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China, Peoples Republic of

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Report Highlights:

Estimated domestic seed sales from the 7800 licensed seed enterprises are US \$1.63 billion. Increased liberalization of the planting seed sector remains a goal for China's Ministry of Agriculture and seed sector breeding and distribution enterprises. Domestic seed companies, research institutions, and seed associations aim to develop integrated seed breeding and distribution. The production and use of hybrid seeds continues to gain popularity in China, especially as the country continues to focus on higher productivity for targeted crops.

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Seed Sector Summary

Domestic seed enterprises dominate the seed market with suitable seeds and germplasm; foreign enterprises and new ventures face strong challenges from onerous licensing and import permit requirements. Nevertheless, China's planting seed sector is highly fragmented with a large disconnect between seed breeding and seed marketing. Remedying this situation is a high priority for China's government and seed associations. Overall, despite dissatisfaction with the government's slow enforcement of anti-counterfeiting measures, there is optimism that seed sector problems eventually will abate.

China's Ministry of Agriculture (MOA) reports there are more than 7,800 licensed businesses conducting seed distribution and/or seed breeding with total estimated seed sales of RMB 13.5 Billion (US \$1.63 Billion) in 2002. Sources report the number of licensed businesses is decreasing but, since passing the Seed Law (CH0031) and its Implementation Regulations (CH1052), a chaotic marketplace developed as the number of unlicensed seed distributors increased. Uncoordinated market proliferation is not a positive step for China's seed sector, but onerous regulations are impacting qualified seed enterprises, as well.

Domestic and international companies remain optimistic and actively involved in the seed business. Traders and breeders witness the increased liberalization and want to see it continue. Government officials report seed sector development and they would like to see the seed industry restructuring process accelerate.

Seed Sector Protectionism Harms Farmers Not Just New and Foreign Ventures

Many of China's seed breeding and distribution enterprises are or were state, provincial, or county government-owned enterprises. Although government divestment is underway, many seed stations remain government owned. MOA would like to accelerate divestment to shed off unprofitable enterprises. However, MOA reports that divestment will occur when companies are ready to operate on their own. Although administrative units should be separate from seed selling enterprises, the past and present relationship provides a conflict of interest where government officials reportedly act as protectors of local enterprises from outside competition (both domestic and foreign) and from local start-ups.

Industry sources report the seed industry remains heavily regulated. Not only business licenses are needed, but also additional licenses for seed production and/or seed distribution are required. The designation of "major crop seeds" (CH2056) complicates seed production and distribution, as some seeds may enjoy special protection in certain regions. Sources report seed distribution approval is not transparent, whether on a province-by-province basis or nationwide basis.

China's MOA endeavors to provide greater transparency for seed breeding and distribution licensing by providing feedback on unapproved applications. Furthermore, MOA published public announcement No. 312 on its website (<http://www.agri.gov.cn>) indicating the procedures for seed licensing and seed import approval. Industry sources, however, would like to have even greater transparency into determinations and a further streamlining of import permit procedures.

Industry sources report the Chinese government has great concerns for the success and sustainability of its domestic planting seed sector; especially its domestic grains and oils seeds industries, which play a pivotal role in ensuring the nation's food supply. China's Ministry of Commerce issued foreign investment guidelines (CH2012) in April 2002 that prohibited new foreign investment in transgenic planting seed enterprises and also restricted foreign investment to a minority share in seed breeding enterprises that develop hybrid and conventional grains, cotton, oilseeds, and potato seeds.

Breeding and Distribution Can Develop in Competitive Marketplace

Press accounts report the government and seed associations encourage integrated seed breeding and distribution enterprises. Seed associations say China's seed industry must compete with good quality foreign seed by developing domestic brand names with superior seed quality. Foreign enterprises fear excessive restrictions will inhibit development of a productively competitive marketplace and report that increased competition will foster integrated breeding and distribution.

Presently, most seed breeding takes place at state- and provincial-sponsored agricultural universities and academies with public funding assistance through MOA or the Ministry of Science and Technology (MOST). China's seed industry is asking for greater grant assistance for private seed breeders' research. Presently, as government funded research stations develop desirable seeds, companies and distributors contract for sole-distribution authority or purchase seed distribution rights.

Active PVP Enforcement Could Bring Better Seed to Chinese Farmers

MOA published China's most recent list of approved PVP seeds, plants, and trees in Decree No. 32 on July 24, 2003 (CH3123). The announcement along with the State Forestry Administration Decree No. 6 bring the number of seeds, plants, and trees afforded "Plant Breeders' Rights" in China to 88 varieties.

