

 **Herbicides China News**

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Headline

Lier Chemical achieved a YoY rise of 49.82% in net profit by glufosinate-ammonium capacity expansion in year 2015. It is known that the company would further improve its market influence and comprehensive competitiveness by capacity expansion to strengthen the overall profitability.

Shenghua Biok's revenue from its pesticide business recorded a large YoY fall of 53.48% in 2015. The declining sales of dicamba and the sale of its subsidiary Ningxia Gerui were the major reasons for the downturn of Shenghua Biok's pesticide revenue. Shenghua Biok is undergoing change and is redirecting its strategic focus to pan-entertainment.

Shenzhen Noposion's profit level is largely dragged down by the slumping profit of its subsidiary Jiangsu Changlong. Fortunately, its another subsidiary Shandong Lvbang successfully entered the New Third Board, boosting the performance of Shenzhen Noposion to some extent.

In 2015, Nantong Jiangshan recorded a YoY fall of 23.26% in its revenue from glyphosate business. And the declined average sales price of glyphosate brought large falls to its gross profit margin and total gross profit, resulting in a YoY drop of 94.76% in the company's net profit.

The spring ploughing period is approaching, and China's pesticide market is embracing a boom in the demand for amide herbicides.

Jiangsu, as China's largest export province of pesticide, recorded double-digit declines in both export volume and export value for the first time in year 2015. Affected by the sluggish markets of glyphosate and paraquat, herbicide, the largest pesticide variety in Jiangsu, also failed to perform well.

China's export volume and export price of trifluralin TC showed double-digit growths in year 2015. Of this, the export volume reported a YoY rise of 23.16%.

China achieved a mere YoY rise of 1.75% in export volume of herbicide formulations in year 2015. While the export value recorded a YoY fall of 18.09%.

China's paraquat market did not progress smoothly over the past year or so. The unclear policy orientation greatly impacted manufacturers's enthusiasm for production. But the domestic paraquat market still has chance to rebound in the future.

In Feb. 2016, China has 19 herbicide TC newly registered in China, up 58% month on month. Active ingredients 2,4-D, ethoxysulfuron, dicamba, thiencazabone-methyl and glyphosate were popular in this month.







Editor's Note

As a whole, China's herbicide market has no significant rebound in March 2016. The price still falls steadily. In particular, the price declines of glyphosate and paraquat drag down the overall market price of herbicides. In detail, the domestic overcapacity, changed policies both at home and abroad, the outstanding resistance problems and stricter environmental requirements made glyphosate market depressed. As the paraquat AS about to be banned in China, the transactions and demand for paraquat gradually reduce, pulling down the market price. Nowadays, the overseas demand becomes the major sales direction for China's paraquat industry. Although the development and promotion of non-AS paraquat cannot improve the sluggish paraquat market currently, industry insiders still hold wait-and-see attitude towards the substitute market for paraquat AS.

Although the performance of some enterprises are hit by glyphosate and paraquat, some herbicides like glufosinate-ammonium and dicamba offset the negatives to some extent. For instance, that Lier Chemical expanded glufosinate-ammonium capacity helped increase the 2015 net profit by 49.82% year on year. Glufosinate-ammonium helped improve Lier Chemical's market influence and comprehensive competitiveness, enhancing its overall profitability. Thanks to the growing of the dicamba business, Jiangsu Yangnong's performance had not been seriously dragged down by the declining glyphosate price.

The USD/RMB exchange rate in this report is USD1.00=RMB6.5385 on 1 March, 2016, sourced from the People's Bank of China. All the prices mentioned in this report will include the VAT, unless otherwise specified.



Company Dynamics

Glufosinate-ammonium helps Lier Chemical achieve 49.82% YoY rise in 2015 net profit

Summary: Lier Chemical achieved a YoY rise of 49.82% in net profit by glufosinate-ammonium capacity expansion in year 2015. It is known that the company would further improve its market influence and comprehensive competitiveness by capacity expansion to strengthen the overall profitability.

Lier Chemical Co., Ltd. (Lier Chemical) released, on 27 Feb., 2016, its full-year financial report of 2015, which showed that its total revenue reached USD222.74 million (RMB1.49 billion), a YoY rise of 13.03%. Notably, its net profit recorded a YoY rise of 49.82%, being USD21.18 million (RMB138.45 million). It is disclosed that the capacity expansion and the full-load production of glufosinate-ammonium were closely related to the company's good performance.

In recent years, Lier Chemical actively develops its glufosinate-ammonium business and expands the capacity mainly because it has achieved considerable profit from glufosinate-ammonium business and it holds positive attitude towards the future glufosinate-ammonium market. Expanding the glufosinate-ammonium capacity enables Lier Chemical to further improve its market influence and comprehensive competitiveness, and strengthen the profitability.

In July 2015, Lier Chemical completed the construction of the 1,000 t/a glufosinate-ammonium technological transformation project at the production base in Mianyang City, Sichuan Province, which increased its glufosinate-ammonium capacity to 1,600 t/a. Meantime, it newly built a 2,000 t/a glufosinate-ammonium production line in Guang'an City, Sichuan Province and planned to complete within 2016. It should be noted that on 27 Feb., 2016, the company announced to invest USD14.99 million (RMB98 million) in expanding the glufosinate-ammonium capacity in Mianyang to 5,000 t/a and planned to put it into operation at the end of Sept. Furthermore, Lier Chemical revealed that it has obtained the Environmental Impact Assessment approval on its 10,000 t/a amino-nitrile (intermediate of glufosinate-ammonium) project in Guang'an from the Environmental Protection Bureau of Sichuan and it is actively applying for the production qualification on pesticide. The production of amino-nitrile will ensure the raw material resource of glufosinate-ammonium production for the company, which will reduce its production cost and increase the profitability.

Of course, the adjustment of marketing strategy was also one of the reasons for Lier Chemical's good performance in year 2015. It energetically explored the domestic and overseas markets, speeded up the overseas registration and expanded the domestic trade business during this year. In detail, it worked with clients to launch 37 registrations in America, Southeast Asia, Europe and Africa, obtaining 15 registrations in total. It made substantial progress in independent registration of some new products and set up a wholly-owned subsidiary Fuersen Technology Co., Ltd. in Hong Kong. In addition, it strengthened the cooperation with domestic clients, improving the domestic trade business of its Shanghai subsidiary. The 2015 financial report showed that Lier Chemical achieved a YoY rise of 25.47% in its domestic revenue, a proportion to total revenue up to 61.01%; and the international revenue merely declined by 4.99% YoY when facing the depressed global pesticide market.

Table 1: Lier Chemical's major financial figures in 2013-2015, million USD

Item	2015	2014	YoY change	2013
Total revenue	227.74	201.48	13.03%	220.30
Net profit	21.18	14.13	49.82%	15.92
Item	End of 2015	End of 2014	YoY change	End of 2013
Total assets	391.02	312.32	25.20%	275.31
Net asset	198.69	177.27	12.09%	166.33

Source: Lier Chemical's 2015 financial report

Table 2: Lier Chemical's revenue by product and region, 2015

Item	Revenue, million USD	YoY change	Gross profit margin	YoY change
Pesticides	224.59	11.80%	23.28%	1.4 percentage points
By product				
Pesticide TC	135.25	13.26%	28.39%	0.23 percentage point
Pesticide formulations and others	72.93	6.08%	17.60%	4 percentage points
By region				
International	85.65	-4.99%	27.30%	0.27 percentage point
Domestic	138.94	25.47%	20.80%	3.11 percentage points

Source: Lier Chemical's 2015 financial report

Table 3: Lier Chemical's production and sales of pesticides in 2015, tonne

Business	Item	2015	2014	YoY change
Pesticide	Sales volume	25,290	21,300	18.73%
	Output	26,721	21,318	25.34%
	Inventory	5,936	4,506	25.34%

Source: Lier Chemical's 2015 financial report

According to Lier Chemical's management plan, it will advance the construction of each projects in year 2016, including the expansion project of 5,000 t/a glufosinate-ammonium TC in Mianyang, the construction of 1,000 t/a aminopyralid production line and the construction of 10,000 t/a amino-nitrile project in Guang'an. What's more, it will continue to expand the international markets, strengthen the registration overseas, accelerate the development of domestic brand-name formulations, complete the 10,000 t/a formulation project of its subsidiary Jiangsu Kuaida Agrochemical Co., Ltd. and put it into operation.

Shenghua Biok: YoY fall of 53.48% in 2015 pesticide revenue

Summary: Shenghua Biok's revenue from its pesticide business recorded a large YoY fall of 53.48% in 2015. The declining sales of dicamba and the sale of its subsidiary Ningxia Gerui were the major reasons for the downturn of Shenghua Biok's pesticide revenue. Shenghua Biok is undergoing change and is redirecting its strategic focus to pan-entertainment.

Zhejiang Shenghua Biok Biology Co., Ltd. (Shenghua Biok), on 27 Feb., 2016, released its full-year 2015 financial report, which shows that the revenue from its major pesticide dicamba reported a large YoY fall. Market factors and fierce competition caused the sales volume to decline and inventory levels to rise. At present, Shenghua Biok's capacity of dicamba TC reaches 2,000 t/a in total. However, its sales volume of dicamba fell by 54.03% YoY in 2015. The dicamba inventory level had a YoY increase of 351.48% as of the end of 2015.

Reviewing the 2015 pesticide market, dicamba was one of the few herbicides that performed well in the depressed pesticide market. The export volume of dicamba achieved a YoY rise of over 100%. However, Shenghua Biok's market share and market competitiveness in relation to dicamba decreased in year 2015.

The equity transfer of Shenghua Biok's subsidiary Ningxia Gerui Fine Chemical Co., Ltd. (Ningxia Gerui) contributed to dragging down its revenue. In April 2015, Shenghua Biok sold its 73% holding of Ningxia Gerui to Shandong Weifang Rainbow Chemical Co., Ltd. for USD3.25 million (RMB21.26 million). Ningxia Gerui's revenue has not been included in Shenghua Biok's financial reports since 30 April, 2015.

Ningxia Gerui is engaged in PMIDA. Since the insufficient market demand led to poor sales of products and overstocking, Ningxia Gerui has suffered consecutive losses. In 2014, its total revenue was USD20.67 million (RMB135.15 million), and net profit was -USD1.39 million (-RMB9.12 million); in Jan.-April 2015, its total revenue was USD2.84 million (RMB18.58 million) and net profit was -USD1.90 million (-RMB12.40 million).

