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## China, Peoples Republic of

### Planting Seeds

### Annual

### 2005

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**Report Highlights:**

China remains one of the largest seed producers and users in the world. The long-term outlook remains positive. Serious challenges, however, remain in the area of intellectual property infringement and counterfeit seeds.

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[CH]

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## Executive Summary

China remains one of the world's largest seed producers and users and is self-sufficient in planting seeds for major crops including most grains, oilseeds and cotton. Total annual demand for all planting seeds is estimated at over 12.5 million metric tons (MMT), and commercial seed production for 2004 was estimated at about 8.5 MMT.

China's seed market continues to be highly fragmented, with over nine thousand registered "Seed Companies" nationwide. Better integration of variety research and development, seed breeding and distribution enterprises remains a goal for policy makers, industry associations, and academic institutes. Post forecasts demand for vegetable and fruit seeds to continue increasing along with the seed buyers' steady income growth, offering more opportunities for international traders. The Chinese government's policy objectives to increase grain production in MY04/05 dampened demand for grass seed and as a result imports of these products declined. They are, however, expected to recover in the near future, because China also has set a policy objective to restore the grassland ecosystem in its western provinces, which will require tremendous quantities of specialized seeds if the government is to achieve its objective. On the export side of the equation, exports of rice and vegetable seeds are expected to continue growing because of China's lower cost of production than many other competitor countries.

China's policies, laws, and regulations on the seed industry still place restrictions on foreign investment and trade, in particular, for the major crops such as corn and soybeans. Despite implementation of the Seed Law and Plant New Variety Protection Law, foreign seed companies' products still are experiencing serious problems with infringement on their intellectual property rights (IPR), i.e., Chinese companies are copying these companies' seed genetics and not paying royalties and/or simply mislabeling seeds as Bt that are not.

## Production

China remains one of the largest seed producers in the world. It is self-sufficient in planting seeds for its main crops, including grain, major oilseeds, and cotton. Official seed production statistics are not available, but industry sources estimate annual seed use at 12.5 MMT and the value of total seed sales value for 2004 was estimated at over US\$2.5 billion. Additionally, an official media source reported that, currently, total annual commercial seed production is estimated at 8.5 MMT, seed-processing capacity is estimated at 6.5 MMT with about 1.9 MMT treated and storage capacity stands at 4.3 MMT. Seed self-sufficiency rates for rice, corn, wheat and soybeans all are 100 percent, with cottonseed at 85 percent and vegetable and fruit/melon at 95 percent. China's low labor cost ensures its ability to produce hybrid seeds for overseas markets cheaper than many other countries. In fact, the value of China's seed exports for July 2004 to June 2005 marketing Year (MY) surged by 22 percent over MY03/04, with vegetable and fruit/melon seed leading the pack.

No significant change was reported in MY04/05 in seed production. Regarding rice seed use, industry insiders reported that the split in area planted to hybrid rice compared to conventional varieties was approximately 50-50. Hybrid rice seed breeding is conducted mainly in Hainan province. Hybrid corn dominates seed corn use, accounting for over 75 percent of planted area. A sizable corn-breeding base is located in Gansu province. It currently produces over 50 percent of China's seed corn. The majority of wheat seed, however, is of conventional varieties, most of which are produced in China's northern provinces. Several soybean varieties of "high oil content" are being planted in China's four

Northeast provinces. The “double low” (low erucic acid and glucosinolate content) rapeseed varieties account for over 70 percent of the planted area. Cottonseed breeding is increasingly industrialized and commercialized. Both industry insiders and farmers reported that the traditional farmer-saved seeds are rarely used anymore. Planted area of BT varieties increased to 3.3 million hectares (MHa) in MY04/05, accounting for 65 percent of total cotton planted area. China’s Ministry of Agriculture (MOA) reported that domestic BT varieties market share accounted for about 73 percent of the total in 2005, up from the 62 percent in 2004. Some Chinese sources claim that Chinese-produced BT cotton is more adapted to the local environment and the seed is cheaper than foreign seed. Vegetable and fruit/melon seeds are produced throughout China, which better enables them to be bred and marketed to suit local tastes and requirements.

