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Headline

In early 2017, the imidacloprid TC price continued increasing significantly as a result of the tightened supply. The supply shortage is unlikely to be eased in the short term, since operating rates of producers may not improve around the Spring Festival. Given this, the imidacloprid TC price is expected to rise further in the near future.

In Q4 2016, the Chinese chlorpyrifos market rebounded, and prices have kept rising since. It is expected that the chlorpyrifos price will continue to rise in Jan. and Feb. 2017, but may fall in March when producers resume production.

The year 2016 saw ups and downs in the Chinese pesticide technical market. After the stable Q1, prices of quite a few products slumped and even hit new lows in Q2-3. Fortunately, things improved in Q4, thanks to the stringent environmental regulations, increased raw material prices and strengthened market demand.

Yangnong Chemical intended to increase an investment of USD54.68 million (RMB380 million) into Jiangsu Youjia, aiming to speed up construction of the company's phase II project and put it into operation as soon as possible.

On 4 Jan., 2017, Lier Chemical announced that its subsidiary Jiangsu Kuaida had been approved for entry onto the NEEQ, which will help the latter improve business operations and will provide it with extensive financing channels.

Hailir revealed in its IPO prospectus that imidacloprid TC and acetamiprid TC account for essential parts in its pesticide technical business and are important contributors to the company's total performance, only second to the pesticide formulation business. In other words, the company's overall financial performance are closely related to its imidacloprid TC and acetamiprid TC business.

Jingbo Agrochemicals intended to launch IPO to raise funds of USD78.51 million (RMB545.66 million) for new pesticide projects, including a 500 t/a indoxacarb TC production expansion project. The company predicted the sales from these new projects may reach USD147.02 million (RMB1.02 billion) after they are put into operation.

Between Jan. and Oct. 2016, imidacloprid recorded the largest export value among other insecticides and even ranked third among pesticides, just following glyphosate and paraquat, according to China Customs.

China continued suffering declines in exports and imports of pesticides in 2016, according to China Customs and the ICAMA. In this article, CCM made detailed introduction to the reasons behind the continual decrease.

China continued suffering declines in exports and imports of pesticides in 2016, according to China Customs and the ICAMA. Despite this, there were still some marked highlights.

In 2016, a total of 46 insecticide technical were registered in China, covering 36 AIs, according to the ICAMA. Yet, only six AIs were registered more than two times.

Editor's Note

In H2 2016, the overall domestic insecticide market finally turned around after a long depression, and this upturn continued on into early 2017. Many products, including nicotinoids and biological and organophosphorus insecticides, have witnessed a recovery.

On 10 Jan., 2017, the National Environmental Protection Conference 2017 was held in Beijing, during which Chen Jining, minister of the MEP, put forward that re-checks should also be launched in the regions that were inspected by national environmental inspection groups. This indicated that heavy environmental pressure would become the norm for pesticide producers. In this context, it is very likely that prices of insecticide technical will keep going up. CCM will keep a close eye on future development of the domestic insecticide business.

In Jan. 2017, the NATESC made a prediction for occurrence of pests and diseases for the year 2017, indicating pests and diseases to strike heavily. Next, CCM will make a detailed introduction. Pesticide producers can take the occurrence forecast as a reference for marketing over the coming period.

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.

Market Dynamics

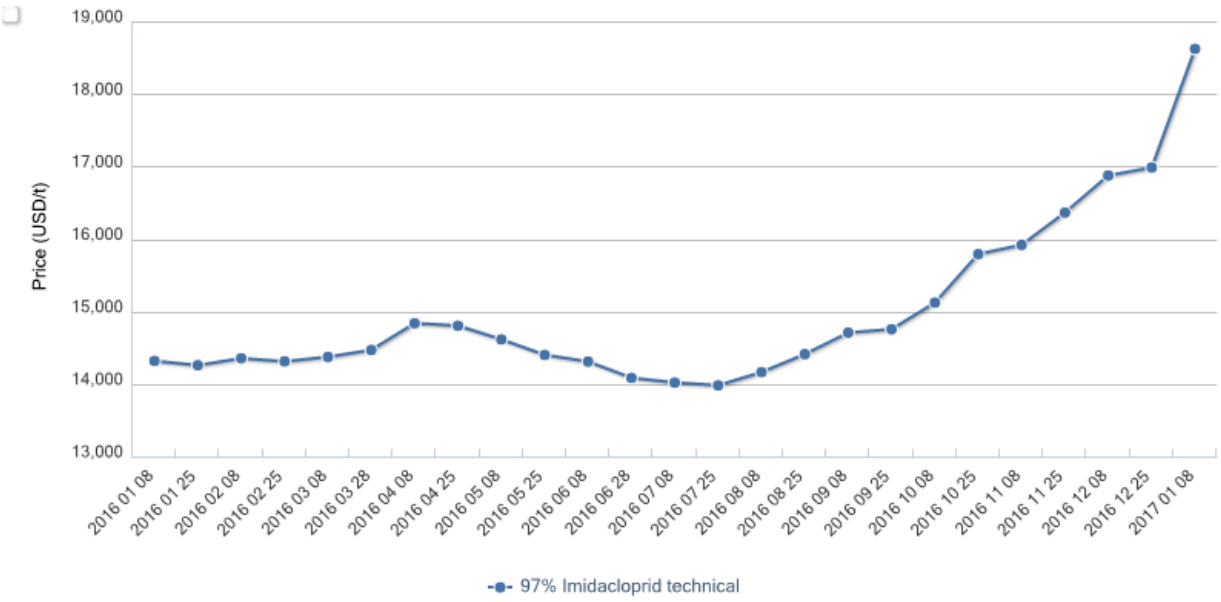
China's imidacloprid TC price continues to surge in early 2017

Summary: In early 2017, the imidacloprid TC price continued increasing significantly as a result of the tightened supply. The supply shortage is unlikely to be eased in the short term, since operating rates of producers may not improve around the Spring Festival. Given this, the imidacloprid TC price is expected to rise further in the near future.

In H2 2016, the overall domestic insecticide market finally turned around after a long depression, and this upturn continued on into early 2017. Many products, including nicotinoids and biological and organophosphorus insecticides, have witnessed a recovery.

The imidacloprid TC market in particular has thrived, and prices have surged. According to CCM's price monitoring, the ex-works price of imidacloprid 97% TC averaged USD18,625/t in the first half of Jan., up 10.35% MoM (= month on month), and 30.05% YoY (= year on year).

Figure 1: Ex-works price of imidacloprid 97% TC in China, Jan. 2016-Jan. 2017



Source: CCM

In fact, 2012 and 2013 witnessed a continual upward trend in the domestic imidacloprid TC market. However, this subsequently led to a rapid expansion of production capacity. Between 2013 and H1 2014, total national capacity increased from ＜20,000 t/a to nearly 30,000 t/a, vs. a global demand of around 20,000+ t/a (not to mention the capacity of foreign manufacturers). Greatly influenced by overcapacity, the price of imidacloprid TC started to fall in H2 2014.

The downward trend continued until Q3 2016, when the imidacloprid TC price rebounded. Since then, the price has continued to rise. Driving factors behind the increases include:

- Tightened market supply

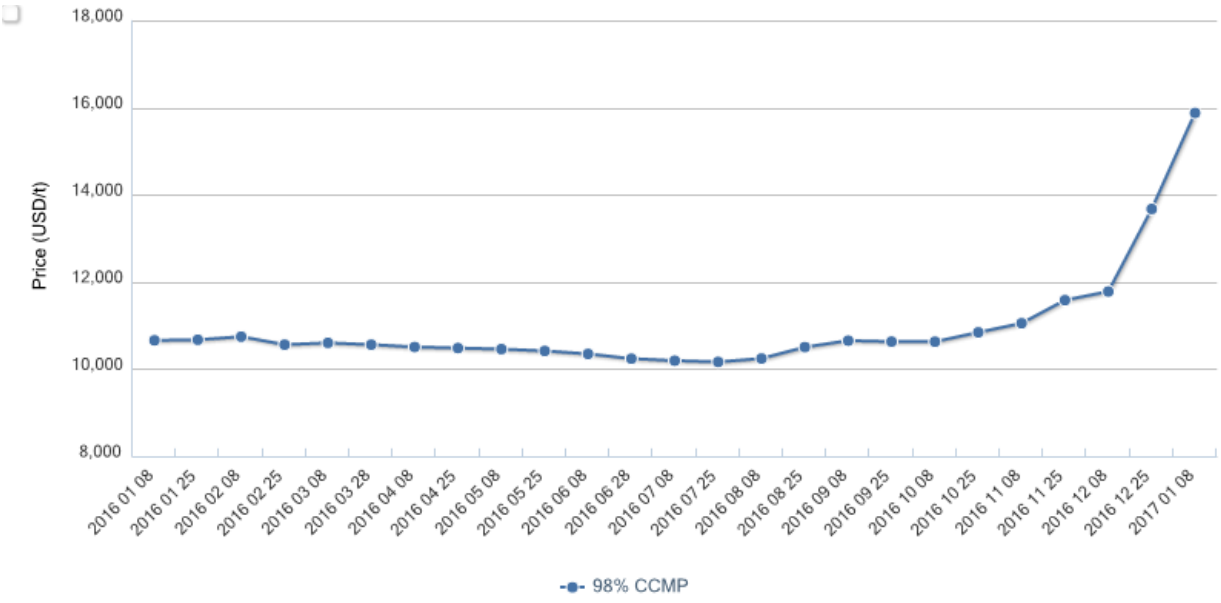
Since H2 2016, the Chinese pesticide industry has been impacted by the "de-capacity" policy (removal of excess production capacity) and national environmental inspections. Some target provinces of these national inspections, like Shandong, have also

faced work safety checks at the same time. In this context, production of pesticide technical and intermediates has been limited, as a result of which remaining inventories have been depleted and market supply has become tight. Imidacloprid TC was a typical example of this.

