

Seed China News

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Headline

In 2016, both planting areas and total yield of corn in China decreased while its yield per unit slightly increased. It is predicted that in 2017, domestic supply will still be sufficient and the demand will not rise, so planting areas will continue to decrease and the price will be even lower than that of 2016.

From 9 to 14 Dec. 2016, the National Corn Industrial Technology System conducted a special investigation about the mildewy corn and its kernel stockpiled in Northeast China. Results showed that high water content in maize and its kernel and simple storage method jointly contributed to high mildewing rate of maize in Northeast China.

According to the results of the 2016 annual survey of the intermediate consumption of grain crops, Heihe City, Heilongjiang Province, witnessed a relatively dramatic decline in the purchasing price of corn, which was only USD115.12/t (RMB800/t)–USD129.5/t (RMB900/t), but the cost of production input, such as seeds, fertilisers, land contract fees, basically remained the same. Therefore, farmers' benefits of planting grain crops were dramatically decreased compared with that of 2015.

This article introduces supply and demand of China's hybrid rice, cotton, potatoes, wheat and oilseed rape in 2017 in details. In 2016, new-harvested hybrid rice seeds are 280 million kg, adding 80 million kg of final effective inventory, available hybrid rice seeds total 360 million kg in 2017. 350 million kg of commercial seeds of soy bean and 82.20 million kg of commercial seeds of cotton are needed in 2017.

In 2016, the MOA of the People's Republic of China dispatched 10 supervisory groups to carry out special supervision on the monitoring of the tests of agricultural GM research in 30 provinces (autonomous regions and municipalities) and Xinjiang Production and Construction Corps, with the exception of Tibet. The MOA found that 11 units carried out small-scale intermediate experiments, which violated relevant regulations, and those 11 units were: Liaoning Dandong Academy of Agricultural Sciences, North West Agriculture and Forestry University, Hunan Hybrid Rice Research Center, the Institute of Subtropical Agriculture Ecology of Chinese Academy of Sciences, Guangxi Academy of Agricultural Sciences, Guangxi University, Jiangxi Academy of Agricultural Sciences, Jiangxi Agricultural University, Jilin Weiwei Academy of Agricultural Sciences, the Institute of Plant Protection of Chinese Academy of Agricultural Sciences, and Fujian Academy of Agricultural Sciences.

Seeds Management Station in Suzhou, Jiangsu Province published the introduction of price of conventional japonica rice seeds in 2016 and the prediction in 2017. In 2017, the prediction of the dynamic price of conventional japonica rice in Suzhou in 2017 will be about USD 0.90/kg (RMB 6.20/kg), and that of which protected by variety right will be around USD 0.92/kg(RMB 6.40/kg), with protection expense of USD 0.03 to 0.04/kg(RMB 0.2 to 0.3/kg).

On 21 Oct., 2016, Guangzhou introduced the Guangzhou International Seed Industry Centre Construction Plan (2016-2025). On 30 Dec., 2016, the unveiling ceremony of Guangzhou International Seed Industry Trade Centre Preparation Working Group was held in the Guangzhou Guansheng International Seed Industry Science and Technology Park, which indicated that Guangzhou took an important step forward in planning to build an international seed industry centre.

On 6 Dec., 2016, Shenzhen Noposition founded a new subsidiary -- Shenzhen Qianselong, whose business scope included: sales and services of seed processing machinery; design and consulting services of relevant technology, equipment, and engineering projects; sales and services of pesticides, fertilisers, and equipment that are used for such seed processing procedures as seed coating and seed dressing; health-related seed sales agents. CCM believes that in 2017, Shenzhen Noposition will increase its investment in China's seed coating businesses with a view to achieve greater market share of seed coating.

Beidahuang Kenfeng had sued Beijing Wuyouzhixiang for publishing malicious article which damaged the former company's reputation, and the case was finally ruled. The court's decision was to make defendant, Beijing Wuyouzhixiang, delete article Transgenic corn's immediate harm to livestock, publish public announcement on its website and apologise to Beidahuang Kenfeng.

Various seeds of Beidahuang Kenfeng Seed Co., Ltd. (Beidahuang Kenfeng), the biggest comprehensive seed enterprise in Heilongjiang Province, confronted rights violation conducted by the enterprise's competitors for many times. Beidahuang Kenfeng issued bulletin for variety right protection. It announced that it had obtained exclusive variety right, exclusive selling right or regional exclusive selling right of many varieties of rice, soybean and wheat.

Chinese seed industry has witnessed a relatively large number of events in 2016 that are worth reviewing. This article mainly shows some representative ones and makes comments on them.



Editor's Note

Shenzhen Noposion Agrochemicals Co., Ltd. (Shenzhen Noposion) is a domestic listed leading company in the pesticide industry that emphasises on technology and research and development (R&D). With its keen insight into the market, Shenzhen Noposion produced the first imidacloprid seed coating product "Yuezhong" in 2008, 8 years ago. During that period, Shenzhen Noposion set up a special seed coating research team, including a R&D team and a marketing team. These 8 years witnessed Shenzhen Noposion's seed coating products and marketing channels turned mature.

On 6 Dec., 2016, Shenzhen Noposion founded a new subsidiary—Shenzhen Qianselong Seed Health Science and Technology Service Co., Ltd. As a wholly-owned subsidiary of Shenzhen Noposion that integrates the development, sales, and services of seed processing products, Shenzhen Qianselong, relying on Shenzhen Noposion's advanced production and supply platform, is committed to provide quality products and professional services to seed companies, farms, and large farmers. It is reported that the seed coating sales of Shenzhen Noposion in 2016 doubled, reaching USD8.63 million to USD10.07 million (RMB60 million to RMB70 million), and the sales of some large product alone exceeded RMB10 million (USD1.44 million). The channels of seed companies are becoming increasingly perfect, and with close cooperation with a great number of large-scaled seed enterprises, Shenzhen Noposion has a brighter future in its sales of seed coating products. It seems that Shenzhen Noposion is catching up with foreign giants in the seed industry, and it is likely to become the third largest seed coating manufacturers, trisecting the seed coating market with the largest and the second largest seed coating producers, namely Bayer Crop Science AG and Syngenta AG.

The USD/RMB exchange rate in this newsletter is USD1.00=RMB6.9498 on 3 Jan., 2017, sourced from the People's Bank of China. All the prices mentioned in this newsletter will include the VAT, unless otherwise specified.

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Market Dynamics

China's corn industry: analysis of 2016 and development trend of 2017

Summary: In 2016, both planting areas and total yield of corn in China decreased while its yield per unit slightly increased. It is predicted that in 2017, domestic supply will still be sufficient and the demand will not rise, so planting areas will continue to decrease and the price will be even lower than that of 2016.

According to materials and data revealed by insiders of China's corn industry, in 2016, both planting areas and total yield of corn in China decreased while its yield per unit slightly increased. It is predicted that in 2017, domestic supply will still be sufficient and the demand will not rise, so planting areas will continue to decrease and the price will be even lower than that of 2016.

1. Analysis of China's corn industry in 2016

Planting areas, yield per unit and total yield of corn:

In 2016, compared with that of 2015, domestic planting areas of corn was 36.76 million ha, a 3.11% decrease; yield per unit was 5.97 t/ha, an increase of 1.36% and total yield was 219 million tonnes, a decrease of 5 million tonnes.

Demands of corn:

In 2016, both demands for feedstuffs and for industry rose. Affected by growth in the amount of the living pigs on hand and generative sows on hand, and the decrease in import volume of sorghum, barley, DDGS and other substitutes, consumption of corn feedstuffs in 2015/2016 was predicted to be 102 million tonnes, presenting an increase of 2 million tonnes compared with last year, and that of corn industry would be 4.08 million tonnes more than last year, totaling 54.40 million tonnes.

Price of corn:

Under the circumstance of loose domestic supply and demand situation and the elimination of corn stockpiling policy, China's corn price in 2016 was obviously lower than that of 2015. In Oct. 2016, domestic purchasing price of corn was about USD201.44/t (RMB1400/t), a year-on-year decrease of 30%.

Although domestic price of corn was declining, it was still higher than that of imported one. In Oct. 2016, at ports in South China, average CIF price of American corn was USD220.29/t (RMB1531/t) while that of domestic one was USD270.94/t (RMB1883/t).

Import volume of corn:

China's import volume of corn decreased in 2016. Accumulated import in 2015/2016 was 3.17 million tonnes, a YoY decrease of 42.5%. Regarding importers, Ukraine was the biggest corn importer of China, meaning that 89.3% of corn came from Ukraine.

2. Development trend of China's corn industry in 2017

Supply:

Although the supply of corn decreases, it is predicted that our domestic corn market will still be in surplus, and huge inventory will also contribute to loose domestic corn supply.





Demands:

It is predicted that domestic demands of corn will increase in 2017. Main factors are the following: Firstly, China has already resumed offering export subsidies for deeply processing products. Secondly, in Northeast China government provides subsidies for deep-processing enterprises which purchase corn. Thirdly, corn-based fuel ethanol is expected to grow. Fourthly, the amount of living pigs on hand has been recovered, that of imported substitutes decreases and that of corn replaced by wheat falls.

Planting areas:

According to restructure plan of corn planting, planting areas for corn in China will decrease by 3.33 million ha (50 million mu) by 2020. The number totaled about 2 million ha (30 million mu) in 2016. And in 2017, domestic planting areas for corn will experience further decrease, meaning a decrease of about 666.67 thousand ha (10 million mu).

Price:

In 2016, China replaced the corn stockpiling policy with subsidies to corn producers. The price of corn will depend on market demand and supply, and market subjects, instead of the country, will then purchase the corn. All these make downward pressure of corn price increase. It is predicted that in 2017, price of domestic corn market will be lower than that of 2016.