Seed production and marketing continues to be highly fragmented. This is mainly the result of a leftover effect of China’s old planned economy, which created a model of segregated research/development, breeding, and marketing. MOA estimates there are over nine thousand registered “Planting Seed Companies” in China. The listing of the 50 largest seed producing enterprises by MOA in 2003 has seen little change in the past two years. Industry sources reported none of these enterprises has annual seed sales value exceeding US\$100 million in MY04/05. A MOA official, however, said the market share of the “50 largest” increased to 30 percent in MY04/05, from 15 percent in MY00/01, so there is some consolidation within the industry, albeit at a rather slow pace. A few of these companies have established comprehensive variety development, seed breeding, and marketing systems. Many are not equipped with their own research and development facilities. Some of these companies only engage in selling seeds. Currently, 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 their own research facilities, which enable them to develop their own new varieties and retain the intellectual property rights. In most cases, however, breeding enterprises may opt to purchase the new variety from a developer. Better integration of variety research and development, seed breeding and the distribution chain remains a goal for policy makers, industry associations, and academic institutes. Although there has been consolidation in the industry in recent years, it may take years before several flagship enterprises replace the thousands of small players.

Based on MOA’s quality sample survey, the quality of seeds improved in MY04/05. The survey results showed that met the quality standard were 88 percent for hybrid corn, and 95 percent for hybrid rice, as compared to only 48 percent and 68 percent respectively in late 1990’s.

As a result of China’s policy restraints, foreign investment in the seed sector remains low (CH7048). Except for vegetable seed production, only a few joint ventures were set up for breeding BT cotton and hybrid corn.

Investment in development of new varieties remains inadequate but diversified. Industry sources reported that there are about 400 government sponsored crop research institutes nationwide engaged in the development of new crop varieties. These employ approximately 50,000 research personnel. Some industry sources said, however, that the estimated that government’s limited R&D spending – only about US\$25 million annually -- restricts breakthroughs in development of new varieties. According to MOA, however, investment from the private sector has been increasing in recent years. In 2004, for example, it accounted for about 50 percent of the total investment in development of new varieties. Although no official data exist, China’s investment in biotechnology is believed to be

significant. One senior expert said annual investment has been US\$100 million since 2000, and was estimated to have increased to US\$500 million in 2005.

Instead of focusing solely on increasing yields, crop research and seed production has taken high yield, better quality, and stress resistance as combined priorities to raise crop production efficiency. Hybrid seed production continues expanding as domestic growers demand trait-specific seeds.

### Agricultural Planted Area and Yields

Total sown area of all crops exceeds 150 million hectares. Grains and oilseeds take the largest share, but the area planted to vegetable and other horticultural products is increasing. Multiple cropping, although declining, results in enormous year-round seed demand.

#### Agricultural Planted Area and Yields

Year/Crop	Rice	Wheat	Corn	*Soybeans	Cotton	*Rapeseed	Tubers	*Peanut	Vegetables	Sunflower
2000	30	26.7	23.1	9.3	4	7.5	10.5	4.9	15.2	
2001	28.8	24.7	24.3	9.5	4.8	7.1	10.2	5	16.4	
2002	28.2	23.9	24.6	9.6	4.2	8.5	9.9	5	17.4	
2003	26.5	22	24	9.5	5.1	8	9.7	5.4	18	1.2
2004	28.4	21.6	25.4	9.6	5.7	7.3	9.5	4.7	18.5	0.9
*2005	28.5	21.9	26	9.5	5.1	7.3	9.4	4.9	18.5	1

Source: State Statistics Bureau. \*Estimates by USDA and FAS/China.

Despite new hybrids and innovations in the planting seed sector, crop yields remain stagnant. Some experts suggest that as more farmers do casual work in cities, reduced labor input negates the benefit of genetic improvement. If the government is to achieve its concurrent goals of food self-reliance and rural development, then it must encourage development and planting of new varieties that result in higher yields while using fewer inputs.

#### Agricultural Crop Yields in Metric Ton per Hectare

Year/Crop	Rice	Wheat	Corn	Soybeans*	Cotton	Rapeseed*	Peanut*
2000	6.3	3.7	4.6		1.1		
2001	6.2	3.8	4.7		1.1		
2002	6.2	3.8	4.9	1.7	1.2	1.5	3
2003	6.1	3.9	4.8	1.6	1	1.6	2.9
2004	6.3	4.3	5.1	1.8	1.1	1.8	3
*2005	6.3	4.2	4.9	1.8	1.1	1.6	3

Source: State Statistics Bureau. \*Estimates by USDA and FAS/China.

