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Planting Seeds Annual Report - 2015

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Planting Seeds

Approved By:

Andrew Anderson-Sprecher

Prepared By:

Andrew Anderson-Sprecher and Zhang Lei

Report Highlights:

China is the second largest market for planting seeds after the United States. It is self-sufficient in planting seeds for grains, but imports some grass, vegetable, and fruit seeds. China is the United States' second largest export market for seeds, fruit and spores for planting (HTS 1209) after Mexico. On November 4, 2015, the National People's Congress (NPC) approved amendments to China's Seed Law. This is the first change to the legislation since it was enacted in 2000. The revised law reduces the number of crops subject to variety registration requirements from 28 to five and creates a variety record system. The Ministry of Agriculture (MOA) is currently working on developing implementing regulations. Domestic hybrid corn seed production rebounded 12 percent in 2015 following a sharp drop in production in 2014. Cotton seed production fell sharply as falling cotton acreage hurt demand. Seed imports in 2015 were relatively stable. However, grass seed imports are expected to fall in coming years due to a slowdown in the property market and restrictions on golf courses.

Executive Summary:

On November 4, 2015, the NPC approved amendments to China's Seed Law. This is the first change to the legislation since it was enacted in 2000. The revised law reduces the number of crops subject to variety registration requirements from 28 to five and creates a variety record system. This will reduce regulatory barriers for both domestic and imported seeds. MOA is currently working on developing implementing regulations. China's VAT rebate program for seed imports will stop on December 31, 2015 at the end of the 12th Five-Year-Plan (2011-2015). It is not known if the policy will be extended in the 13th Five Year Plan (2016-2020).

China is the second largest market for planting seeds after the United States. MOA estimates 10.1 million tons of corn, rice, wheat, soybean, potato, cotton, and rapeseeds were planted in 2014, with a market value at \$13.2 billion. Commercially produced seeds account for approximately 70 percent of seed use for these crops. Hybrid corn seed production rebounded 12 percent in 2015 to 1.1 million tons following a sharp drop in production in 2014. Cotton seed production in 2015 fell 44 percent from 2014 levels due to weak demand resulting from a continued decline in overall cotton acreage. (See [August 2015 Cotton Update](#) for more information. Hybrid rice seed production remains steady.

China imported 64,205 MT of planting seeds in MY 2014/15 valued at \$325 million, roughly the same as in MY2013/14. It is self-sufficient in planting seeds for grains, but imports some grass, vegetable, and fruit seeds. China is the United States' second largest export market for seeds, fruit and spores for planting (HTS 1209) after Mexico. Grasses such as ryegrass, Kentucky grass and fescue were the most imported seeds by value, followed by fruit and melon seeds. Industry experts expect grass seed imports to decline in coming years as a result of a downturn in the property market and restrictions on golf courses. The United States continues to be the largest seed supplier to China, and has a high market share in grass, sunflower, and fruit seeds.

POLICY ISSUES

Seed Law

On November 4, 2015, the NPC approved amendments to China's Seed Law. This is the first change to the legislation since it was enacted in 2000. Below are highlights of changes in the new Seed Law.

Reduce Variety Registration Requirements

The number of crops subject to variety registration requirements was reduced from 28 to five. The five seed varieties that will still need to be registered are rice, wheat, corn, cotton and soybeans. A "Green channel" is established to allow seed companies that meet certain requirements to conduct experiments required for the registration process themselves. Seed companies no longer need approval to introduce a registered variety to a similar ecological region in another province in China. Please refer to [CH15061](#) for the translation of the full text of the document.

Create a Variety Record System

Variety registration will no longer be required for other crops, such as rapeseed, potato and peanuts. A variety record system is established for certain crops not covered by the revised seed registration system. Under this new system, varieties will no longer require pre-approval from the government, dramatically reducing regulatory barriers to new seed varieties and seed innovation. The government has not yet issued a list of crops to be covered by the variety record system.

Intellectual Property Rights

Portions of the "Regulation of the People's Republic of China on Protection of New Plant Varieties" are incorporated into the revised law and penalties for violations are strengthened.

Streamline Licensing

The Seed Production License and Seed Operation License are merged into one Seed Production and Operation License. Some requirements, such as minimum capital requirements, are removed to make it easier to obtain a license.

Government Support

Government support and subsidies for China's seed industry are increased. For example, seed production and collection machinery may now be included in the agricultural machine subsidy category.

MOA is currently updating implementation regulations to comply with the new Seed Law, including the Administrative Measures for Major Crops Variety Registration, and the Administrative Measures for Crop Seed Labelling.