China plans to increase alfalfa seed per unit area yield to 450kg per ha by 2020

On 27 Dec., 2016, the Ministry of Agriculture of the People's Republic of China issued the *National Alfalfa Industry Development Plan (2016-2020)*. According to the plan, China's alfalfa seed per unit area yield was 345kg/ha (23kg/mu) in 2015, and China's goal is to increase the figure to 450kg/ha (30kg/mu).

It's mentioned in this plan that the breeding and promotion of new alfalfa varieties will be mainly conducted in Northwest China. During the 13th Five-year Plan period (2016-2020), China plans to construct 10 stock seed breeding bases, with each annual planting area more than 666.67 thousand ha (1 million mu,) and 50 fine seed breeding bases, with each annual planting area more than 133.33 ha (2,000 mu).

Mildewy corn and its kernel: investigation results in Northeast China

Summary: From 9 to 14 Dec. 2016, the National Corn Industrial Technology System conducted a special investigation about the mildewy corn and its kernel stockpiled in Northeast China. Results showed that high water content in maize and its kernel and simple storage method jointly contributed to high mildewing rate of maize in Northeast China.

From 9 to 14 Dec., 2016, the National Corn Industrial Technology System in China conducted a special investigation about the mildewy maize and its kernel stockpiled in Northeast China. It investigated 1,348 farmers (or agricultural cooperatives) in 75 model counties (or farms) in 15 experiment stations, and got 1,287 samples in which 442 represented 3829.44 ha (57,441.6) in area in Heilongjiang Province, 421 for 1088.11 ha (16,321.7 mu) in Jilin Province, 215 for 373.84 ha (4,520 mu) in Liaoning Province and 209 for 581.93 ha (8,729 mu) in Inner Mongolia Autonomous Region.

Nine indexes were included in the investigation: maize varieties planted, sowing date, growth period, local active accumulated





temperature, storage method, current kernel water content, mildewing rate of maize and its kernel, and damage grade.

The following are main investigation results:

Firstly, it is severe that with numerous and jumbled varieties, many kinds of corn are planted in unsuitable regions.

Totalling several hundreds of corn varieties are found in 1,287 effective samples, which are numerous and jumbled. Yield gap in the same region is relatively wide, which is a common phenomenon in Heilongjiang Province, and also happens in Jilin Province. For example, Xinxin 1, the maize variety in the second accumulated temperature zone of Heilongjiang Province, is now planted in Keshan County, which is located in the lower limit of the third accumulated temperature zone of the province. In Huinan County, Jinlin Province, the local annual active accumulated temperature is only 2,750°C, while many farmers here choose to grow Tiannong 9, a variety requiring the accumulated temperature of 2,800°C.

Secondly, while sowing dates are optimal, harvest times differ from the south to the north.

The sowing date of the first accumulated temperature zone in Liaoning Province, Jinlin Province, Heilongjiang Province and Inner Mongolia is, generally speaking, late April, with a small number in early May. In the second, the third and the fourth accumulated temperature zone of Heilongjiang Province, the date is from early May to mid-May. All of them are optimal sowing dates. The harvest time in Liaoning Province comes the earliest, which is late Sept., while the latest one comes in mid-Nov. in the fourth accumulated temperature zone of Heilongjiang Province. In other regions, the time is early and mid-Oct.

The shortest growth period (from sowing to maturing) is 104 days, while the longest one is 155 days. The majority is 120 to 130 days. Overall, the growth period is too long, because for many varieties, they still don't reach the stage of full maturity even if their maturity is close to or close in the date of first frost.

Thirdly, corn kernel water content is high in general, especially in Heilongjiang Province and Jilin Province.

Taking mu (a unit) as the cardinal of weighted average, now the weighted average water content of sample corn kernels in three Northeast provinces is 27.90%, within which, that of those with simple storage facilities is 29.20% while for those without these facilities, the statistic is 27.10%.

Fourthly, the mildewing rate is relatively high, and that of Jilin Province ranks the top.

A mixed investigation of the rotting rate of corn and the mildewing rate of the kernel was conducted upon more than 90% of samples. Therefore, taking mu (a unit) as the cardinal of weighted average is the only way to calculate mildewing rate. The weighted average mildewing rate in three Northeast provinces is 0.73%, while in Jilin Province the statistic is 1.86%, which ranks the top among the three provinces.

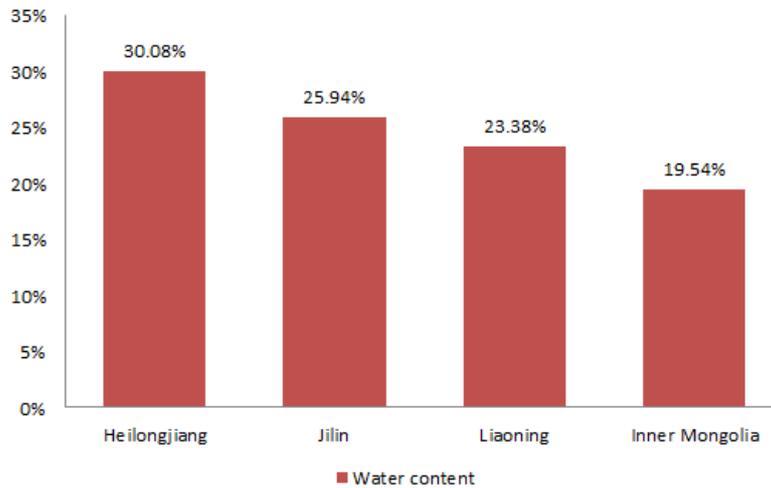
The investigation showed that in most of regions in Northeast China, almost all corn is harvested by machine instead of human. Machine mainly harvest corn, which accounts for 90.80% of samples in the investigation, and the other are mostly kernels harvested by machine. However, kernels for most of corn varieties in China are not suitable to be harvested by machine, which will not only raise the damage rate of kernel, but also give rise to higher mildewing rate if there are no modern drying and storage facilities.

Therefore, the National Corn Industrial Technology System suggests that purchasing & storage enterprises should be encouraged



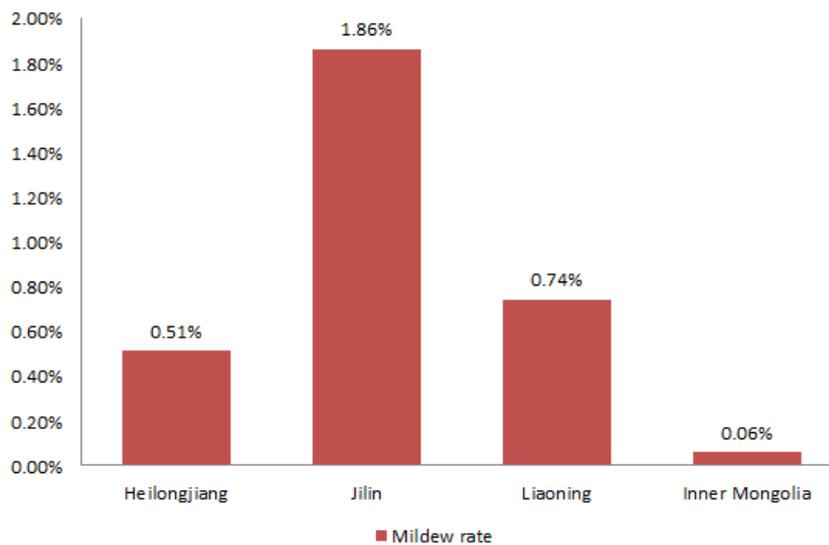
to accelerate their purchase of qualified corn which is for sale, develop early maturity and anti-adversity varieties which is endurable with high density, and improve storage methods to decrease the water content and mildewing rate of corn kernels.

Figure 1: Water content of corn kernel in Northeast China



Source: National Corn Industrial Technology System

Figure 2: Mildewing rate of corn kernel in Northeast China



Source: National Corn Industrial Technology System

Situation of costs and profits of planting corn in Heihe in 2016

Summary: According to the results of the 2016 annual survey of the intermediate consumption of grain crops, Heihe City, Heilongjiang Province, witnessed a relatively dramatic decline in the purchasing price of corn, which was only USD115.12/t (RMB800/t)–USD129.5/t (RMB900/t), but the cost of production input, such as seeds, fertilisers, land contract fees, basically remained the same. Therefore, farmers' benefits of planting grain crops were dramatically decreased compared with that of 2015.

Up to now, according to the Heihe City investigation team of the National Bureau of Statistics, according to the results of the 2016 annual survey of the intermediate consumption of grain crops, Heihe City, Heilongjiang Province, witnessed a relatively dramatic



decline in the purchasing price of corn, which was only USD115.12/t (RMB800/t)–USD129.5/t (RMB900/t), but the cost of production input, such as seeds, fertilisers, land contract fees, basically remained the same. Therefore, farmers' benefits of planting grain crops were dramatically decreased compared with that of 2015.

In 2015, the planting area of corn in Heihe City, Heilongjiang Province, was 0.48 million ha (7.17 million mu). In 2016, Heihe City further accelerated the adjustment of the planting structure of grain crops, which decreased the planting area of corn. CCM predicts that in 2016, the planting area of corn in Heihe City would be 0.37 million ha (5.50 million mu) or so.

In Sept. 2016, the Heilongjiang provincial government issued the *2016 Heilongjiang Province Implementation Plan of the Pilot Work of Soybean Rotation Replacing Corn*, which pointed out that the planting area of the pilot work was 0.43 million ha (6.5 million mu). The cultivated land crop rotation system pilot sites would be situated in the fourth and the fifth accumulative temperature zones and the pilot planting area would be 0.17 million ha (2.50 million mu). To be more specific, 2.67 thousand ha (40 thousand mu) in Yinchun City, 0.12 million ha (1.86 million mu) in Heihe City, and 40 thousand ha (600 thousand mu) in Heilongjiang Farms & Land Reclamation Administration. The pilot work would be focused on the soybean producing area.