### Trade

*Imports* - China's seed imports for MY05/06 are not expected to change significantly from MY04/05. Imports of vegetable seeds, however, are forecast to grow, while grass seed imports are forecast to remain stagnant in MY05/06. Total seed imports in MY04/05 were valued at US\$80.3 million. This is US\$8.2 million less (9 percent) than in MY03/04 when they were US\$88.5 million (See Trade Tables 1-4). Vegetable seed and grass seed in value accounted for 47 percent and 36 percent of the total imports. The drop of imports for grass seeds and fruit/melon seed resulted in a decline of total seed imports for MY04/05, although vegetable seed imports grew by about 11 percent. Industry sources explained that as the government's policy favored grain production since 2004, and financial support for the "Grain

for Green<sup>1</sup>” program both have caused demand for grass seed in China’s western provinces to decline, at least in the short term. In the longer term, however, most industry insiders expect grass seed imports will recover because the restoration of pastureland in western provinces remains a long-term goal for policy makers, and landscaping in China’s burgeoning cities continues to grow. The value of forage seed imports decreased by more than the increased imports of turf seed. Increased imports of vegetable seeds reflected a more diversified demand for varieties and quality by the consumers with increased disposable income. It is also driven by strong growth of exports of vegetable products, which increased by over 20 percent in the first three quarters of 2005. Thus, many industry experts believe import of vegetable seeds will continue growing in next few years. Additionally, the rapid growth of China’s dairy sector is driving demand for high quality forage seeds.

Imports from the United States during MY04/05 stands at US\$29.3 million, down by US\$3.8 million over MY03/04. Most of this decrease can attributed to decreased grass seed imports. Imports of sunflower and vegetable seeds, however, grew during the period.

*Exports* - Seed exports are forecast to continue growing in MY05/06 due mainly to China’s low cost structure for seed breeding operations. Total seed exports for MY04/05 rose rapidly to US\$60.5 million, up by 22 percent over MY03/04. Vegetable, rice, and fruit/melon seed export value continued to rank the three largest categories, accounting for 47 percent, 21 percent and 10 percent, respectively. Hybrid rice seed exports, mainly to Viet Nam and Bangladesh, continued to grow, up by 2.5 percent over MY03/04. This is likely to continue into the foreseeable future due to China’s technical advantages and the adaptability of China’s hybrid rice to the climate in these countries. Vegetable seed exports increased to US\$28.8 million in MY04/05, which is 16 percent more than MY03/04. The United States, Korea, and the Netherlands in that order continued to be the three largest export destinations of China’s vegetable seed in terms of value in the past three years. Korea, however, ranked first in volume. Vegetable seed exports to the United States in value reached US\$8.7 million, up by 18 percent from MY03/04. Strong exports reflect China’s price advantage in seed breeding with either imported (for re-export) or domestic new varieties. According to MOA, contracted seed breeding by foreign seed trader is increasing along with the improved implementation of the 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 in place. Its policy on foreign investment in the seed sector (CH2012 and CH7048) still prevents any investment by foreign enterprises in the transgenic 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. In general, farmers purchase seeds from local seed stations. Seed vendors usually promote the seeds that have the highest profit margin, therefore, it is important to bear in mind that price matters when selling seeds to the small-scale household farmers.

Demonstration is the best way to show 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 at harvest time. It is also effective to provide free

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<sup>1</sup> A program that pays farmers to plant trees or grasses instead of row crops.

seeds to farmers for trial planting. Trade shows are another way to expose farmers to new varieties. For example, the third annual national planting seed trade fair was held in Zhengzhou, Henan in October 2005. Over ten thousand people representing 3000 seed-related entities participated. Many regional (one or several provinces) or specialized (such as vegetable or oilseeds seed fairs) are held regularly. More information for the fair is available at: <http://www.aweb.com.cn>. or <http://www.agri.gov.cn>.

## Policy Issues

### *China's Seed Law Expected To Be Amended*

In August 2004 China published changed Articles 17 and 33 in its Seed Law. See GAIN reports CH4063 and CH0031 for details. The Seed Law Implementation Measures (CH1052) and the Interim Articles from Crop Seed (Seedling) Import and Export (CH4060) are not affected. Nevertheless, MOA said many problems surfaced along with the rapid development of the seed sector. A nationwide survey by MOA is under way, in which it has requested all relevant agencies to submit suggestions regarding the amendment to the Law. Post will report on any new developments regarding this amendment when they occur.

Enforcement of the Seed Law and relevant rules and regulations still faces serious challenges. MOA said that, as of the end of 2004, cumulatively IPR infringement and counterfeit cases reached 299 and 564, respectively. MOA recognized the seriousness of the problem so, on March 05, 2005, MOA and the State Administration of Industry and Commerce (SAIC) issued a Circular that was intend to bring some order to China's free-wheeling seed market. It contained a detailed work plan with the following measures: 1) support of large seed enterprises through combining seed subsidies for approved varieties of rice, wheat, corn, and soybeans; 2) pushing forward the separation of seed enterprises from agricultural administrative agencies; and, 3) strengthening the review and approval process for new varieties.