Table 4: Shenghua Biok's production and sales of dicamba, 2015

Product	Output	YoY change (%)	Sales volume	YoY change (%)	Inventory	YoY change (%)
Dicamba	973.86 tonnes	-4.86	457.50 tonnes	-54.03	663.28 tonnes	351.48

Source: Shenghua Biok

Table 5: Shenghua Biok's financial performance, 2015

Item	Revenue (million USD)	YoY change (%)	Cost of sales (million USD)	YoY change (%)	Gross profit margin (%)	YoY change (percentage point)
By industry						
Industrial manufacturing	152.71	-24.88	131.85	-25.55	13.66	0.78
By product						
Pesticides	33.10	-53.48	30.19	-50.13	8.79	-6.13
Zirconium products	31.47	-10.73	29.37	-9.77	6.69	-0.99
Veterinary drugs	68.66	-12.03	56.70	-17.51	17.41	5.49
Chemicals	10.47	8.01	9.46	11.33	9.63	-2.70
Electricity and steam	7.29	-7	5.07	-10.53	30.45	2.74
Others	1.72	-11.93	1.06	-15.94	38.34	2.94

Source: Shenghua Biok

Shenghua Biok had a total revenue of USD154.49 million (RMB1.01 billion) in 2015, down 24.84% YoY. The company disclosed that the revenue decline was mainly affected by market factors and its falling sales volume.

However, its net profit increased by 68.73% to USD21.39 million (RMB139.88 million), which was mainly ascribed to the increased profits of its joint ventures Qingdao Yebio Biological Engineering Co., Ltd. (Qingdao Yebio) and Caitong Fund Management Co., Ltd. (Caitong Fund).

Qingdao Yebio is continuously strengthening the market promotion of its high-end products, further increasing its customers, revenue and net profit. Caitong Fund also achieved YoY rises in capital management scale, revenue and net profit. In 2015, Qingdao Yebio (38% of equity belongs to Shenghua Biok) and Caitong Fund (30% of equity belongs to Shenghua Biok) respectively achieved net profit of USD36.03 million (RMB125.60 million) and USD48.02 million (RMB320.50 million).

Table 6: Shenghua Biok's financial figures, 2013-2015

Item	2015	2014	YoY change (%)	2013
Revenue (million USD)	154.49	205.54	-24.84	245.75
Net profit (million USD)	21.39	12.68	68.73	4.24
Item	End of 2015	End of 2014	YoY change (%)	End of 2013
Total assets (million USD)	341.96	356.93	-4.19	355.70
Net asset (million USD)	215.51	218.04	-1.16	207.18

Source: Shenghua Biok

Due to failures in its main businesses, Shenghua Biok relies on investment income to support its performance. Therefore, it plans to improve its profit growth potential by adjusting its business structure.



In 2016, it aims to achieve a total revenue of USD157.53 million (RMB1.03 billion), and total costs of sales of USD160.59 million (RMB1.05 billion). Also, it will make some changes to its operations. It will reduce its production costs by improving its technologies, and it will expedite the elimination of uncompetitive businesses. Shenghua Biok will adopt pan-entertainment & culture as its development focus, and will acquire popular online gaming enterprises to build a pan-entertainment platform.

Shenzhen Noposion gains new profit growth point from subsidiary's entering New Third Board

Summary: Shenzhen Noposion's profit level is largely dragged down by the slumping profit of its subsidiary Jiangsu Changlong. Fortunately, its another subsidiary Shandong Lvbang successfully entered the New Third Board, boosting the performance of Shenzhen Noposion to some extent.

On 4 March, 2016, Shenzhen Noposion Agrochemicals Co., Ltd. (Shenzhen Noposion) announced that its joint-stock company Shandong Lvbang Crop Science Co., Ltd. (Shandong Lvbang) was approved to enter the New Third Board (National Equities Exchange and Quotations, the pilot national share transfer system for small and medium-sized enterprises). Shandong Lvbang's stock will be transferred on the New Third Board through agreement. At present, the company is making related procedures according to requirement. As of March 2016, Shenzhen Noposion holds 32% of share in Shandong Lvbang.

That Shandong Lvbang enters the New Third Board will help increase the asset liquidity, the price of holdings and the profit growth point of Shenzhen Noposion. Before this, Shenzhen Noposion's performance was largely dragged down by its another subsidiary Jiangsu Changlong Agrochemicals Co., Ltd. (Jiangsu Changlong) since the latter has to pay huge compensation for environmental pollution and performances unsatisfactorily. Therefore, Shandong Lvbang's entering the New Third Board can support Shenzhen Noposion's performance undoubtedly.

For Shandong Lvbang, it can expand the financing channels and develop even faster after entering the New Third Board. Also, this can help it further perfect the governance structure of equity, run more regularly, improve the corporate brand and extend the corporate influence.

Shandong Lvbang is mainly engaged in the R&D, production and sales of herbicides, insecticides and pesticide formulations. It also sells other raw materials and wrappings. Thereinto, its revenue from herbicide business accounts for over 94% of the total revenue. As of now, the company possesses 55 products including 42 herbicides, 11 insecticides and two fungicides which all obtained pesticide registrations, production licenses and product approvals. They are mainly applied to corn, wheat, peanut and other crops.

As of now, Shandong Lvbang has 3 wholly-owned subsidiaries - Xinnuo Lvbang Agricultural Means of Production Co., Ltd. (Xinnuo Lvbang), Jinan Lebang Agrochemical Co., Ltd. and Shandong Yumaiquan Agricultural Service Co., Ltd. Specifically, Shandong Lvbang's overall business is ran by Shandong Lvbang and Xinnuo Lvbang. Xinnuo Lvbang, as the wholly-owned sales subsidiary set by Shandong Lvbang, is mainly engaged in selling all kinds of pesticide formulations produced by the parent company.





Table 7: Shandong Lvbang's financial performance, 2013-2015 (Jan.-July)

Item	31 July, 2015	31 Dec., 2014	31 Dec., 2013
Total assets (million USD)	24.03	25.16	29.08
Shareholders' equity (million USD)	11.64	12.12	11.75
Item	Jan.-July 2015	2014	2013
Total revenue (million USD)	19.34	25.79	27.77
Net profit (million USD)	0.85	1.57	0.77
Gross profit margin (%)	14.66	19.16	18.74

Source: Shandong Lvbang

Table 8: Shandong Lvbang's revenue from main business, 2013-2015 (Jan.-July)

Revenue	Jan.-July 2015		2014		2013	
	Value, million USD	Proportion, %	Value, million USD	Proportion, %	Value, million USD	Proportion, %
Main business	18.17	93.95	24.25	94.04	23.90	86.05
Other business	1.17	6.05	1.54	5.96	3.87	13.95
Total	19.34	100	25.79	100	27.77	100

Source: Shandong Lvbang

Table 9: Shandong Lvbang's revenue by business, 2013-2015 (Jan.-July)

Revenue	Jan.-July 2015			2014			2013		
	Value, million USD	Proportion, %	Gross profit margin, %	Value, million USD	Proportion, %	Gross profit margin, %	Value, million USD	Proportion, %	Gross profit margin, %
Herbicide	17.46	96.06	15.7	23.57	97.17	20.22	22.65	94.79	22.21
Insecticide	0.72	3.94	9.46	0.69	2.83	7.87	1.25	5.21	6.82
Main business	18.17	100	15.45	24.25	100	19.87	23.90	100	21.41

Source: Shandong Lvbang

Nantong Jiangshan: glyphosate revenue reports YoY fall of 23.26% in 2015

Summary: In 2015, Nantong Jiangshan recorded a YoY fall of 23.26% in its revenue from glyphosate business. And the declined average sales price of glyphosate brought large falls to its gross profit margin and total gross profit, resulting in a YoY drop of 94.76% in the company's net profit.

Nantong Jiangshan Agrochemical & Chemical Co., Ltd. (Nantong Jiangshan) released, on 22 March, 2016, its full-year financial report of 2015, which showed that the decreased average sales price of glyphosate led to large drops in its gross profit margin and total gross profit, causing a YoY slump of 94.76% in the company's net profit.

The price drop of glyphosate dragged down Nantong Jiangshan's performance to a great extent. According to the financial report, the sales volume, revenue and gross profit from Nantong Jiangshan's amid pesticides and fine chemicals all realized large YoY increases in year 2015. As a whole, except for glyphosate, other products of the company recorded a YoY rise of 36.28% in gross profit and YoY rise of 8.18% in revenue. In this year, the revenue from glyphosate business was USD203.25 million (RMB1.33 billion), down 23.26% year on year; the gross profit margin from glyphosate sales was -0.91%, down 21.28 percentage points year on year, mainly affected by the large YoY fall in the sales price of glyphosate.

Dragged down by the glyphosate business, Nantong Jiangshan achieved USD273.62 million (RMB1.79 billion) of pesticide revenue in year 2015, USD47.87 million (RMB313 million) lower (down by 14.89%) when compared to 2014. As of the end of 2015, Nantong Jiangshan had 17,170 tonnes of pesticide inventory (converted into 100% A.I.), up 75.70% year on year. The increased



inventory was mainly due to the low market price of glyphosate, and the depressed market. At the same time, Nantong Jianshan increased 1,500 tonnes of inventories for dichlorvos and trichlorfon so as to meet the seasonal sales demand. The company's glyphosate sold well in year 2015 although its overall glyphosate business was unsatisfactory. For example, its new formulations 65% glyphosate DP sold well and the sales volume of 450 g/L glyphosate AS showed a YoY soar of 118% in the Australian market.

Table 10: Nantong Jiangshan's financial performance in 2015, million USD

Item	Revenue	YoY change (%)	Cost of sales	YoY change (%)	Gross profit margin (%)	YoY change (percentage point)
By industry						
Pesticide	273.62	-14.89	266.70	0.68	2.53	-15.07
Chemical	50.14	-8.62	43.64	-17.35	12.96	9.19
Chlor-alkali	45.24	0.07	29.85	0.05	34.03	0.01
Merchandise sales	10.09	1,131.16	9.77	1,156.04	4.73	-1.89
Thermoelectricity	27.85	-9.42	16.82	-15.69	39.59	4.49
By product						
Glyphosate	203.25	-23.26	205.09	-2.75	-0.91	-21.28
Caustic soda	32.20	2.27	18.83	-7.71	41.51	6.32
Steam	27.85	-9.42	16.82	-15.69	39.59	4.49
By region						
Domestic	260.50	2.73	226.57	5.11	13.03	-1.96
Overseas	148.95	-25.36	141.33	-7.63	5.11	-18.21

Source: Nantong Jiangshan's 2015 financial report

In year 2015, Nantong Jianshan's total revenue was USD409.45 million (RMB2.68 billion), down 10.04% year on year. Thereinto, the revenue from chemicals was USD50.14 million (RMB327.86 million), a YoY fall of 8.62%, affected by the reduced sales volume of some intermediates. The revenue from chlor-alkali products was USD45.24%, a YoY rise of 0.07%. And the revenue from steam products was USD27.85 million (RMB182.02 million), a YoY fall of 9.42% affected by the YoY fall in sales price.