- Increased production costs

Imidacloprid enterprises are now confronted with increased environmental costs (due to more stringent policies) in addition to higher raw materials costs. Affected by increasingly strict environmental regulations, manufacturers of 2-chloro-5-(chloromethyl)pyridine (CCMP) and imidazolidine (both intermediates for imidacloprid TC) have cut production. That aside, the ban on paraquat AS, which came into effect on 1 July, 2016, has significantly reduced operating rates among pyridine producers as well as the output of CCMP (a by-product of pyridine). Given these factors, the supply of raw materials for imidacloprid TC has tightened, pushing up their prices.

Figure 2: Ex-works price of CCMP in China, Jan. 2016-Jan. 2017



Note: CCMP refers to 2-chloro-5-(chloromethyl)pyridine.
Source: CCM

According to CCM's research, as of Jan. 2017, producers in southern regions had products available for purchase (but were likely to transact in small quantities). However, Shandong-based enterprises still had no products on offer, despite resuming production following the completion of the national environmental inspections in mid-Nov. 2016.

With Chinese Spring Festival (late Jan. to early Feb. 2017) approaching, operating rates of imidacloprid TC producers are unlikely to improve, and thus supply is likely to remain tight in the short term. That aside, the prices of raw materials may continue to run high. Therefore, the imidacloprid TC price is expected to further increase as demand becomes stronger in the coming months.

China's chlorpyrifos price: upward at present, but still likely to slide in late Q1 2017

Summary: In Q4 2016, the Chinese chlorpyrifos market rebounded, and prices have kept rising since. It is expected that the chlorpyrifos price will continue to rise in Jan. and Feb. 2017, but may fall in March when producers resume production.

In Q1-3 2016, a continual depression was seen in the Chinese chlorpyrifos market, with low prices and reduced transactions. However, things improved in Q4, and the upward trend is expected to continue on into the first two months of 2017, but prices may fall in March as producers resume production.

- Market supply

In Q3 2016, China's output of chlorpyrifos TC slumped by 20%+ YoY (= year on year) and even 50%+ QoQ (= quarter on quarter) to ＜7,000 tonnes, according to the National Bureau of Statistics of the People's Republic of China. Monthly output between July and Sept. decreased compared with that during the same period in 2015.

This reduced level of production was mainly because:

1. Producers in Jiangsu and Zhejiang provinces cut or even suspended production for maintenance, affected by the hot weather, national environmental inspections and the 2016 G20 Summit;

2. Weak demand pushed producers to cut production in order to ease inventory and cost pressure.

Production of chlorpyrifos recovered to some extent in Q4 – national output exceeded 12,000 tonnes, up nearly 80% over Q3 and also slightly up over Q4 2015. Despite the national environmental inspections in late Nov., producers maintained relatively high operating rates as orders from distributors had increased from Q3 and the chlorpyrifos price was steadily high.

- Market price

Despite the decreased supply, the domestic price of chlorpyrifos TC remained low in Q3 2016 according to CCM's price monitoring. This was mainly because market demand still hadn't improved. Most purchasers were not in a hurry to buy and bided their time in hope of a lower price.

However, the price went up slightly in Sept. after falls in July and Aug., mainly thanks to the following factors:

1. Increased raw material prices

Badly affected by the national environmental inspections, most producers of chlorpyrifos TC intermediates had to reduce or halt production, reducing the market supply and therefore pushing up prices. Moreover, just a few chlorpyrifos TC manufacturers had realised self-supply of these intermediates. Given this, as well as the increased intermediate price and reduced chlorpyrifos TC inventory, many leading chlorpyrifos producers raised their quotations.

2. Historically low supply in Aug.

Many domestic producers of chlorpyrifos TC suspended production for maintenance in mid- to late-Aug., resulting in unprecedentedly low supply and further causing a slight price rise in Sept.

A recovery was seen in the chlorpyrifos market in Q4. Distributors received new orders as the peak sales period arrived. Yet,

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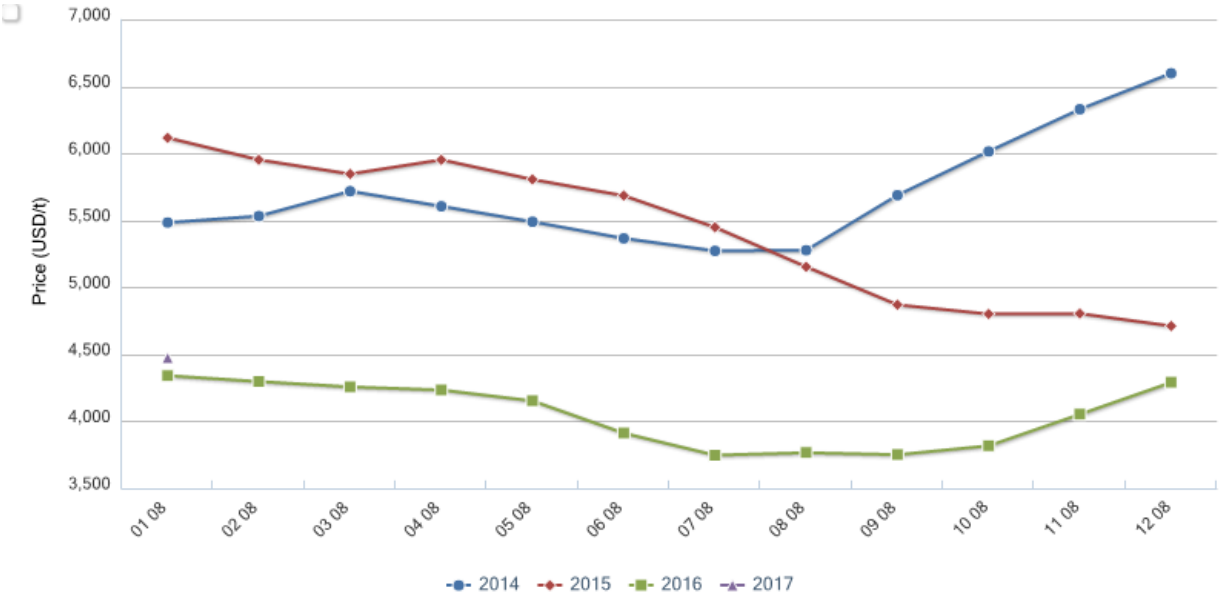
market supply in Dec. reduced to some extent, affected by the national environmental inspections in some provinces like Hubei Province which began in late Nov. In fact, these inspections also caused production of chlorpyrifos intermediates like ethyl chloride and sodium 3,5,6-trichloropyridin-2-olate to decrease, boosting their prices and, in turn, chlorpyrifos production costs. These factors supported rises in the price of chlorpyrifos.

Figure 3: Ex-works price of chlorpyrifos 95% TC in China, Jan. 2014-Jan. 2017



Source: CCM

- Market prediction for Q1 2017

Most producers are operating at full production before the Spring Festival. In this context, transaction prices are expected to remain stable in the short term. Yet, as the Spring Festival (from late Jan. to early Feb. 2017) approaches, producers will suspend production, reducing the market supply. That aside, operating rates among producers may still remain low as a result of stringent environmental regulations (even though national inspections finished in late Dec. 2016, provincial governments may take follow-up action in the coming period).

Given these factors, CCM predicts that the chlorpyrifos price is likely to continue to rise in the first two months of 2017. However, after the Spring Festival, existing heavy environmental pressure is expected to be relieved, and producers of chlorpyrifos and its intermediates should also gradually resume production. As production costs reduce and market supply recovers, the chlorpyrifos price may fall in March.

Chinese pesticide technical market: ups and downs in the year 2016

Summary: The year 2016 saw ups and downs in the Chinese pesticide technical market. After the stable Q1, prices of quite a few products slumped and even hit new lows in Q2-3. Fortunately, things improved in Q4, thanks to the stringent environmental regulations, increased raw material prices and strengthened market demand.

The year 2016 saw ups and downs in the Chinese pesticide technical market. After the stable Q1, prices of quite a few products

slumped and even hit new lows in Q2-3. Fortunately, things improved in Q4, thanks to the stringent environmental regulations, increased raw material prices and strengthened market demand. In the following article, CCM provides a detailed review of the domestic pesticide market in the year 2016.

Jan.: reduced production and transactions

As the Spring Festival (early Feb.) approached, producers of pesticide technical started to suspend production. That aside, environmental checks in Hebei Province restrained production of some products, like abamectin TC, thiamethoxam TC and cyhalofop-butyl TC. In late Jan., many producers suspended delivery affected by the shut-up of logistics, leading to declined transactions.

Feb.: market recovered after the Spring Festival

The overall pesticide technical market recovered in late Feb. – producers cut their supply affected by environmental regulations, while demand grew as purchasers had to replenish inventories. Inventory became the key factor influencing market supply and prices.

