0	0	0	0	0	0
12051010	Rape/Colza,low erucic acid	0	0	0	0	0	0
12059010	Rape/Colza,nes	0	0	0	0	0	0
12060010	Sunflower	1,592,845	1,669,078	1,183,593	13,718,000	16,181,000	12,092,000
12072010	Cotton	1,530	9,280	525,102	7,000	23,000	112,000
12091000	Other sugar beet	1,003	235	7,193	4,000	4,000	101,000
120921	Alfalfa	129,506	65,005	38,530	418,000	258,000	166,000
120922	Clover	2,147,802	1,009,733	1,485,703	7,605,000	2,690,000	5,534,000
120923	Fescue	5,416,877	6,437,681	5,158,273	6,919,000	11,876,000	10,127,000
120924	Kentucky	2,026,502	3,427,141	2,379,097	5,211,000	8,256,000	7,193,000
120925	Rye grass	2,670,556	4,440,496	5,722,787	3,059,000	5,040,000	7,241,000
120930	Herbaceous	171,938	67,720	29,669	4,400,000	4,303,000	5,639,000
120926	Timothy	0	4,000	0	0	4,000	0
12092990	Other Forage	2,338,199	1,756,577	903,856	4,551,000	4,424,000	4,018,000
12092910	Sugar beet	341,250	894,949	1,256,166	3,026,000	8,483,000	10,820,000
120999	Fruit, Melon and Other	1,174,728	1,229,736	1,103,197	6,193,000	6,249,000	6,741,000
120991	Vegetable	6,499,751	5,501,908	6,210,992	49,811,000	52,824,000	63,884,000

Source: World Trade Atlas

Table 2 China's Imports from the U.S. in Volume & Value

		Volume (KG)			Value (US$)		
HS Code	Planting Seeds/MY(Jul-Jun)	MY05/06	MY06/07	MY07/08	MY05/06	MY06/07	MY07/08
	Total	11,542,168	14,416,567	13,166,705	35,857,000	50,653,000	48,056,000
10019010	Wheat	0	0	0	0	0	0
10020010	Rye	0	0	0	0	0	0
10030010	Barley	0	0	0	0	0	0
10040010	Oats	0	0	0	0	0	0
100510	Corn	0	20	17	0	0	0
10061011	Rice, long grain	0	0	0	0	0	0
10061019	Rice, other	0	0	0	0	0	0
10070010	Soghum	0	0	0	0	0	0
10089010	Other cereals	0	0	0	0	0	0
12010010	Soybean	0	0	0	0	0	0
12021010	Peanut	0	0	0	0	0	0
12051010	Rape/Colza,low erucic acid	0	0	0	0	0	0
12059010	Rape/Colza, nes	0	0	0	0	0	0
12060010	Sunflower	1,238,036	1,344,049	723,085	9,637,000	13,762,000	7,706,000
12072010	Cotton	0	0	0	0	0	0
12091000	Other sugar beet	0	205	0	0	3,000	0
120921	Alfalfa	15,000	5,000	2,530	84,000	23,000	15,000
120922	Clover	24,947	19,958	130,159	80,000	79,000	551,000
120923	Fescue	4,722,736	5,525,689	4,490,889	6,071,000	10,336,000	8,921,000
120924	Kentukey	1,804,908	2,791,115	2,164,347	4,777,000	7,137,000	6,696,000
120925	Rye grass	2,006,901	2,386,029	3,865,600	2,258,000	2,486,000	4,520,000
120930	Herbaceous	7,087	2,413	2,281	2,409,000	2,610,000	3,200,000
120926	Timothy	0	0	0	0	0	0
12092910	Sugar beet	0	200	0	0	20,000	0
12092990	Other forage	615,267	1,405,873	790,203	2,680,000	3,994,000	3,629,000
120999	Fruit, Melon & Other	627,722	484,585	610,433	2,994,000	2,676,000	3,187,000
120991	Vegetable	479,564	451,431	387,161	4,867,000	7,527,000	9,631,000

Source: World Trade Atlas

Table 3 China's Major Seed Imports and Major Countries of Origins

Clover Imports Volume and Major Origins (in KG) 120922				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
Australia	806984	1535800	377,400	601,411
Argentina	64,500	107,500	193,500	376,580
Denmark	76000	122,250	98,875	176,900
Canada	311650	148000	320,000	137,800
United States	10000	24947	19,958	130,159
New Zealand	0	209259	0	62,853
Others	0	43	0	0
Total	1269134	2147802	1,009,733	1,485,703
Fescue Seeds Imports Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	5,424,585	4,722,736	5,525,689	4,490,889
Canada	138,525	267,964	200,826	511,982
Denmark	58,830	426,111	677,165	144,945
Netherlands	0	0	34,001	10,457
Others	0	66	0	0
Total	5,621,940	5,416,877	6,437,681	5,158,273
Kentucky Seeds Import Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	1,615,980	1,804,908	2,791,115	2,164,347
Denmark	123,100	201,575	635,550	214,750
Total	1,739,080	2,026,502	3,427,141	2,379,097
Rye Grass Imports Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	2,518,558	2,006,901	2,386,029	3,865,600
Canada	0	175,946	1,256,563	1,224,137
Denmark	158,000	264,725	643,828	548,125
Netherlands	60,000	75,975	134,051	39,925
New Zealand	47,600	50,000	0	23,000
Germany	0	22,009	20,000	22,000
Others	0	75,000	25	0
Total	2,784,158	2,670,556	4,440,496	5,722,787
Herbaceous Imports Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	46,924	7,087	2,413	2,281
Netherlands	3,041	12,996	63,498	21,888
United Kingdom	18,166	99,395	100	156
Australia	21,508	0	0	55
New Zealand	120,287	6,799	0	543
Others	15,454	45,661	1709	4746
Total	225,380	171,938	67,720	29,669

