

# Insecticides China Monthly Report 202303

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## Headline

Sino-agri Union has planned to build a trifluenfuramate TC line for pilot-scale test in its subsidiary Shandong United Pesticide, which means that the company is making active efforts to achieve large-scale industrial production of this self-developed insecticide as soon as possible.

On 9 March, the EI report of Hubei Jinghesheng's 13,600 t/a pesticide TC and intermediate project was published before local authorities starts the examination and approval process. The company plans to build capacity for several insecticides and intermediates, including thiamethoxam, clothianidin, flonicamid, pymetrozine and CCMT.

From Aug. 2022 to March 2023, many insecticide TC projects have been proposed to be constructed in Gansu Province, with planned products including thiodicarb, malathion, acetamiprid and thiamethoxam.

In early March, prices of some insecticides TC dropped. Prices of most organophosphorus insecticides TC and carbamate insecticides TC kept stable, but prices of most pyrethroid insecticides TC and nicotinoid insecticides TC continued a fall due to prolonged sluggish demand.

In March, ex-works prices of China's insecticides TC tended to stabilise in general. Some insecticides TC experienced slips in the price due to sluggish downstream market. Specifically, most nicotinoid insecticide TC products witnessed obvious MoM price drops.

In late Feb., the NATESC released the Technical Programme for the Prevention and Control of Major Pests and Diseases on Wheat in Spring 2023. It is predicted that there would be an overall relatively heavy occurrence of pests and diseases on wheat this spring and the major pests of concern would be wheat aphids and wheat mites.

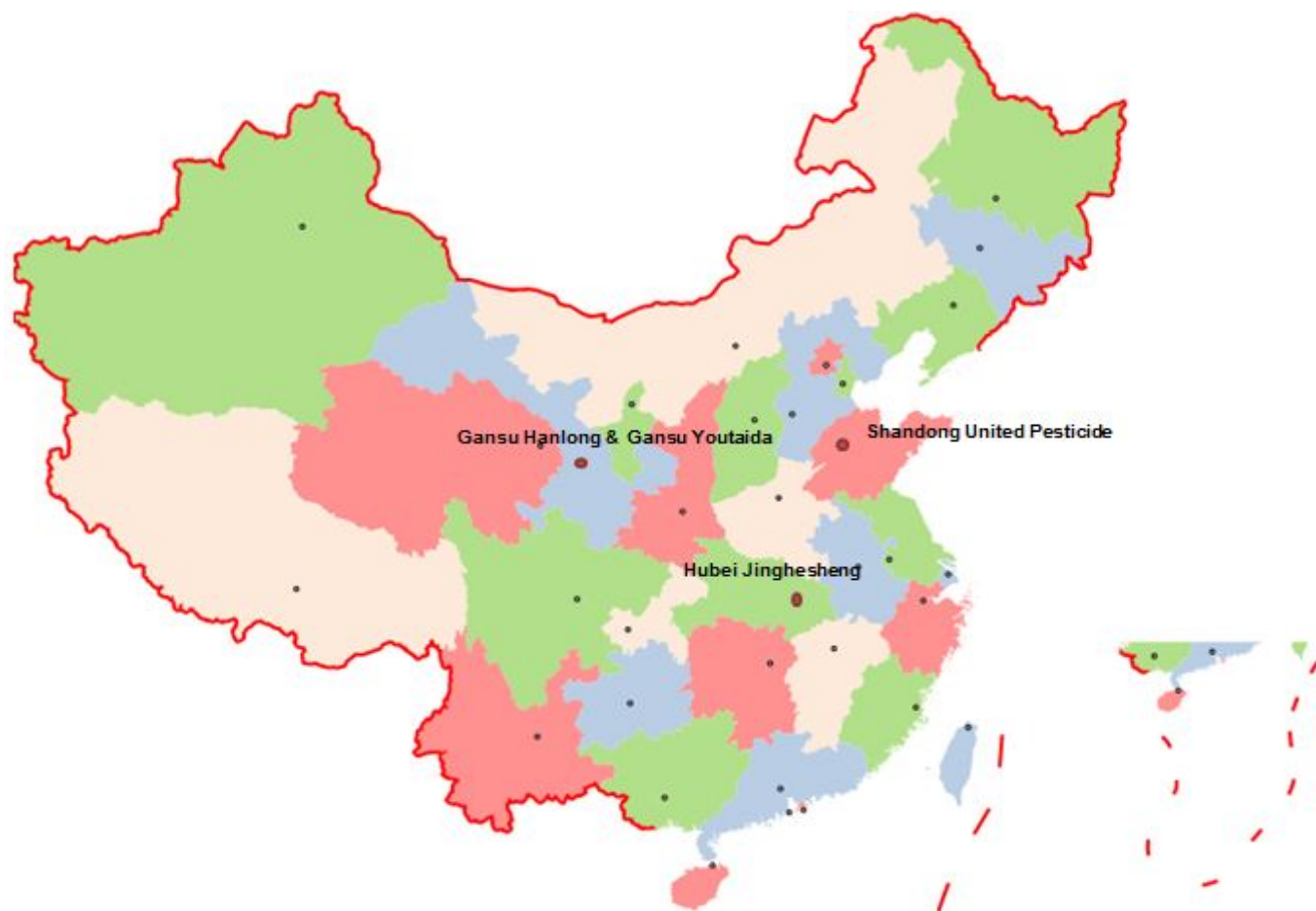
In late Feb., the Guangxi government released a notice on strengthening pesticide supervision and administration, with the aims of improving the regulatory work on the pesticide market, safeguarding the quality and safety of agricultural products, and promoting reduced use of chemical pesticides.