March: low operating rates but improved business

The 17th China International Agrochemical & Crop Protection Equipment Exhibition was the main driving factor behind price rises. Before the conference, prices of quite a few products rose. Given this, producers bided their time for higher prices and few accepted new orders. Yet, some products showed decreased prices after the conference. Compared with March 2015, the overall business improved. Yet, operating rates of producers still stayed low.

April: flat sales and low prices

In general, mid- to late April sees a peak sales season affected by previous depletion of inventories and government procurement. Yet, things were different this year – increasing producers sold their products off and market prices kept hitting record lows.

May: general depression

Despite a slight recovery over April, this month still didn't see peak season of inventory replenishment. A general depression rose throughout the whole market, with prices of some products came to new lows. In this context, some producers cut or even suspended production under heavy business pressure.

June: demand remained weak

The downward trend continued on into June, during which sales stayed flat as previous years. Extreme weathers, depressed agricultural produce market and huge inventories of pesticide formulations led to continual product sell-offs and price wars among producers, weakening the demand for pesticide technical.

July: slowdown in price decreases

Sales remained flat this month. Yet, price decreases slowed down as increasing producers halted production for maintenance. As operating rates further decreased and inventories ran down, some products turned to tight supply.

Aug.: depleting inventories

Affected by the 2016 G20 Summit, many producers of pesticide technical suspended production, cutting down the market supply and further slowing down the price falls. In this context, purchasers were not in a hurry to buy and mainly consumed their inventories. Notably, increased products were in tight supply this month.

Sept.: improved operating rates and increased prices

After the 2016 G20 Summit, operating rates improved as producers in Jiangsu and Zhejiang provinces resumed production. Yet, prices of increasing products were boosted by stringent environmental regulations, depleting inventories and surged prices of basic chemicals.

Oct.: business turned around

This month was a key turning point for the Chinese pesticide technical market in 2016. Thanks to low inventories and tightened supply, the overall pesticide technical business transitioned to a sellers' market. Rebounds were witnessed in prices of most products.

Nov.: further recovery and snap-ups of pesticide technical

As winter arrived, northern part of China consumed large quantities of coals (which possibly worsened the smog weather) and therefore, the provincial governments strengthened environmental regulations. Producers in northern provinces (like Hebei) had to cut or suspend production frequently, further tightening market supply and pushing up prices.

Dec.: continual shortage and price rises

The shortage further developed as production kept being restrained by environmental regulations. Many producers suspended accepting new orders and bided their time for higher prices. Notably, some even breached contracts with buyers (in which they had quoted low prices), and said buyers were forced to seek new supplies at higher prices. The short supply, coupled with surged raw material prices, further boosted prices of pesticide technical.

Obviously, the supply-demand relation was the key factor behind the ups and downs in the Chinese pesticide technical market in 2016. Given the continual upward trend in early 2017, prices of most pesticide technical are expected to keep rising over the coming period.

Company Dynamics

Yangnong Chemical to increase investment into Jiangsu Youjia

Summary: Yangnong Chemical intended to increase an investment of USD54.68 million (RMB380 million) into Jiangsu Youjia, aiming to speed up construction of the company's phase Ⅱ project and put it into operation as soon as possible.

On 31 Dec., 2016, Jiangsu Yangnong Chemical Co., Ltd. (Yangnong Chemical) announced that it had signed an agreement with Yangzhou Tianping Chemical Co., Ltd. (TP Chemical) for a joint capital increase of USD57.56 million (RMB400 million) into Jiangsu Youjia Crop Protection Co., Ltd. (Jiangsu Youjia). Of this sum, USD54.68 million (RMB380 million) will come from

Yangnong Chemical and the remainder all from TP Chemical.

Following this, Jiangsu Youjia's registered capital will increase from USD86.33 million (RMB600 million) to USD143.89 million (RMB1 billion). Still, Yangnong Chemical will continue accounting for a 95% stake in Jiangsu Youjia, and TP Chemical for 5%.

"This capital increase mainly aims to accelerate the construction of Jiangsu Youjia's phase II project. With more investment, the project can be put into production as soon as possible and contribute to the overall financial performance," said Yangnong Chemical.

Currently, the phase II project – 3,550 t/a insecticides, 25,000 t/a herbicides and 1,200 t/a fungicides – is still under construction, with total investment planned to be around USD431.67 million (RMB3 billion). Jiangsu Youjia has already put its phase I project, including dicamba, bifenthrin and fluazinam, into production since late 2014.

About Jiangsu Youjia

Jiangsu Youjia was jointly established by Yangnong Chemical and TP Chemical (equity ratio: 95:5) in Jan. 2013. Recent two years have seen steady financial performance of the company (following figures were audited by Jiangsu Suyajincheng Certified Public Accountants LLP):

- 2015

- Total asset:USD136.55 million (RMB949 million)
- Net asset: USD107.05 million (RMB744 million)
- Revenue: USD104.46 million (RMB726 million)
- Net profit: USD21.30 million (RMB148 million)

- Q1-3 2016

- Total asset: USD185.04 million (RMB1,286 million)
- Net asset: USD121.44 million (RMB844 million)
- Revenue: USD69.93 million (RMB486 million)
- Net profit: USD13.81 million (RMB96 million)

Jiangsu Kuaida approved for NEEQ entry

Summary: On 4 Jan., 2017, Lier Chemical announced that its subsidiary Jiangsu Kuaida had been approved for entry onto the NEEQ, which will help the latter improve business operations and will provide it with extensive direct financing channels.

On 4 Jan., 2017, Lier Chemical Co., Ltd. (Lier Chemical) disclosed that its subsidiary Jiangsu Kuaida Agrochemical Co., Ltd. (Jiangsu Kuaida) had been approved for entry onto the New Third Board (= National Equities Exchange and Quotations, NEEQ) and for share transfer through negotiation. In the coming period, the company will be listed in accordance with the relevant listing procedures.

Jiangsu Kuaida is mainly engaged in the R&D, production and sale of phosgene-based pesticide technical, intermediates and formulations, covering herbicides, insecticides and fungicides. Financial reports from the company showed that its revenue for

2015 reached USD94.34 million (RMB657 million) and that between Jan. and May 2016 totaled USD35.40 million (RMB246 million), with corresponding net profit standing at USD2.34 million (RMB16 million) and USD1.88 million (RMB13 million) respectively.

Following its entry onto the NEEQ, a broad financing platform and expanded financing channels will be available to the company. With sufficient financial support, it should be conducive to improve its brand image, management structure and business operations, thus enhancing its overall market competitiveness and realising sustainable development.

Table 1: Jiangsu Kuaida's revenue by main pesticide product, 2014-2015 & Jan.-May 2016, million USD

Product	Jan.-May 2016	2015	2014
Pesticide technical	18.45	43.91	37.99
Pesticide formulation	14.74	32.53	30.54
Pesticide intermediate	1.57	5.32	6.68

Source: Jiangsu Kuaida Agrochemical Co., Ltd.

The NEEQ plays a significant role in providing small- and medium-sized enterprises with financing channels. As a platform for equity transactions, it has lower access thresholds than the Main Board and Growth Enterprise Board (GEB) markets – there are no financial requirements on either main businesses or overall performance. Any non-listed limited liability enterprises with a clear business structure which are capable of sustaining operations and have been established for at least 2 years are allowed to apply for entry into the system. However, the NEEQ does apply the *suitability rule and therefore mainly attracts institutional investors.

Besides Jiangsu Kuaida, another 18 pesticide enterprises also entered the NEEQ from 2013 to 2016, not to mention those that are currently applying or planning to apply for entry.

China has so far introduced new policies to support the platform's development, such as by expanding the NEEQ market, running trials of an amended broad transfer mechanism (from the NEEQ to Main Board or GEB), and releasing an NEEQ index system (mainly NEEQ Component Index, i.e. 89901 and NEEQ Market Making Component Index, i.e. 89902). In this context, the NEEQ will attract an increasing number of investors and enterprises over the coming period.

** Suitability rule: A member or an associated person must have a reasonable basis to believe that a recommended transaction or investment strategy involving a security or securities is suitable for the customer, based on information obtained through the reasonable diligence of the member or associated person to ascertain the customer's investment profile, as prescribed by the Financial Industry Regulatory Authority of the US.*

Table 2: Chinese pesticide enterprises listed on the NEEQ, 2013-2016

No.	Enterprise	Listing date
1	Innovation Meiland Co., Ltd.	2013/7/2
2	Anhui JiuYi Agriculture Co., Ltd.	2014/8/19
3	Zhejiang Xinnong Chemical Co., Ltd.	2015/4/23
4	Henan HDF Chemical Co., Ltd.	2015/7/27
5	Jiangxi Xinlong biological Polytron Technologies	2015/8/14
6	Huizhou Yinnong Technology Co., Ltd.	2015/8/25
7	Nutrichem Laboratory Co., Ltd.	2015/10/20
8	Shandong Luba Chemical Co., Ltd.	2015/10/21
9	Ningxia Soochow Agrochemical Limited Company	2015/11/3
10	Jiangxi Heyi Chemical Co., Ltd.	2015/11/27
11	Jiangsu Tuoqiu Agrochemicals Co., Ltd.	2016/3/14
12	Shangdong Lvbang Crop Science Co., Ltd.	2016/3/30
13	Jiangsu Confident Biochemical Technology Co., Ltd.	2016/5/9
14	Shandong Weifang Rainbow Chemical Co., Ltd.	2016/7/13
15	BSM Chemical Co.,Ltd.	2016/7/19
16	Guangdong Geolong Biotechnology Co.,Ltd.	2016/10/31
17	Chengdu Tepu Biotechnology Co., Ltd.	2016/10/31
18	Chengdu Green Gold Hi-Tech Co., Ltd.	2016/12/22

Source: CCM

Hailir: financial performance closely linked to imidacloprid TC and acetamiprid TC business

Summary: Hailir revealed in its IPO prospectus that imidacloprid TC and acetamiprid TC account for essential parts in its pesticide technical business and are important contributors to the company's total performance, only second to the pesticide formulation business. In other words, the company's overall financial performance are closely related to its imidacloprid TC and acetamiprid TC business.