Table 3 (Continued)

Other Forage Imports Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	568,107	615,267	1,405,873	790,203
Canada	44,100	1,305,531	79,539	48,453
Denmark	61,985	125,894	30,000	65,000
Others	198,387	291,507	241,165	200
Total	872,579	2,338,199	1,756,577	903,856

Sunflower Planting Seed Imports Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	618,820	1,238,036	1,344,049	723,085
Chile	52	37,458	92,213	287,223
Australia	184,893	140,387	83,605	83,265
India	40,018	64,202	94,732	78,397
Argentina	3,230	13,613	33,178	9,711
France	20,690	1,100	20,938	1,086
Others	42,961	98,049	363	826
Total	910,664	1,592,845	1,669,078	1,183,593

Fruit, Melon and Other Import Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
United States	138,731	627,722	484,585	610,433
Japan	4,160	11,045	174,086	126,905
Taiwan	420,322	220,277	145,763	78,714
Thailand	205,368	78,463	51,729	37,406
Australia	54,154	68,151	147,230	34,104
Honduras	0	3,400	14,626	32,276
Denmark	0	0	32,960	32,000
Others	122039	165670	178,757	61,359
Total	944,774	1,174,728	1,229,736	1,013,197

Vegetable Import Volume and Major Origins (in KG)				
Country	**MY04/05**	**MY05/06**	**MY06/07**	**MY07/08**
Thailand	2,216,903	2,399,937	1,638,425	2,842,932
Denmark	359,204	421,522	718,067	1,104,255
Japan	757,396	791,999	923,490	488,696
Australia	797,161	783,013	660,814	415,942
United States	341,609	479,564	451,431	387,161
Italy	8,820	71,744	110,855	240,494
Vietnam	314,005	184,101	287,551	204,441
New Zealand	115,957	256,979	128,701	169,507
Indonesia	556,424	404,223	284,793	103,476
Others	275,179	706,669	297,781	254,088
Total	5742658	6499751	5501908	6210992

Source: World Trade Atlas

Table 4 China's Exports to the World in Volume & Value

	MY(Jul-Jun)	Volume(KG)			Value(US$)		
HS Code	Planting Seeds	MY05/06	MY06/07	MY07/08	MY05/06	MY06/07	MY07/08
	Total	30,548,936	33,258,097	42,623,347	75,131,000	88,260,000	113,497,000
10019010	Wheat	84	0	0	0	0	0
10020010	Rye	1,200	0	0	1,000	0	0
10030010	Barley	29,214	0	0	12,000	0	0
10040010	Oats	0	0	0	0	0	0
100510	Corn Seed	128,434	108,758	250,200	146,000	185,000	324,000
10061011	Rice Long Grain	11,200,613	14,846,429	19,781,090	10,690,000	15,676,000	26,466,000
10061019	Rice Other	1,835,045	1,872,141	4,482,999	2,462,000	3,329,000	6,640,000
10070010	Sorghum	6,580	15,410	39,860	10,000	22,000	73,000
10089010	Other Cereals	1,990	2,674	0	1,000	1,000	0
12010010	Soybeans	240,492	316,791	78,155	119,000	120,000	64,000
12021010	Peanuts	0	256,550	6,000	0	161,000	4,000
12051010	Rape/Colza, low erucic acid	1,740	7,128	10,000	3,000	10,000	54,000
12059010	Rape/Colza,nes	15,001	7,823	2,780	2,000	18,000	3,000
12060010	Sunflower Planting	102,055	84,749	276,511	236,000	77,000	112,000
12072010	Cotton Planting	224,181	484,592	149,142	897,000	1,637,000	817,000
12092910	Other Sugar Beet	0	440	78	0	2,000	0
120921	Alfalfa	3,864,435	4,650,825	3,853,594	4,326,000	6,724,000	7,148,000
120922	Clover	0	2,120	210	0	7,000	1,000
120923	Fescue	103,073	0	0	133,000	0	0
120925	Rye Grass	0	415	873	0	2,000	2,000
120930	Herbaceous	819,203	745,651	584,468	5,619,000	5,641,000	7,323,000
120926	Timothy	8,000	0	0	13,000	0	0
12091000	Sugar Beet	24,054	631	35	74,000	3,000	4,000
12092990	Other Forage	4,363,414	4,379,067	5,960,250	5,618,000	5,299,000	7,634,000
120999	Fruit, Melon and Other	1,030,052	975,105	2,825,760	6,989,000	9,209,000	11,418,000
120991	Vegetable	6,550,076	4,500,798	4,321,342	37,780,000	40,137,000	45,410,000