1. The situation of the costs of planting corn

In terms of the costs of planting corn in Heihe City, Heilongjiang Province, different growers have different cost inputs. The costs of the planting industry are mainly made up of material consumption costs and production & service expenditures. To be more specific, material consumption costs mainly includes seeds, fertilisers, pesticides, fuel and so on. It is estimated that seeds, fertilisers, and pesticides account for 97.6% of the cost of material consumption, while others only occupy 2.4%.

(1) Main costs of the large grain producers

According to the survey, the total operating costs of large grain producers is USD1493.98/ha (RMB692.19/mu). Among the costs, large grain producers spend more money in land contracts and fertilisers. It cost them USD834.63/ha (RMB386.7/mu) to contract lands, which accounts for 55.87% or so of the total costs. To purchase fertilisers, USD261.85/ha (RMB121.32/mu) is spent, which accounts for 17.53%. In the next place comes the fuel fee and employment cost, which is USD225.33/ha (RMB104.4/mu) in total, accounting for 15.08%.

(2) Main costs of average grain producers

Average grain producers only refer to those who have no outsourced lands and only plant in lands they themselves have contracted. In other words, family is the operating unit. According to the survey, the lowest total cost of average grain producers is USD666.69/ha (RMB308.89/mu), USD827.29/ha (RMB383.3/mu) less than that of large grain producers, accounting for 44.63% of that of large producers. The costs mainly include that of fertilisers and seeds. Specifically speaking, the fertiliser input is USD222.96/ha (RMB103.3/mu), accounting for 33.4% of the total costs; the seed input is USD172.67/ha (RMB80/mu), accounting for 25.9% of the total costs; the cost of mechanised farming is USD179.79/ha (RMB83.3/mu), accounting for 26.97% of the total costs.

2. Factors influencing the costs of planting corn

(1) Land contract fee and the cost of mechanised farming are major factors resulting in the high costs for large grain





producers

Large grain producers employ intensive management of agriculture, and lands they operated are mainly contracted. In recent years, the rising price of corn has pushed up land contract fees. From the survey results, the land contract fee of dry farm is divided into several grades according to the degree of soil fertility, namely, USD431.67/ha (RMB200/mu), USD647.5/ha (RMB300/mu), USD863.33/ha (RMB400/mu), and USD935.21/ha (RMB433.3/mu). The price of lands contracted by large grain producers is mainly in the medium level. In addition, the degree of mechanisation of intensive management of agriculture is relatively high, therefore, though the labor intensity of farmers is decreased, the costs are increased, especially costs in labor employment.

(2) Policy subsidy

In the calculation of the income of each crop, besides its price, the various subsidies provided by government of various levels shall also be calculated. However, in 2016, the policy of separating corn price and corn subsidy is implemented, so without consideration of subsidies and taking factors affecting the selling price alone, the price of corn has dropped by 64% YoY since the beginning of purchasing autumn grains in 2016.

In terms of normal annual yields, Demeiya1 and Demeiya2, two new corn varieties, can be planted in the fourth, the fifth, and the sixth accumulative temperature zones in Heihe region, and their average yield is 9975 kg/ha (665kg/mu) or so.

Assuming that the acquisition price of corn is the same as that in 2015, which is USD0.2/kg (RMB1.4/kg), the sales of corn is USD2,009.41/ha (RMB931/mu) without contracting farmlands. After the deduction of costs, USD666.69/ha (RMB308.89/mu), the net profit of selling corn is USD1,343.72/ha (RMB622.11/mu), and the profit rate is 66.8%.

However, if assuming that the acquisition price of corn is the same as that in 2016, which is USD0.13/kg (RMB0.9/kg), the sales of corn is USD1,281.76/ha (RMB598.5/mu). The net profit is USD717.65/ha (RMB332.5/mu) less than that of 2015, down by 53.25% YoY.

World's first microbial corn seed coating enters market

The BioAg Alliance, co-founded by Monsanto Company and Novozymes, announced to promote its latest product, Acceleron® B-300 SAT, the world's first microbial seed coating product used for ex-factory processing of corn seeds. The active constituent of Acceleron B-300 SAT is extracted from a kind of fungus in soil. In the corn field experiments in the most recent two years, Acceleron B-300 SAT made remarkable results, with the yield of corn per acre being increased by 3 bushels (about 12.55 kg/mu) on average. In 2017, all hybrid corn seeds of Monsanto Company that will be sold in the American market will be processed by Acceleron B-300 SAT before leaving factories.

"Harnessing the power of nature's microbes, farmers will be able to produce more crops while using fertilisers more efficiently and producing less carbon dioxide. This will benefit agriculture, consumers and the environment," said Colin Bletskey, vice president of the biological agriculture business of Novozymes, "This is the first product jointly developed by Monsanto and Novozymes, and it shows the kind of innovation we can achieve in The BioAg Alliance. We believe that it could be applied to more than 90 million acres (about 546 million mu) by 2025."





Supply and demand of China's hybrid rice, cotton, potatoes, wheat and oilseed rape in 2017

Summary: This article introduces supply and demand of China's hybrid rice, cotton, potatoes, wheat and oilseed rape in 2017 in details. In 2016, new-harvested hybrid rice seeds are 280 million kg, adding 80 million kg of final effective inventory, available hybrid rice seeds total 360 million kg in 2017. 350 million kg of commercial seeds of soy bean and 82.20 million kg of commercial seeds of cotton are needed in 2017.

This article introduces supply and demand of China's hybrid rice, cotton, potatoes, wheat and oilseed rape in 2017 in details.

Supply in 2017:

1. Hybrid rice

For hybrid rice seeds, although its planting areas are hit by various natural disasters, its yield reduction is less severe than last year, and its yield per unit area is close to normal year. In 2016, the actual planting areas of hybrid rice seed were 108.67 ha (1,64 million mu) with 280 million kilograms seeds harvested, a relatively increase of 12 thousand ha (180 thousand mu) and 41 million kilograms in the year on year basis, meaning a relatively increase of 12.41% and 17.15%. Planting areas of three-line hybrid rice and two-line hybrid rice were 43.33 thousand ha (650 thousand mu) and 6.53 thousand ha (98 thousand mu), and yield of which were 106.16 million kg and 173.83 million kg. Planting areas of early rice, mid-season rice and late rice were 21.33 thousand ha (320 thousand mu), 64.6kg, 169.37 million kg and 56.92 million kg. Although for hybrid rice seeds in 2016, its planting areas were hit by various natural disasters, its yield reduction was less severe than 2015, and its yield per unit area was close to normal year. Jiangsu, Hunan and Jiangxi provinces were mainly hit, meaning that they were affected by typhoon and heat, and the yield reduction of seeds was 22 million kg.

2. Conventional rice

In 2016, planting areas for conventional seeds increased to 128.67 thousand ha (1.93 million mu), with 894 million kg harvested. Production areas, Heilongjiang Province, Jiangsu Province and Anhui Province, were relatively hit by typhoon, flood and heat, and experienced yield reduction of more than 40 million kg.

3. Cotton

In 2016, production areas for cotton seed were 50 thousand ha (750 thousand mu), with 74.62 million kg seeds harvested, a decrease of 2 thousand ha (30 thousand mu) in area and 700 thousand kg in yield on the year on year basis. Hybrid cotton was 933.33 ha (14 thousand mu) with the yield of 1.09 million kg, and conventional cotton 49 thousand ha (735 thousand mu), with the yield of 75.53 million kg.

4. Soybean

In 2016, planting areas for bean were 191.33 ha (2.87 million mu), with 444 million kg seeds harvested, an increase of 30 thousand ha (450 thousand mu) in area and 72 million kg in yield. Because of drought, the production area Heilongjiang Province confronted the yield decrease of 16 million kg.

5. Potatoes





In 2016, the amount of potatoes increased 1.5 billion kg. Planting areas for potatoes were 393.33 ha (5.90 million mu), with total yield of 8.5 billion kg, representing a year-on-year increase of 96 thousand ha(1.44 million mu) in area and 1.5 billion kg in yield. Production areas like Gansu Province, Ningxia Province and Inner Mongolia Autonomous Region were affected by heat and drought and confronted relatively severe yield reduction.

6. Winter wheat

In 2017, planting areas for winter wheat will be stable, and the amount of seeds will meet the demands and will be sufficient to maintain market stability nationwide. In Henan, Anhui and Jiangsu provinces, summer wheat is affected by gibberellic disease and pre-harvest sprouting, so the commercialising rate of winter wheat rises and more of its seedlings are planted per mu. In this season, planting areas of winter wheat is 8.21 million ha (12.32 million mu), a year-on-year increase of 8 thousand ha (120 thousand mu), with expected seed yield of 5.3 billion kg. In 2017, planting areas for winter wheat will be stable, and it is projected that the amount of seed will meet the demand of 2017.

7. Winter oilseed rape

Market of winter oilseed rape seed is still weak, and the price of which remains stable.

Because of natural disaster, summer seeds experienced severe yield reduction across the nation. However, affected by constant slump in price of agricultural productions, and with huge inventory, the market for winter oilseed rape seed is still weak, and the price of which remains stable. According to initial statistic given by provinces, in 2016, actual size of oilseed rape seed farmland were 9.33 thousand ha (140 thousand mu), a year-on year decrease of 1.33 thousand ha (20 thousand mu), representing a trend of constant decrease, with 12.90 million kg of projected yield in the farmland. Planting areas for hybrid winter oilseed rape were 7.33 ha (4.27 million kg) with projected yield of 8.63 million kg. And planting areas for conventional winter oilseed rape were 2 thousand ha (30 thousand mu), with projected yield of 4.17 million kg. In 2017, if planting areas for winter oilseed rape and the consumption of its seed are stable, there will be balance between supply and demand in terms of seed market.