Variety Registration

Some industry and the government advocated strongly for the seed registration system to be abolished in the revised Seed Law, arguing that it is slow, costly, and inhibits innovation. However, MOA successfully argued that the seed registration system needed to be retained to guide variety breeding and ensure safety of seed use. As noted above, the variety registration system was kept for five crops in the revised law.

MOA admitted that there are many problems with the current system and practices, such as insufficient testing capacity, incomplete variety assessments, lack of fairness in some tests, and data distortion. As a compromise, MOA released a notice in early November 2015 promising to improve variety registration,

with particular attention to improving testing capacity, management, and oversight. An unofficial text of this notice is included in Appendix II.

Table 1. China’s Variety Registration in 2014

Crops	National registration	Provincial registration
Rice	47	450
Wheat	21	122
Corn	29	443
Cotton	13	78
Soybean	14	101
Rape	9	60
Potato	7	51
Others	0	166
Total	140	1,471

Source: MOA’s 2015 Crop Seed Industry Development Report in China

Intellectual Property Rights

The seed industry is technology and research intensive, making effective IPR protection critical to its success. Weak IPR protection has been a major barrier to the development of China’s seed industry. Variety violation and counterfeit seeds are common problems for both imported and domestic seeds. The structure of China’s seed industry makes it difficult to protect IPR. While the number of Chinese seed enterprises declined 42 percent between 2011 and 2014, there are still over 5,000 registered seed companies. Many of these companies have little or no research and development capacity, creating little incentive for them to focus on protecting IPR.

The Chinese government is working to create a favorable environment for innovation in the seed sector by strengthening IPR legal protections, reducing the number of seed companies, and encouraging the private sector to be more involved in variety breeding. The new Seed Law improves IPR protection, and increases penalties for violations. In 2014, MOA, the Ministry of Public Security, and the State Administration for Industry and Commerce jointly carried out a national campaign to combat plant variety violations and counterfeit seed sales. Nation-wide checks were conducted on 22,000 enterprises and 49,000 markets. Over 6,400 cases resulted in enforcement action, and 31 Seed Production and Distribution Licenses were revoked.

Plant Variety Protection (PVP) Applications and Approvals

MOA reported that by September 2015, its PVP Office had accepted nearly fifteen thousand PVP applications and approved 5,625. The approval process generally takes 3-5 years, but can take longer. Almost two thirds of the applications were for rice and corn (table 2). Domestic agricultural research institutes and universities accounted for half of the applications (table 3). However, applications from Chinese enterprises have increased rapidly.

Table 2. PVP Applications and Approvals

Plant	Applications	Approvals

	2011	2012	2013	2014	Grand Total (1999-2014)	2014 approval	Grand total
Rice	386	418	360	567	4,015	205	1,528
Corn	326	399	419	552	4,371	262	1,811
Wheat	118	94	84	123	1,090	36	408
Cotton	48	39	60	35	529	14	139
Soybean	47	61	37	69	463	37	179
Other major crops	73	82	119	96	785	52	233
Vegetable	97	95	74	141	799	48	200
Flower	128	105	117	107	941	134	240
Fruit	28	63	47	55	408	39	107
Others (pasture and tea)	4	5	16	27	81	0	0
Total	1,255	1,316	1,333	1,772	13,482	827	4,845

Source: China Agricultural IPR Research Center

Table 3. PVP Applicants

Applicant	Applications					Approvals	
	2011	2012	2013	2014	Grand Total	2014	Grand Total
Chinese research institutes	497	485	494	598	5,749	365	2,478
Chinese enterprises	530	584	618	932	5,185	245	1,558
Chinese universities/colleges	98	116	65	108	990	85	410
Chinese individuals	68	73	52	82	745	37	212
Foreign enterprises	57	89	98	48	729	88	177
Foreign individuals	2	4	2	0	40	6	7
Foreign universities/colleges	2	2	1	1	23	1	3
Foreign research institutes	1	8	3	3	21	0	0
Total	1,255	1,361	1,333	1,772	13,482	827	4,845

Source: China Agricultural IPR Research Center

Patents

Seed related patent applications increased by 60 percent in 2014 to nearly five thousand, according to the 2015 China Crop Seed Industry Development Report. China does not allow plants to be patented. Therefore, unlike the United States where patents play an important role in variety protection, Chinese breeders mostly use PVP to protect their varieties. Seed related patent applications are divided

into three categories: traditional breeding, modern breeding and seed processing. According to industry sources, many Chinese breeding patents are related to plant preservation.