*Labeling* - On October 10, 2005, China issued its "General Directive for Labeling of Agricultural Seeds" and was notified to WTO. Post sent an unofficial English translation to the relevant U.S. agencies and industry associations. After a cursory review, several large seed traders' said that the said standard was a combination of the existing rules and regulations. However, further analysis is needed to fully assess its impact on the seed trade.

*Agricultural Commodity Import Regulations* - 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), it is permissible to sign an import contract.

*Planting Seed Phytosanitary and Licensing Restrictions* - Corn and soybean seeds from the United States and several other countries are still prohibited from being imported into China because of quarantine restrictions on "Stewart's Wilt" and "Phytophthora Megasperma". 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.

Industry sources indicate importers of certain seeds have been asked to submit an annual import plan to MOA and China's State Forestry Administration (SFA). The statutory basis for

this requirement, however, is unclear. Government offices reportedly use the information when deciding how to award VAT-free import approvals.

Exporters of U.S. planting seeds should contact the USDA Foreign Agriculture Service Planting Seeds Division ([www.fas.usda.gov/cots/seeds.html](http://www.fas.usda.gov/cots/seeds.html)), APHIS officers ([www.aphis.usda.gov/is/tst/RegionThree.html](http://www.aphis.usda.gov/is/tst/RegionThree.html)), and the American Seed Trade Association ([www.amseed.com/](http://www.amseed.com/)) and the Oregon Seed Council ([forages.oregonstate.edu/organizations/seed/osc/](http://forages.oregonstate.edu/organizations/seed/osc/)) to understand more about the issues facing 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 make certain 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<sup>1</sup>. In-quota wheat, corn, and rice seed are subject to a 1 percent tariff, 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.

The VAT-free policy on seed imports is likely to remain in place from 2006 to 2010 as part of China's "11<sup>th</sup> Five-Year Plan." The current VAT exemption procedure, however, lacks transparency and efficiency. Details of the VAT-free policy are said to be in the pipeline, but whether it is to be clarified before the beginning of 2006 remains unclear.

Industry sources report that, in the current VAT-free regime, within each year of the plan, usually during April or May, government offices send circulars or other internal notices to customs officials confirming what products and companies have been granted VAT-free status. Under the VAT collection system, companies pay the 13 percent VAT as a deposit for imports during the first few months of the year. If a company is granted VAT-free status, then the deposit is returned. If not, the deposit is kept and future shipments for the year must pay the 13 percent VAT.

This confusing system leads to an instable market because some importers and the companies they represent try to book seeds for shipment near the end of the year while they retain VAT-free status. Likewise, market confusion reigns when companies do not receive their expected VAT-free status, which increases costs for importers and the distributors they represent. These increased costs often erase traders' profits, which causes order cancellations, shipment redirection, and even default.

*Plant Variety Protection (PVP) Background and Development* - On Oct 20, 2005, China filed its endorsement letter to FAO to recognize the 1997 amended version of International Plant Protection Conversion (IPPC), and thus becoming the 141st member of the treaty. The official liaison office is affiliated to MOA. China has legally recognized the 1978 version of the International Convention for the Protection of New Varieties of Plants (UPOV) effective from 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 seeds.

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<sup>1</sup> This is allowed under China's WTO accession agreement.



Ministry of Agriculture PVP Office	State Forestry Administration's PVP Office
No. 11 Nongzhanguannanli	No. 18 Hepingli Dong Jie
Chaoyang District	Chaoyang District
Beijing, China 100026	Beijing, China 100714
Tel: 86-10 64193029	Tel: 86-10 84239104
Fax: 86-10 64194661	Fax: 86-10 64213084
Web: <a href="http://www.cnvpv.cn">www.cnvpv.cn</a>	Web: <a href="http://www.cnvpv.net">www.cnvpv.net</a>
Web2: <a href="http://www.stee.agri.gov.cn">www.stee.agri.gov.cn</a>	

MOA reports from the time it began accepting applications in 1999 through October 31, 2005, the PVP office received 2679 applications for new PVP. At present, 621 applications have been completely reviewed and approved. The greatest number of applications and approvals are for major field crops including corn, rice, soybeans, wheat, and rapeseed. According to MOA, over 90 percent of all applications are of corn, rice and wheat, and about 60 percent filed by research institutes and universities and colleges. Additionally, MOA indicates six out of the one hundred foreign applications it received for new PVP were completely reviewed and approved. Foreign applications increased sharply in 2005, with 86 new applications out of the total of 100. As of November 2005, SFA also received about 400 applications, including 90 by foreign enterprises. A total of 100 applications completed the review and approval process with 22 for foreign variety owners. At present, there are 14 MOA DUS testing institutes and 21 SFA testing agencies around the country. To ensure scientific and authoritative determination of plant variety rights, China formulated guidelines for testing 57 new varieties of plants, including corn, rice, poplar and peony, of which 18 have been promulgated and implemented as national or industrial standards.