Failure to stringently enforce the anti-counterfeiting measures of the Seed Law prevents Chinese seed breeders and subsequently Chinese farmers from access to some of the best quality and some of the lowest priced planting seeds, as foreign enterprises decline to send their best seed germplasm to China because of the inadequate enforcement of breeders' rights, the unclear distinction between administrative offices and seed testing facilities with seed breeding enterprises, and the exclusion of some seeds from China's new-Plant Variety Protection (PVP) list.

Provincial government offices report insufficient funding to enforce the Seed Law, but industry sources claim insufficient government will to enforce existing regulations leads to inadequate anti-counterfeiting enforcement. Increased investment in infrastructure enabling more thorough law enforcement of intellectual property (IPR) and PVP protection could be helpful. As China's PVP list expands, both domestic and foreign seed companies have used civil action in China to bring about greater PVP or intellectual property rights enforcement.

Industry sources report seed associations, seed enterprises, and even Chinese government offices do not fully recognize the obligation and value of China's 1999 membership in the International Union for the Protection of New Varieties of Seeds (UPOV). China's UPOV membership obligates China, as well as other members, to provide and protect *sui generis* intellectual property rights (IPR) to breeders of new, distinct, uniform and stable plant varieties, and to offer the same treatment to other UPOV members. China's Trademark Law prohibits trademarks for generic and well-known product names. Nevertheless, at least one leading Chinese seed enterprise filed for and received trademark approval for several commonly recognized and PVP registered and protected grass seeds. To prevent such abuses, some seed industry members hope China's PVP Office will strengthen communication with other Chinese IPR agencies to ensure better breeders' rights and IPR protection for all seed enterprises.

The American Seed Trade Association, its members, and USDA are working together with China's PVP Office to provide training on data collection and the U.S. PVP process. At present, several of China's forestry and agricultural affiliated research institutions report the PVP application process in China is operating smoothly. To date, many scientific institutions have submitted requests for PVP extension on the basis of their own research or in cooperation with foreign companies and foreign-based researchers. Also, Chinese law offices report successful registrations of plant variety protection on the behalf of U.S. and other foreign seed enterprises.

Production

Hybrid Seed Production Potential Depends on Water Resources

Industry sources indicate no significant changes to China's planting seed production in 2003. Hybrid seed production continues to expand as domestic growers demand high-quality trait specific seeds. China's low labor costs ensure its ability to be a leader in hybrid seed production as commercial scale hybrid seed management improves. Foreign companies say seed breeders' work on hybrid cottonseed, corn seed, canola seed, and rice seed is excellent. Some provincial officials plan to expand hybrid seed production in remote counties to increase rural livelihood.

Industry sources report overall quantities of vegetable and grain seed production in the Yellow River bend of northwest China's Gansu, Ningxia, and Inner Mongolia regions developed normally. However, indications are the quality of corn seed and cottonseed across these territories may be lower due to excessive rain and low temperatures during harvest.

Most planting seed production areas enjoy adequate irrigation water from snowmelt or underground irrigation. Down-stream growers and consumers express concern that too much water use in seed growing areas affects water supplies. In addition, some scientists have concerns that increased irrigation in primary planting seed regions may affect soil salinity in grain areas. Frequent complaints could impact future Yellow River bend seed production.

In northeast China corn and soybean seed yields were affected by mild drought in spring and excessive rains in July and August. In central China excessive summer rainfall and flooding reduced cottonseed and rice seed production. Despite the weather impact, MOA and industry report ample seed supplies for the coming year.

Public and private sector breeders continue to make improvements in seed quality by encouraging uniformity and consistency through seed cleaning and treatment. Companies are buying more equipment and hiring more technical specialists to help improve seed quality. As the popularity of uniform quality conventional seeds and quality hybrid seeds increases among farmers, the domestic seed industry likely will increase production to meet domestic demand.

Germplasm Resource Regulations

MOA's July 8, 2003 Decree No. 30 "Management Methods for Germplasm Resources" (CH3122) had little impact on germplasm resource requests. The Decree is pursuant to the Seed Law (CH0031) and the Seed Law Implementation Regulations (CH1052) to guide the management, preservation, registration, use, exchange, and trade of seed germplasm.