Demand in 2017:

1. Hybrid rice

Planting areas for hybrid rice moderately decrease. Total demand of its seed is 240 to 250 million kg; and the relation between supply and demand is obviously divided, with the situation of supply exceeding demand aggravating again. In 2016, new-harvested hybrid rice seeds were 280 million kg, and because of 80 million kg of final effective inventory, available hybrid rice seeds total 360 million kg in 2017.

Affected by expanding planting areas of high quality conventional rice, planting areas of hybrid rice moderately decrease. However, because of more and more direct seeding rice and rice transplanting with machine, total demand of seed is 240 to 250 million kg. While final remaining seeds are 110 to 120 million kg, the situation of supply exceeding demand aggregates. Considering variety structure, the increase of planting areas for hybrid rice seed in 2016 and the decrease in yield because of natural disasters balance out, so the amount of available seeds in 2017 will not experience greatly increase, and it is projected that tight balance will still come out in Jiangxi, Hunan and Zhejiang provinces. Sufficient conventional early rice seeds which can serve as complement for supply can avoid the price of early rice seed from drastic fluctuation. With 114 million kg of new-harvested seeds and final inventory,





three-line hybrid rice is expected to continue to have its supply exceeded its demand in 2017.

2. Conventional rice

It is projected that in 2017, the commercialising rate and planting areas of conventional rice will increase. As the demand for commercial seeds of conventional rice is 700 million kg, the amount of it will meet the demand of 2017.

3. Soybean

Generally speaking, planting areas of soybean remain 6.4 million ha (96 million mu). As the demand for commercial seeds of bean is 700 million kg, the amount of it will meet the demand of 2017.

4. Conventional cotton

It is projected that in 2017, planting areas for cotton will continue to decrease, for hybrid cotton will remain 0.73 million ha (11 million mu), and for conventional cotton decrease to 2.4 million ha (36 million mu). Total demand for commercial seeds of cotton is 82.20 million kg in 2017 while the supply is 94.62 million kg, representing balance between supply and demand.

5. Potatoes

Annual planting areas for potatoes in China are about 5.33 million ha (80 million mu). In 2017, planting areas and demand for potatoes will be stable, and the amount of its seeds will be enough to meet the demand of 2017.

Amount of unqualified seed varieties in China in 2016 much less than 2015

On 26 Dec., 2016, the Ministry of Agriculture of the People's Republic of China published inspection results of spring crops seed market in 2016, which showed that unqualified variety amount totaled 13. As the number in 2015 was 44, the result represented a drastic decrease in number. After years of special actions in combating false and inferior seeds, China's seed market order has been further standardised, seed quality has been improved and agriculture production has been safer.

In 2016, the special inspection of spring crops seed market and special governance action of regional seed illegal activities found 3 unqualified varieties, which were corn variety "Yudan802" produced by Gansu Sansheng Agricultural Development Co., Ltd. and sold by Heinan Fengle Agricultural Means of Production Co., Ltd., and rice variety "Keliangyou901" produced by Hainan Shennong Dafeng Seeds Technology Co., Ltd. and sold by Heinan Jindun Agricultural Planting Professional Cooperative. There were also 10 varieties with unqualified authenticity including corn variety "Tieyan24" produced by Inner Mongolia Chaoyang Xingnong Seeds Co., Ltd. and sold by Yuanbaoshan Tashi biological resources station, and rice variety "Fuyou135" produced by Jilin Gongzhuling Songliao agricultural sciences institute, and sold by Shuangyang Zefeng Seeds sales agency.





Eleven units research GM crops in violation of provisions on Safety Administration of Agricultural GM Crops

Summary: In 2016, the MOA of the People's Republic of China dispatched 10 supervisory groups to carry out special supervision on the monitoring of the tests of agricultural GM research in 30 provinces (autonomous regions and municipalities) and Xinjiang Production and Construction Corps, with the exception of Tibet. The MOA found that 11 units carried out small-scale intermediate experiments, which violated relevant regulations, and those 11 units were: Liaoning Dandong Academy of Agricultural Sciences, North West Agriculture and Forestry University, Hunan Hybrid Rice Research Center, the Institute of Subtropical Agriculture Ecology of Chinese Academy of Sciences, Guangxi Academy of Agricultural Sciences, Guangxi University, Jiangxi Academy of Agricultural Sciences, Jiangxi Agricultural University, Jilin Weiwei Academy of Agricultural Sciences, the Institute of Plant Protection of Chinese Academy of Agricultural Sciences, and Fujian Academy of Agricultural Sciences.

In 2016, the Ministry of Agriculture (MOA) of the People's Republic of China dispatched 10 supervisory groups to carry out special supervision on the monitoring of the tests of research on agricultural genetically modified (GM) crops in 30 provinces (autonomous regions and municipalities) and Xinjiang Production and Construction Corps, with the exception of Tibet. The special supervision covered 93 research and development institutes, made inspections of 147 agricultural research and breeding field test bases, and examined more than 1600 samples, basically realising the full coverage of major agricultural research and breeding units and crop field test bases. The MOA found that 11 units violated regulations to carry out small-scale intermediate tests. Though those tests were carried out in test bases with safety control measures and control conditions, they had not been reported to the MOA as required by laws and regulations. The MOA gave corresponding punishments to those 11 units, and they were: Liaoning Dandong Academy of Agricultural Sciences, North West Agriculture and Forestry University, Hunan Hybrid Rice Research Center, the Institute of Subtropical Agriculture Ecology of Chinese Academy of Sciences, Guangxi Academy of Agricultural Sciences, Guangxi University, Jiangxi Academy of Agricultural Sciences, Jiangxi Agricultural University, Jilin Weiwei Academy of Agricultural Sciences, the Institute of Plant Protection of Chinese Academy of Agricultural Sciences, and Fujian Academy of Agricultural Sciences.

1. Liaoning Dandong Academy of Agricultural Sciences violated regulations to carry out GM corn tests

The MOA found that Liaoning Dandong Academy of Agricultural Sciences illegally planted test materials of GM corn in its corn breeding base. In addition, according to reports of the Hainan Provincial Department of Agriculture, this academy had also illegally carried out GM corn tests in the Hainan Breeding Base. In view of the academy's inappropriate fulfillment of duties of the safety management of genetically modified organisms (GMOs), and its incompetence in internal controls, the MOA decided to suspend the academy's agricultural GMOs safety evaluation intermediate test qualification from 2017 to 2019, terminate the Dandong comprehensive experimental station project of the modern agriculture industry technology system of corn undertaken by the academy, and cancel its qualifications to undertake the MOA's scientific projects during the 13th Five Year Plan period.

2. North West Agriculture and Forestry University carried out GM corn intermediate tests without reporting to the MOA

The MOA found that North West Agriculture and Forestry University carried out GM corn intermediate tests in the test base in its north campus. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required. Therefore, the MOA decided to suspend the university's agricultural GMOs safety evaluation intermediate test qualification in 2017.



3. Hunan Hybrid Rice Research Centre carried out GM rice intermediate tests without reporting to the MOA

The MOA found that Hunan Hybrid Rice Research Centre carried out GM rice intermediate tests in its GM test base. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required. Therefore, the MOA decided to suspend the center's agricultural GMOs safety evaluation intermediate test qualification in 2017.

4. The Institute of Subtropical Agriculture Ecology of Chinese Academy of Sciences carried out GM rice intermediate tests without reporting to the MOA

The MOA found that the Institute of Subtropical Agriculture Ecology of Chinese Academy of Sciences carried out GM rice intermediate tests in its test base. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required by laws and regulations. Therefore, the MOA decided to suspend the institute's agricultural GMOs safety evaluation intermediate test qualification in 2017.

5. Guangxi Academy of Agricultural Sciences carried out GM rice intermediate tests without reporting to the MOA

The MOA found that Guangxi Academy of Agricultural Sciences carried out GM rice intermediate tests in its test base. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required by laws and regulations. Therefore, the MOA decided to suspend the academy's agricultural GMOs safety evaluation intermediate test qualification in 2017.

6. Guangxi University carried out GM sugarcane intermediate tests without reporting to the MOA

The MOA found that Guangxi University carried out GM sugarcane intermediate tests in its test base. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required by laws and regulations. Therefore, the MOA decided to suspend the university's agricultural GMOs safety evaluation intermediate test qualification in 2017.

7. Jiangxi Academy of Agricultural Sciences carried out GM rice intermediate tests without reporting to the MOA

The MOA found that Jiangxi Academy of Agricultural Sciences carried out GM rice intermediate tests in its test base. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required by laws and regulations. Therefore, the MOA decided to suspend the academy's agricultural GMOs safety evaluation intermediate test qualification in 2017.

8. Jiangxi Agricultural University carried out GM rice intermediate tests without reporting to the MOA

The MOA found that Jiangxi Agricultural University carried out GM rice intermediate tests in its test base. Although the test base was equipped with safety control measures and control conditions, those tests were not reported to the MOA as required by laws and regulations. Therefore, the MOA decided to suspend the university's agricultural GMOs safety evaluation intermediate test qualification in 2017.

9. Jilin Weiwei Academy of Agricultural Sciences planted a small amount of GM corn test materials without reporting to the MOA



The MOA found that Jilin Weiwei Academy of Agricultural Sciences planted a small amount of GM corn test materials in its test base and did not report to the MOA. Therefore, the MOA decided to suspend the academy's agricultural GMOs safety evaluation intermediate test qualification in 2017.