*Intellectual Property Rights (IPR) Issues for Planting Seed Enterprises* - Despite the implementation of Laws and Regulations, IPR infringement and counterfeit cases occurred frequently. MOA said as of the end of 2004, cumulatively IPR infringement and counterfeit cases reached 299 and 564, respectively.

Several planting seed companies reported problems with IPR infringement in China, yet many companies experiencing problems had not registered their trademarks or copyrights in China. Without such registration, the company has little legal recourse if products are counterfeited or its IPR otherwise infringed. Registration, however, does not guarantee a company's IPR will not be infringed upon. Several companies that have registered their product's brand name, trade name, and logo still experience infringement and even if they receive favorable court rulings, it is very difficult to receive compensation from the offending party.

Seed sold in counterfeit packages identical to legitimate brand names is the most frequent problem for seed companies. Other IPR crimes include theft of seed/germplasm from production fields or facilities that is then bred and marketed by other companies. Seed companies also report demands for restitution for "inferior quality" seed sold by counterfeiters. Local courts also can award damages to growers, even when poor crop management or weather borne problems, not seed quality, is the root of the problem.

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 aforesaid.

*Biotechnology and Planting Seeds* - Transgenic 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. China's investment in transgenic seed technology is more than any other country besides the United States. China has commercialized four genetically modified plants since 1997, including cotton, tomatoes, sweet peppers and petunias. Although there are no official statistics, some experts reported development of over 100 transgenic crops with about 60 already in field trials, including rice, corn, wheat, soybeans and peanut etc. Although Bt cotton has been widely planted, China has yet to approve any major food crops for environmental release. MOA has approved one soybean, seven canolas, eight corn, and two cotton varieties for import and processing, but none for planting. MOA is drafting 40 transgenic crop testing and safety evaluation standards, in anticipation of increased transgenic crop development.

If granted MOA safety approvals, transgenic seeds must 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 corn and rice transgenic 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 in transparency. China's biotechnology regulations require foreign introduced transgenic events to first receive approval abroad and then undergo subsequent evaluation in China. This asynchronous process creates difficulties not only for commercial shipments containing transgenic commodities, but also for adoption of future transgenic seeds in countries that export to China.

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

### **Turf Seeds and Nursery Seedlings**

Despite a drop of total grass seed imports for MY04/05, China's demand for turf seeds and nursery seedlings remains strong as efforts to beautify urban areas have intensified, and planting of grass and nursery products in parks, zoos, and on roadsides has expanded. The long-term outlook for urban beautification/green space design includes planting more trees, shrubs, and grasses, not only in the biggest metropolitan areas like Beijing, Shanghai, Guangzhou, and Dalian, but also in smaller cities. News accounts cite the government's goal for 70 percent of China's 662 municipalities to increase their urban forestry coverage rate from the present 30.2 percent in 2004 to 45 percent by the year 2050.

#### Urban Green Space

Urban Green Space	1995	2000	2002	2003	2004
Total Areas of Parks & Green Areas in Cities (10,000 Ha)	67.8	86.5	86.5	121.2	132.2
Public Green Areas per 10,000 people in Ha	2.5	3.1	3.7	4.4	4.6
Area of Parks and Zoos (10,000 Ha)	7.3	8.2	8.2	11.3	13.4
Number of Parks and Zoos (unit)	3619	4455	4455	5832	6427
Source: NSB 2005 Yearbook Table 11-10					

The future of urban beautification and the nursery sector remains bright as Chinese cities clamor to host international events, e.g., the Beijing Olympics, the 2010 World Expo in Shanghai, and other events that will draw tourists and businesses from around the world. Additionally, many cities are spending more money on city landscaping including more lawns. Constraints to expanding domestic floriculture and sod farms include inadequate water supply, rising water costs, and competition with food crops (less marginal land planted with grass and nursery products). Nursery vendors remain optimistic, however, with a growing interest in importing grass seed, shrubs, and tree seedlings.