Ambitious Five-Year Plan Implies Change in Seed Sector Variety Production

In December 2002, China's MOA issued a Five-Year Plan for Agricultural Commodities with Comparative Advantage. The plan encourages China's agricultural sector to enhance the development of several commodities, of which the following are produced from planting seeds or nursery products:

- High quality high-protein and high quality low-protein wheat
- High quality feed corn and corn for the processing industry
- High quality high-oil soybeans
- High quality cotton
- High quality high-oil double-low rapeseed
- High quality double-high sugarcane
- High quality early and late-ripening citrus and citrus for the juicing industry
- High quality early to mid-ripening apples and apples with a high acid content for the juicing industry

China possesses good quality seeds and seedlings for several of these crops. However, where China's resources are inadequate, it will be necessary to import. For several grains, including wheat, corn, and soybeans, China's AQSIQ imposes sanitary and phytosanitary (SPS) barriers that restrict seed imports from most nations.

The Five-Year Plan calls for development of China's livestock sector (beef cattle and sheep), dairy sector and aquaculture sector. Adequate feed and forage supplies will be increasingly important.

Turf and Forage Green Space Attracts Greater Foreign Investment

The overall outlook favors imports, but exports are small and growing. China needs grass seed imports for urban beautification, land reclamation, and forage.

Through combined U.S. and Chinese efforts, city planners in Beijing, for example, developed very ambitious plans for the planting of grass and trees in active and passive public parks, around city roadways, and alongside canals in order to create a better urban environment. Much of the funding for this is tied to the Olympic Games, but when discussed by city officials, is couched in the broader theme of attracting wider domestic and foreign investment into the city or city districts. It appears that many other cities are duplicating this plan of increased urban beautification to attract greater investment and improve the quality of life.

There are significant constraints facing the turf seed industry. Industry representatives report growing demand in the turf grass market and increased competition requiring significant post sales support and training. Growing concerns over costs of maintaining green spaces presents further obstacles to the use of turf grass. As many northern Chinese cities face water scarcity limitations, demand for turf grass seed could decrease unless cities purchase irrigation equipment or develop water re-use. Furthermore, the trademarking of several U.S. turf seed types could make it difficult for Chinese distributors to purchase seeds from U.S. suppliers.

Northern and western China's ecosystem is fragile. The areas desperately need reclamation grass seed and trees to prevent wind and water triggered soil erosion. China and the USDA opened the Joint Center for Grasslands Ecosystems Sustainability at Gansu Agricultural University. The Center should be the launching point in China for the research and discussion of better methods for rangeland management. In an effort to support better land management this past year, China published its Grasslands Law aimed at eliminating rangeland grazing. Scientists and industry members report, however, that provincial and county officials employ a different interpretation of the law, thus allowing for local grazing.

China's livestock sector growth creates demand for improved forage seed. The livestock sector growth, however, is in extremely fragile ecosystems that desperately need reclamation grasses. Several scientists and industry members report a need to eliminate grazing in these fragile areas. Experts say growers could supply herds with processed forages from other areas in China. If this is to happen, China's forage grass planting expansion will likely occur across suitable environments in central China. Many of these suitable environments have or could readily adapt U.S. cool season grasses for growing, cutting, processing, and distribution to the domestic livestock industry in these fragile ecosystems or to export markets leaving Chinese farmers and growers with a valuable commodity.

Industry sources fear that China's traditional focus on quantity over quality leads to overgrazing and environmental degradation. Foreign experts prefer using animal quality or animal meat productivity as a guideline for the livestock and dairy sector. Some sources argue China should depopulate herds or employ increased use and better distribution of processed forage, silage, and grain from better-suited lands. As such, it appears China needs to better analyze data sets indicating where suitable lands with appropriate moisture, sunlight, and soil conditions converge with proper socio-economic conditions to reveal the most profitable areas for growing forages and other commodities.

China Customs data indicates there is a growing export market for Chinese cut hay and pellets. Forage product (HS 1214) exports increased from US \$5.7 million during the July 2001 to June 2002 market year to US \$10.8 million during the same 2002 to 2003 period. The US \$5.1 million increase was entirely to South Korea, but there were trial shipments to both developed and developing nations leaving China with a range of future export markets.

Transgenic Planting Seeds Investment Situation

China has invested hundreds of millions of dollars in transgenic seed technology, probably more than any country other than the United States. More than a hundred different events have been produced in the laboratory. Commercialization, however, has been very slow. MOA, to date, has approved only transgenic cotton, tomato, sweet and chili pepper, petunia, and poplar trees for commercialization. Total transgenic product planting acreage exceeded 2.1 million ha in 2002, but cotton was and remains the only transgenic planting seed produced and used widely. Other transgenic non-seed goods (e.g. yeasts and bacteria) also have received MOA approval. Currently MOA is conducting safety assessments for imports of several transgenic commodities — soybeans, corn, and canola— but not for their environmental release or planting.