10. The Institute of Plant Protection of Chinese Academy of Agricultural Sciences took the liberty of changing the location of GM rice intermediate tests, but did not report to the MOA

The MOA found that the Institute of Plant Protection of Chinese Academy of Agricultural Sciences entrusted Fujian Academy of Agricultural Sciences to carry out GM rice intermediate tests in the South China rice region GM rice intermediate test and industrialization base. It was reported to the MOA that those tests would be carried out in the Chinese Academy of Agricultural Sciences test base in Langfang City, Hebei Province, rather than in the South China rice region GM rice intermediate test and industrialization base of Fujian Academy of Agricultural Sciences. In view that the institute took the liberty of changing the location of GM rice intermediate tests but did not report to the MOA, the MOA decided to suspend its agricultural GMOs safety evaluation intermediate test qualification in 2017.

11. Fujian Academy of Agricultural Sciences carried out GM rice intermediate tests without reporting to the MOA

The MOA found that entrusted by the Institute of Plant Protection of Chinese Academy of Agricultural Sciences, Fujian Academy of Agricultural Sciences carried out GM rice intermediate tests in the South China rice region GM rice intermediate test and industrialization base. Before carrying out the entrusted tests, the academy did not check relevant materials and failed to find out that the Institute of Plant Protection of Chinese Academy of Agricultural Sciences had deliberately changed the test location without reporting to the MOA. Therefore, the MOA decided to suspend the academy's agricultural GMOs safety evaluation intermediate test qualification in 2017.

Among the 11 units that have been punished, there are some well-known research institutes, such as the Institute of Plant Protection of the Chinese Academy of Agricultural Sciences, Liaoning Dandong Academy of Agricultural Sciences, and Hunan Hybrid Rice Research Center. Together with the MOA's punishments to these 11 units, CCM believes that the MOA is very strict with the research on GM crops carried out by China's various types of research institutes. After the MOA's punishment of the 11 units, CCM believes that in future, various kinds of China's research institutes certainly will abide by relevant laws and regulations when carrying out research on GM tests.

Suzhou conventional japonica rice price: introduction in 2016 and prediction in 2017

Summary: Seeds Management Station in Suzhou, Jiangsu Province published the introduction of price of conventional japonica rice seeds in 2016 and the prediction in 2017. In 2017, the prediction of the dynamic price of conventional japonica rice in Suzhou in 2017 will be about USD 0.90/kg (RMB 6.20/kg), and that of which protected by variety right will be around USD 0.92/kg(RMB 6.40/kg), with protection expense of USD 0.03 to 0.04/kg(RMB 0.2 to 0.3/kg).

On 15 Dec., 2016, the Seeds Management Station in Suzhou City, Jiangsu Province published the introduction of price of conventional japonica rice seeds in 2016 and the prediction in 2017.

1. Price of rice and conventional japonica rice in Suzhou in recent three years





In 2016, the purchasing price of rice was USD 0.45/kg (RMB 3.10/kg), which was the same as that in 2014 and 2015. In 2014, the sales price of conventional japonica rice was USD 0.82/kg (RMB 5.71/kg), a year on year increase of 2.77%; in 2015, the figure was USD 0.86/kg (RMB 5.95/kg), increasing 4.20% on the year on year basis; and in 2016, that was USD 0.88/kg (RMB 6.12/kg), an year on year increase of 2.86%.

2. The prediction of dynamic price of conventional japonica rice in 2017

Purchasing price of seeds:

Production and purchasing price of improved variety of rice (purchasing price) is decided according to costs of agricultural means of production, labor and management, and is appropriately raised on the basis of the base price of that year. In 2016, the average purchasing price of conventional japonica rice in Suzhou was USD 0.50/kg (RMB 3.50/kg).

Costs of seeds processing, packing, storage and transportation:

In 2016, costs of seeds processing, packing, storage and transportation (processing costs) mainly included: USD 0.02/kg (RMB 0.12/kg) for transportation and incidental expenses, USD 0.02/kg (RMB 0.13/kg) for storage, USD 0.11/kg (RMB 0.75/kg) for drying, careful choosing and costs of wear and tear, USD 0.01/kg (RMB 0.06/kg) for packing. Total processing costs were USD 0.15/kg (RMB 1.06/kg).

Other costs:

Other costs of rice seeds (indirect costs) is USD 0.03/kg (RMB 0.20/kg) for sales distribution and incidental expenses.

Prediction of dynamic price of conventional japonica rice seeds in 2017:

According to costs mentioned above, the calculation formula for the prediction of dynamic price of rice seeds in 2017 is: sales price of conventional japonica rice seeds = ((purchasing price + processing costs) * (1 + 25%) + indirect costs) * (1 + 5%), that in 2017 is $((3.50 + 1.06) * (1 + 25\%) + 0.20) * (1 + 5\%) = \text{RMB } 6.20/\text{kg}$ (USD 0.90/kg).

In conclusion, according to the realities of situation in different areas, the predicted dynamic price of japonica rice seeds in Suzhou in 2017 is USD 0.09/kg (RMB 6.20/kg), and that of which protected by variety right is USD 0.93/kg (RMB 6.40/kg), with USD 0.03 to 0.04/kg (RMB 0.2 to 0.3/kg) for protection.

Guangzhou plans to build International Seed Industry Centre

Summary: On 21 Oct., 2016, Guangzhou introduced the *Guangzhou International Seed Industry Centre Construction Plan (2016-2025)*. On 30 Dec., 2016, the unveiling ceremony of Guangzhou International Seed Industry Trade Centre Preparation Working Group was held in the Guangzhou Guansheng International Seed Industry Science and Technology Park, which indicated that Guangzhou took an important step forward in planning to build an international seed industry centre.

On 30 Dec., 2016, the unveiling ceremony of Guangzhou International Seed Industry Trade Centre Preparation Working Group was held in the Guangzhou Guansheng International Seed Industry Science and Technology Park. "Guangzhou will build a world-class International Seed Industry Trade Centre", said Liao Chongbin, vice director of the Agriculture Bureau of Guangzhou City, in the fifth Kemulang Seed Industry Forum, which was held in Dec., 2016. The establishment of the Guangzhou International Seed Industry





Trade Centre Preparation Working Group indicated that Guangzhou took an important step forward in planning to build an international seed industry centre.

On 30 Dec., 2016, the land circulation contract signing ceremony of Biaozhong Park, an important supporting project of Guangzhou International Seed Industry Trade Centre, was held in the Dongyong government, Nansha District, Guangzhou City, and the contract area of the first phase was 36.67 ha (550 mu). The construction of the park will be featured by the modern seed industry, and the leading business will include the expo and exhibition of the products in the seed industry chain, promotion of brands and company culture, and the experiment, research and development of seed breeding. The park will not only cover exhibitions of agricultural means of production, technologies, and agricultural machines, but also provide urban leisure agriculture and high-end tourism. The three major ideas of modern agriculture, namely production, life, and ecology, will all be comprehensively embodied in the large-scale modern agriculture industry park. In summary, the park will be built into a "Guangzhou National Seed Industry Science and Culture Park".

In the background of the construction of the Guangzhou International Seed Industry Centre and the Guangzhou Seed Industry Town in Nansha District, Guangzhou City, Biaozhong Park is a functional area in which an international seed industry exhibition and trade platform, an international seed industry headquarters base, an international seed industry culture tourism theme park, and a permanent site of International Seed Industry Summit Forum will be located. This park is a pilot area in Guangzhou's implementation of the national agricultural modernisation planning, construction of modern agricultural industry system, and exploration of integrating and developing the three industries.

According to reports, Guangzhou Guansheng International Seed Industry Science and Technology Park covers an area of 5.33 ha (80 mu), and the area of the supporting Biaozhong exhibition and expo park is 66.67 ha (1000 mu). Construction in the first phase includes construction of Guangzhou International Seed Industry Trade Centre, Guangzhou International Seed Industry Building, bounded warehouses, and Biaozhong exhibition and expo park. By now, the construction of Guangzhou International Seed Industry Trade Centre, whose area is 38,000 m², has been completed, and at present, it is attracting investments from seed enterprises and agricultural means of production companies in a global range. It is known that many seed enterprises have signed letters of intent to enter Guansheng International Seed Industry Science Park. By creating an industrial agglomeration effect of professional seed industry market, the Seed Industry Trade Centre improves the business environment of the seed industry, enhances the image of this industry, and accelerates the modern innovation and development strategies of the seed industry in Guangzhou.

On 21 Oct., 2016, Guangzhou City introduced the *Guangzhou International Seed Industry Center Construction Plan (2016-2025)*, which claimed that the Guangzhou International Seed Industry Trade Center will be settled in Guangzhou Guansheng International Seed Industry Science and Technology Park. Being the first to set up the construction of the major building of the seed industry trade centre, Guangzhou Guansheng International Seed Industry Science and Technology Park actively cooperated with Guangzhou City to build the Guangzhou International Seed Industry Centre and promote the scale, agglomeration and internationalization development of Guangzhou's seed industry. Guangzhou has advantages in various aspects, such as location, commerce, transportation, culture, scientific research, etc., in building the Guangzhou International Seed Industry Centre, whose positioning is "Guangzhou rooted, China radiated, globally oriented". The construction work of the Guangzhou International Seed Industry Centre is divided into two steps. Firstly, achieve preliminary results by the third year; the center takes shape by the fifth year; the construction is basically completed by the tenth year. Secondly, by 2025, a huge-scale industrial cluster of the seed industry with a





gross output of USD71.94 million (RMB500 billion) will be formed; build 113 key projects in 10 years.

Puxian agricultural demo park becomes biggest breeding base for third grade seed potato in South Shanxi

According to *Farmers Daily*, so far, Puxian modern agricultural demonstration district in Shanxi Province is able to produce 10 million virus-free potatoes and 50 million micro tubers annually, and also provide Puxian and its peripheral areas 6.67 thousand ha (100 thousand mu) of common commercial potato variety. It has become the biggest breeding base for third-grade seed potato in South Shanxi, production base of special commercial potato and broadcast centre of intercropping.