Nationwide Horticultural Planting Area (Ha)

	2002	2003	2004
Cut Flowers, Vines, and Potpourri	18,834	28,842	35,138
Potted Plants	39,122	46,626	78,529
Ornamental Trees	163,766	233,111	356,011
Food and Medicinal Flowers	28,468	51,325	84,382
Industrial Flowers	34,870	28,314	39,648
Grass Sod	34,107	26,083	23,757
Flower Seed	4,381	2,463	4,149
Young Plants/Seedlings	8,221	9,415	10,705
Flower Bulbs	2,685	3,936	3,685
Source: Ministry of Agriculture Statistical Abstract			

## Trade Tables

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

HS Code	Planting Seeds	Volume (KG)			Value (US\$)		
		MY02/03	MY03/04	MY04/05	MY02/03	MY03/04	MY04/05
	<b>Total</b>	27,258,695	30,603,915	24,161,111	74,519,073	88,540,125	80,275,615
10019010	Wheat	24	37	1	2	448	1
10020010	Rye	6			3	0	0
10030010	Barley	0	12		0	115	0
10040010	Oats	3,000		49	2,650	0	438
100510	Corn	30,134	39,455	76,267	289,250	313,941	594,049
10061010	Rice				0	0	0
10061011	Rice, long grain	0			0	0	0
10061019	Rice, other	138	217	685	8,233	1,348	21,570
10070010	Sorghum	282,364	103,152	115	420,552	150,738	194
10089010	Other cereals	40,000	18	0	43,700	385	0
12010010	Soybeans	133	883	40	74	11,386	376
12021010	Peanuts	750	2,000	0	452	802	0
12051010	Rape/Colza, low erucic acid	0	4	0	0	41	0
12059010	Rape/Colza, nes	97	219	3	21	30	6
12060010	Sunflower	544,873	470,345	910,664	2,543,357	2,602,519	5,042,782
12072010	Cotton	24,115	12,125	1,906	17,968	14,611	10,655
12091000	Other sugar beet	7,973	115,405	389	75,958	481,536	14,010
120921	Alfalfa	5,557,828	2,568,822	766,770	10,001,890	5,239,649	1,477,675
120922	Clover	1,229,566	1,836,999	1,269,134	2,323,065	4,436,459	3,739,220
120923	Fescue	4,475,025	6,898,855	5,621,940	5,031,586	7,718,600	6,421,425
120924	Kentucky	2,226,070	2,601,294	1,739,080	5,686,591	6,959,801	4,749,913
120925	Rye grass	2,794,922	4,253,106	2,784,158	2,893,313	4,365,468	2,828,405
120930	Herbaceous	196,346	419,201	225,380	4,162,642	4,975,058	4,405,003
120926	Timothy	2,794,922	4,253,106	2,784,158	2,893,313	4,365,468	2,828,405
12092910	Sugar beet	259,675	115,848	420,361	1,121,009	699,998	2,359,938
12092990	Other Forage	1,967,983	1,317,203	872,579	4,934,322	3,707,130	2,811,350
120999	Fruit, Melon and Other	N/A	N/A	944,774	5,339,117	8,079,538	4,776,372
120991	Vegetable	4,822,751	5,595,609	5,742,658	26,730,005	34,415,056	38,193,828

Source: China Customs

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

HS Code	Planting Seeds/MY	Volume (KG)			Value (US\$)		
		MY02/03	MY04/05	MY04/05	MY02/03	MY04/04	MY04/05
	<b>Total</b>	11,710,936	16,975,170	13,866,261	26,778,189	33,088,265	29,320,494
10019010	Wheat	0	3	0	0	58	0
10020010	Rye	0	0	0	0	0	0
10030010	Barley	0	12		0	115	0
10040010	Oats	0	0	0	0	0	0
100510	Corn	0	0	4	0	0	6,096
10061010	Rice	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	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	205,327	372,353	618,820	1,134,642	1,922,193	3,578,363
12072010	Cotton	670	955	1,881	1,381	7,902	10,449
12091000	Other sugar beet	606	22	0	12,937	545	41
120921	Alfalfa	514,411	56,353	62,504	1,444,735	207,803	202,961
120922	Clover	3,510	22,948	10,000	29,071	49,612	32,000
120923	Fescue	3,883,592	6,325,012	5,424,585	4,417,835	7,127,308	6,202,667
120924	Kentucky	1,757,070	2,030,153	1,615,980	4,733,699	5,809,135	4,492,683
120925	Rye grass	2,077,182	3,544,715	2,518,558	2,059,646	3,299,009	2,397,515
120930	Herbaceous	13,893	18,057	46,924	2,714,567	2,639,490	2,399,636
120926	Timothy	2,077,182	3,544,715	2,518,558	2,059,646	3,299,009	2,397,515
12092910	Sugar beet	0	0	0	0	0	0
12092990	Other forage	1,025,753	862,058	568,107	3,162,558	2,860,258	2,327,836
120999	Fruit, Melon & Other	N/A	N/A	138,731	1,284,192	1,964,330	874,885
120991	Vegetable	151,740	197,814	341,609	3,723,280	3,901,498	4,397,847