In the end of Dec. 2016, Hailir Pesticides and Chemicals Group (Hailir) released its prospectus for initial public offerings (IPO), which revealed its financial performance in 2013, 2014, 2015 and H1 2016.

It is showed that the company has established an integrated supply chain of pesticide technical-intermediates-formulations. Particularly, imidacloprid TC and acetamiprid TC account for essential parts in its pesticide technical business and are important contributors to the company's total performance (only second to the pesticide formulation business).

Table 3: Hailir's revenue by business, 2013-2015 & H1 2016, million USD

Business	H1 2016	2015	2014	2013
Pesticide formulation	62.14	86.4	77.95	59.83
Pesticide technical	27.53	55.38	49.29	56.84
Pesticide intermediate	0.95	1.92	1.04	4.97
Others	2.17	2.55	3.29	4.10

Source: Hailir Pesticides and Chemicals Group

Hailir produces imidacloprid TC and acetamiprid TC for self-production of pesticide formulations, and for external sales to other pesticide producers or pesticide technical distributors as well. Fluctuations have been witnessed in the company's sales prices of imidacloprid TC and acetamiprid TC over the past few years:

- 2011-2013

Affected by increasingly strict environmental regulations and raised labour costs, production of imidacloprid TC and acetamiprid TC were significantly restrained. Yet, demand for the two products grew during this period, especially in overseas markets. In this context, the market supply got tight, boosting the prices.

- 2014-2015

As the shortage got relieved and supply became sufficient in these two years, purchasers, particularly the overseas ones, were not in a hurry to buy and bided their time for lower prices. Therefore, Hailir reduced its quoted prices.

- H1 2016

Compared with figures in 2015, increase was seen in the sales price of imidacloprid TC, while that of acetamiprid TC continued declining.

Table 4: Hailir's sales prices of imidacloprid TC and acetamiprid TC, 2013-2015 & H1 2016, USD/t

Item	H1 2016	2015	2014	2013
Imidacloprid TC	12,574.50	12,495.32	17,436.51	20233.04
Acetamiprid TC	11,315.35	12,423.77	16,549.33	18376.17

Source: Hailir Pesticides and Chemicals Group

Table 5: Hailir's production and sales of imidacloprid TC, 2013-2015 & H1 2016, tonne

Time	Production capacity	Output	Utilisation rate of production capacity	External sales	Self-consumption
2013	2,500	2,159.95	86.40%	1,899.79	178.24
2014	2,500	2,508.48	100.34%	1,915.86	191.21
2015	2,500	2,539.25	101.57%	2,709.11	196.63
H1 2016	2,500	1,654.37	66.17%	1,373.49	92.28

Source: Hailir Pesticides and Chemicals Group

Table 6: Hailir's production and sales of acetamiprid TC, 2013-2015 & H1 2016, tonne

Time	Production capacity	Output	Utilisation rate of production capacity	External sales	Self-consumption
2013	1,200	1,040.40	86.70%	1,001.54	52.19
2014	1,200	1,673.77	139.48%	959.98	121.63
2015	1,200	1,485.72	123.81%	1,732.53	52.91
H1 2016	1,200	811.45	67.62%	906.63	26.34

Source: Hailir Pesticides and Chemicals Group

Influenced by the decreased sales prices, Hailir recorded fluctuated revenue from imidacloprid TC and acetamiprid TC. Specifically,

- Imidacloprid TC

- 2013: USD38.44 million (RMB267.14 million), 30.57% of the company's total
- 2014: USD33.41 million (RMB232.16 million), 25.39% of the company's total
- 2015: USD33.85 million (RMB235.26 million), 23.15% of the company's total
- H1 2016: USD17.27 million (RMB120.03 million), 18.61% of the company's total

- Acetamiprid TC

- 2013: USD18.40 million (RMB127.91 million), 14.64% of the company's total
- 2014: USD15.89 million (RMB110.41 million), 12.07% of the company's total
- 2015: USD21.52 million (RMB149.59 million), 14.72% of the company's total

- H1 2016: USD10.26 million (RMB71.30 million), 11.06% of the company's total

Notably, in 2015, Hailir increased efforts to market the two products and significantly boosted their sales volume, easing the impacts from the decreased sales prices to some extent. Therefore, the company realised a slight growth of the revenue from pesticide technical in the year.

Table 7: Hailir's sales of imidacloprid TC and acetamiprid TC, 2013-2015 & H1 2016, million USD

Item	H1 2016	2015	2014	2013
Imidacloprid TC	17.27	33.85	33.41	38.44
Acetamiprid TC	10.26	21.52	15.89	18.40

Source: Hailir Pesticides and Chemicals Group

Hailir is very likely to enjoy surging revenue from the two products in the whole of 2016. Since H2 2016, the Chinese pesticide industry has been impacted by the "de-capacity" policy (removal of excess production capacity). That aside, intensive national environmental inspections have been launched since July. In this context, production of pesticide technical and intermediates has been limited, as a result of which market supply has become tight and prices kept going up. Imidacloprid TC was a typical example of this. Steady increases were seen in its prices, especially after Sept. which even supported rise in the price of acetamiprid TC.

According to the company's IPO prospectus, it also plans to extend into business of azoxystrobin TC, thiamethoxam TC, indoxacarb TC and pyraclostrobin TC over the coming period. Notably, a highly-automatic plant for pyraclostrobin TC has already been built and will be put into production within 2017 (plants for the remainder of the fore-mentioned products have yet to construct). With diversified product mix, Hailir is expected to see improving performance in the future.

Jingbo Agrochemicals to launch IPO for new pesticide production projects

Summary: Jingbo Agrochemicals intended to launch IPO to raise funds of USD78.51 million (RMB545.66 million) for new pesticide projects, including a 500 t/a indoxacarb TC production expansion project. The company predicted the sales from these new projects may reach USD147.02 million (RMB1.02 billion) after they are put into operation.

On 27 Dec., 2016, the China Securities Regulatory Commission publicised Jingbo Agrochemicals Technology Co., Ltd. (Jingbo Agrochemicals)'s prospectus (draft) for initial public offerings (IPO) on the ChiNext Board. The draft showed that the company planned to raise funds of USD78.51 million (RMB545.66 million) for:

- A marketing & technological service online platform construction project (for pesticide formulations)
- A environmentally friendly & high efficacy insecticide technical production project (500 t/a)
- A environmentally friendly pesticide formulation production project (10,000 t/a)
- Construction of technical centre
- Replenishment of liquid capital

"According to our feasibility study report, we will generate sales of USD147.02 million (RMB1.02 billion) after these projects are put into operation," disclosed Jingbo Agrochemicals.

Table 8: Jingbo Agrochemicals' allocation scheme for funds to be raised from IPO

No.	Project	Total investment, million USD	To-be-raised funds, million USD
1	Marketing & technological service online platform construction project	22.40	22.40
2	Environmentally friendly & high efficacy insecticide technical production project (500 t/a)	12.71	12.71
3	Environmentally friendly pesticide formulation production project (10,000 t/a)	15.63	15.63
4	Construction of technical centre	14.10	14.10
5	Replenishment of liquid capital	13.67	13.67
Total		**78.51**	**78.51**

Source: Jingbo Agrochemicals Technology Co., Ltd.

Specific information about Jingbo Agrochemicals' two production projects were as follows:

- 500 t/a insecticide technical production project

The company planned to build a new plant and supporting facilities to increase its existing indoxacarb TC production capacity by 500 t/a, with the aim of expanding its production scale and improving profitability.

Prior to this, Jingbo Agrochemicals has been capable of producing quality indoxacarb TC (*S:R=9:1). "We have realised commercialisation since 2015, with product quality being internationally advanced," claimed the company. This also started the product upgrade in the indoxacarb TC market. It is believed that the company will strengthen its leading position in the market after its expansion project is put into production.

** S & R: both refer to isomers, S comes from the Latin siniter, meaning "left", and R from rectus, meaning "right".*

- 10,000 t/a pesticide formulation production project

New production lines and supporting facilities will be constructed in the existing plant, including three for SC (totalling 2,670 t/a), three for WDG and WP (totalling 1,630 t/a), two for GR (totalling 5,500 t/a) and one for DF (200 t/a).

Jingbo Agrochemicals is mainly engaged in production of pesticide technical and formulations. It has so far developed a diversified product mix. Particularly, its quizalofop-P-ethyl TC, nicosulfuron TC, kresoxim-methyl TC and indoxacarb TC account for relatively large shares in both domestic and overseas markets. That aside, its sales channels for pesticide formulations have covered most main crop planting areas in China. The company has also established stable partnerships with international agrochemical giants like ADAMA Agricultural Solutions Ltd. and DuPont.