As for the net profit, Nantong Jiangshan made USD1.62 million (RMB294.31 million) in 2015, USD29.24 million (RMB191.19 million) lower (down by 94.76%) when compared to 2014. Regarding the profit structure, Nantong Jiangshan made USD41.55 million (RMB271.67 million) of gross profit in that year, USD45.01 million (RMB294.31 million) less than that in 2014; the average gross profit margin was 10.15%, a YoY fall of 8.87 percentage points. It was the declined average sales price of glyphosate that pulled down the gross profit margin and total gross profit of glyphosate. Other products of Nantong Jiangshan, except for glyphosate, all reported YoY rises in gross profit and gross profit margin.

In the whole year of 2015, the sluggish pesticide market was the macro-reason for Nantong Jiangshan's sliding performance. The market gradually fell in the downturn influenced by the strengthening environmental pressure, slack demand both at home and

abroad, the ban and limitation of high-toxicity pesticides, etc. What's more, the abnormal climate, especially the El Nino greatly impacted the agriculture industry. In early 2015, the drought caused big difference among the seedlings of autumn crops especially the dry crops, which brought great difficulty to crop management.

Table 11: Financial figures of Nantong Jiangshan in 2013-2015, million USD

Item	2015	2014	YoY change (%)	2013
Total revenue	409.45	455.14	-10.04	483.68
Net profit	1.62	30.86	-94.76	46.22
Item	End of 2015	End of 2014	YoY change (%)	End of 2013
Net asset	197.60	203.90	-3.09	187.49
Total assets	477.19	502.68	-3.09	511.19

Source: Nantong Jiangshan's 2015 financial report

Table 12: Financial performance of Nantong Jiangshan by quarter in 2015, million USD

Item	Q1 (Jan.-March)	Q2 (April-June)	Q3 (July-Sept.)	Q4 (Oct.-Dec.)
Total revenue	123.82	115.19	71.90	98.54
Net profit	1.30	1.21	-0.78	-0.12
Cash flow from operations	-6.03	7.62	0.65	0.65

Source: Nantong Jiangshan's 2015 financial report

Market Analysis

Amide herbicide market ushers in spring ploughing period with price rebound

Summary: The spring ploughing period is approaching, and China's pesticide market is embracing a boom in the demand for amide herbicides.

China's 2016 spring ploughing signals the busy season for the pesticide market, among which the herbicide market is the first beneficiary. In particular, amide herbicides have been very popular.

At present, China's amide herbicides are in a good market where the supply of upstream raw materials is tight but the demand from the downstream market is high. Firstly, the prices of upstream raw materials like chloroacetyl chloride and MEA rise rapidly. The tight supply is largely due to environmental pressures. Chloroacetyl chloride price quotations have risen up to USD1,835/t (RMB12,000/t) at some factories, which undoubtedly supports the amide herbicide price to go up.

Secondly, as the demand from herbicide end users expands and formulation processors begin to purchase technical according to their production plans, the entire herbicide market is entering into the busy season. In general, March to April every year is China's spring ploughing period. Amide herbicides including acetochlor, metolachlor and pretilachlor are selective pre-emergence



herbicides. They are important herbicide varieties during the spring ploughing period and have large market demand during this period.

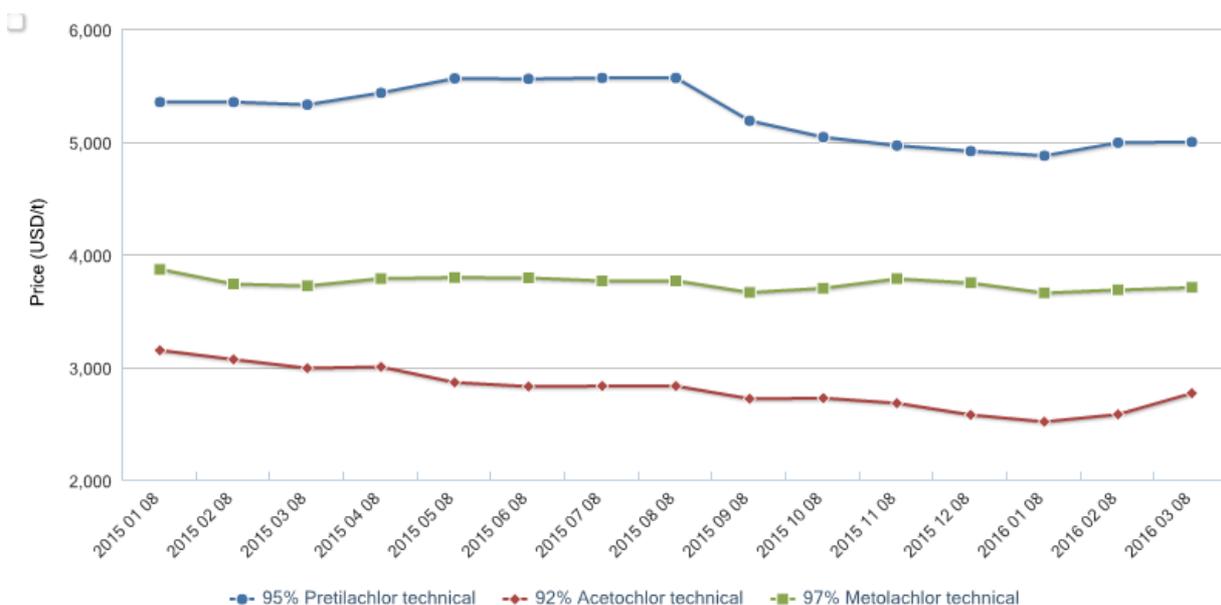
Acetochlor TC, metolachlor TC and pretilachlor TC are in great demand and are in tight supply because of the current strong market. This is mainly because formulation suppliers need time to stock up goods for the start of the market demand. However, most TC manufacturers have inventories to consume since these products did not sell well in 2015. As of early-March 2016, most amide herbicide TC manufacturers are still suspending their production and their supply of goods is based on the previous inventories. But influenced by the rising price of upstream raw material, the prices of above three herbicide TC are increasing.

Domestic formulation prices are also increasing because of the rising TC price. In 2015, the lowest ex-works price of acetochlor TC was USD2,575/t (RMB16,500/t). The price has rebounded to about USD2,767/t (RMB18,000/t) now, a growth rate of 9.1%. At present, the quotation of metolachlor TC reaches USD3,705/t (RMB24,100/t), up by 4.8% when compared to the bottom price of USD3,518/t (RMB23,000/t) during 2015. The price of pretilachlor TC has also rebounded, but its growth rate is lower than the other two formulations. In detail, the quotation of pretilachlor TC is about USD4,997/t (RMB32,500/t), about USD153/t (RMB1,000/t) above the 2015 low, and a rise of 3.1%.

Industry insiders forecast that the prices of related formulations will keep rising in the short term due to the rising processing costs. But if the market fluctuates, prices will also be affected.

Acetochlor, metolachlor and pretilachlor are major pre-emergence herbicides in China, with relatively high consumption. Nevertheless, due to the serious capacity expansion and overcapacity, the prices of these herbicides have not recorded large rises in recent years. History indicates that the prices of these herbicides will not rise significantly in the future. Currently, Nantong Jiangshan Agrochemical & Chemical Co., Ltd., Henan Yintai Chemical Co., Ltd. and Shandong Binnong Technology Co., Ltd. are main amide herbicide TC producers in China.

Figure 1: Ex-works prices of pretilachlor TC, acetochlor TC and metolachlor TC in China, Jan. 2015-March 2016



Source: CCM



Jiangsu: pesticide exports record YoY fall for first time

Summary: Jiangsu, as China's largest export province of pesticide, recorded double-digit declines in both export volume and export value for the first time in year 2015. Affected by the sluggish markets of glyphosate and paraquat, herbicide, the largest pesticide variety in Jiangsu, also failed to perform well.

According to Jiangsu Pesticide Industry Association, Jiangsu Province's exports of pesticide recorded YoY falls for the first time since 2011 affected by the slowdown in the global economy and the demand changes. Both export volume and export value of pesticide showed double-digit declines in year 2015. In detail, Jiangsu exported 585,000 tonnes of pesticides in 2015, down 11.7% year on year; export value amounted to USD3.17 billion, down 18% year on year. Both these two figures declined to near the same level in 2011 and were lower than those in 2012-2014. Regarding the product types, the exports of formulations are rising year by year.

Jiangsu is the traditional export province of pesticide TC. Since 2011, the export volume of formulations has kept rising, and surpassed that of technical in 2013 for the first time. In 2013-2015, the export volume of formulations were larger than that of technical but the export value were still a half lower than that of technical, being about 30%-33% of the total. While the proportion of formulation export volume keeps rising year by year.

Table 13: Exports of pesticide in Jiangsu, 2011-2015

Year	Export volume (tonne)	YoY change	Export value (billion USD)	YoY change
2011	564,000	-	2.71	-
2012	636,000	12.80%	3.29	21.30%
2013	657,000	3.20%	3.79	15.30%
2014	663,000	0.90%	3.86	1.80%
2015	585,000	-11.70%	3.17	-18.00%
Total	3.11 million	-	16.82	-

Source: China Customs & Jiangsu Pesticide Industry Association

Table 14: Exports of pesticide TC and formulatison in Jiangu, 2011-2015

Year	Export volume (tonne)				Export value (billion USD)			
	Technical	Share	Formulations	Share	Technical	Share	Formulations	Share
2011	309,000	54.7%	256,000	45.3%	1.88	69.2%	0.84	30.8%
2012	342,000	53.7%	295,000	46.3%	2.30	69.8%	0.99	30.2%
2013	312,000	47.5%	345,000	52.5%	2.54	67.0%	1.25	33.0%
2014	326,000	49.2%	337,000	50.8%	2.58	66.9%	1.28	33.1%
2015	287,000	48.9%	299,000	51.1%	2.13	67.2%	1.04	32.8%

Source: China Customs & Jiangu Pesticide Industry Association

Herbicide still occupied a largest share in exports of Jiangu.

In 2015, Jiangu exported 364,000 tonnes of herbicides, accounting for over 60% of the total. And the proportions of export volumes of insecticide and fungicide were 21% and 14.6% respectively. The export value of herbicide reached USD1.66 billion, accounting for 52.5% of the total.

In 2015, glyphosate, paraquat and 2,4-D series ranked top three among the herbicides by export volume, whose export volume all surpassed 25,000 tonnes respectively. As for the export value, glyphosate, paraquat, dicamba, sulfentrazone and 2,4-D series ranked top 10 among pesticides. In detail, the top 10 products were glyphosate, paraquat, imidacloprid, dicamba, sulfentrazone, chlorothalonil, bifenthrin, tebuconazole, 2,4-D series and lambda-cyhalothrin, among which 5 are herbicides, 3 are insecticides and 2 are fungicides. And the export values of glyphosate, paraquat, imidacloprid, dicamba and sulfentrazone exceeded USD1 million, among which 4 are herbicides.