Beijing constructing 80 thousand square metre Seed R&D Centre

According to CCM's research, Beijing is constructing a Seed R&D Centre occupying an area of 80 thousand square metre, which is located in Beijing Agri-Science Town Tongzhou Seed Park in Yujiawu Township in Tongzhou District, Beijing. As the core project of nation seed "silicon valley", the R&D centre will contain national seed laboratories, testing laboratories, seed health centres, variety right certification centres and others. It is projected that the seed R&D centre will be put into use at the end of 2018.

Established in July 2011, Beijing Agri-science Town Tongzhou Seed Park was planned to occupy an area of 3.33 thousand ha (50 thousand mu). The park which is adjacent to Beijing-Shanghai and Beijing-Tianjin expressways has favourable geographical location. It takes only 20 minutes' drive to Beijing Capital International Airport. After five years construction, the park becomes the home of a batch of world-class seed enterprises like Limagrain, Beijing Doneed Seeds Co., Ltd., Beijing Lantron Seed Corp. and Beidahuang Kenfeng Seed Co., Ltd., Chinese Academy of Agricultural Sciences and colleges and universities like China Agricultural University, totaling 60.

Two counties of Ningxia selected as state fined breeding bases

On 3 Jan., 2017, Xiji County and Pingluo County of Ningxia Hui Autonomous Region were firstly selected as the state regional fine breeding bases. Actually, in 2015, Qingtongxia City of Ningxia was identified as the national hybrid corn seed production base, approved by the Ministry of Agriculture of the People's Republic of China.

Notably, the hybrid corn seed production base is able to receive a maximum of USD8.36 million (RMB60 million) support for three consecutive years. Each of the two regional fine breeding bases can get USD1.44 million (RMB10 million) support for three consecutive years.





Jiaxiang County: regional improved variety breeding base approved by MOA

On 16 Jan., 2017, Shandong Provincial Department of Agriculture revealed that Jiaxiang County, Shandong Province became the first batch of regional improved variety breeding base approved by Ministry of Agriculture of the People's Republic of China (MOA). It is one of the five regional improved variety breeding bases for soybean in China, and also the only one in Shandong.

In Jiaxiang, the reproductive capability of improved variety of soybean, which is already excellent, becomes better and better year by year. In 2014, areas of improved variety breeding base for soybean were 8 thousand ha (120 thousand mu), with 24 million kg of improved variety of soybean produced. In 2015, the areas were 8.67 thousand ha (130 thousand mu) with 26 million kg' yield, and in 2016, the areas were 10 thousand ha (150 thousand mu) with 30 million kilograms' yield. Soybean varieties produced by Jiaxiang improved variety breeding base for soybean are now mainly Zhonghuang13, Zhonghuang37, Qihuang34, Hedou19, lindou10, Xudou14, Jiadou43 and other varieties with high yield and good quality.

Company Dynamics

ChemChina's takeover offer for Syngenta once again extended to March 2017

According to *Reuters*, China National Chemical Corporation (ChemChina) had offered to buy Syngenta, a Swiss agricultural giant, in USD43 billion takeover, and on 20 Dec., 2016, ChemChina announced that it once again extended the takeover offer to 2 March, 2017.

ChemChina claimed in the announcement that all other items and conditions of the takeover offer remained the same and that it hoped it could obtain the regulatory permission which it had not obtained yet by H1 2017. ChemChina once stated on 1 Nov., 2016 that it would extend its takeover offer to 5 Jan., 2017.

Previously on 3 Feb., 2016, ChemChina declared that it would acquire Swiss company Syngenta in a USD43 billion public takeover. On 28 Oct., the European Union antitrust regulators announced that they would make an in-depth investigation of ChemChina's USD43 billion takeover of the Swiss pesticide & seed group, Syngenta, which was China's largest ever foreign acquisition. The E.U. antitrust regulators would decide whether to approve the acquisition on 15 March, 2016. And later on 1 Nov., 2016, ChemChina announced that it would extend its takeover offer to 5 Jan., 2016.

Shenzhen Noposion founds seed coating subsidiary – Shenzhen Qianselong

Summary: On 6 Dec., 2016, Shenzhen Noposion founded a new subsidiary -- Shenzhen Qianselong, whose business scope included: sales and services of seed processing machinery; design and consulting services of relevant technology, equipment, and engineering projects; sales and services of pesticides, fertilisers, and equipment that are used for such seed processing procedures as seed coating and seed dressing; health-related seed sales agents. CCM believes that in 2017, Shenzhen Noposion will increase its investment in China's seed coating businesses with a view to achieve greater market share of seed coating.

On 6 Dec., 2016, Shenzhen Noposion Agrochemicals Co., Ltd. (Shenzhen Noposion) founded a new subsidiary – Shenzhen Qianselong Seed Health Science and Technology Service Co., Ltd. (Shenzhen Qianselong). As a wholly-owned subsidiary of Shenzhen Noposion that integrates the development, sales, and services of seed processing products, Shenzhen Qianselong, relying on Shenzhen Noposion's advanced production and supply platform, is committed to provide quality products and





professional services to seed companies, farms, and large farmers. It is reported that the seed coating sales of Shenzhen Noposion in 2016 doubled, reaching USD8.63 million to USD10.07 million (RMB60 million to RMB70 million), and the sales of some large product alone exceeded RMB10 million (USD1.44 million). The channels of seed companies are becoming increasingly perfect, and with close cooperation with a great number of large-scaled seed enterprises, Shenzhen Noposion has a brighter future in its sales of seed coating products. It seems that Shenzhen Noposion is catching up with foreign giants in the seed industry, and it is likely to become the third largest seed coating manufacturers, trisecting the seed coating market with the largest and the second largest seed coating producers, namely Bayer Crop Science AG and Syngenta AG.

Shenzhen Noposion is a domestic listed leading company in the pesticide industry that emphasises on technology and research and development (R&D). With its keen insight into the market, Shenzhen Noposion produced the first imidacloprid seed coating product "Yuezhong" in 2008, 8 years ago. During that period, Shenzhen Noposion set up a special seed coating research team, including a R&D team and a marketing team. These 8 years witnessed Shenzhen Noposion's seed coating products and marketing channels turned mature.

Many large foreign enterprises, such as Syngenta, focus on elements such as difenoconazole, fludioxonil, azoxystrobin, thiamethoxam, metalaxyl, and their representative products are Manshijin, Ruisheng, and wheat-oriented Gelasi. Bayer mainly studies on tebuconazole and imidacloprid, and its representative products are Gaoqiao, Likexiu, and Aobairui.

Compared to that of these foreign enterprises, the production line of Shenzhen Qianselong is not inferior in any respect. Shenzhen Qianselong focuses on the following effective elements: difenoconazole, fludioxonil, metalaxyl-m, azoxystrobin, imidacloprid, thiamethoxam, chlorpyrifos, etc. Shenzhen Qianselong has a total of over 20 kinds of pesticides with the pesticide producing license, the pesticide specification, and the pesticide registration certificate. Its main representative products are Yuezhong, Runmiao, Quancheng, Beijian, Youdun, and Shuangjiang, etc., and it has more than 10 registered crops, such as rice, corn, wheat, peanut, cotton, potato, etc. It is reported that in 2017 Shenzhen Qianselong will comprehensively explore rice both in cold regions and in southern China. It will also make renovations in terms of formulations. CF will enter the market, which has long lasting effects and sustained release effects. This seed coating enterprise is also independently doing research on high efficient product pack of film forming agents, Yinmeili, which maturely integrates new fertilisers for seed dressing, biological stimulants, and the latest compounds. Yinmeili is expected to lead a new trend in the seed coating industry.

Basic information of Shenzhen Qianselong Seed Health Technology & Service Co., Ltd Unified social credit No.: 91440300MA5DQ8GR4N Name of Company: Shenzhen Qianselong Seed Health Technology & Service Co., Ltd Type: Limited liability company Legal representative: Sheng Guangwei Registered capital: USD0.72 million (RMB5 million) Date of establishment: 6 Dec., 2016 Registration authority: Bao'an Bureau of the Market and Supervision Commission of Shenzhen, Guangdong Province Date of approval: 6 Dec., 2016 Address: No113, Shuiku Road, Xixiang Street, Bao'an District, Shenzhen City Business scope: Sales and services of seed processing machines; design and consulting services of relevant technology, equipment, and engineering projects; sales and services of pesticides, fertilisers, and equipment that are used for such seed processing procedures as seed coating and seed dressing; health-related seed sales agents.





Beidahuang Kenfeng: wins in 'Wuyouzhixiang' internet tort case

Summary: Beidahuang Kenfeng had sued Beijing Wuyouzhixiang for publishing malicious article which damaged the former company's reputation, and the case was finally ruled. The court's decision was to make defendant, Beijing Wuyouzhixiang, delete article *Transgenic corn's immediate harm to livestock*, publish public announcement on its website and apologise to Beidahuang Kenfeng.

Beidahuang Kenfeng Seed Co., Ltd. (Beidahuang Kenfeng) revealed that it had sued Beijing Wuyouzhixiang Culture Communication Co., Ltd. (Beijing Wuyouzhixiang) for publishing malicious article which damaged the former company's reputation, and on 16 Nov., 2016, the case was finally ruled. The court's decision was to make defendant, Beijing Wuyouzhixiang, delete the article *Transgenic corn's immediate harm to livestock*, publish public announcement on its website and apologise to Beidahuang Kenfeng. Beidahuang Kenfeng safeguarded its legal right again. What's more, on 21 Sep., 2016, Beidahuang Kenfeng won when it sued Qitaihe Qiezihe Kenfeng agricultural means of production shop for trademark right and enterprise name violation.

Meanwhile, Beidahuang Kenfeng made serious declaration again: Confronting any torts, it will use law to safeguard its rights, and carry the fight through to the end at any expense.