Recent two years have seen stable development in the company – it ranked No.46 on the China Top 100 Pesticide Enterprises (by sales) in 2015 and ranked No.52 in 2016.

According to its IPO prospectus, in the coming period, the company plans to:

- Product development

- Optimise the existing product portfolio and continue developing new pesticide technical and formulations

- Market expansion

Domestic:

- Establish a family farm and scaled farm centred service system and technological service stations for marketing

- Set up an online service platform to provide technological services and crop protection solutions

Overseas:

- Develop new clients, aiming to grow into an important supplier for international agrochemical giants
- Extend sales network in international markets by hiring specialised salespersons and establishing a professional sales team, so as to promote brands and improve competitiveness in the global markets

Table 9: Jingbo Agrochemicals' financial figures, 2013-2015 & H1 2016, million USD

Item	H1 2016	2015	2014	2013
Revenue	73.53	108.81	115.17	109.54
Operating profit	4.64	8.61	12.45	11.79
Total profit	4.69	8.73	12.24	11.70
Net profit	4.03	7.51	10.65	10.08

Source: Jingbo Agrochemicals Technology Co., Ltd.

Import and export

Imidacloprid continues heading insecticide exports in China

Summary: Between Jan. and Oct. 2016, imidacloprid recorded the largest export value among other insecticides and even ranked third among pesticides, just following glyphosate and paraquat, according to China Customs.

Imidacloprid has become a leading insecticide in the Chinese market in regard to output, sales and exports. In particular, it has recorded the highest export value among other insecticides in recent years. According to China Customs, figures between Jan. and Oct. 2016 achieved:

- Volume: around 10,100 tonnes, 0.92% of the national total
- Value: USD158 million, 3.50% of the national total

By value, imidacloprid even ranked third among pesticides during this period, just following glyphosate and paraquat, which suggested its leading position in the pesticide market.

Table 10: China's exports of imidacloprid, 2013-2015 & Jan.-Oct. 2016

Time	Export volume, 000' tonne	YoY change	Proportion to the total export volume of pesticides	Export value, million USD	YoY change	Proportion to the total export value of pesticides
2011	21.5	-	1.53%	239	-	3.86%
2012	24.1	+11.72%	1.51%	360	+50.89%	4.58%
2013	24.1	+0.36%	1.49%	378	+4.83%	4.44%
2014	23.5	-2.64%	1.43%	317	-16.02%	3.62%
2015	21.7	-7.86%	1.44%	224	-29.34%	3.08%
Jan.-Oct. 2016	10.1	-	0.92%	158	-	3.50%

Note: YoY refers to year on year.

Source: China Customs

- Export destination

From Jan. to Oct., China exported imidacloprid to nearly 60 countries / regions. The top 10 ones by value included Brazil, India, Israel, the US, Auatralia, Pakistan, Ukraine, Columbia, Vietnam and Indonesia. Besides, Russia, Argentina, Mexico, South Africa, Iran, Malaysia, Paraguay and Turkey were also important destinations of imidacloprid from China.

- Exporter (by manufacturer)

Exporters of imidacloprid in China were highly concentrated during this period.

Top 10 exporters of imidacloprid TC (by value): Jiangsu Changqing Agrochemical Co., Ltd., Jiangsu Yangnong Chemical Group Co., Ltd., Hailir Pesticides and Chemicals Group Co., Ltd., Suzhou Bianjing Agro-Biochemical Co., Ltd., Jiangsu Changlong Agrochemicals Co., Ltd., Hebei Yetian Agrochemicals Co., Ltd., Shandong United Pesticide Industry Co., Ltd., Jiangsu Kwin Group Co., Ltd., Nanjing Red Sun Co., Ltd. and Qingdao KYX Chemical Co., Ltd.

Top 10 exporters of imidacloprid formulations (by value): Jiangsu Changlong Chemicals Co., Ltd., Jiangsu Kwin Group Co., Ltd., Anhui Huaxing Chemical Co., Ltd., Jiangsu Rotam Chemistry Co., Ltd., Hebei Yetian Agrochemicals Co., Ltd., JiangsuChangqing Agrochemical Co., Ltd., Nanjing Red Sun Co., Ltd., Shandong United Pesticide Industry Co., Ltd., Jiangsu Changlong Agrochemicals Co., Ltd. and Jiangsu Chemspec Agro-Chemical Co., Ltd.

Why pesticide exports from China kept decreasing in 2016?

Summary: China continued suffering declines in exports and imports of pesticides in 2016, according to China Customs and the ICAMA. In this article, CCM made detailed introduction to the reasons behind the continual decrease.

Depressions were seen in both exports and imports of pesticides from China in 2016. According to China Customs and the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), from Jan. to Oct. 2016:

- Import volume: 32,800 tonnes, down 35.25% YoY (= year on year)
- Import value: USD371.00 million, down 37.01% YoY
- Export volume: 1.10 million tonnes, down 14.81% YoY
- Export value: USD4.51 billion, down 27.10% YoY,

During this period, China exported pesticides to altogether 159 countries / regions. Of these, only 10 countries / regions recorded an import value of USD100.00 million+, a decrease of 12 over 2015.

"The year 2015 witnessed the first decreases in both export and import of pesticides. This downward trend further developed in 2016 – both export volume and value recorded the largest declines over the past six years," disclosed Zhang Wenjun, director of the International Cooperation Service Department of the ICAMA at the 4th Pesticide Import& Export Analysis and Information Exchange Meeting.

What are the reasons for the continuously declined imports and exports of pesticides in China? Yan Duanxiang, deputy director of the ICAMA, gave us the answers:

1. **Global economic recession**: slow economic growth worldwide posed great impacts on international trades. China, as the largest pesticide exporter, suffered a lot.

2. **Less competitive product quality & production technology**: affected by economic transformation in China, pesticide producers faced rising costs and weakening profitability. In this context, their product quality and production technology improved slowly due to decreased investments. Conversely, producers in other developing countries, like India, paid much attention to pesticide quality. With more competitive quality and price, they expanded their market shares rapidly.

3. **Export barriers**: foreign countries put forward increasingly high quality requirements for pesticides, as technology for quality examination improved. This significantly restrained Chinese producers from expanding into the international market, given their less advanced production technology and intense market competition at home and abroad. Additionally, the standardised pesticide regulations in overseas markets also became a barrier for pesticide export from China.

4. **Rampant illegal international trades**: illegal pesticide producers often sell products at low quoted prices (taking advantage of their low production costs), which forces legal producers to reduce prices and even impedes their development in the international market. For instance, China should have accounted for 60% sales in the Turkish pesticide market. Yet, due to the serious illegal trades there, China took up a mere 30% shares.

5. **Lagging-behind export policies**: this was particularly obvious in registration of exported pesticides. For instance, the ICAMA cancelled the registration of pesticides exclusively for export in early 2014. Yet, certificates of some products were to expire for the time being. Producers of these products were not able to renew their registration and continue production, since new regulations have yet to come out.

In response to these, "The ICAMA has increased efforts to boost pesticide exports from China," disclosed Yan Duanxiang. For example,

- Cracking down illegal trades through international cooperation: take pesticide export to Thailand as an example: checks are specified from export declarations to each authentication. This has effectively restrained sales of counterfeited and poor-quality pesticides in Thailand and meanwhile boosted exports from China to the country.

- Formulating temporary policies and applying for favourable export tax rebates for pesticides

- **Promoting international cooperation projects**: these projects facilitate the introduction of Chinese pesticide production experience and technology to foreign countries, which also helps domestic enterprises to "go global".

Highlights in pesticide exports from China in 2016

Summary: China continued suffering declines in exports and imports of pesticides in 2016, according to China Customs and the ICAMA. Despite this, there were still some marked highlights.

The year 2016 continued to witness depressed exports and imports of pesticides in China, according to China Customs and the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA). Despite this, there were still some marked highlights.

1. Slowdown in export decreases

Decreases in pesticide exports from China slowed down in July-Oct. – export volume went down by 7.00% YoY (= year on year), vs. 21.77% in H1, and export value down by 6.00% YoY, vs. 33.03% in H1, according to China Customs. Given this, it is expected that

exports will further improve in 2017.

2. Increase of export declarations

Domestic pesticide producers applied to increase declarations for pesticide exports in 2016, especially in Jiangsu Province, the largest pesticide exporting region in the country. According to China Customs, as of 26 Dec., a total of 44,983 export declarations were issued in the province, up 7,308 (= 19.40% YoY) over 2015. Quarterly number of issued declarations increased compared with that during the same period last year, indicating possible export recovery in the year. It is expected that Jiangsu's export declarations will hit a new high of ≥45,000, and pesticide exports may rebound to the same level as 2013. Notably, Jiangsu-based pesticide producers were still working hard to boost export, despite the approaching of the Spring Festival (late Jan. to early Feb. 2017).

3. Growth in exports to Southeast Asian markets

According to China Customs, around 730,000 tonnes of pesticides were exported from China in H1 2016, and the corresponding export value stood at USD1.96 billion. Of this, about 191,000 tonnes were exported to Southeast Asian markets, up 11.05% YoY (H1 2015: 172,000 tonnes), with an export value of USD0.58 billion, around 29.83% of the national total.