Source: World Trade Atlas

Table 5 China's Exports to the U.S. in Volume and Value

	MY(Jul-Jun)	Volume (KG)			Value (US$)		
HS Code	Planting Seeds	MY05/06	MY06/07	MY07/08	MY05/06	MY06/07	MY07/08
	Total	1,140,797	1,448,723	761,918	13,501,000	14,470,000	13,608,000
10019010	Wheat	0	0	0	0	0	0
10020010	Rye	0	0	0	0	0	0
10030010	Barley	0	0	0	0	0	0
10040010	Oats	0	0	0	0	0	0
100510	Corn	0	0	0	0	0	0
10061011	Rice Long Grain	0	0	0	0	0	0
10061019	Rice Other	0	0	0	0	0	0
10070010	Sorghum	0	0	0	0	0	0
10089010	Other Cereals	0	0	0	0	0	0
12010010	Soybeans	0	0	0	0	0	0
12021010	Peanuts	0	0	0	0	0	0
12051010	Rape/Colza, low erucic acid	0	0	0	0	0	0
12059010	Rape/Colza,nes	0	0	0	0	0	0
12060010	Sunflower	0	1,983	0	0	1,000	0
12072010	Cotton	96,102	15,655	16,000	384,000	39,000	64,000
12092910	Other Sugar Beet	0	0	15	0	0	0
120921	Alfalfa	93,500	118,150	13,994	35,000	288,000	41,000
120922	Clover	0	0	0	0	0	0
120923	Fescue	40,052	0	0	51,000	0	0
120925	Rye Grass	0	0	105	0	0	1,000
120930	Herbaceous	227,882	336,285	52,078	423,000	658,000	706,000
120930	Timothy	0	0	0	0	0	0
12091000	Sugar Beet	0	0	0	0	0	0
12092990	Other Forage	113,226	23,857	0	209,000	47,000	0
120999	Fruit, Melon and Other	36,866	35,622	224,334	762,000	1,052,000	1,539,000
120991	Vegetable Seeds	533,169	917,171	455,392	11,637,000	12,385,000	11,257,000

Source: World Trade Atlas

Table 6 China's Major Seed Exports and Major Countries of Origins

Other Forage Exports Volume and Major Destinations (in KG)			
Country	**MY05/06**	**MY06/07**	**MY07/08**
Korea, South	3,672,889	3,703,611	4,285,072
Italy	4,324	63,000	857,000
Japan	405,535	286,919	415,378
Taiwan	108,440	108,930	260,500
Germany	0	141,720	78,050
Canada	40,000	0	43,000
Netherlands	19,000	9,450	20,000
Korea, North	0	0	1,250
United States	113,226	23,857	0
Others	0	41,850	0
Total	4,363,414	4,379,067	5,960,250
Rice, Long Grain Exports Volume and Major Destinations (in KG)			
Country	**MY05/06**	**MY06/07**	**MY07/08**
Vietnam	9,608,941	10,571,987	11,606,505
Bangladesh	1,131,077	3,237,582	3,444,931
Indonesia	0	126,000	2,700,000
Pakistan	350,519	909,218	1,539,014
Philippines	2,076	1,300	454,000
Others	108,000	342	36,640
Total	11,200,613	14,846,429	19,781,090
Vegetable Seed Exports in Volume and Major Destinations (in KG)			
Country	**MY05/06**	**MY06/07**	**MY07/08**
Netherlands	877,847	1,040,098	450,239
Korea, South	1,267,537	1,935,511	1,493,564
United States	319,419	533,169	917,171
Japan	311,622	280,378	383,863
Italy	309,584	614,287	111,131
Taiwan	232,857	276,865	263,851
Thailand	218,683	294,524	137,283
France	386,791	435,638	183,482
Vietnam	136,518	146,328	86,087
Germany	106,421	131,211	13,764
Malaysia	106,431	146,050	115,341
Spain	68,192	274,484	71,873
Others	260,171	441,533	273,149
Total	4,602,073	6,550,076	4,500,798

Source: World Trade Atlas

Table 6 (continued)

Fruit, Melon & Other Exports in Volume and Major Destinations (in KG)			
Country	**MY05/06**	**MY06/07**	**MY07/08**
Korea, South	583,300	536,371	375,292
Japan	340,418	228,083	294,259
Indonesia	832	758	21,600
United States	35,945	36,866	35,622
Laos	0	5	1,000
Malaysia	5,881	50,608	4,822
Singapore	3,171	3,753	2,525
Netherlands	19,626	30,320	45,251
France	8,309	37,858	45,140
Pakistan	10,734	12,506	32,135
Others	139,698	92,924	117,459
Total	1,147,914	1,030,052	975,105

Source: World Trade Atlas