Since glyphosate plays an important role in the export market, the depressed glyphosate market dragged down the export market in 2015. Glyphosate and paraquat are in large export volume. But in recent 5 years, the prices declines of technical and formulations impacted the total export value greatly. The exports of glyphosate started to decline after hitting a peak in 2013. In 2015, the export volume of glyphosate TC was 29,000 tonnes lower (down by 20.2%) than that in 2014, and the export price also declined by 31.3% (USD1,621/t lower) year on year. As a result, the export value was down by 45% (USD330 million lower) when compared to 2014. The export volume of glyphosate formulations declined by 22,000 tonnes (-20.2%) when compared to 2014, and the export price also declined by USD653/t (-26.6%) year on year. This led to YoY fall of 41.4% (USD16.8 million) in export value. As a whole, the export volumes of glyphosate TC and formulations declined by 51,000 tonnes, and the export values declined by USD450 million.

In addition, the export volume and export price of paraquat dropped by 11,000 tonnes and USD836.5/t respectively, resulting in a YoY drop of USD80 million in export value.

In 2015, Asia and South America were two major export destinations of Jiangu's herbicides. Continents by the import volume proportion of herbicides from Jiangu were Asia (29.1%), South America (27.5%), Oceanica (14.7%), North America (11.3%), Europe (10.3%) and Africa (7.1%). Regarding the export value, the rankings are South America (26.1%), North America (22.8%),

Asia (22.8%), Europe (13.1%), Oceanica (10.8%) and Africa (4.4%). Thereinto, the export value of glyphosate accounted for about 43.2% of the total export value of herbicides in recent 5 years. In 2015, Jiangsu's herbicides are mainly exported to Australia, Brazil, the US, Thailand, Argentina, Indonesia, Vietnam, TPKM region (Taiwan, Penghu, Kinmen and Matsu), Japan and the Russian Federation.

Table 15: Exports of pesticide varieties in Jiangsu, 2015

Pesticide	Export volume		Export value	
	Tonne	Share	USD	Share
Herbicide	364,000	62.2%	1.66 billion	52.5%
Insecticide	123,000	21.0%	810 million	25.7%
Fungicide	86,000	14.6%	620 million	19.4%
Rodenticide	3	0.0%	470,000	0.0%
Plant growth regulator	13,000	2.2%	80 million	2.4%

Source: China Customs & Jiangsu Pesticide Industry Association

Table 16: Rankings of pesticide exports in Jiangsu, 2015

No.	Ranking by export volume	Export volume (tonne)	Ranking by export value	Export value (USD)
1	Glyphosate	202,000	Glyphosate	57,000
2	Paraquat	52,000	Paraquat	15,000
3	2,4-D series	27,000	Imidacloprid	14,000
4	P-dichlorobenzene	26,000	Dicamba	1,000
5	Chlorothalonil	23,000	Sulfentrazone	1,000
6	Mancozeb	15,000	Chlorothalonil	9,000
7	Imidacloprid	13,000	Bifenthrin	7,000
8	Lambda-cyhalothrin	10,000	Tebuconazole	6,000
9	Chlorpyrifos	9,000	2,4-D series	6,000
10	Ethephon	9,000	Lambda-cyhalothrin	6,000

Source: China Customs & Jiangsu Pesticide Industry Association



Export Analysis

Trifluralin TC: YoY rise of 23.16% in 2015 export volume

Summary: China's export volume and export price of trifluralin TC showed double-digit growths in year 2015. Of this, the export volume reported a YoY rise of 23.16%.

China's export market of trifluralin TC was satisfactory in year 2015. Both export volume and export price recorded large YoY rises. According to China Customs, China exported 9,402 tonnes of trifluralin TC in year 2015, up 23.16% year on year. The average export price was USD4.72/kg, up 12.49% year on year. The busy season and slack season of the sales of trifluralin TC are obvious. In general, Q1 and Q4 are the busy season for trifluralin exports. China exported 7,769 tonnes of trifluralin TC in Q1 and Q4 2015, surpassing the total in full-year 2014 and accounting for 82.63% of the total in year 2015.

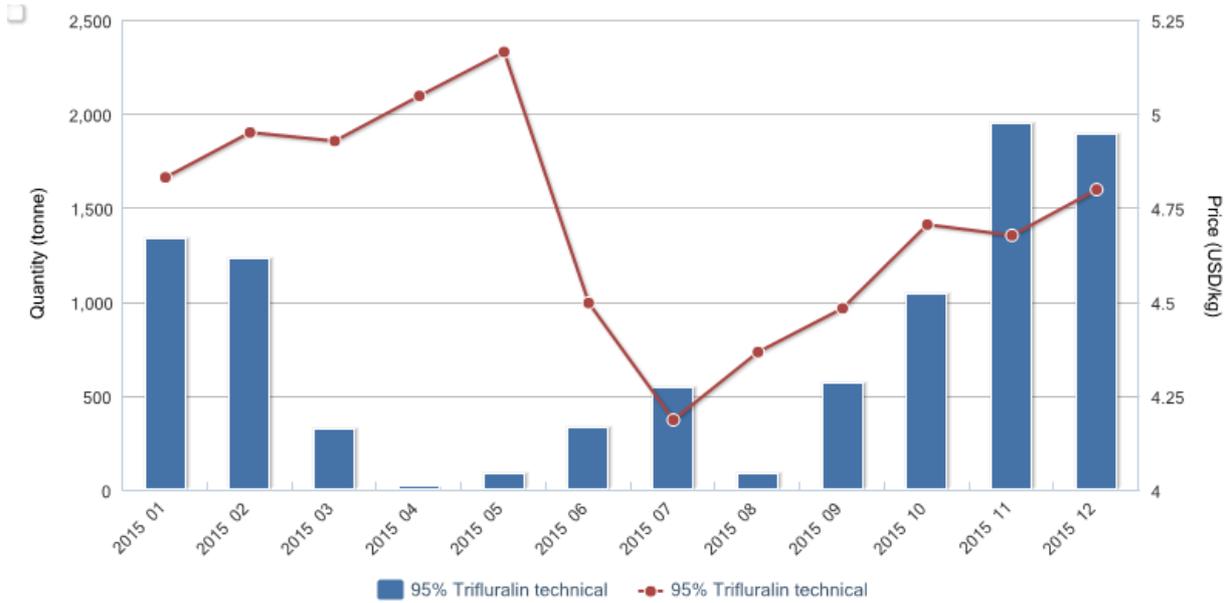
As for the export destinations of trifluralin in China, Australia was still the top one. China exported 8,297 tonnes of trifluralin TC to Australia, up 39% year on year, accounting for 88.25% of China's total. South Africa and Israel ranked second and third.

As for the exporter by manufacturers, Jiangsu Fengshan Group Co., Ltd. (Jiangsu Fengshan) and Qingdao Hansen Biologic Science Co., Ltd. (Qingdao Hansen) are major suppliers for the exported trifluralin TC in China. In 2015, Jiangsu Fengshan exported 5,340 tonnes of trifluralin TC (including those for direct export and indirect export, similarly hereinafter), a YoY rise of 14.08%, accounting for 56.79% of China's total. Qingdao Hansen exported 2,526 tonnes of trifluralin TC in 2015, up 103.01% year on year, accounting for 26.86% of China's total. Jiangsu Tenglong Biological & Medicinal Co., Ltd. ranked third by export volume in 2015.

China's trifluralin is export-oriented, which is applicable for soybean, cotton, wheat, dry rice, sugarcane, beet, sunflower, tomato, cabbage, bean, carrot and celery to control and prevent barnyardgrass, wild oat, green bristlegrass, common crabgrass, *Eleusine indica* (L.) Gaertn., *Puccinellia distans*, Chinese sprangletop, *Alopecurus aequalis* Sobol., lambsquarters, *Amaranth*, Common Chickweed, Common Russianthistle, henbit deadnettle, purslane and other annual Gramineae weeds and some dicotyledon weeds.

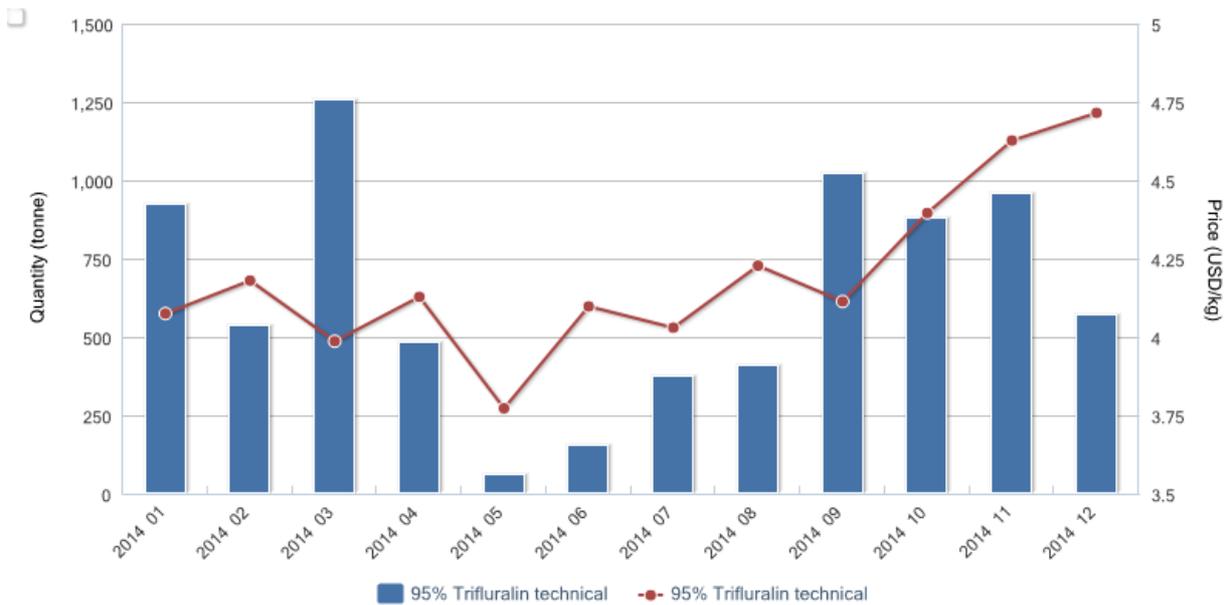


Figure 2: Export volume and price of trifluralin TC in China, 2015



Source: China Customs and CCM

Figure 3: Export volume and price of trifluralin TC in China, 2014



Source: China Customs and CCM

Herbicide formulations: YoY fall of 18.09% in 2015 export value

Summary: China achieved a mere YoY rise of 1.75% in export volume of herbicide formulations in year 2015. While the export value recorded a YoY fall of 18.09%.