Biotechnology and Planting Seeds

Domestically developed varieties of biotech rice and corn received biosafety certificates in 2009 and these were renewed in December 2014. None of these varieties were granted variety registration, the last step needed for commercialization. New varieties of domestically developed biotech corn are currently being reviewed by MOA. However, there does not appear to be political consensus yet on whether to commercialize biotech crops beyond cotton and papaya. To date, China has not approved any foreign biotech food or feed crops for domestic commercial production.

VAT Taxes

China's VAT rebate program for seed imports will stop on December 31, 2015 at the end of the 12th Five-Year-Plan (2011-2015). It is not known if the policy will be extended in the 13th Five Year Plan (2016-2020). On May 10, 2015, the State Council revoked MOA's ability to issue certificates of VAT exemption for imported plant seeds and breeding animals, and the importers were asked to pay VAT till September 14, 2015, when the Ministry of Finance released implementation rules on VAT exemption for imported seeds and breeding animals for 2015. The VAT paid during this time can be rebated if importers apply before December 31, 2015.

SEED MARKET

General situation

China is the second largest seed market in the world, annually using roughly 12.5 million tons of planting seed. MOA estimates 10.1 million tons of corn, rice, wheat, soybean, potato, cotton, and rapeseeds were used in 2014, with a market value at \$13.2 billion. Commercially produced seeds account for approximately 70 percent of seed use for these crops. China is self-sufficient in rice, corn, wheat, cotton, and soybean seeds, and produces 80 percent of the vegetable and fruit seeds it uses. Farmers are relying less on saved seeds and are instead using government subsidy programs to purchase higher quality commercial seeds.

Table 4. China's Seed Market in 2014

Seed	Seed use (1,000 tons)	Average seed usage (kg/ha)	Commercial rate (%)	Market value (\$million)
Corn	1,196	29.1	100	4,419
Hybrid rice	244	15.6	100	1,912
Conventional rice	908	63.45	71	754
Wheat	4,674	194.4	76	2,672
Soybean	483	77.7	70	420
Potato	2,472	2165.8	39	2,327
Cotton	126	2.07	96	492
Rape	24	0.23	81	214

Source: 2015 Crop Seed Industry Development Report in China by MOA

Corn

Hybrid corn seed production rebounded 12 percent to 1.1 million tons in 2015 following a sharp drop in production in 2014. Acreage increased 16 percent to 228,000 hectares on demand for new varieties. Gansu and Xinjiang continues to be the largest corn seed producers in China, accounting for roughly 75 percent of total production. However, the yield in Xinjiang reportedly decreased 35-40 percent due to extremely hot weather in July. Total supply in MY 2015/16 is estimated at 1.9 million tons, including 800,000 tons of carry-in stocks. MOA estimates MY2015/16 hybrid corn seed usage at 1.2 million tons, causing stocks to decrease to 700,000 tons.

Rice

2015 hybrid rice seed production is estimated at 239,000 tons, similar to production in 2014. Acreage increased 4 percent to 97,000 hectares. Some hybrid rice seed producing areas suffered unfavorable weather conditions, such as Hunan, Sichuan, Jiangxi, Fujian and Jiangsu provinces, resulting in lower yields. Total supply in MY 2015/16 is estimated at 339,000 tons, including 100,000 tons in carry-in stocks. MOA estimates MY2015/16 hybrid rice seed demand (domestic usage and exports) at 250,000 tons, causing stocks to decrease to 89,000 tons.

Cotton

2015 hybrid cotton seed production is estimated at 1,780 tons, while conventional cotton seed production is estimated at 73,540 tons. Cotton seed production decreased 44 percent from 2014 due to weak demand resulting from a continued decline in overall cotton acreage. Cotton acreage declined approximately 30 percent over the last three years. (See [August 2015 Cotton Update](#) for more information. Cotton seed supply in MY2015/15 is estimated at 4,780 tons for hybrid seeds and 114,740 tons for conventional seeds. MOA estimates MY2015/16 hybrid cotton seed demand at 4,200 tons and conventional cotton seed demand at 88,000 tons.