On 30 Aug., 2015, the defendant, Beijing Wuyouzhixiang published an article on its website, which calumniated corn variety "Demeiya". The article professed that "Demeiya" was a transgenic variety which was poisonous and did harm to livestock. The article wantonly distorted the fact and lacked object bases, in which astounding words made the reputation and image of Beidahuang Kenfeng severely suffer and brought ill effect to the enterprise. Beidahuang Kenfeng saw the article which infringed the enterprise's right at once, and required the defendant to delete it, then took the defendant to Harbin Nangang People's Court in Heilongjiang Province because of the latter one's disregard of the requirement. Beidahuang Kenfeng provided legal testimony in the proceeding, corn variety "Demeiya" which had been examined and approved by Heilongjiang committee for variety certification. The process of examination and approval had legal effect, and features of the variety, which had official variety certification, were qualified for popularisation. According to indubitable evidences provided by Beidahuang Kenfeng, the court finally decided the defendant's tort to be a fact. The whole thing came to light and Beidahuang Kenfeng's reputation was rehabilitated.

Beidahuang Kenfeng is one of the first batch of AAA credit enterprises in China's seed industry, and also one of the first batch of 32 enterprises which focus on the breeding–reproduction–popularisation integration. In 2013 and 2016, the enterprise ranked top 3 in the ranking of national backbone credit enterprises, and was named as star credit enterprise. Main product of Beidahuang Kenfeng is corn variety "Demeiya", which is well received by farmers with merits like high yield, outstanding quality, great stress resistance, strong density tolerance and suitability for mechanised tillage. It has been successfully popularised in Heilongjiang Province and has already become main corn variety in the third and the forth accumulated temperature zones. "Demeiya 1" has been regarded by the Ministry of Agriculture (MOA) as dominant corn variety in early maturing zone in North China for the third consecutive year.

On 20 Feb., 2004, "Demeiya 1" was approved and promoted by the Committee of Crops Variety Certification in Heilongjiang Province. On 18 Feb., 2008, "Demeiya 2" was approved and promoted, and got protection of new varieties of plants given by the MOA on 1 March, 2014. Later, "Demeiya 3" was approved by Group of crops certification in reclamation areas in Heilongjiang Province on 14 Jan., 2011. Three varieties mentioned above are legal to be popularised.





Beidahuang Kenfeng issues bulletin to safeguard rights of rice, soybean and wheat varieties

Summary: Various seeds of Beidahuang Kenfeng Seed Co., Ltd. (Beidahuang Kenfeng), the biggest comprehensive seed enterprise in Heilongjiang Province, confronted rights violation conducted by the enterprise's competitors for many times. Beidahuang Kenfeng issued bulletin for variety right protection. It announced that it had obtained exclusive variety right, exclusive selling right or regional exclusive selling right of many varieties of rice, soybean and wheat.

Various seeds of Beidahuang Kenfeng Seed Co., Ltd. (Beidahuang Kenfeng), the biggest comprehensive seed enterprise in Heilongjiang Province, confronted rights violation conducted by the enterprise's competitors for many times. Up to now, Beidahuang Kenfeng issued bulletin for variety right protection. It announced that it had obtained exclusive variety right, exclusive selling right or regional exclusive selling right of many varieties of rice, soybean and wheat.

From 2 Nov., 2016, other groups or individuals that have not been authorised must not produce or sell any of 70 varieties of Beidahuang Kenfeng. Contents of the bulletin for rights protection are the following: Firstly, without the permission of Beidahuang Kenfeng, any groups or individuals must not produce or sell varieties of Beidahuang Kenfeng with variety right for commercial purpose. Secondly, any groups or individuals must not sell varieties of Beidahuang Kenfeng with exclusive selling right. Thirdly, any groups or individuals must not sell varieties of Beidahuang Kenfeng with reclamation areas exclusive selling right in reclamation areas in Heilongjiang Province.

Information of 70 varieties mentioned by Beidahuang Kenfeng is the following:

Rice: totaling 9 varieties

Varieties with exclusive variety right: 6

1. Longjing 20: Rice approved by Heilongjiang Province 2007004; Variety right No.: CNA20060799.5
2. Longjing 21: Rice approved by Heilongjiang Province 2008008; Variety right No.: CNA20070240.8
3. Longjing 25: Rice approved by Heilongjiang Province 2009009; Variety right No.: CNA20080022.1
4. Longjing 26: Rice approved by Heilongjiang Province 2009008; Variety right No.: CNA20080019.1
5. Longjing 27: Rice approved by Heilongjiang Province 2009010; Variety right No.: CNA20080020.5
6. Kendao 25: Rice approved by Heilongjiang reclamation areas 2013003; Variety right No.: CNA20120184.0

Varieties with exclusive selling right: 2

7. Kendao 12: Rice approved by Heilongjiang Province 2006009; Variety right No.: CNA20030138.1
8. Kendao 17: Rice approved by Heilongjiang reclamation areas 2008004; Variety right No.: CNA20070574.1

Varieties with exclusive selling right in reclamation areas in Heilongjiang Province: 1

9. Longjing 31: Rice approved by Heilongjiang Province 2011004; Variety right No.: CNA20100737.4

Except for "Longjing 31", without the permission of Beidahuang Kenfeng, any groups or individuals have no rights to produce or sell





the company's varieties for commercial purpose. Without the permission of Beidahuang Kenfeng, any groups or individuals have no rights to sell "Longjing 31" in reclamation areas in Heilongjiang Province.

Soybean: totaling 19 varieties

Varieties with exclusive variety right: 8

1. Beidou 14: Soybean approved by the Heilongjiang reclamation areas 2008002; Variety right No.: CNA20080153.8
2. Beidou 28: Soybean approved by the Heilongjiang reclamation areas 2009007; Variety right No.: CNA20080155.4
3. Beidou 19: Soybean approved by CNA 2008010; Variety right No.: CNA20090239.0
4. Beidou 23: Soybean approved by Heilongjiang Province 2009015; Variety right No.: CNA20100541.0
5. Beidou 34: Soybean approved by the Heilongjiang reclamation areas 2010007; Variety right No.: CNA20101150.0
6. Beidou 6: Soybean approved by Heilongjiang Province 2010013; Variety right No.: CNA20110016.5
7. Beidou 10: Soybean approved by CNA 2007009; Variety right No.: CNA20080018.3
8. Beidou 37: Soybean approved by CNA 2010002; Variety right No.: CNA20110307.3

Varieties with exclusive selling right in reclamation areas in Heilongjiang Province: 11

9. Kenfeng 13: Soybean approved by Heilongjiang Province 2005008; Variety right No.: CNA20050628.5
10. Kenfeng 14: Soybean approved by CNA 2005015; Variety right No.: CNA20050561.0
11. Kenfeng 15: Soybean approved by Heilongjiang Province 2006014; Variety right No.: CNA20060676.X
12. Kenfeng 16: Soybean approved by Heilongjiang Province 2006015; Variety right No.: CNA20060677.8
13. Kenfeng 17: Soybean approved by Heilongjiang Province 2007015; Variety right No.: CNA20080185.6
14. Kenfeng 18: Soybean approved by the Heilongjiang reclamation areas 2007006; Variety right No.: CNA20080186.4
15. Kenfeng 19: Soybean approved by the Heilongjiang reclamation areas 2007007; Variety right No.: CNA20080187.2
16. Kenfeng 20: Soybean approved by the Heilongjiang reclamation areas 2008004; Variety right No.: CNA20080759.5
17. Kenfeng 21: Soybean approved by the Heilongjiang reclamation areas 2008005; Variety right No.: CNA20080760.9
18. Kenfeng 22: Soybean approved by Heilongjiang Province 2008015; Variety right No.: CNA20080761.7
19. Beidou 20: Soybean approved by CNA 2008013; Variety right No.: CNA20080154.6

The following are varieties of Beidahuang Kenfeng that have been initially approved and published:

Rice: 14





Sanjiang 5, Kendao 23, Kendao 24, Kenjing 5, Kendao 26, Kendao 27, Kendao 29, Sanjiang 16, Longken 201, Sanjiang 6, Kendao 30, Kendao 31, Kendao 32, Kenjing 6

Soybean: 27

Kendou 34, Kendou 35, Kendou 36, Kenbao 1, Kenbao 2, Beidou 54, Beidou 53, Beidou 56, Beidou 57, Beidou 52, Kendou 39, Kenbao in small size1, Kendou 37, Kendou 38, Longken 332, Longken 335, Longken 338, Kendou 41, Kendou 42, Kendou 43, Longken 336, Longken 331, Longken 310, Longken 333, Kendou 44, Kendou 57, Kendou 59

Wheat: 1

Beimai 9

Xinfeng Seeds: to be listed on NEEQ

On 10 Jan., 2017, the holding company of Shandong Xinfeng Seeds Co., Ltd. (Xinfeng Seeds), Zhejiang Xinan Chemical Industrial Group Co., Ltd. (Wynca Group) announced that its subsidiary Xinfeng Seeds, of which it owns 44.01% of stock, planned to have the stock listed on National Equities Exchange and Quotations (NEEQ). Major business of Xinfeng Seeds is the processing, packing, wholesaling, retailing of hybrid maize kernels, wheat kernels and vegetable seeds.

Revealed by Wynca Group, by 30 June 2016, audited total assets of Xinfeng Seeds reached USD 16.58 million (RMB 165 million) and its audited net assets totaled USD 16.26 million (RMB 113 million). Its revenue was USD 3.48 million (RMB 24.17 million) and net profit was USD 0.21 million (RMB 1.44 million). What's more, Xinfeng Seeds has already acquired the *Notice of Acceptance* (No. GP2016100044) of its listing application documents initiated by NEEQ.