Affected by the depressed market, China's export value of herbicide formulations continued to drop in year 2015. According to analyst CCM, in H1 2015, the export value of herbicide formulations reported a YoY fall of about 15.09%; the figure expanded to 16.41% in Q1-Q3 2015 and then further increased to 18.09% in full-year 2015. Data from China Customs show that the total export value of herbicide formulations was USD2.10 billion; export volume was 819,659 tonnes, up 1.75% year on year. Although the

export volume achieved YoY rise in 2015, the growth rate was shrinking. For instance, the YoY rise in export volume of formulations amounted to 4.86% in H1, then shrunk to 2.99% in Q1-Q3 and reduced further in the whole year. Of course, this trend was related to the continuously falling export price. Particularly, the falling prices of glyphosate, paraquat, acetochlor and other bulk herbicides even dragged down the whole herbicide market.

Except that the export value of herbicide formulations has a YoY rise of 40.81% in Feb., those in other months recorded different degrees' YoY falls in 2015. Thereinto, the YoY falls in March, Aug. and Nov. even surpassed 30%. Regarding the export volume, the YoY rises were less than 6% except for 59.90% in Feb. And the YoY changes were negative in Jan., March, Aug. and Nov.

Table 17: Monthly exports of herbicide formulations in China, 2015

Month	Export volume, tonne	YoY change	Export value, million USD	YoY change
Jan.	84,156	-7.99%	244.78	-17.80%
Feb.	86,724	59.90%	238.76	40.81%
March	79,914	-13.40%	201.96	-32.46%
April	99,889	4.33%	249.71	-20.19%
May	84,457	3.08%	217.61	-18.61%
June	74,419	5.88%	184.74	-19.20%
July	65,650	4.23%	171.52	-13.39%
Aug.	43,631	-17.53%	111.16	-33.37%
Sept.	43,277	5.48%	108.01	-15.20%
Oct.	48,733	5.85%	113.63	-19.77%
Nov.	43,915	-17.98%	105.69	-35.24%
Dec.	64,895	2.80%	154.05	-20.29%
Total	819,659	1.75%	2,101.64	-18.09%

Source: China Customs and CCM

Regarding the export packaging, the non-retail packaging herbicides were still the major type. According to China Customs, the export volumes of retail packaging herbicides and non-retail packaging herbicides accounted for 38.29% and 61.71% of the total respectively in year 2015, and the proportions of export value were 43.64% and 56.36% respectively.

As for the export destinations, Thailand was the top one by volume and value in China in 2015. In 2015, Thailand imported 93,181 tonnes of herbicide formulations from China, which valued at USD193.92 million, accounting for 11.37% and 9.23% of the national total respectively. Australia and Nigeria ranked second and third among the export destinations. To sum up, China's export destinations of herbicide formulations are relatively concentrated. The total export volume to top ten destinations reached 437,456 tonnes, and value amounted to USD1.07 billion, taking up 53.37% and 51.10% separately.



China's exported herbicide formulations are mainly from Jiangsu, Zhejiang and Shandong provinces as they are major producing areas. According to China Customs, 649,979 tonnes of herbicide formulations were exported from these three provinces, a proportion of 79.30% in the total. And the export value was USD1.69 billion, a proportion of 80.17%.

Shanghai Port was still China's major export port of herbicide formulations in 2015 with export value being USD1.49 billion, accounting for 70.80% of the national total. Qingdao Port, Nanjing Port and Jinan Port came after. They are all near the main producing areas of herbicides.

Table 18: Top 10 export destinations of herbicide formulations in China, 2015

No.	Export destination	Volume, tonne	Value, million USD
1	Thailand	93,181	193.92
2	Australia	67,334	186.82
3	Nigeria	65,454	144.40
4	The US	29,482	108.47
5	Indonesia	31,751	87.60
6	Ghana	39,275	81.51
7	Brazil	27,577	76.01
8	Vietnam	42,395	74.36
9	The Russia Federation	20,019	62.92
10	Uruguay	20,986	57.99

Source: China Customs and CCM



Table 19: Top 10 export regions of herbicide formulations in China, 2015

No.	Export region	Volume, tonne	Value, million USD
1	Jiangsu	297,132	785.29
2	Zhejiang	205,571	463.27
3	Shandong	147,275	436.24
4	Sichuan	43,728	84.22
5	Shanghai	38,977	84.14
6	Anhui	27,278	66.19
7	Hubei	25,402	62.66
8	Hebei	16,028	50.50
9	Guandong	4,870	15.55
10	Beijing	2,274	11.96

Source: China Customs and CCM

Table 20: Top 10 export ports of herbicide formulations in China, 2015

No.	Export port	Volume, tonne	Value, million USD
1	Shanghai Port	593,597	1,487.86
2	Qingdao Port	62,762	177.55
3	Nanjing Port	70,127	168.85
4	Jinan Port	53,490	152.08
5	Wuhan Port	11,015	29.08
6	Ningbo Port	11,227	27.93
7	Tianjin Port	7,611	20.41
8	Hangzhou Port	3,125	12.30
9	Dalian Port	3,952	11.66
10	Harbin Port	647	4.18

Source: China Customs and CCM



Paraquat and Pyridine

Shandong Luba further expands downstream application of pyridine

Since China has issued a policy to ban the sales and use of paraquat AS, the development and promotion of paraquat new formulations are hindered. In response to this, Shandong Luba Chemical Co., Ltd. (Shandong Luba), as one of the important pyridine producers in China, will focus on the pyridine downstream application expansion in the future.

In March 2016, Dezhou Luba Fine Chemical Co., Ltd. (Dezhou Luba - subsidiary of Shandong Luba) has obtained the production license on the chlorpyrifos TC project (raw material: tetrachloropyridine). Adopting the tetrachloropyridine production route for chlorpyrifos, Dezhou Luba not only expands the downstream application of pyridine, but also enriches its pyridine product line. At the same time, it can solve the overcapacity problem of pyridine and can boost the development of pyridine industrial chain.

Paraquat market likely to rebound in future

Summary: China's paraquat market did not progress smoothly over the past year or so. The unimplemented policy greatly impacted manufacturers' enthusiasm for production. But the domestic paraquat market still has chance to rebound in the future.

There are only three months left before China bans the sales and use of paraquat AS on 1 July, 2016. Over the past year or so, the development progress of paraquat was unsatisfactory. The unclear policy orientation even dampened manufacturers' enthusiasm for production. Nevertheless, the paraquat market is still likely to rebound in the future.

At present, China's paraquat market is still in a bad shape. Although paraquat manufacturers purposely increased the quotations at the end of Feb. 2016, the actual transaction market price was still low. On the 17th China International Agrochemical & Crop Protection Exhibition (CAC 2016) held in March 2016, paraquat manufacturers seem to be optimistic about the continuous use of paraquat in China. Most of them promoted the new paraquat formulations like paraquat GW and paraquat WG on the exhibition. But as some authorities of the Ministry of Agriculture of the People's Republic of China (MOA) still hold skeptical attitude towards the new formulations of paraquat, these new formulations are not approved to register now. For instance, Shandong Luba Chemical Co., Ltd. has not received the renewal of registration after its registration of new paraquat formulations expired in Nov. 2015. But as of now, the MOA has not issued official policy to ban the use of non-AS paraquat. To be optimistic, there will be new paraquat formulations to fill up the market share left by paraquat AS after the latter to be banned in July 2016.

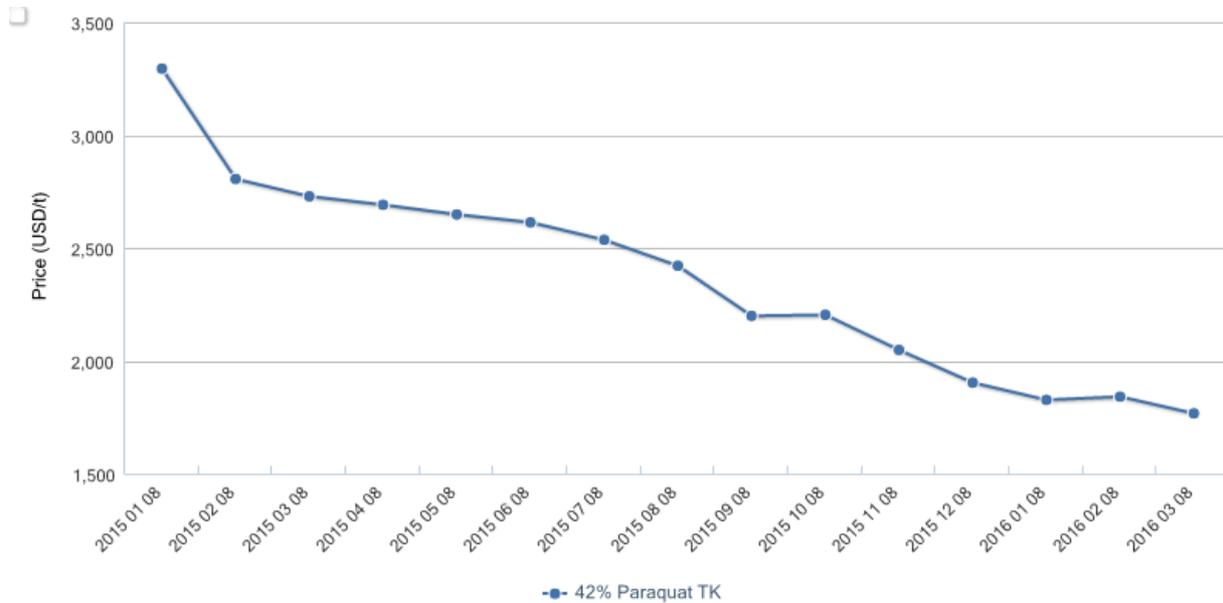
So it seems that China's paraquat market will be likely to rebound in the future. Firstly, if new formulations of paraquat are promoted smoothly in China, the lost market share of paraquat TK due to the ban of paraquat AS will be replenished. At that time, the demand for paraquat TK will strengthen. In other words, China's paraquat market will not rely on export because new demand will emerge in the domestic market. Secondly, the large overseas demand for paraquat is still growing, which can support the stable domestic market.

However, the price trend of paraquat TK is still not good in China in a short run. Firstly, the operating rate of paraquat manufacturers is not high, which can basically meet the demand of overseas orders. Secondly, the price of pyridine (raw material of paraquat) keeps falling, which cannot support the production cost of paraquat. Thirdly, the downstream demand of paraquat weakens - domestic manufacturers only have overseas orders on paraquat AS while there are less domestic clients to purchase paraquat TK.



Domestic paraquat TK enterprises disclosed that they decided to raise the price influenced by the Spring Festival holiday and the CAC 2016. But according to the purchase tendency on the CAC 2016, purchasers still hold wait-and-see attitude. The price of 42% paraquat TK has dropped to the historical low, and the production enthusiasm of manufacturers has largely reduced. In the short term, the low operating rate and the depressed market will engulf the whole paraquat market.