Prices

Seed prices remained relatively stable in 2015. According to MOA, average seed retail prices in 2014 were as follows:

Table 5. China's Seed Prices in 2014

Crops	2014 Prices (\$/lb)	2013 prices (\$/lb)
Hybrid corn	1.65	1.61
Hybrid rice	3.49	3.45
Conventional rice	0.52	0.51
Soybean	0.55	0.54
Hybrid cotton	9.17	9.21

Source: 2015 Crop Seed Industry Development Report in China by MOA

TRADE

Imports

China imported 64,205 MT of planting seeds in MY 2014/15 valued at \$325 million, roughly the same as in MY2013/14. Grasses such as ryegrass, Kentucky grass and fescue were the most imported seeds

by value, followed by fruit and melon seeds. The United States continues to be the largest seed supplier to China, and has a high market share in grass, sunflower, and fruit seeds (see Appendix I).

Grass Seed Imports

Post forecasts that grass seed (rye, fescue, clover, and Kentucky) imports will remain stable in MY2015/16 at around 41,000 tons. While the potential elimination of VAT rebate for imported seeds may have a small short term impact on imports, its overall effect is expected to be minimal. The VAT rebate program for seeds suffered from a lack of transparency and unequal administration, and not all traders benefited equally from the program.

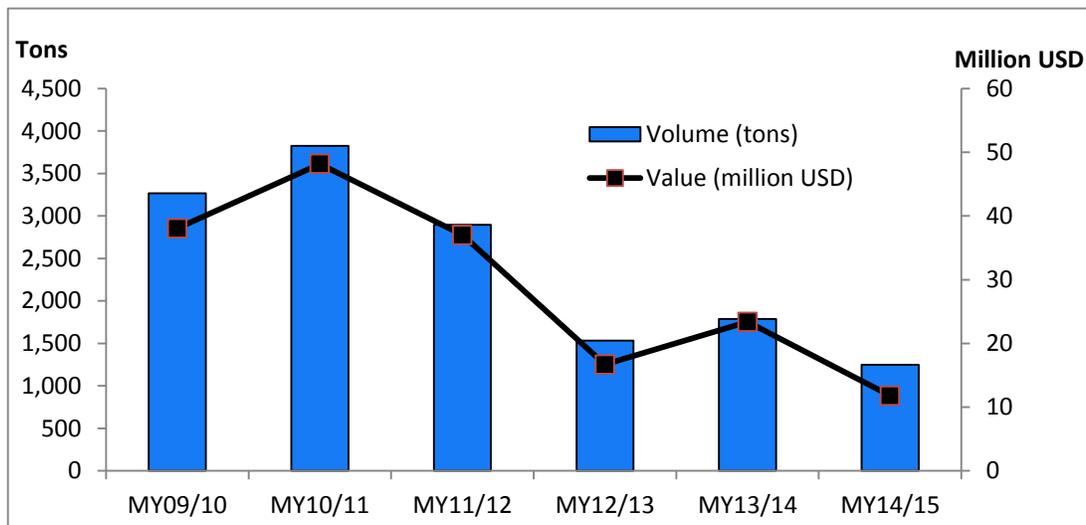
The medium term outlook for grass seed sales is cloudier. Industry contacts believe that China's landscape grass seed imports to decrease 30-40 percent in following years because of the bearish property market, government bans on golf course construction and closure of some existing courses, and fewer garden and landscaping projects as provincial government budgets become increasingly strained by the economic downturn. Forage seed imports, however, are expected to increase as a result of strong demand for forage for animal feed. On November 2, 2015, MOA released a plan called "Guidance on Corn Structural Adjustment in the "Sickle" Region" which called for corn area to be reduced by 3.33 million hectares by 2020 to alleviate excess corn stocks and reduce environmental damage. The land may be converted to other crops, including feed grass.

Sunflower Seed Imports

Post forecasts that sunflower planting seed imports will remain flat in MY2015/16 at around 1,200 tons. China's sunflower seed imports declined to 1,248 tons in MY2014/15 from 3,824 tons in MY2010/11 due to lower sunflower acreage and more competition from domestically produced seeds. Industry sources expect sunflower acreage to begin to recover as corn prices decline. However, sunflower planting seed imports are not expected to grow significantly due to higher domestic sunflower planting seed production. Industry sources report that an increasing number of variety owners are choosing to produce seeds in China to take advantage of lower production costs, reducing demand for imports.

The United States continues to be the largest supplier of sunflower seeds to China, accounting for 97 percent of China's total imports in MY 2014/15. According to Chinese Customs, the average price of sunflower seeds imported from the United States decreased 28 percent due to high domestic stocks and weak demand.