Scientists and industry representatives recognize that Chinese scientists and research institutes would profit from the commercialization and release of transgenic seeds. Industry representatives indicate that not only will state-sponsored research institutes benefit from licensing technology to seed companies, but that hundreds of millions of farmers would benefit by lowering direct and hidden (labor, health, environmental) costs. The environment and consumer health both would benefit from the decreased use of crop protection products. Official studies have highlighted not only dramatically lower production and labor costs for insect-protected Bt-cotton, but also emphasize the reduction in accidental pesticide poisonings, savings hundreds of lives every year.

China's ultimate decision to permit commercialization and planting of transgenic seeds and seedlings depends on political, economic, and scientific factors. Trade sources indicate Chinese reluctance to plant transgenic seeds may stem from anxieties about biotechnology in some countries that import from China, primarily Japan, Korea, and the EU. Economically, planting of transgenic crops will depend on their cost-effectiveness. At this time there is no organized consumer resistance to transgenic goods; rather consumer concerns about excessive pesticides have been a selling point for Bt technology.

China has permitted domestic and international seed companies to plant transgenic seeds and seedlings for field trials to gather data for safety assessments. Foreign seed companies and the U.S. government have complained that the approval requirements are unnecessarily repetitive for products that already have received approval in other countries. Institution of interim regulations to permit imports while assessments are conducted caused a shutdown of soybean imports in 2002, but more recently Chinese leaders have replied to U.S. complaints by insisting that biotechnology regulations would not be used as a trade barrier.

Grains and Oilseeds Predominate Planting Area and Seed Utilization

Following a decline in grain planted area, grain seed surpluses developed in the mid- and late-1990s. Recently, however, grain prices have risen and growers are likely to plant grain seed in greater density in 2004. MOA reports minor grains and beans, oilseeds, cotton, and horticultural crops seed demand remains strong.

According to China's State Statistics Bureau, cereals and oilseeds account for 70 percent of China's total sown area. This make-up is changing as China's agricultural restructuring encourages increased planting of higher value cash and other crops and decreased plantings of grains on marginal quality land. Under the past several years of the state sponsored plan to convert marginal quality grain fields and hillsides to forests and grasslands, some corn, wheat, and rice production was converted to plantations of forage and field grasses, vegetables, and fruit orchards. In addition, many farmers made market based decisions to reduce grain acreage and plant other seeds.

Industry and government sources indicate the multiple planting indices (MPI) declined in 2002 and 2003. The MOA Yearbook indicates that over the past five years, the MPI was stable and then fell sharply in 2000 (1997 MPI 154.36%, 1998 MPI 156.61%, 1999 MPI 155.09%, 2000 MPI 120.28%, 2001 MPI 119.74%).

Farmer's increasingly realize the value of purchasing new seed, especially hybrid seed, each year. Nevertheless, some follow a traditional pattern of buying three years of seed needs at a time in order to receive a volume discount.

MOA intends to lower seed prices and other input costs. The government promotes planting higher quality seeds and simultaneously is working to subsidize seed costs. The government announced it would pay RMB 200 million (US \$24.2 million) and RMB 100 million (US \$12.1 million) to soybean and wheat seed companies if seed companies lowered sale prices to farmers so that 20 million mu (1.3 million ha) of soybeans and 10 million mu (670,000 ha) of wheat could be planted more affordably. MOA reports companies that want to participate in the plan should contact the National Agro-Technical Extension Service Center.

China's Agricultural Planting Area as listed by the State Statistics Bureau										
	1998		1999		2000		2001		2002	
	1000 Ha	Percent	1000 Ha	Percent	1000 Ha	Percent	1000 Ha	Percent	1000 Ha	Percent
Total Sown Area	155,706	100%	156,373	100%	156,300	100.0%	155,708	100%	154,636	100%
Cereals	92,117	59.2%	91,617	58.6%	85,264	54.6%	82,596	53.0%	81,466	52.7%
* Oil-Bearing Crops	24,590	15.8%	25,096	16.0%	28,060	18.0%	27,899	17.9%	27,309	17.7%
Cotton	4,459	2.9%	3,726	2.4%	4,041	2.6%	4,810	3.1%	4,184	2.7%
Bast-Fibers	224	0.1%	205	0.1%	262	0.2%	323	0.2%	338	0.2%
Sugar Crops	1,984	1.3%	1,644	1.1%	1,514	1.0%	1,654	1.1%	1,818	1.2%
Tobacco	1,361	0.9%	1,374	0.9%	1,437	0.9%	1,340	0.9%	1,328	0.9%
** Vegetables	22,293	14.3%	23,702	15.2%	25,775	16.5%	26,556	17.1%	27,234	17.6%
Tea Plantations	1,057	0.7%	1,130	0.7%	1,089	0.7%	1,141	0.7%	1,134	0.7%
Fruit Orchards	8,535	5.5%	8,667	5.5%	8,932	5.7%	9,043	5.8%	9,098	5.9%