Figure 4: Ex-works price of 42% paraquat TK in China, Jan. 2015-March, 2016



Source: CCM

Registration

19 herbicide TC newly registered in China in Feb. 2016

Summary: In Feb. 2016, China has 19 herbicide TC newly registered in China, up 58% month on month. Active ingredients 2,4-D, ethoxysulfuron, dicamba, thien carbazone-methyl and glyphosate were popular in this month.

There were 19 herbicide TC being registered in China in Feb. 2016 (not including the update of old registrations), up by 58% month on month, according to the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA). Active ingredients 2,4-D, ethoxysulfuron, dicamba, thien carbazone-methyl and glyphosate were popular in this month.

Notably, 2,4-D was still the active ingredient with largest number of TC registrations in Feb., being 3 (2 in Jan.). As of 29 Feb., 2016, there were 22 TC registrations on 2,4-D, among which one was respectively newly obtained in 2014 and 2015. In Feb., the registrants of 2,4-D TC registration were all from Jiangsu Province.

There were two new registrations on ethoxysulfuron TC and dicamba TC respectively in Feb. As of now, the number of registrations on ethoxysulfuron TC reaches 6 and the newly registered ones in Feb. were equal to those registered in 2014 and 2015. It is predicted that the registration number of ethoxysulfuron TC would grow rapidly. Of course, dicamba also gets much attention, being one of the hottest products in the herbicide market.

Thien carbazone-methyl was first registered in China in this month by Bayer CropScience AG (Bayer CropScience). As of 29 Feb.,



2016, Bayer CropScience also obtained the registration on thien carbazole-methyl formulations - 26.70% thien carbazole-methyl-isoxaflutole SC.

Additionally, the TC registrations on derivatives of glyphosate ingredients are rising, being 5 in Jan.-Feb. In Feb., 98% glyphosate ammonium TC and 70.50% glyphosate-isopropylammonium TC were registered. In Jan., 95% glyphosate TC, 95% glyphosate dimethylamine salt TC and 95% glyphosate potassium salt TC were registered.

Jiangsu Lionchem Co., Ltd. and Bayer CropScience obtained most TC registrations (two) in Feb. The former registered 96% 2,4-D TC and 95% ethoxysulfuron TC, the latter registered 98% thien carbazole-methyl TC and 97.20% isoxaflutole TC. Other enterprises obtained one registration respectively.

Regarding the toxicity, expect that the 70.50% glyphosate-isopropylammonium TC registered by Sichuan Fuhua Tongda Agro-chemical Technology Co., Ltd. is micro toxic, other newly-registered ones are all low toxic.



Table 21: New registrations of herbicide TC in China, Feb. 2016

No.	Active ingredient	Specification	Registrant	Accumulative number of registration	New registration in 2016	New registration in 2015	New registration in 2014
1	2,4-D	98% TC	CAC Nantong Chemical Co., Ltd.	22	5	1	1
2		96% TC	Jiangsu Jiangnan Agrochemical Co., Ltd.				
3		96% TC	Jiangsu Lionchem Co., Ltd.				
4	Ethoxysulfuron	95% TC	Jiangsu Agrochem Laboratory	6	2	1	1
5		97% TC	Jiangsu Agrochem Laboratory				
6	Dicamba	98% TC	Changshu Pesticides Factory Co., Ltd.	30	2	7	3
7		98% TC	Yancheng Huihuang Chemical Co., Ltd.				
8	Metazachlor	97% TC	Shandong Zhongshi Pharmaceutical Co., Ltd.	2	1	0	0
9	Flumioxazin	99.20% TC	Lier Chemical Co., Ltd.	5	1	1	1
10	Glyphosate ammonium	98% TC	Sichuan Demetre Biological Sci-tech Co., Ltd.	10	1	3	0
11	Glyphosate-isopropylammonium	70.50% TC	Sichuan Fuhua Tongda Agro-chemical Technology Co., Ltd.	14	1	1	0
12	Diuron	98% TC	Jiangsu Anpon Electrochemical Co., Ltd.	16	1	4	0
13	Sulcotrione	98% TC	Jiangsu Flag Chemical Industry Co., Ltd.	24	1	7	1
14	Sulfometuron-methyl	98% TC	MAX (Rudong) Chemicals Co., Ltd.	6	1	0	0
15	S-metolachlor	96% TC	Jiangsu Huangma Agrochemicals Co., Ltd.	17	1	5	7
16	Thiencarbazone-methyl	98% TC	Bayer CropScience AG	1	1	0	0
17	Isoxaflutole	97.20% TC		3	1	1	1
18	Florasulam	97% TC	Jiangsu Good Harvest-Weien Agrochemical Co., Ltd.	20	2	4	9
19	Oxyfluorfen	98% TC	Jiangsu Heye Agrochemical Co., Ltd.	18	1	3	0

Note: New registrations do not include updates of old registrations; the accumulative number of registrations refers to the valid registrations of TC/TK as of 29 Feb., 2016.

Source: ICAMA



News in Brief

Review: herbicide consumption reports YoY rise in Jiangsu in 2015

According to the announcement from the Plant Protection and Quarantine Station of Jiangsu Province, the herbicide consumption (amount of commodities, similarly hereinafter) reported a slight YoY rise in year 2015. Particularly, the consumption of cyhalofop-butyl, penoxsulam, metamifop, and pinoxaden-clodinafop-propargyl rose due to their good control effect. In year 2015, Jiangsu suffered from paddy field weeds which was much serious than that in previous years and many areas of direct sowing rice fields were impacted by weedy rice, Chinese sprangletop and barnyardgrass. At the same time, Jiangsu expanded the application of herbicides in some paddy fields in the south because the flood reduced the weeding effect.

As a whole, Jiangsu consumed about 78,500 tonnes of pesticides in year 2015, 1,031 tonnes less (down by 1.3%) than that in 2014, which was mainly ascribed to the reduced insecticide consumption. In addition, the fungicide consumption rose slightly.

Based on the analysis of pesticide application on paddy fields, insecticides, fungicides and herbicides were top three pesticides by consumption in Jiangsu in 2015.

Forecast: herbicide demand to reach 19,600 tonnes in Jiangsu in 2016

According to the forecast from the Plant Protection and Quarantine Station of Jiangsu Province, the total demand for pesticides would amount to 78,000 tonnes (amount of commodities, similarly hereinafter) in year 2016, about 500 tonnes less than that in year 2015. While the application areas of high-efficacy & low-residue pesticides would account for over 75%, over 3 percentage points higher than that in year 2015. Thereinto, the demand for herbicides will be 19,600 tonnes, accounting for 25.1% (the same as that in 2015); the demand for insecticides and acaricides will be 34,000 tonnes, a proportion of 43.6% (a small YoY rise); the demand for fungicides will be 23,000 tonnes, accounting for 29.5% (a small YoY drop); the demand for rodenticides and plant growth regulators will be 1,400 tonnes, accounting for 1.8%.

In recent years, Jiangsu is adjusting and optimizing the planting structure of agriculture:

- The total planting areas of grain crops keeps rising steadily and the high-quality level of crops is further improving;
- The planting areas of rape and cotton seed are reducing year by year while those of corn, greenhouse vegetable, high-efficiency agriculture and fruit tree are increasing;
- The advantageous planting areas and advantageous industries are clustered obviously;
- The consumption of pesticides and the variety structure of pesticide consumption are also changing.



Huapont Life Sciences: 2015 net profit to rise by 50.97% year on year

On 26 Feb., 2016, Huapont Life Sciences Co., Ltd. (Huapont Life Sciences, former name Huapont-Nutrichem Co., Ltd.) released the preliminary earnings estimate of year 2015, showing that it achieved total revenue of USD940.38 million (RMB6.15 billion), up 26.34% year on year; net profit reached USD99.10 million (RMB647.96 million), up 50.97% year on year.

Huapont Life Sciences disclosed that the large YoY rises in total revenue and net profit are mainly due to its good performance, steadily growing sales and continuously improved profitability in year 2015. The company issued stocks to specified objects, acquiring 100% of equity in Tibet Linzhi Parkson Pharmaceutical Co. Ltd. to boost the growths of operating profit and net profit.

Huapont Life Sciences plans to disclose detailed financial performance and related data on 22 April.

Table 22: Financial figures of Huapont Life Sciences, 2015

Item	2015	YoY change (%)
Total revenue (million USD)	940.38	26.34
Net profit (million USD)	99.10	50.97
Item	As of 31 Dec., 2015	YoY change (%)
Total assets (million USD)	3,046.73	46.82
Equity attributable to shareholders of the listed corporation (million USD)	1,468.15	72.17

Source: Huapont Life Sciences

ENN Ecological plans to conduct asset restructuring program

On 8 March, 2016, ENN Ecological Holdings Co., Ltd. (ENN Ecological) released to suspend stock trading for major issues. It disclosed that its actual controller (ENN Group International Investment Limited) is planning for asset restructuring related to ENN Ecological. Since there are uncertainties in the asset restructuring program, ENN Ecological suspended its stock trading since 8 March in order to avoid abnormal fluctuations in stock price.

However, during 25-26 Feb., 2016, ENN Ecological issued bonds (face interest rate: 6.25%) to qualified investors offline, planning to raise capital of USD260 million (RMB1.7 billion). If the company initiates asset restructuring, the capital raised by issuing bonds are expected to speed up the asset restructuring program.

Hubei Sanonda to disclose information about asset restructuring in May

On 3 March, 2016, Hubei Sanonda Co., Ltd. (Hubei Sanonda) released the announcement about major asset restructuring process, saying that it would disclose related information on 4 May, 2016. It is known that the underlying asset involved in the asset restructuring is ADAMA Agricultural Solutions Ltd. (ADAMA Agricultural), subsidiary of Hubei Sanonda's actual controller, which is engaged in crop protection, strongly complementary for Hubei Sanonda's business. Also, the counterparties are ChemChina Agrochemical Corporation and Koor Industries Ltd., another shareholder of ADAMA Agricultural. Hubei Sanonda has suspended the stock trading since 5 Aug., 2015.

Hubei Sanonda to receive USD30.59 million from Agricultural Development Fund

On 15 March, 2016, Hubei Sanonda Co., Ltd. (Hubei Sanonda) announced that its controlling shareholder Jinzhou Sanonda Co., Ltd. (Jinzhou Sanonda) signed investment agreement with China Agricultural Development Fund for Key Construction (Agricultural Development Fund). The latter will invest USD30.59 million (RMB200 million) to increase capital in Jinzhou Sanonda based on the price of net asset per share on 31 July, 2015. After the capital increment, Jinzhou Sanonda's registered capital will be increased from USD36.81 million (RMB240.66 million) to USD41.93 million (RMB274.14 million), and Agricultural Development Fund will hold 12.21% of holdings. It is disclosed that the investment would be used to construct the new project of Hubei Sanonda - 1.2% of the annual cost of capital of the investment.