China's Sunflower Seed Imports in Volume and Value



Source: Global Trade Atlas

Vegetable Seed Imports

MY 2015/16 vegetable seed imports are forecast flat at approximately 8,500 tons. Farmers, faced with growing vegetable consumption and limited land, are looking for ways to increase yields. This in turn is generating demand for high quality seeds, including foreign varieties. Italy, Denmark, Thailand supplied 54 percent of China's vegetable seed imports in MY 2014/15.

The new Seed Law excludes all vegetables from variety registration, which may accelerate commercialization of vegetable varieties. Some vegetables were previously defined as major crops in certain provinces, such as cabbage in Shandong province and pepper in Hunan province, and were therefore subject to variety registration requirements.

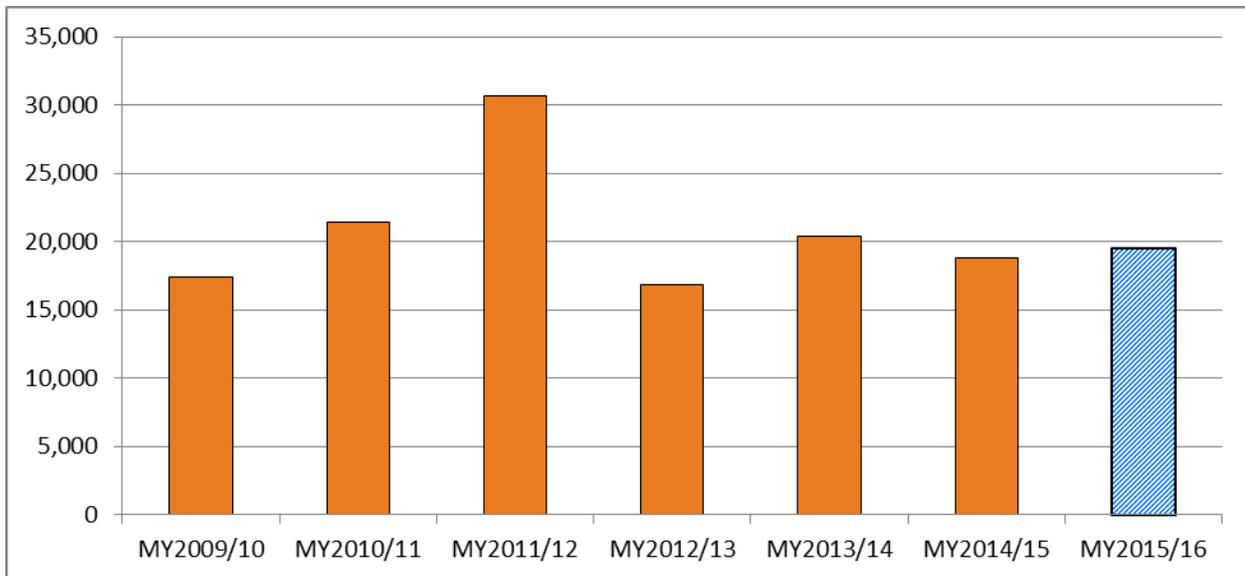
While the government has not yet released details on the variety record system to be created under the new Seed Law, industry experts believe it will include some types of vegetables. If certain types of vegetables are included, both imported varieties and domestically produced varieties will be subject to the variety record requirements.

Exports

China exported 27,299 tons of planting seeds in MY 2014/15 valued at \$263 million, similar to exports in MY2013/14. Rice seed accounted for over two-thirds of China's total planting seed exports in MY2014/15, followed by vegetable seed which accounts for 15 percent of total exports.

China's MY 2015/16 rice seed exports are forecast to rise slightly to 19,500 tons, compared to 18,769 tons in MY2014/15. China's rice seed exports have ranged between 17,000-20,000 tons over the last three years. Chinese seed companies have expressed concern that the government's tight restrictions on the movement of germplasm have hurt China's competitiveness internationally in hybrid rice seeds. China does not allow exports of hybrid parent rice seeds, and two-line hybrid rice seed exports are not allowed within five years after registration.