Southeast Asian countries are known for thriving agricultural business, similar crops and less intense market competition. All these features have attracted many Chinese pesticide producers to turn their eyes to these markets and there may be more in the coming period.

Registrations

Registration of insecticide technical in China in 2016

Summary: In 2016, a total of 46 insecticide technical were registered in China, covering 36 AIs, according to the ICAMA. Yet, only six AIs were registered more than two times.

In 2016, 46 registration certificates for insecticide technical were issued in China (including TK and excluding renewal of registrations), according to the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA).

- Active ingredient (AI)

Notably, altogether 36 AI were covered (including hygienic insecticides), of which only six were registered ≥two times. Particularly, thiamethoxam recorded the largest number of registered products (5), followed by nitenpyram (3), chlorpyrifos, acrinathrin, methoxyfenozide and indoxacarb (the latter four all registered twice each).

- Registrant

A total of 37 pesticide enterprises obtained registration certificates for insecticide technical, including four overseas producers.

Notably, only seven of the 37 enterprises registered ≥two insecticide technical. Jiangsu Good Harvest-Weien Agrochemical Co., Ltd. and Shandong United Pesticide Industry Co., Ltd., both in the first place, obtained three certificates, followed by Jiangsu Rotam Agrochemical Co., Ltd., Youth Chemical Co., Ltd., Shijiazhuang Xingbai Bio-engineering Co., Ltd., Suzhou Bianjing Agro-

Biochemical Co., Ltd. and Zhengzhou Labor Agrochemicals Co., Ltd. (all obtaining two certificates).

- Toxicity

Twenty-seven of the registered insecticide technical were of low toxicity, 59% of the total. Besides, micro toxic technical accounted for 17% of the total, and medium toxic ones for 22%.

Additionally, one molluscicide technical, one rodenticide technical, one nematicide technical and three acaricide technical were also registered in 2016.

Table 11: Registrations of insecticide technical in China (by active ingredient), 2016

No.	Active ingredient	Number of registered product
1	Thiamethoxam	5
2	Nitenpyram	3
3	Chlorpyrifos	2
4	Acrinathrin	2
5	Methoxyfenozide	2
6	Indoxacarb	2
7	d-Dimonene	1
8	Abamectin	1
9	Pyriproxyfen	1
10	Pymetrozine	1
11	Profenofos	1
12	Chlorfenapyr	1
13	Semiamitraz chloride	1
14	Acetamiprid	1
15	p-Dichlorobenzene	1
16	Spinosad	1
17	Metoxadiazone	1
18	Bendiocarb	1
19	Dinotefuran	1
20	Flupyradifurone	1
21	Sulfoxaflor	1
22	Chlorfluazuron	1
23	Hexaflumuron	1
24	Emamectin benzoate	1
25	Metarhizium anisopliae CQMa421	1
26	Alkaloids from *sophora alopecuroides*	1
27	Bifenazate	1
28	Spirodiclofen	1
29	Metaflumizone	1
30	*Beauveria bassiana*	1
31	Clothianidin	1
32	Monosultap	1
33	Triflumuron	1
34	Lufenuron	1
35	Acephate	1
36	Rotenone	1

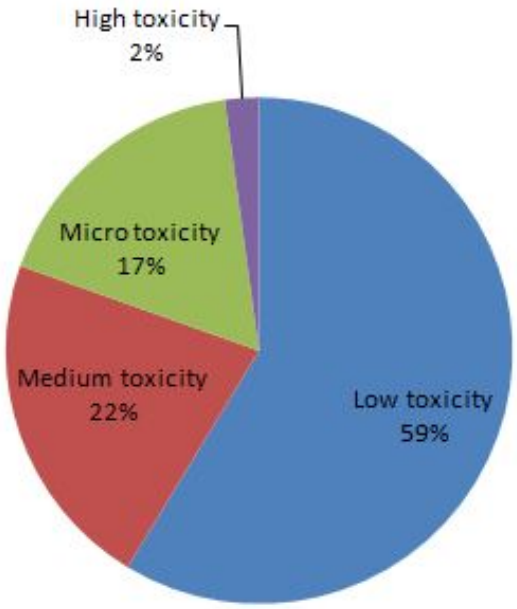
Source: Institute for the Control of Agrochemicals, Ministry of Agriculture

Table 12: Enterprises issued insecticide technical registrtaion certificates (≥2) in China, 2016

No.	Registrant	Number of registered insecticide technical
1	Jiangsu Good Harvest-Weien Agrochemical Co., Ltd.	3
2	Shandong United Pesticide Industry Co., Ltd.	3
3	Jiangsu Rotam Agrochemical Co., Ltd.	2
4	Youth Chemical Co., Ltd.	2
5	Shijiazhuang Xingbai Bio-engineering Co., Ltd.	2
6	Suzhou Bianjing Agro-Biochemical Co., Ltd.	2
7	Zhengzhou Labor Agrochemicals Co., Ltd.	2

Source: Institute for the Control of Agrochemicals, Ministry of Agriculture

Figure 4: Registrations of insecticide technical in China (by toxicity), 2016



Source: Institute for the Control of Agrochemicals, Ministry of Agriculture

Policy

National environmental inspections to realise 'full coverage' in 2017

On 10 Jan., 2017, the National Environmental Protection Conference 2017 was held in Beijing.

"In 2016, groups of national environmental inspectors were sent to a total 16 provinces / autonomous regions / municipalities," disclosed Chen Jining, minister of the Ministry of Environmental Protection of the People's Republic of China, "A 'full coverage' is expected to be realised in the year 2017. That is to say, inspections will be conducted in the remaining provinces / autonomous regions / municipalities as planned. Besides, re-checks should also be launched in the inspected regions to ensure the implementation of environmental rectifications."

In Jan. 2016, the national environmental inspections were piloted in Hebei Province. Until late Dec., 15 other provinces / autonomous regions / municipalities were investigated by two rounds. Of these, Inner Mongolia, Heilongjiang, Jiangsu, Jiangxi, Henan, Guangxi, Yunan and Ningxia had sent feedback to the central government, and inspections in Beijing, Shanghai, Hubei, Guangdong, Chongqing, Shaanxi and Gansu had just been finished not long before.

In the coming period, China will impose increasingly stringent environmental regulations, which will surely bring demanding challenges to the domestic pesticide business.

News in Brief

Zhejiang releases resistance monitoring results among rice plant hoppers & asiatic borers

In late Dec. 2016, the Zhejiang Plant Protection Quarantine Bureau released insecticide resistance monitoring results among rice plant hoppers & asiatic borers in the year. Specifically, the monitoring objectives included *laodelphax striatellus* (in Changxing City), *nilaparvata lugens* (in Jiaxing City) and asiatic borers (in Jinhua, Ruian, Xiangshan, Yaoyu and Cangnan cities / counties).

Table 13: Laodelphax striatellus' resistance to thiamethoxam/ nitenpyram/ chlorpyrifos/ pymetrozine (by monitoring station), 2016

Monitoring station	Insecticide	LC50 (95%F.L.), mg/L	Resistance rati
Changxing	Thiamethoxam	4.050 (3.238-4.944)	2.3
	Nitenpyram	0.873 (0.703-1.073)	0.7
	Chlorpyrifos	12.402 (9.981-15.124)	25.7
	Pymetrozine	22.213 (16.202-29.395)	2.8

Source: Zhejiang Plant Protection Quarantine Bureau

Table 14: Nilaparvata lugens' resistance to chlorpyrifos/ dinotefuran/ pymetrozine (by monitoring station), 2016

Monitoring station	Insecticide	LC50 (95%F.L.), mg/L	Resistance Ratio
Jiaxing	Chlorpyrifos	9.203 (5.694-11.958)	22.44
	Dinotefuran	15.124 (10.843-20.684)	49.80
	Pymetrozine	256.885 (188.259-329.133)	99.95

Source: Zhejiang Plant Protection Quarantine Bureau

Table 15: Rice asiatic borer's resistance to chlorantraniliprole (by monitoring station), 2016

Monitoring station		LC50, mg/L	Resistance ratio
Zhejiang Province	Jinhua (April)	2.211	1.6
	Jinhua (July)	8.108	6.2
	Ruian	12.641	9.1
	Xiangshan	75.298	54.1
	Yuyao	85.859	61.6
	Cangnan	103.021	74.0

Source: Zhejiang Plant Protection Quarantine Bureau

Table 16: Rice asiatic borer's resistance to chlorpyrifos/ triazophos/ abamectin/ monosultap (by monitoring station), 2016

Monitoring station		Insecticide	LD50, ng/head	Resistance ratio
Zhejiang Province	Jinhua	Chlorpyrifos	167.773	20.0
		Triazophos	527.130	85.0
		Abamectin	9.566	56.0
		Monosultap	1776.913	6.2
	Ruian	Chlorpyrifos	87.740	10.4
		Triazophos	55.071	8.9
		Abamectin	5.214	30.6
		Monosultap	830.69	2.91
	Xiangshan	Chlorpyrifos	297.734	35.0
		Triazophos	59.402	9.6
		Abamectin	9.317	54.8
		Monosultap	488.719	1.7
	Yuyao	Chlorpyrifos	58.400	7.0
		Triazophos	72.513	11.7
		Abamectin	4.464	26.3
		Monosultap	1359.196	4.8
	Cangnan	Chlorpyrifos	119.766	14.3
		Triazophos	231.224	37.3
		Abamectin	5.276	31.1
		Monosultap	812.754	2.9

Source: Zhejiang Plant Protection Quarantine Bureau

DuPont's triflumezopyrim re-enters to-be-issued registration certificate list

On 23 Dec., 2016, the Institute for the Control of Agrochemicals, Ministry of Agriculture released the 14th list of to-be-issued registration certificates. Of this, two temporary certificates were approved to be issued to DuPont's triflumezopyrim 96% TC and triflumezopyrim 10% SC, for a second time in the year.