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

<b>Timothy Imports Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
<b>United States</b>	2,077,182	3,544,715	2,518,558
Denmark	362,525	349,900	158,000
Netherlands	99,650	40,000	60,000
New Zealand	43,975	236,350	47,600
Canada	65,242	2,041	0
Australia	145,000	80,050	0
<b>Total</b>	<b>2,794,922</b>	<b>4,253,106</b>	<b>2,784,158</b>
<b>Fescue Seeds Imports Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
<b>United States</b>	3,883,592	6,325,012	5,424,585
Canada	186,027	180,935	138,525
Denmark	403,000	352,729	58,830
<b>Total</b>	<b>4,475,025</b>	<b>6,898,855</b>	<b>5,621,940</b>
<b>Kentucky Seeds Import Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
<b>United States</b>	1,757,070	2,030,153	1,615,980
Denmark	406,300	454,925	123,100
Japan	0	0	0
<b>Total</b>	<b>2,226,070</b>	<b>2,601,294</b>	<b>1,739,080</b>
<b>Rye Grass Imports Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
<b>United States</b>	2,077,182	3,544,715	2,518,558
Denmark	362,525	349,900	158,000
Netherlands	99,650	40,000	60,000
New Zealand	43,975	236,350	47,600
Canada	65,242	2,041	0
Australia	145,000	80,050	0
<b>Total</b>	<b>2,794,922</b>	<b>4,253,106</b>	<b>2,784,158</b>
<b>Herbaceous Imports Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
New Zealand	0	33,780	120,287
<b>United States</b>	13,893	18,057	46,924
Australia	11,428	0	21,508
United Kingdom	77	289,285	18,166
Korea, South	0	1	8,475
Taiwan	71,864	69,139	4,951
<b>Total</b>	<b>196,346</b>	<b>419,201</b>	<b>225,380</b>

Source: China Customs

Table 4 China's Sunflower, Fruit/Melon Imports &amp; Major Countries of Origins

<b>Sunflower Planting Seed Imports Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
<b>United States</b>	205,327	372,353	618,820
Australia	114,250	66,480	184,893
Israel	9,253	29,100	41,740
India	19,600	210	40,018
France	6,094	569	20,690
<b>Total</b>	544,873	470,345	910,664
<b>Fruit, Melon and Other Import Volume (in KG) and Major Origins</b>			
Country	MY 02/03	MY03/04	MY04/05
Taiwan	N/A	N/A	420,322
Thailand	N/A	N/A	205,368
<b>United States</b>	N/A	N/A	138,731
Indonesia	N/A	N/A	107,156
Australia	N/A	N/A	54,154
<b>Total</b>	N/A	N/A	944,774

Source: China Customs

Table 5 China's Exports to the World in Volume &amp; Value

HS Code	Planting Seeds/MY	Volume (KG)			Value (US\$)		
		MY02/03	MY03/04	MY04/05	MY02/03	MY03/04	MY04/05
	<b>Total</b>	20,717,780	23,137,977	26,456,360	46,276,513	49,463,463	60,503,914
10019010	Wheat	0	3,100	300,001	0	3,160	60,001
10020010	Rye	1,200	0	304,400	708	0	136,205
10030010	Barley	7,000	25,513	244,500	3,033	6,042	61,050
10040010	Oats	2,000	31,900	45,500	1,380	18,316	16,586
100510	Corn Seed	61,317	372,820	347,614	85,847	282,954	313,756
10061010	Rice Seed	0	0	0	0	0	0
10061011	Rice Long Grain	3,226,256	2,668,755	10,867,943	2,939,399	2,295,999	9,381,635
10061019	Rice Other	10,098,121	9,928,154	2,107,649	12,109,062	10,001,820	3,238,256
10070010	Sorghum	238,800	31,480	9,257	127,689	47,020	15,872
10089010	Other Cereals	4,800	40,424	9,173	3,006	11,625	16,524
12010010	Soybeans	61,877	100,805	151,858	16,728	59,688	138,546
12021010	Peanuts	46,080	50,100	90,600	23,380	32,483	56,170
12051010	Rape/Colza, low erucic acid	0	0	0	0	0	0
12059010	Rape/Colza, nes	1,440	212,945	22,125	1,365	60,028	13,593
12060010	Sunflower Planting	18,216	105,117	81,345	36,880	104,482	244,307
12072010	Cotton Planting	400,726	288,096	171,268	1,000,330	709,966	427,666
12092910	Other Sugar Beet	8,350			38,560	0	0
120921	Alfalfa	292,303	110,093	2,936,865	223,038	143,542	3,821,498
120922	Clover	5,890	0	3,350	3,915	0	8,620
120923	Fescue		840	20,000	0	1,415	30,400
120925	Rye Grass	0	7,255	18,070	0	6,646	44,422
120930	Herbaceous	269,434	287,824	618,713	4,404,683	3,183,770	4,744,890
120930	Timothy	0	7,255	18,070	0	6,646	44,422
12091000	Sugar Beet	0	58	536	0	873	1,044
12092990	Other Forage	1,249,460	2,524,267	2,337,536	1,885,926	2,770,193	2,891,030
120999	Fruit, Melon and Other	783,685	662,806	1,147,914	3,975,169	4,808,440	6,028,404
120991	Vegetable	3,940,825	5,678,370	4,602,073	19,396,415	24,908,355	28,769,017