China's Rice Seed Exports in Tons



Source: Global Trade Atlas (MY2015/16 is Post's forecast)

Appendix I. Trade Statistics

Seed Imports from the World in Volume & Value

HS Code	MY(Jul-Jun) Planting Seeds	Volume (MT)			Value (Thousand US\$)		
		MY12/ 13	MY13/ 14	MY14/ 15	MY12/ 13	MY13/ 14	MY14/ 15
	Total	40,700	64,642	64,205	255,160	320,066	325,523
100190	Wheat	0	0	0	0	0	0
100200	Rye	0	0	0	0	0	0
100300	Barley	0	0	0	0	0	0
100400	Oats	0	0	0	0	0	0
100510	Corn	384	168	350	5,805	3,572	5,204
100610	Rice, long grain	0	0	0	0	0	0
100610	Rice, other	1	0	0	7	0	1
100700	Sorghum	0	0	0	0	0	0
100890	Other cereals	0	0	0	0	0	0
120100	Soybean seeds	0	0	0	0	0	0
120510	Rape/Colza, low erucic acid	0	0	0	0	0	3

120600 10	Sunflower	1,533	1,788	1,248	16,666	23,371	11,783
120721 00	Cotton	0	0	0	0	0	0
120910 00	Sugar beet	815	279	409	18,657	7,696	12,317
120921	Alfalfa	1,741	2,481	2,235	8,876	12,327	12,197
120922	Clover	1,798	2,300	2,946	7,475	10,639	14,496
120923	Fescue	6,957	14,636	10,740	13,606	29,621	19,903
120924	Kentucky	3,498	5,907	4,596	11,767	22,000	18,246
120925	Rye grass	12,835	21,227	22,183	17,976	30,060	30,025
120930	Herbaceous	9	27	50	14,529	11,498	13,847
120929 90	Other Forage	15	1	0	180	10	2
120999	Fruit, Melon and Other	3,566	5933	10,891	21,402	31,489	35,990
120991	Vegetable	7,548	9,895	8,557	118,21 4	137,78 3	151,50 9

Source: Global Trade Atlas

Major Seed Imports by Country of Origins

Source: Global Trade Atlas

Clover Imports Volume and Major Origins (in MT) 120922			
Country	MY12/13	MY13/14	MY14/15
Argentina	512	291	689
Denmark	215	279	597
Australia	299	511	517
United States	182	176	411
Canada	202	389	399
New Zealand	389	654	333
Total	1,798	2,300	2,946

Fescue Seeds Imports Volume and Major Origins (in MT) 120923			
Country	MY12/13	MY13/14	MY14/15
United States	6,231	13,599	10,454
Denmark	540	672	196
Canada	186	365	89
Total	6,957	14,636	10,740

Kentucky Grass Seeds Import Volume and Major Origins (in MT) 120924			
Country	MY12/13	MY13/14	MY14/15
United States	2,998	4,927	3,392
Denmark	384	954	1,204
Canada	116	26	0
Total	3,498	5,907	4,596

Rye Grass Imports Volume and Major Origins (in MT) 120925			
Country	MY12/13	MY13/14	MY14/15
United States	10,044	17,013	16,141
Denmark	737	2,224	3,769
Canada	1,771	1,422	1,571
New Zealand	218	472	547
Australia	45	45	64
Germany	21	50	42
Others	0	0	49
Total	12,835	21,227	22,183

Sunflower Planting Seed Imports Volume and Major Origins (in MT) 12060010			
Country	MY12/13	MY13/14	MY14/15
United States	1,496	1,770	1,205
Others	36	19	43
Total	1,533	1,788	1,248

Fruit, Melon and Other Import Volume and Major Origins (in MT) 120999			
Country	MY12/13	MY13/14	MY14/15
United States	2,298	4,191	6,422
Canada	312	931	2,975
Denmark	383	365	409
Australia	159	46	254
Argentina	175	154	222
Taiwan	91	88	169
Others	147	157	440
Total	3,566	5,933	10,891

Vegetable Import Volume and Major Origins (in MT) 120991			
Country	MY12/13	MY13/14	MY14/15
Indonesia	2,506	4,187	2,176
Italy	1,064	1,446	2,138
Denmark	791	860	1,378
Thailand	719	1,016	1,133
United States	524	528	383
Japan	454	394	353
Vietnam	570	853	305
Australia	222	203	244
Taiwan	9	9	102
Others	691	401	346
Total	7,548	9,895	8,557