Prior to this, DuPont's triflumezopyrim also entered this 7th list issued in July, but it failed to obtain the certificates at that time. This time, the company changed its triflumezopyrim TC from the previous 94% to 96% (no changed information about the formulation) and was expected to obtain the certificates soon.

Nutrichem appoints new marketing and sustainable development executives

In late 2016, Nutrichem Co., Ltd. (Nutrichem) announced that Jiang Shuo and Chen Ziping would join the firm to further strengthen its portfolio growth and sustainable development. From 1 Jan., 2017, Jiang started to serve as the Vice President of Marketing and Products Development and Chen, the Vice President of Sustainable Development.

Jiang holds a master degree in chemistry from the University of Oxford, UK, and an MBA in IESE Business School, Spain. Prior to joining Nutrichem, he worked in Albaugh, LLC. and garnered rich experience in product development and in-depth knowledge in crop protection markets.

Chen served in BASF China for more than 10 years before his joining to Nutrichem. He is experienced in environment, health and safety management and enjoys good reputation in the industry.

Three difficulties restraining development of neonicotinoids in China

In late 2016, the 5th session of the 2nd Standing Committee of China Association of Pesticide Development and Application (CAPDA) was held. During the meeting, Qian Xuhong, consultant of the CAPDA and academician of the Chinese Academy of Engineering, reported on the research and development of neonicotinoids.

Qian Xuhong pointed out: "So far, China has been the world's largest exporter and producer of neonicotinoids. Yet, the industry is confronted by three bottlenecks."

1. Increased resistance of pests, especially in Anhui, Zhejiang and Jiangsu provinces;

2. Low insecticidal activity against Lepidoptera, indicating new type of neonicotinoids targeted at these pests are of urgent need;

3. Regarded as highly toxic towards bees.

Hubei: rice white-backed planthopper develops moderate resistance to buprofezin

Rice white-backed planthopper has been seen frequent outbreaks in China. Chemical insecticides have so far been the main method for prevention and control. In order to provide guidance on wise use of pesticides, researchers from College of Plant Sciences & Technology of Huazhong Agricultural University collected samples (2011-2014) from four Hubei-based monitoring stations, including Putuan (Ezhou City), Changgang (Ezhou City), Wenan (Zhijiang City) and Nankou (Shishou City) to detect resistance of the pest to 11 insecticides by rice-stem dipping method.

Results were as follows:

- **Buprofezin**: moderate, resistance ratio (RR) at 13.0-38.6-fold
- **Imidacloprid**: no (i.e. susceptible) / moderate, RR at 2.6-15.4-fold
- **Thiamethoxam, clothianidin, dinotefuran & acetamiprid**: no / low, RR at 2.1-6.9-fold, 3.0-7.0-fold, 2.5-7.0-fold and 3.3-8.2-fold respectively
- **Nitenpyram, isoprocarb & etofenprox**: no, RR at 2.2-4.9-fold, 2.0-4.6-fold and 1.8-4.0-fold respectively
- **Pymetrozine**: moderate, RR at 15.2-91.0-fold, except that samples from Changgang (2011-2012) and Putuan (2012) were susceptible to the insecticide
- **Chlorpyrifos**: no / low, RR at 1.7-8.5-fold, except that samples from Changgang showed moderate resistance, RR at 15.6 (2013) and 10.1 (2014)

Given the obviously increased resistance to imidacloprid, buprofezin and pymetrozine, resistance monitoring is urgently needed, and applications of these insecticides should also be limited to prevent or delay further increase of insecticide resistance in rice white-backed planthopper.

** Insecticide resistance levels were described by using RRs as follows: susceptibility / no resistance (RR ≤5), lowresistance (RR = 5-10), moderate resistance (RR = 10-100) and high resistance (RR ＞100).*

One more biopesticide enterprise enters NEEQ

On 22 Dec., 2016, Chengdu Green Gold Hi-Tech Co., Ltd. (Chengdu Green Gold) got listed on the New Third Board (= National Equities Exchange and Quotations, NEEQ). Following this, the company can enjoy broad financing channels, promoting its further business development.

Founded in 2006, Chengdu Green Gold is a high-tech enterprise integrating neem planting, R&D, production and sales. Its offerings include neem biopesticides, organic fertilisers, microbial agents, biological bacterial fertilisers and agrochemicals for garden plants. So far, it has obtained over 20 patents for invention.

Hubei Sanonda to raise funds for ADAMA business development

On 10 Jan., 2017, Hubei Sanonda Co., Ltd. (Hubei Sanonda) announced its plan to offer a private placement to Wuhu Xinyun Hanshi Investment Mangement Limited Partnership, aiming to raise supporting funds of ≤USD359.72 million (RMB2.50 billion).

"This sum will be used to support construction of ADAMA Agricultural Solutions Ltd. (ADAMA)'s production projects, R&D and registration of pesticides, purchase of B shares from Celsius Property B.V. (Celsius), fees for intermediary services in acquisition of ADAMA and transaction tax," said Hubei Sanonda, "Funding gaps will be filled with our self-owned capital, if there is any."

Prior to Hubei Sanonda's purchase of ADAMA, around 62.95 million B shares in Hubei Sanonda were held by Celsius, ADAMA's wholly-owned subsidiary. To avoid cross-shareholding, Hubei Sanonda planned to buy the shares back and cancel them.

Dow AgroSciences Jiangsu to be licensed for pesticide formulation production

On 9 Jan., 2017, the Ministry of Industry and Information Technology of the People's Republic of China released the 1st list of to-be-licensed pesticide enterprises for the year. In particular, Dow AgroSciences (Jiangsu) LLC (Dow AgroSciences Jiangsu) was approved to obtain production license for OF (4,200 t/a), SC (two projects: 4,300 t/a + 1,450 t/a) and AS (50 t/a), meaning the company was to be qualified as a pesticide formulation producer.

Dow AgroSciences Jiangsu, held by Dow AgroSciences B.V., was located in No.3 Nanjing Rd., Yangtse River International Chemical Industrial Park, Zhangjiagang City, Jiangsu Province.

Several pesticide enterprises ordered to reduce pollution for emergency regulation in Ji'nan

On 13 Jan., 2017, the Ji'nan Environmental Protection Department issued the list of enterprises ordered to reduce pollutant discharge for emergency heavy pollution treatment. Altogether 73 enterprises in the city were involved, of which five were pesticide producers, including Shandong Luba Chemical Co., Ltd., Shandong Jinan Kesai Agrochem Co., Ltd., Shandong Lvbang Crop Science Co., Ltd., Shandong Vicome Greenland Chem Co., Ltd. and Shandong Jinan Yinong Chemical Co., Ltd.

MEP releases 2017 production quota for methyl bromide

On 6-12 Jan., 2017, the Ministry of Environmental Protection of the People's Republic of China (MEP) publicised the 2017 production quota for methyl bromide, in accordance with China's *Atmospheric Pollution Prevention and Control Law* and *Regulation on the Administration of Ozone Depleting Substances*.

Three enterprises, Jiangsu Lianyungang Dead Sea Bromine Compounds Co., Ltd., Zhejiang Linhai Jianxin Chemicals Co., Ltd. and Shandong Changyi Chemical Co., Ltd., would be allowed to produce altogether 92.977 tonnes of methyl bromide (for soil fumigation in ginger planting), down 6.773 tonnes (= 6.79%) over 99.750 tonnes.

In fact, "Methyl bromide will be banned for agricultural use from 1 Jan., 2019 onwards, according to related international conventions," disclosed the Department of Crop Protection, Ministry of Agriculture of the People's Republic of China.

Table 17: China's production quota for methyl bromide, 2017

No.	Enterprise	Production quota, tonne		
		Ginger planted on field	Ginger planted in greenhouse	Total
1	Jiangsu Lianyungang Dead Sea Bromine Compounds Co., Ltd.	53.948	13.270	67.218
2	Zhejiang Linhai Jianxin Chemicals Co., Ltd.	15.969	3.930	19.899
3	Shandong Changyi Chemical Co., Ltd.	4.700	1.160	5.860
Total		74.617	18.360	92.977

Note: Methyl bromide is used for soil fumigation before the planting of ginger.

Source: Ministry of Environmental Protection of the People's Republic of China

Standards for Water Pollutant Discharge from Pesticide Industry likely to be issued in 2017

On 10 Jan., 2017, the *Standards for Water Pollutant Discharge from Pesticide Industry (draft)* was deliberated at a seminar organised by the Department of Water Environmental Management, Ministry of Environmental Protection of the People's Republic of China. Following this, this draft will be amended in accordance with opinions from the meeting, then publicised to solicit public opinions and is likely to be released within 2017.

Syngenta CEO expects ChemChina deal to be finished

In Jan. 2017, Erik Fyrwald, CEO of Syngenta disclosed the latest progress of the acquisition by China National Chemical Corporation (ChemChina) in an interview from the World Economic Forum annual meeting in Davos.