After that, China National Agrochemical Corporation will hold 87.79% of holdings in Jinzhou Sanonda (100% before). Agricultural Development Fund will neither sent president, supervisor and senior manager to Jinzhou Sanonda nor participate in its daily management. Therefore, Jinzhou Sanonda will still enjoy 20.15% of interest in Hubei Sanonda.

Nantong Jiangshan plans to acquire Jiangsu Changlong

Nantong Jiangshan Agrochemical & Chemical Co., Ltd. (Nantong Jiangshan) announced to continue suspending the stock trading for major assets restructuring on 12 March, 2016. It is showed that Nantong Jiangshan is planning to acquire most of equities in Jiangsu Changlong Chemicals Co., Ltd. (Jiangsu Changlong) and Jiangsu Changlong Agrochemicals Co., Ltd. (Changlong Agrochemicals). Specific transaction amount is under negotiation. It is predicted that after the transaction, Nantong Jiangshan would become the controlling shareholder of these two companies.

Jiangsu Changlong holds 65% of holdings in Changlong Agrochemicals, which is mainly engaged in the production of intermediates of chemicals. Changlong Agrochemicals is a pesticide company owning phosgene resources.

It is known that Changlong Agrochemicals has 50,000 t/a capacity of amide herbicides and its downstream clients are rarely overlapped with Nantong Jiangshan. Therefore, Nantong Jiangshan can perform alignment effect with Changlong Agrochemicals. However, Changlong Agrochemicals' former shareholder Shenzhen Noposion Agrochemicals Co., Ltd. (Shenzhen Noposion) suffered from YoY decline in net profit affected by Changlong Agrochemicals' environmental pollution case. Furthermore, Shenzhen Noposion's refinancing application (USD112 million - RMB733 million of fund raising to construct O2O platform for agricultural means of production) was rejected by China Securities Regulatory Commission.

Shenzhen Noposion once planned to acquire Jiangsu Changlong to march into the technical field and obtain advantages in product supply, cost saving and profit guaranteeing by meeting demands of up- and down-stream industrial chains, so as to improve its core competitiveness and position in the pesticide industry. But things go contrary to its wishes.

So what will happen after Nantong Jiangshan acquires Jiangsu Changlong and Changlong Agrochemicals from Shenzhen Noposion? CCM will follow up.



Nutrichem ranks first by pesticide export value for 3 consecutive years in China

According to the Institute for the Control of Agrochemicals, Ministry of Agriculture, China's total export value of pesticides of top 20 enterprises reached USD4.30 billion, accounting for about 59% of the national total.

It should be noted that Beijing Nutrichem Company Limited (Nutrichem) ranked first among these 20 enterprises for 3 consecutive years (2013-2015). Among the top 20 enterprises by export value, Jiangsu Yangnong Chemical Co., Ltd., Nantong Jiangshan Agrochemical & Chemical Co., Ltd. and Sinochem Crop Protection Co., Ltd., subsidiaries of Sinochem Group, ranked top 10, totaling an export value of USD660.90 million, accounting for 22.3% of the total of top 10 enterprises and accounting for 15.4% of the total of top 20 enterprises. Hubei Sanonda Co., Ltd., subsidiary of China National Chemical Corporation also cracked the top 10.



Table 23: Top 20 enterprises by export value of pesticide in China, 2015

No.	Enterprise
1	Beijing Nutrichem Company Limited
2	Shandong Weifang Rainbow Chemical Co., Ltd.
3	Sichuan Fuhua Tongda Agro-chemical Technology Co., Ltd.
4	Zhejiang Wynca Chemical Industry Group Co., Ltd.
5	Jiangsu Yangnong Chemical Co., Ltd.
6	Nanjing Redsun Co., Ltd.
7	Tide Group
8	Hubei Sanonda Co., Ltd.
9	Nantong Jiangshan Agrochemical & Chemical Co., Ltd.
10	Sinochem Crop Protection Co., Ltd.
11	Ninghua Group Co., Ltd.
12	Ningbo Generic Chemical Co., Ltd.
13	Eastchem Co., Ltd.
14	Jiangsu Sevencontinent Green Chemical Co., Ltd.
15	Jiangsu Good Harvest-Weien Agrochemical Co., Ltd.
16	Jiangsu Trustchem Co., Ltd.
17	Jiangsu Flag Chemical Industry Co., Ltd.
18	Jiangsu Huifeng Agrochemical Co., Ltd.
19	Shangyu Yongnong Chemical Co., Ltd.
20	Zhejiang Zhongshan Chemicals Group Co., Ltd.

Source: CAC 2016

ICAMA issues project list of "minor crops + pesticides"

On 14 March, 2016, Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA) issued the *Project List of the Combination of Special Crops and Pesticides* and sought for opinions publicly. The list includes 2,628 combination projects of "crops + pesticides + insect pests and weeds". Since Sept. 2015, the ICAMA started to collect pesticides for special crops.

The issue of this list marks that China's pesticide shortage of minor crops will be effectively relieved.

Lier Chemical obtains registration of picloram TC

According to the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), Lier Chemical Co., Ltd. (Lier Chemical) obtained the registration of 95% picloram TC, which is valid for 5 years to 16 March, 2021. It is disclosed that Lier Chemical is the first Chinese enterprise to obtain this registration. Before that, only the foreign company Dow AgroSciences LLC registered 91.6% picloram TC and picloram formulations in China. Sino-Agri Leading (Tianjin) Biosciences Co., Ltd. also obtained the repacking registration of picloram formulations.

Table 24: Registrations of picloram in China, as of 28 March, 2016

No.	Registration No.	Product	Manufacturer
1	PD20160401	95% picloram TC	Lier Chemical Co., Ltd.
2	PD20142270F150006	21% picloram AS	Sino-Agri Leading (Tianjin) Biosciences Co., Ltd.
3	PD20142263	91.60% picloram TC	Dow AgroSciences LLC
4	PD20142270	21% picloram AS	

Source: ICAMA

Hisun Chemical obtains registration of pyrifthalid TC

According to the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), Hisun Chemical (Nantong) Co., Ltd. (Hisun Chemical) obtained the registration of 98% pyrifthalid TC, which is valid for 5 years to 22 March, 2021. Hisun Chemical is the first Chinese enterprise to obtain the registration of pyrifthalid. Before that, only Syngenta AG obtained the registrations of 96% pyrifthalid TC and 24.3% pyrifthalid SC in China.

Table 25: Registrations of pyrifthalid in China, as of 28 March, 2016

No.	Registration No.	Product	Manufacturer
1	PD20102159	96% pyrifthalid TC	Syngenta AG
2	PD20102201	24.3% pyrifthalid SC	
3	PD20160506	98% pyrifthalid TC	Hisun Chemical (Nantong) Co., Ltd.

Source: ICAMA

Shandong Keyuan: 2,4-D production device still under suspension in March

As of the end of March 2016, Shandong Keyuan Chemical Industry Co., Ltd. (Shandong Keyuan)'s production device of 2,4-D is still under suspension with detailed resumption date untold. Since early-Feb. 2016, Shandong Keyuan has suspended the production of 2,4-D. But thanks to the sufficient inventory stocked up before Spring Festival, Shandong Keyuan still can accept spots order.

Diuron price still remains low in March

In March 2016, China's diuron market remains slack with low-level market shipments. According to CCM research, the average price of 97% diuron TC is USD3,536/t in March 2016, which is basically the same as that in Feb. At present, the markets of diuron's raw material 3,4-dichloroaniline and para-nitrochlorobenzene are stable temporarily with small price fluctuations. As the prices of some raw materials are being adjusted and the diuron market is steady, it is predicted that the price will keep remaining at low-level in a short run.

Atrazine price keep remaining stable

In March 2016, China's atrazine market remains stable. According to analyst CCM, the average ex-works price of 95% atrazine TC is USD2,860/t in China in March, the figure was USD2,856/t in Feb. At present, the markets of atrazine's main raw materials also maintain stable, so does the market demand for atrazine. Therefore, the stable supply-demand situation expects to keep the atrazine price steady in the short term.

Price Monitoring

Ex-factory prices of key herbicide raw materials in China, 8 March, 2016

Table 26: Ex-factory prices of key herbicide raw materials in China, 8 March, 2016

No.	Raw materials	20160208		20160308	
		RMB/t	USD/t	RMB/t	USD/t
1	98% Glycine	8,815	1,353	8,815	1,355
2	92% Iminodiacetonitrile	8,550	1,313	8,500	1,307
3	99% Isopropylamine	6,500	998	6,800	1,045
4	98% N-(Phosphonmethyl) Iminodiacetic acid	9,000	1,382	9,000	1,384
5	99% Phosphorus trichloride	4,050	622	4,100	630
6	99.9% Pyridine	21,000	3,224	20,000	3,075

Note: Ex-factory price includes VAT.

Source: CCM

Ex-factory prices of main herbicides in China, 8 March, 2016

Table 27: Ex-factory prices of main herbicides in China, 8 March, 2016

No.	Product	20160208		20160308	
		RMB/t	USD/t	RMB/t	USD/t
1	92% Acetochlor technical	16,800	2,579	18,000	2,767
2	97% Atrazine technical	18,600	2,856	18,600	2,860
3	96% Bensulfuron-methyl technical	98,000	15,047	98,000	15,067
4	92% Butachlor technical	17,000	2,610	17,000	2,614
5	95% Clomazone technical	108,000	16,582	108,000	16,605
6	95% Cyhalofop-butyl technical	187,000	28,712	190,000	29,212
7	97% Diuron technical	23,000	3,531	23,000	3,536
8	98% Fenclorim technical	104,000	15,968	105,000	16,144
9	95% Fenoxaprop-P-ethyl technical	189,000	29,019	183,000	28,136
10	96% Fluroxypyr technical	114,000	17,503	114,000	17,527
11	95% Fomesafen technical	86,500	13,281	86,500	13,299
12	95% Glyphosate technical	18,250	2,802	18,000	2,767
13	95% Haloxypop-P-methyl technical	218,000	33,472	210,000	32,287
14	97% Metolachlor technical	24,000	3,685	24,100	3,705
15	95% Metsulfuron-methyl technical	108,000	16,582	107,000	16,451
16	95% Nicosulfuron technical	160,000	24,566	158,000	24,292
17	97% Oxyfluorfen technical	124,000	19,039	124,000	19,065
18	42% Paraquat TK	12,000	1,842	11,500	1,768
19	95% Pendimethalin technical	49,000	7,523	49,000	7,534
20	95% Pretilachlor technical	32,500	4,990	32,500	4,997
21	97% Pyrazosulfuron-ethyl technical	179,000	27,483	179,000	27,521
22	80% Quinclorac technical	84,000	12,897	83,000	12,761
23	95% Quizalofop-P-ethyl technical	133,000	20,421	133,000	20,449
24	95% Tribenuron-methyl technical	112,000	17,196	112,000	17,220
25	95% Trifluralin technical	33,000	5,067	33,000	5,074

Note: Ex-factory price includes VAT.