China Seed Exports

HS Code	MY(Jul-Jun) Planting Seeds	Volume (MT)			Value (Thousand US\$)		
		MY12 /13	MY13 /14	MY14 /15	MY12 /13	MY13 /14	MY14 /15
	Total	28,376	28,847	27,299	247,941	263,931	263,022
10019010	Wheat	5	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
1005100	Corn Seed	56	261	246	148	946	1,112
10061011	Rice Long Grain	16,863	20,411	18,769	53,767	65,658	58,214
10061019	Rice Other	142	100	200	262	155	965
10071000	Sorghum	3	2	9	31	4	41
12011000	Soybeans	182	148	455	660	532	996
12051010	Rape/Colza, low erucic acid	6	5	66	13	21	323
12059010	Rape/Colza, nes	107	5	1	169	35	43
12060010	Sunflower Planting	1,184	986	1,106	4,955	4,193	4,877
12072100	Cotton Planting	98	4	850	595	43	1,644
120921	Alfalfa	228	333	105	601	1,014	461
120922	Clover	0	10	0	1	43	0
120923	Fescue	8	0	8	13	0	0
120924	Kentucky	64	10	0	404	39	0
120925	Rye Grass	5	0	3	6	0	8
120930	Herbaceous	653	514	419	13,775	9,952	11,211

12091 000	Sugar Beet	7	0	0	48	2	0
12092 910	Other Sugar Beet	13	15	22	69	111	290
12092 990	Other Forage	493	460	455	1,037	1,278	1,879
12099 1	Vegetable	7,370	4,848	4,014	164,626	174,870	176,346
12099 9	Fruit, Melon and Other	889	735	571	6,761	5,035	4,612

Source: Global Trade Atlas

China's Major Seed Exports and Major Countries of Origins

Rice, Long Grain Exports Volume and Major Destinations (in MT) 10061011			
Country	MY12/13	MY13/14	MY14/15
Vietnam	9,425	1,0643	8,301
Pakistan	3,978	6,835	4,875
Philippines	1,725	800	3,593
Bangladesh	1,518	641	1,223
Indonesia	35	1,331	573
Others	182	160	205
Total	16,863	20,411	18,769
Vegetable Seed Exports in Volume and Major Destinations (in MT)120991			
Country	MY12/13	MY13/14	MY14/15
Korea South	891	1,022	737
Netherlands	838	653	584
United States	716	727	480
Japan	444	481	436
Taiwan	267	228	323
Italy	448	361	246
Malaysia	90	83	167
Vietnam	100	179	145
Thailand	135	199	136
France	172	97	134
Bangladesh	107	95	114
Hong Kong	162	127	106
Spain	2,546	205	66
Others	454	389	339
Total	7,370	4,848	4,014

Fruit/melon Seed Exports in Volume and Major Destinations (in MT)120999			
Country	MY12/13	MY13/14	MY14/15
Korea South	423	374	252
Japan	314	206	248
United States	26	18	21
Korea North	2	98	20
Others	125	37	29
Total	889	735	571

Source: Global Trade Atlas

Appendix II

Notification of Ministry of Agriculture on Further Improving Work of Variety Test and Registration

Departments (committees and bureaus) of Agriculture (Agro-Pastoral Farming and Rural Economy) in All Provinces (Autonomous Regions and Municipalities Directly Under the Central Government), Agricultural Bureau of the Xinjiang Production and Construction Corps and Heilongjiang General Administration of Agricultural Reclamation:

Over 20,000 varieties of major crops have been registered at the state and provincial authorities since the Seed Law were implemented, which made important contribution to safeguard agricultural production and increase farmers' income. In recent years, along with rapid development of the modern agriculture and seed industry, the evaluation index, testing capacity, and technology conditions cannot meet the need under the new situation. The society has strong objection on phenomenon such as "running site"¹, even changing data, which negatively impact the authoritativeness and public credibility of variety registration. To solve the outstanding problems in variety registration, to adapt to "mode transition and structure adjustment" of agricultural production, and improve work of variety experiment and registration, hereby notify as follows:

1. Improve the guiding ideology for variety experiment and registration. Targeted with the adaption to agricultural "model transition, structure adjustment", oriented by market demand, rested on laws and regulations, adjust assessment index, expand experiment channels, promote information openness, enhance whole-way supervision, strengthen accountability pursuing, to ensure the justice, openness, science and efficiency of variety experiment registration, promote breeding innovation, and safeguard food security.

2. Establish diversified variety evaluation indexes with the variety's character safety² as priority. Meet the demand from diversified production, timely revise variety registration standard; variety character safety shall be highlighted with condition of stabilizing yield. Resistance requirement shall be increased for pest and disease that endanger agricultural production. Adapt to the demand for mechanized production to increase requirements for lodging resistance, fast drying, and mature period suitability. Adapt to demand for efficient utilization of resources to increase requirements for water-saving and fertilizer-saving. As for the varieties for special uses, market utilizing value index shall be highlighted.