Source: China Customs



Table 6 China's Exports to the U.S. in Volume and Value

HS Code	Planting Seeds/MY	Volume (KG)			Value (US\$)		
		MY02/03	MY04/04	MY04/05	MY02/03	MY04/04	MY04/05
	<b>Total</b>	459,342	649,863	766,517	6,676,999	8,958,984	10,026,632
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
10061010	Rice	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	1,936	0	0	7,373
12010010	Soybeans	0	0	119,010	0	0	52,364
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	0	0	0	0	0
12072010	Cotton	187,609	209,774	14,846	469,023	517,756	37,105
12092910	Other Sugar Beet	0	0	0	0	0	0
120921	Alfalfa	0	0	20,175	0	0	19,973
120922	Clover	0	0	0	0	0	0
120923	Fescue	0	820	20,000	0	1215	30,400
120925	Rye Grass	0	0	0	0	0	0
120930	Herbaceous	7,334	38,099	214,711	75,165	141,974	298,616
120930	Timothy	0	0	0	0	0	0
12091000	Sugar Beet	0	0	0	0	0	0
12092990	Other Forage	2,844	154,949	20,475	42,020	123,112	27,192
120999	Fruit, Melon and Other	30,501	34,779	35,945	342,956	537,426	826,440
120991	Vegetable Seeds	231,054	211,442	319,419	5,747,835	7,637,501	8,727,169

Source: China Customs

Table 7 China's Main Seed Exports &amp; Major Destinations

<b>Rice Other Exports Volume (in KG) and Major Destinations</b>			
Country	MY 02/03	MY03/04	MY04/05
Vietnam	10,074,260	9,875,240	1,430,080
Bangladesh	5,600	23,422	586,740
Ecuador	13,650	27,300	54,600
Pakistan	0	1,000	20,050
Spain	0	0	14,000
<b>Total</b>	<b>10,098,121</b>	<b>9,928,154</b>	<b>2,107,649</b>
<b>Rice, Long Grain Exports Volume (in KG) and Major Destinations</b>			
Country	MY 02/03	MY03/04	MY04/05
Vietnam	3,024,580	2,402,390	10,149,905
Bangladesh	100,166	199,560	546,440
Pakistan	63,000	20,000	120,000
Guinea	35,000	44,600	41,200
Indonesia	60	2,205	8,248
<b>Total</b>	<b>3,226,256</b>	<b>2,668,755</b>	<b>10,867,943</b>
<b>Vegetable Seed Exports in Volume (in KG) and Major Destinations</b>			
Country	MY 02/03	MY03/04	MY04/05
Korea, South	1,771,643	2,055,361	1,267,537
Netherlands	592,152	932,229	877,847
France	77,371	177,852	386,791
<b>United States</b>	<b>231,054</b>	<b>211,442</b>	<b>319,419</b>
Japan	359,095	274,815	311,622
Italy	12,056	72,162	309,584
Taiwan	201,825	199,249	232,857
<b>Total</b>	<b>3,940,825</b>	<b>5,678,370</b>	<b>4,602,073</b>
<b>Fruit, Melon &amp; Other Exports in Volume (in KG) and Major Destinations</b>			
Country	MY 02/03	MY03/04	MY04/05
Korea, South	236,451	243,296	583,300
Japan	332,908	188,863	340,418
Taiwan	10,317	10,902	49,536
Korea, North	2,000	52,360	37,250
<b>United States</b>	<b>30,501</b>	<b>34,779</b>	<b>35,945</b>
India	20,870	37,615	22,902
Netherlands	19,928	23,813	19,626
Pakistan	5,210	7,889	10,734
<b>Total</b>	<b>783,685</b>	<b>662,806</b>	<b>1,147,914</b>

Source: China Customs