* Soybeans, and other oil-bearing crops. ** Tubers and Vegetables.
Numbers do not equal 100 percent due to rounding

Trade

Plant Health Regulations Restrict the Free Flow of Seeds

To protect its ecology, China maintains several phytosanitary measures for imported seed (CH2056); especially major grains and oils seeds. Industry representatives believe the concerns are unfair restrictions for seed breeding companies that plan to import or export parent seed. Customs data indicates, however, that shipments from restricted countries have entered China in volumes for both research and possibly even commercial purposes.

U.S. Alaska seed potato exports recently gained approval for export to China. MOA reports approval of Canadian seed potatoes was given and seed trials are underway. Netherlands seed potato approval negotiations are on going. Potatoes, however, are a major crop seed and require national evaluation before commercial distribution within the country. This means, however, that although seed potatoes may enter China, evaluation and field trials must be finished before growers may plant them.

MOA reports that as China exports only a few seed varieties a few destinations, other countries' phytosanitary restrictions are not a significant concern. However, as China's seed quality improves, officials recognize they need to begin negotiating for better export market access. This past year, the only seed access issue for China involved concerns about rice seed quality entering Malaysia.

Seeds Enter China with Low Tariffs and VAT Free

China Customs reports in-quota wheat, corn, and rice seed is subject to a one percent ad valorem tariff. Respectively, out-of-quota seeds are subject to tariffs of 68%, 24%, and 68% respectively. All other seeds may enter China tariff-free.

In certain circumstances, seed imports and exports are subject to a 13 percent value added tax (VAT). Trading companies say the VAT can be refunded, but that the documentation process is burdensome. Seed companies hope for clarification on the VAT refund policy.

High Quality Seed Imports Climb While Conventional Exports Persist

China Customs data indicates planting seed imports increased 8 percent by value to US \$71.8 million and export value remained essentially flat at US \$46.3 million (Detailed trade tables available in CH3126). The U.S. market share of Chinese imports increased to 38 percent by volume and 34 percent by value of all Chinese seed imports. U.S. seed share gains were notable in grass, vegetable, and sunflower. Experts say increased seed imports not only do not threaten China's agri-business sector, but by providing farmers with better seeds with which to grow products for domestic and export markets raises their purchasing power for other domestic or foreign goods or equipment.

Small- and medium-sized seed companies report the Seed Law capital reserve requirement restricts trade. The requirement forces some seed companies to use larger enterprises to act as importing agents, thus increasing their costs and lowering the seed volume they can import. Or, the importer's fees are passed along to end-users making it more expensive for farmers to grow commodities they want. The requirement also allows larger trading companies access and insight enabling them to later contact foreign seed suppliers with information on past purchase prices, available seed varieties, distribution paths, etc.

State-Owned and Private Seed Stocks Ensure Surplus

The Seed Law mandates that a seed reserve system be in place and controlled by lower government offices. Indications are that many lower offices do not have the seed supply required of them, but that this does not present a problem in many areas where there are seed traders and distributors with seeds available. As such, many industry members feel the private sector is better equipped and more capable of supplying timely good quality seed.

China's National Seed Trade Association estimates seed surpluses for several crops; including: rice, maize, sunflower, soybean, cotton, tomato, cabbage, cauliflower, eggplant, hot pepper, watermelon, and cucumber. The abundance of rice and maize seed is partially attributed to changing grower practices over the past several years where grain-planting area declined while seed production area did not. Although presently a surplus, the cottonseed supply could be tighter next year.

Market Seed by Demonstrating Seed Quality

Seed enterprises and associations report farmers will spend more money on planting seeds if quality can be demonstrated. As such, many seed enterprises elect to market seed quality not only to end-users, but also to distributors, government officials, and seed scientists. Companies promote seed at agricultural fairs, trade shows, and by planting demonstration plots. In some instances, the seed company directly manages plantings; in other areas government officers and in turn local farmers may be contracted by seed companies to provide management.

Educational seminars and post-sales support are essential for successful sustainable sales. Domestic and international seed companies often have Chinese language materials on ecological seed suitability, germination rate, management requirements, etc. available for interested parties. Also, domestic and foreign seed enterprises regularly hold clinics for large seed distributors and procurers so that sales staff is equipped with the fullest range of seed knowledge. Some international enterprises also find it critical to bring Chinese buyers and distributors to seed production operations and businesses in the United States or other countries so that a sound business relationship begins.