"I am very confident that we will finish the deal. We are making a lot of progress," said Erik Fyrwald, "We are working well with the US and the EU regulators now toward finalising the agreements with them and expect to be finished in the not too distant future."

Price Update

Ex-works prices of major insecticides in China, Jan. 2017

Table 18: Ex-works prices of major insecticides in China, Jan. 2017

No.	Product	20161208		20170108	
		RMB/t	USD/t	RMB/t	USD/t
1	95% Abamectin technical	455,000	66,200.11	480,000	69,302.07
2	97% Acephate technical	28,500	4,146.6	28,500	4,114.81
3	95% Acetamiprid technical	114,000	16,586.4	138,000	19,924.35
4	95% Azocyclotin technical	140,000	20,369.27	145,000	20,935
5	95% Beta-Cypermethrin technical	110,000	16,004.42	114,000	16,459.24
6	97% Bifenthrin technical	182,000	26,480.05	190,000	27,432.07
7	95% Buprofezin technical	35,000	5,092.32	35,000	5,053.28
8	98% Carbofuran technical	66,000	9,602.65	67,500	9,745.6
9	98% Chlorfenapyr technical	178,000	25,898.07	181,000	26,132.66
10	95% Chlorfluazuron technical	370,000	53,833.06	370,000	53,420.35
11	95% chlorpyrifos technical	29,500	4,292.1	31,000	4,475.76
12	94% Cypermethrin technical	65,500	9,529.91	67,500	9,745.6
13	99% Cyromazine technical	117,000	17,022.89	117,000	16,892.38
14	98% Deltamethrin technical	390,000	56,742.95	400,000	57,751.73
15	95% Diafenthiuron technical	116,000	16,877.39	116,000	16,748
16	98% Dimethoate technical	25,000	3,637.37	26,000	3,753.86
17	70% Emamectin benzoate technical	455,000	66,200.11	476,000	68,724.55
18	92% Fenvalerate technical	75,500	10,984.85	75,500	10,900.64
19	95% Fipronil technical	425,000	61,835.27	440,000	63,526.9
20	98% Hexaflumuron technical	225,000	32,736.32	230,000	33,207.24
21	97% Imidacloprid technical	116,000	16,877.39	129,000	18,624.93
22	98% Isoprocarb technical	22,000	3,200.88	22,000	3,176.34
23	95% Lambda-cyhalothrin technical	142,000	20,660.26	148,000	21,368.14
24	90% Malathion technical	17,100	2,487.96	17,100	2,468.89
25	95% Methidathion technical	70,000	10,184.63	70,000	10,106.55
26	Methomyl 90% SP	48,000	6,983.75	48,500	7,002.4
27	98% Methomyl technical	48,000	6,983.75	48,500	7,002.4
28	75% Omethoate technical	21,800	3,171.79	21,800	3,147.47
29	90% Phoxim	23,200	3,375.48	23,200	3,349.6
30	90% Profenofos technical	40,500	5,892.54	42,000	6,063.93
31	90% Propargite technical	38,500	5,601.55	40,000	5,775.17
32	95% Pymetrozine technical	143,000	20,805.75	147,000	21,223.76
33	95% Pyridaben technical	73,500	10,693.86	74,000	10,684.07
34	97% Spirodiclofen technical	127,000	18,477.83	128,000	18,480.55
35	85% Triazophos technical	32,800	4,772.23	33,000	4,764.52

Note: Ex-works price includes VAT.

Source: CCM

Shanghai Port prices of major insecticides, Jan. 2017

Table 19: Shanghai Port prices of major insecticides in China, Jan. 2017

No.	Product	20161208		20170108	
		RMB/t	USD/t	RMB/t	USD/t
1	95% Abamectin technical	455,480	66,269.95	480,480	69,371.37
2	97% Acephate technical	28,980	4,216.44	28,980	4,184.11
3	95% Acetamiprid technical	114,480	16,656.24	138,480	19,993.65
4	95% Azocyclotin technical	140,480	20,439.1	145,480	21,004.3
5	95% Beta-Cypermethrin technical	110,480	16,074.26	114,480	16,528.54
6	97% Bifenthrin technical	182,480	26,549.88	190,480	27,501.37
7	95% Buprofezin technical	35,480	5,162.15	35,480	5,122.58
8	98% Carbofuran technical	66,480	9,672.49	67,980	9,814.91
9	98% Chlorfenapyr technical	178,480	25,967.9	181,480	26,201.96
10	95% Chlorfluazuron technical	370,480	53,902.9	370,480	53,489.65
11	95% chlorpyrifos technical	29,980	4,361.93	31,480	4,545.06
12	94% Cypermethrin technical	65,980	9,599.74	67,980	9,814.91
13	99% Cyromazine technical	117,480	17,092.72	117,480	16,961.68
14	98% Deltamethrin technical	390,480	56,812.79	400,480	57,821.03
15	95% Diafenthiuron technical	116,480	16,947.23	116,480	16,817.3
16	98% Dimethoate technical	25,480	3,707.21	26,480	3,823.16
17	70% Emamectin benzoate technical	455,480	66,269.95	476,480	68,793.86
18	92% Fenvalerate technical	75,980	11,054.69	75,980	10,969.94
19	95% Fipronil technical	425,480	61,905.11	440,480	63,596.2
20	98% Hexaflumuron technical	225,480	32,806.16	230,480	33,276.54
21	97% Imidacloprid technical	116,480	16,947.23	129,480	18,694.23
22	98% Isoprocarb technical	22,480	3,270.72	22,480	3,245.65
23	95% Lambda-cyhalothrin technical	142,480	20,730.09	148,480	21,437.44
24	90% Malathion technical	17,580	2,557.8	17,580	2,538.19
25	95% Methidathion technical	70,480	10,254.47	70,480	10,175.85
26	Methomyl 90% SP	48,480	7,053.59	48,980	7,071.7
27	98% Methomyl technical	48,480	7,053.59	48,980	7,071.7
28	75% Omethoate technical	22,280	3,241.62	22,280	3,216.77
29	90% Phoxim	23,680	3,445.32	23,680	3,418.9
30	90% Profenofos technical	40,980	5,962.38	42,480	6,133.23
31	90% Propargite technical	38,980	5,671.39	40,480	5,844.47
32	95% Pymetrozine technical	143,480	20,875.59	147,480	21,293.06
33	95% Pyridaben technical	73,980	10,763.7	74,480	10,753.37
34	97% Spirodiclofen technical	127,480	18,547.67	128,480	18,549.85
35	85% Triazophos technical	33,280	4,842.07	33,480	4,833.82

Note: Shanghai port price = ex-works price + transportation fee from warehouse to Shanghai port, and the ex-works price includes VAT.
Source: CCM

FOB Shanghai prices of major insecticides, Jan. 2017

Table 20: FOB Shanghai prices of major insecticides in China, Jan. 2017

No.	Product	20161208 Price (USD/t)	20170108 Price (USD/t)
1	95% Abamectin technical	64,734.33	67,759.36
2	97% Acephate technical	4,196.46	4,164.29
3	95% Acetamiprid technical	15,710.07	18,840.07
4	95% Azocyclotin technical	20,022.89	20,573.65
5	95% Beta-Cypermethrin technical	15,764.66	16,207.21
6	97% Bifenthrin technical	25,984.42	26,912.03
7	95% Buprofezin technical	4,928	4,890.22
8	98% Carbofuran technical	9,198.97	9,332.51
9	98% Chlorfenapyr technical	24,444.9	24,663.8
10	95% Chlorfluazuron technical	50,649.41	50,261.1
11	95% chlorpyrifos technical	4,177.35	4,348.48
12	94% Cypermethrin technical	9,448.28	9,657.55
13	99% Cyromazine technical	16,758.25	16,629.77
14	98% Deltamethrin technical	55,508.16	56,491.13
15	95% Diafenthiuron technical	16,616.3	16,488.92
16	98% Dimethoate technical	3,699.67	3,812.16
17	70% Emamectin benzoate technical	64,734.33	67,195.95
18	92% Fenvalerate technical	10,867.69	10,784.37
19	95% Fipronil technical	58,155.91	59,741.58
20	98% Hexaflumuron technical	30,859.55	31,300.14
21	97% Imidacloprid technical	15,983.03	17,621.16
22	98% Isoprocarb technical	3,273.84	3,248.74
23	95% Lambda-cyhalothrin technical	20,306.77	20,996.21
24	90% Malathion technical	2,578.33	2,558.57
25	95% Methidathion technical	9,704.87	9,630.46
26	Methomyl 90% SP	7,226.36	7,244.09
27	98% Methomyl technical	7,553.91	7,572.52
28	75% Omethoate technical	3,245.46	3,220.57
29	90% Phoxim	3,444.17	3,417.77
30	90% Profenofos technical	5,899.75	6,065.8
31	90% Propargite technical	5,615.87	5,784.1
32	95% Pymetrozine technical	20,448.71	20,855.35
33	95% Pyridaben technical	10,182.55	10,172.21
34	97% Spirodiclofen technical	18,177.66	18,179.15
35	85% Triazophos technical	4,627.74	4,619.35

Note: FOB Shanghai price considers factors of Shanghai port price, port sur-charges, loading charges, traders' profits and export rebates. And the shipment cost shall be paid by the buyer.

Source: CCM

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