Variety Dynamics

Wheat variety 'Ning 2038' obtains national protection for new varieties of plants

According to *Farmers Daily* on 9 Jan., 2017, wheat variety "Ning 2038" has obtained national protection for new varieties of plants. The variety is cultivated by national support program "The breeding of new variety of spring wheat in Northwest China" held by Crops institution of Ningxia Academy of Agriculture and Forestry Science, and the special program of agricultural breeding in autonomous region "Selective breeding of new variety of wheat". "Ning 2038" is the first new wheat variety in Ningxia Hui Autonomous Region that obtains national protection for new varieties of plants.

"Ning 2038" is a spring variety with the same growth period as "Ningchun 4", 102 days. Its seedlings stand upright and have average tillering ability and spike rate. Irrigated land in Yellow river irrigated areas in Ningxia, irrigation areas in middle-west Inner Mongolia, Xining in Qinghai Province and west Qinghai Province, Weiwu and Jiuquan in Gansu Province, Yili, Urumqi, Bole and Tacheng in Xinjiang Uygur Autonomous Region is suitable for "Ning 2038". "Ning 2038" applied for national protection for new varieties of plants in 2012 and was approved by National committee for variety certification in Dec., 2014. And it got protection in 2016.





Planting area of Jingnongke728 and Wanghe8 in Beijing, Tianjin and Hebei in 2016 reaches 0.27 million ha

According to Farmers' Daily on 13 Jan., 2017, the planting area of two corn varieties—Jingnongke728 and Wanghe8— in Beijing, Tianjin and Hebei Province in 2016 reached 0.27 million ha (4 million mu). In 2015, the figure was about 0.2 million ha (3 million mu).

Jingnongke728 was developed by Seed Science and Technology Co., Ltd. of Beijing Academy of Agriculture and Forestry, acquiring two authorised certificates—Guoshenyu2012003 and Jingshenyu2014006.

Wanghe8 was developed by Beijing Guangyuanwanghe Seed Industry Co., Ltd., acquiring two authorised certificates—Jishenyu2014015 and Jingshenyu2011003.

Expert's View

Review on major events of China's seed industry in 2016

Summary: Chinese seed industry has witnessed a relatively large number of events in 2016 that are worth reviewing. This article mainly shows some representative ones and makes comments on them.

Author: Tong Pingya, researcher of the Institute of Crop Sciences, Chinese Academy of Agricultural Sciences

This article only represents the author's views and comments but not CCM

1. The newly revised *Seed Law* have both highlights and controversies

The newly revised *Seed Law of the People's Republic of China* came into effect on 1 Jan., 2016. Compared with the previous law, the new law has three highlights. Firstly, it encourages innovation and development. It not only increases the legal status of the protection of new varieties, but also improves civil compensation standards and administrative penalties for infringement and counterfeiting acts. The amount of compensation, which used to be the amount of the actual losses of the original owners or that of the profits of the infringers, is increased to three times. Administrative penalties are also increased. The amount of fines used to be 1 to 5 times the value of goods, and the new law increases it to 5 to 10 times the value of goods. Secondly, the new law simplifies administrative procedures and delegates powers to lower levels. The number of validated crops is reduced from 28 to 5; administrative licensing items of variety management are reduced, with seed production license and seed business license combined; the new law encourages enterprises to cultivate new varieties with independent intellectual property rights and opens up a variety certification "green passage" for eligible enterprises that integrates seed breeding, seed production, and seed promotion; the introduction procedure of seed varieties is also simplified, with consent changed to filing. Thirdly, the new law protects the legitimate rights and interests of farmers. It strengthens the seed law enforcement and supervision, severely punishing violations against the interests of farmers; it increases penalties for the production and operation of forged and fake seed varieties. The penalty used to be 5 to 10 times illegal gains, and it is increased to 10 to 20 times illegal gains in the new law.

Whether reserving or abolishing the variety certification system has triggered fierce debate in the process of revising the *Seed Law*. The official representative prefers to reserve the variety certification system for reasons: Chinese seed industry is still in the primary stage where most enterprises are small and weak, whose competitive powers are not strong; the majority of scientific research institutes do not have the ability to test seed varieties; the overall level of science and technology of farmers is not high, so their



cognitive abilities of seed varieties are not strong; the social honesty and credibility system is still imperfect and the responsibility consciousness of variety applicants is not strong, so proactive regulation and supervision and technical checks are necessary. However, the majority of enterprises advocate to abolish the variety certification system, and their reasons are as follows: the variety certification system is the product of the planned economy, which restricts the independent innovation of enterprises; the overall development direction of the variety certification system is adapting to the development of the market economy and gradually improving itself in practice.

2. MOA published a festschrift to commemorate the sixty years of the Southern Breeding Base in Hainan

With approval of the State Council, five ministries, including the Ministry of Agriculture of the People's Republic of China (MOA), jointly issued a letter to assist in collecting historical data of the southern breeding base in Hainan Province (Hainan Breeding Base). In order to summarise the achievements of Hainan Breeding Base and inherit and develop the spirits of Hainan Breeding Base, they decided to make a systematic summary of the development history of Hainan Breeding Base, and published a festschrift titled Sixty Years of the Southern Breeding Base in Hainan (1956 to 2016).

The theory and the practice of breeding and cultivating corn in different regions have been affirmed by the agriculture field and the technology field. Wu Shaoyan initiated this theory in 1956, and research on the theory lasted from 1956 to 1959, so relevant departments regarded the year 1956 as the starting year of the Hainan Breeding Base business. Since the 1970s, the crop varieties in Hainan Breeding Base have expanded from hybrid corn to hybrid rice and insect-resistant cotton.

3. Eight departments jointly launched the security mode of cracking down on fake seeds

On 29 Feb., 2016, a total of 8 departments, including the MOA and the Ministry of Public Security jointly launched the 2016 Anti-Counterfeiting Special Operations of Agricultural Resources, striving to improve the work of cracking down on fake products of agricultural resources. All fake-licensed seeds were regarded as counterfeited seeds, and operators would be sentenced if their business revenue exceeded USD7194.45 (RMB50,000).

The launch of the security mode of cracking down on fake seeds may be effective in the short term, but it is difficult for fake-licensed seeds to disappear if there exist corresponding nurturing soil. Therefore, cracking down on fake-licensed seeds not only needs to respond to real social demands, but also needs to deal with the root of the problem in the long run.

4. Replacing grain crops with forage crops misguided scientific concepts

On 28 April, 2016, the MOA issued the *National Adjustment Plan of Planting Structure (2016-2020)*, in order to implement the No.1 document of the central government and reduce the planting area of corn: By 2020, reduce the planting area of grain corn in China by 3.33 million ha (50 million mu), increase the planting area of silage corn by 1.67 million ha (25 million mu), increase the planting area of fresh corn by 1 million ha (15 million mu), and plant more high lysine corn and high oil corn (Note: these are also corn varieties). The most misleading part of the grain-for-forage policy is that: corn itself is a multipurpose crop, which can be used for grains, industrial purposes, and forage. At present, corn of these three purposes respectively account for 1/3 of the total in the world, with differences in different areas or countries. In China, it is until the new century that corn is gradually being used as forage for animal husbandry.

5. The price reform of corn: saves the market or saves farmers?

On 28 March, 2016, 6 ministries including the National Development and Reform Commission jointly issued a notice, which claimed that the corn temporary storage policy would be replaced by market-oriented purchases policies, namely marketing pricing and separation of price and subsidy. The imbalance between supply and demand of corn has been covered by the corn temporary storage policy for 8 consecutive years, and now it is highlighted. As a result, corn, which used to be the staple food long protected by the state, became an overstocked product.

How to deal with the high inventory of corn? Does the price reform save the market or farmers? There shall be a definite bottom line when the government makes decisions. It is undeniable that there exist differences between the domestic price of corn and the overseas price. However, grain is, after all, a special commodity, so the primary task of any reform or adjustment in any case shall put the interests of farmers in an important position.

6. Corn grain mechanical harvesting still has a long way to go

In Sept., from the northeastern region to the Huang-huai-hai region, there are corn grain mechanical harvesting demos almost every day. However, according to the media reports, few corn varieties have been recognised by dealers and farmers, and almost without exceptions, the dehydration rate of corn seeds, or the dehydration rate index, is what dealers and farmers are not satisfied with. Selecting and breeding corn varieties that are suitable for grain mechanical harvesting still has a long way to go.

The agriculture field and the technology field have basically reached a consensus in terms of the corn varieties that are suitable for grain mechanical harvesting and the field harvest evaluation index: Firstly, the dehydration rate of corn grains shall be lower than 25% (20% for ideal varieties) when harvested, the rate of broken seed shall be 1.5% or so, and the rate of seed loss shall be no more than 1.5%. Secondly, equip fast drying machines with the development of corn grain mechanical harvesting; speed up the construction of the supporting facilities of warehousing (steel warehouses) and drying (grain drying towers), and properly solve the difficult problem of how to rapidly dry corn seeds for storage. Thirdly, the test varieties shall have suitable growth period, plant morphology, and planting density. In addition, the descriptions of the speed of ear tasseling and grain filling are also needed. These are the index to evaluate the yield and quality of the test varieties. Fourthly, the test area of the test varieties shall be at least 1 mu or more; control varieties shall be planted in the same period, for example, plant Zhengdan958 or Xianyu335 in large areas at the same time.

7. The MOA issued a letter to encourage researchers to enter enterprises

The MOA, the Ministry of Science and Technology, the Ministry of Finance, the Ministry of Education, and the Ministry of Human Resources and Social Security jointly issued the letter: *Guiding Opinions on Expanding the Talent Development of Seed Industry and the Pilot Reform of the Rights and Interests of Scientific Research Achievements*, which encouraged the backbone of scientific and technological personnel to enter enterprises. While working in enterprises, they are entitled to participate in job title evaluation, job rank promotion and social insurance, participating in the distribution of the rights and interests of scientific research.

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