3. Expand variety registration experiment channels. Further dig experiment potential, and expand the experiment capacity for crops with a large quantity of applications. Encourage seed enterprises with integrated business in breeding, production and marketing to actively conduct experiment for their own varieties. Unions of enterprises, unions of research institutes and enterprises, and unions of research institutes with experiment capacity can voluntarily carry out variety experiment, which will be incorporated into unified management when criteria is matched. Encourage inter-provinces to jointly implement variety experiment and registration.

¹ "running site" refers to under table deal for counterfeit data.

² variety's character safety mainly refers to stress resistance

4. Open to the public on experiment procedure. Open to the public on the principles, conditions and procedures for varieties applying for registration entering experiment. Varieties for experiment shall be determined fairly. Open to the public on applications, the names and entity of experimenting varieties. Listen carefully to the opinion from variety registration applicants and experts when develop experiment plans. Establish open days for variety experiments, and the applicant can conduct site inspection on the variety performance during the critical period of the crop growing. Experiment data and summary result shall timely open to the society, and receive supervision.

5. Optimize experiment plan. Rationally divide ecological sub-areas according to natural conditions and climate elements, optimize the layout of test sites, set up experiment groups and control varieties scientifically, reasonably adjust experiment method, appropriately expand experimental plot area for large crops, and reduce plot duplication. State level testing shall adjust and reduce test zones if they only cover a single province, or cover a large range, or crops with small production area. Where a variety has been registered by a province, its applicant is permitted to carry out production test in other provinces within a region of the same ecologic type and can directly apply for state registration or provincial registration or variety introduction. Separate regional tests from production tests in the respect of spatial layout. For those varieties with outstanding general characters, regional tests and production tests can be conducted synchronously in the second-year. Varieties for special uses can appropriately expand test area, reduce test sites and times, regional tests and production tests can be conducted synchronously in the second-year.

6. Strengthen management of test process. Improve the mechanism that combines coded number with real names of varieties to prevent artificial interference. Organize applicants representatives to participate in crop harvest in regional tests and production tests. The reaping data shall be reported to a higher body immediately after it is confirmed by signatures of the three parties of test personnel, the responsible person of the test entity and the applicant representatives. Establish a review mechanism for test data, strictly control summarization of abnormal data. For characters determined by one ticket veto, registration committee members shall be organized to conduct site inspection during key period, and the test body shall keep relevant videos, images and other materials. Establish a reporting system for violations, make public the telephone number for reporting, and promote social supervision over variety test, examination and approval. Where there is dissent on the evaluation result of pest and disease, the organizing entity for test shall arrange another agency to reevaluate.

7. Strengthen capacity building of test conditions. Enhance the development of Internet of Things among test sites, allocate machinery and equipment for sowing, harvesting, and seed testing; establish platforms for data collection, processing, and analysis; gradually realize auto collection, instantaneous transmission, and scientific processing of test data. Enhance training for test staffs, increase their professional quality and ability.

8. Strengthen supervision over authenticity of varieties. Establish nationally unified data bases, standard sample banks and DNA fingerprint libraries for registered varieties. Focus on variety authenticity, strengthen spot check for the seed market and supervision over seed enterprises, and combat counterfeit seeds and violations.

9. Severely crack down “running site”. Where an applicant bribes test personnel, their qualification for variety registration application shall be abolished; where a test personnel accepts bribes, they shall be subject to sanction, and the qualification for testing of the employer entity shall be revoked. Where a member of Variety Registration Committee accepts bribes or abuses his/her power, they shall be disqualified for the Variety Registration Committee, notify the employer and give associated sanction.

Where variety test and registration staffs resort to deceit, solicit or accept bribes, they shall leave the position and be subject to sanction, and the responsibilities of leadership shall be assumed to the person in charge of the entity who failed to do the management job. Information on violating laws and regulations shall be open to the public, and notify credit agency. Where a crime is constituted, criminal liability shall be assumed according to laws. Establish reporting system, open reporting phone number, and strengthen society supervision on variety test and registration.

10. Strengthen organizing and leadership. The administrative departments for agriculture shall incorporate variety registration work into performance evaluation scope, ascertain responsible bodies, and strengthen liability investigation. Establish regular exchange system for variety management personnel, and implement a system of one post for multiple persons, one person for multiple posts. Test bodies and personnel which stick to principles and have outstanding achievements during variety tests and registration should be encouraged and commended.

The administrative departments for agriculture under the people's governments of provinces, autonomous regions or municipalities directly under the Central Government shall pay high attention, formulate specific measures to improve the variety test and registration based on the notice and combined with local circumstances, constantly improve scientific level of variety test and registration.