Source: CCM

Shanghai port prices of main herbicides in China, 8 March, 2016

Table 28: Shanghai port prices of main herbicides in China, 8 March, 2016

No.	Product	20160208		20160308	
		RMB/t	USD/t	RMB/t	USD/t
1	92% Acetochlor technical	17,280	2,653	18,480	2,841
2	97% Atrazine technical	19,080	2,930	19,080	2,934
3	96% Bensulfuron-methyl technical	98,480	15,121	98,480	15,141
4	92% Butachlor technical	17,480	2,684	17,480	2,688
5	95% Clomazone technical	108,480	16,656	108,480	16,679
6	95% Cyhalofop-butyl technical	187,480	28,786	190,480	29,286
7	97% Diuron technical	23,480	3,605	23,480	3,610
8	98% Fenclorim technical	104,480	16,042	105,480	16,217
9	95% Fenoxaprop-P-ethyl technical	189,480	29,093	183,480	28,210
10	96% Fluroxypyr technical	114,480	17,577	114,480	17,601
11	95% Fomesafen technical	86,980	13,355	86,980	13,373
12	95% Glyphosate technical	18,730	2,876	18,480	2,841
13	95% Haloxypop-P-methyl technical	218,480	33,545	210,480	32,361
14	97% Metolachlor technical	24,480	3,759	24,580	3,779
15	95% Metsulfuron-methyl technical	108,480	16,656	107,480	16,525
16	95% Nicosulfuron technical	160,480	24,640	158,480	24,366
17	97% Oxyfluorfen technical	124,480	19,113	124,480	19,139
18	42% Paraquat TK	12,480	1,916	11,980	1,842
19	95% Pendimethalin technical	49,480	7,597	49,480	7,608
20	95% Pretilachlor technical	32,980	5,064	32,980	5,071
21	97% Pyrazosulfuron-ethyl technical	179,480	27,557	179,480	27,595
22	80% Quinclorac technical	84,480	12,971	83,480	12,835
23	95% Quizalofop-P-ethyl technical	133,480	20,494	133,480	20,522
24	95% Tribenuron-methyl technical	112,480	17,270	112,480	17,294
25	95% Trifluralin technical	33,480	5,140	33,480	5,148

Note: Port price equals the ex-factory price plus the transport fee from the factory to the port, and the ex-factory price includes VAT.

Source: CCM

FOB Shanghai of main herbicides in China, 8 March, 2016

Table 29: FOB Shanghai of main herbicides in China, 8 march, 2016

No.	Product	20160208 USD/t	20160308 USD/t
1	92% Acetochlor technical	2,579	2,756
2	97% Atrazine technical	2,946	2,950
3	96% Bensulfuron-methyl technical	14,839	14,859
4	92% Butachlor technical	2,608	2,612
5	95% Clomazone technical	15,714	15,736
6	95% Cyhalofop-butyl technical	28,170	28,659
7	97% Diuron technical	3,472	3,477
8	98% Fendlorim technical	15,738	15,909
9	95% Fenoxaprop-P-ethyl technical	27,381	26,553
10	96% Fluroxypyr technical	16,579	16,601
11	95% Fomesafen technical	13,116	13,134
12	95% Glyphosate technical	3,130	3,093
13	95% Haloxfop-P-methyl technical	31,558	30,447
14	97% Metolachlor technical	3,616	3,636
15	95% Metsulfuron-methyl technical	16,337	16,209
16	95% Nicosulfuron technical	24,126	23,859
17	97% Oxyfluorfen technical	18,733	18,759
18	42% Paraquat TK	2,026	1,951
19	95% Pendimethalin technical	7,217	7,227
20	95% Pretilachlor technical	4,840	4,847
21	97% Pyrazosulfuron-ethyl technical	26,972	27,009
22	80% Quindorac technical	12,742	12,609
23	95% Quizalofop-P-ethyl technical	19,315	19,342
24	95% Tribenuron-methyl technical	16,936	16,959
25	95% Trifluralin technical	5,103	5,110

Note: Shanghai FOB price = port price + handling and THC + trading companies' profit - VAT rebate.

Source: CCM

Herbicides Scientific Research Dynamics

Evaluation of "Shuangkang 12-5" with complex traits of insect- and glyphosate-resistance for resistance to *Ostrinia furnacalis* and tolerance to glyphosate

"Shuangkang 12-5" is a corn variety harbored the genes cry1Ab/cry2Aj and G10evo-epsps. The evaluation of the transgenic corn for the resistance to Asian corn borer (*Ostrinia furnacalis* - Guenée) and tolerance to glyphosate was assayed in Gongzhuling City, Jilin Province. Field and indoor bioassay demonstrated that the "Shuangkang 12-5" exhibited a high resistance to Asian corn borer during the whole growth period, compared with non-transgenic variety "Zhengdan 958". The survival rate of the larvae that fed on different tissues of "Shuangkang 12-5" for 7 days were 4%-12%, while that fed on non-transgenic lines were over 96%. When treated with glyphosate at the recommended dose (1 230 g/hm²) and the double dose (2 460 g/hm²), all the transgenic lines survived in four weeks, but there was symptom of serious chemical damage in one week and the plant gradually died for the non-transgenic lines. Thus, the transgenic corn "Shuangkang 12-5" presented good insect resistance and herbicide tolerance in Jilin.

* News from a paper *Evaluation of Transgenic Corn "Shuangkang 12-5" with Complex Traits of Insect-resistance and Glyphosate-resistance for the Resistance to *Ostrinia furnacalis* and Tolerance to Glyphosate* delivered by Wang Jiang, Liu Xinying and Feng Shudan from the Department of Biological Science and Biotechnology, Harbin Normal University, Wu Fengci and Song Xinyuan from the Jilin Academy of Agricultural Sciences.

Synthesis and herbicidal activity evaluation of novel diacylhydrazine derivatives containing pyrazolyl moiety

In order to discover pesticide lead compounds with high herbicidal activity, 13 novel diacylhydrazine derivatives containing pyrazolyl pharmacophore were designed and synthesized through introducing the pyrazolyl pharmacophore into the diacylhydrazine scaffold. Their structures were confirmed by ¹H NMR and HRMS. The herbicidal activity of these compounds was evaluated. The dish test results indicated that the growth inhibition rates of the roots and stems of *Triticum aestivum*, *Brassica campestris*, *Sorghum bicolor* and *Cucumis sativus* were up to 80% for N'-(2-(2,4-dichlorophenoxy) acetyl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carbohydrazide (6i) at the dosage of 200 mg/L. The pot test results showed that the growth inhibition rate of *Amaranthus retroflexus* and *Eclipta prostrata* for compound 6i were 80% by postemergence foliar spray processing at the dose of 150 g/hm²; and compound 6i also demonstrated inhibition rate of 80% against *A. retroflexus* by preemergence soil spray processing at the same dose.

* News from a paper *Synthesis and Herbicidal Activity Evaluation of Novel Diacylhydrazine Derivatives Containing Pyrazolyl Moiety* delivered by He Haiqin, Dai Zhimeng, Xie Xufeng, Liu Xinghai and Tan Chengxia.

Effects of herbicides on yield, quality and residues in rapeseed

Herbicide effects on yield, quality and residues were studied on rapeseed (*Brassica napus L.*). Different types and concentrations of herbicides were applied on whole plants at 35d after end-flowering. Water content, seed weight, oil content, yield and herbicides residues were investigated.

Results showed that:

1. Herbicides decreased plant water content after 7d of spray. Silique water content continued to decrease after 14d of treatment, and it decreased with herbicides concentrations. The order of herbicide effects on silique water content was paraquat > glyphosate > tribenuron-methyl 7d after spray, and was paraquat > glyphosate > tribenuron-methyl 14d after spray.
2. Herbicides decreased seed weight and oil content which further reduced seed and oil yield. The decreasing rate was the highest on the top layer of the canopy. Seed and oil yields decreased more at higher herbicide concentrations. Among the 3 herbicides, paraquat led the most decrease.
3. Paraquat and tribenuron-methyl had been detected in seed after ripening. Among them, paraquat level exceeded the national standard considerably. In summary, to meet the requirement of mechanized production and oil safety of rapeseed, the above 3 herbicides were not suggested to apply at silique maturity stage.

** News from a paper Effects of Herbicides on Yield, Quality and Residues in Rapeseed (Brassica napus L.) delivered by Jiang Fuyuan from the College of Plant Science and Technology, Huazhong Agricultural University and Hubei Provincial Department of Agriculture.*

Influence of growth and phytotoxic degrees of 54 herbicides foliar sprayed on tobacco

In order to know the influence on tobacco growth and possible phytotoxic degrees of 54 herbicides, foliar spray was conducted at the fourth leaf stage, sixth leaf stage and before rosette stage to induce phytotoxicity. The results showed that, 40, 41 and 31 of the herbicides caused serious phytotoxicities on tobacco applied at the three developmental stages. Herbicides of the same type showed similar phytotoxic degrees. All herbicides except aryloxygen-based acid and cyclohexenone caused various degrees of phytotoxicities on tobacco. 12 types of herbicides, including phenoxy-carboxylic-acid, sulfonyleureas, diphenylethers, could cause serious phytotoxic damages. 18 herbicides were newly discovered to be able to induce serious phytotoxicity on tobacco.

** News from a paper Influence of Growth and Phytotoxic Degrees of 54 Herbicides Foliar Sprayed on Tobacco delivered by Sun Hongyu, Liu Deyu and Chen Rongping from the Mudanjiang Tobacco Research Institute of Heilongjiang Province Tobacco Company.*



Effect of 17 herbicides against *Galium aparina* L. in wheat field

To evaluate herbicide efficacy against *Galium aparina* L., whole-plant dose response experiment and field plot experiment were conducted with 17 herbicides selected. It was shown that 200 g·L⁻¹ fluroxypyr EC and 25% bentazone AS gave very good control of *Galium aparina* L. with 100.00% fresh weight inhibition at setting doses. 80% flumetsulam WG was the best in controlling *Galium aparina* L. in field plot experiment with 85.08% plant reduction after 30 days and 100.00% reduction after 60 days at 25.00 g (a.i)·hm⁻². 50 g·L⁻¹ florasulam SC and 200 g·L⁻¹ fluroxypyr EC showed lower reduction than flumetsulam.

The study is supported by the Special Fund for Agro-scientific Research in the Public Interest (Grant No.: 201303022) and the Science and Technology Development Project of Tai'an City (Grant No.: 20123035).

* News from a paper *Effect of 17 Herbicides Against Galium aparina L. in Wheat Field* delivered by Wu Cuixia, Zhang Yong, Zhu Min, Zhang Tiantian, Ma Chong, Zhou Chao, and Lu Xingtao from the Tai'an Academy of Agricultural Sciences (Shandong Province).



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