In 2022, chlorpyrifos products from China were mainly exported to Brazil, Pakistan, Colombia, Mexico, etc. Although the total export volume of China's chlorpyrifos TC to major destinations decreased, the export to Colombia saw a big YoY increase.

The six-year registration protection period for the AI cyenopyrafen will expire in China in May 2023 and the compound patent of cyantraniliprole in China is about to expire in Jan. 2024. As of 2 March, 2023, there were two valid registrations for cyenopyrafen acaricides and eleven valid registrations for cyantraniliprole insecticides in China.

In early March 2023, the Department of Agrochemical Management of MARA released a batch of products obtained registration renewal approval, which include 342 insecticide products, of which 27 are insecticide TC products.







## Editor's Note

In March, ex-works prices of China's insecticides TC tended to stabilise in general. Some insecticides TC experienced price slips due to sluggish downstream market. Specifically, most nicotinoid insecticide TC products witnessed obvious MoM price drops. As demand is hard to recover in the short term, and raw material price has lent limited support to the price of insecticide TC, ex-works prices of insecticides TC may decline in the near future.

In terms of company dynamics, on 9 March, the EI report of Hubei Jinghesheng's 13,600 t/a pesticide TC and intermediate project was published before government examination and approval kicked off. The company has planned to build capacity for insecticides and intermediates including thiamethoxam, clothianidin, flonicamid, pymetrozine and CCMT. Also this month, the EI report of Gansu Hanlong's pesticide intermediates & TC project (Phase II), involving 1,500 t/a thiamethoxam new capacity, was approved, and acceptance of the EI report of Gansu Youtaida's 7,000 t/a pesticides TC, 30,000 t/a pesticide formulations and 10,000 t/a O-methylisourea project, which includes capacity of 3,000 t/a thiodicarb TC, 1,000 t/a isoprocarb TC, 1,000 t/a fenobucarb TC and 1,000 t/a carbaryl TC, was announced by Gansu authorities.

In terms of policies, in late Feb., the Guangxi government released a notice on strengthening pesticide supervision and administration, aiming at better safeguarding the quality and safety of agricultural products, and promoting reduced use of chemical pesticides.

In terms of pesticide registration, in early March 2023, the Department of Agrochemical Management of MARA released a batch of products that have obtained registration renewal approval, which include 342 insecticide products, of which 27 are insecticide TC products. And on 6 March, registrations of four new insecticide products from Anhui Kewu were approved by the MARA.

*The USD/CNY exchange rate in this newsletter is USD1.00 = CNY6.9400 on 1 March, 2023, sourced from the People's Bank of China. All the prices mentioned in this newsletter will include the VAT, unless otherwise specified.*





## Company Dynamics

### Sino-agri Union to push for commercialisation of self-developed insecticide trifluenfurunate

Summary: Sino-agri Union has planned to build a trifluenfurunate TC line for pilot-scale test in its subsidiary Shandong United Pesticide, which means that the company is making active efforts to achieve large-scale industrial production of this self-developed insecticide as soon as possible.

In March 2023, CCM learned from Shandong Sino-Agri United Biotechnology Co., Ltd. (Sino-agri Union) that its wholly-owned subsidiary Shandong United Pesticide Industry Co., Ltd. (Shandong United Pesticide) had filed for record at local government of the construction project of an environmentally friendly pesticide production and R&D base (Scientific and Technological Achievements Transformation Centre). According to its plan, Shandong United Pesticide will build pilot-scale test lines for several self-developed pesticides TC (trifluenfurunate TC included) in its existing production plant in the Daiyue Chemical Industry Park, Tai'an City, Shandong Province. The pilot-scale test is a necessary step after a lab scale test to bring a product into commercial production.

Sino-agri Union, listed on the Shenzhen Stock Exchange, is one of the large pesticide conglomerates in China, engaged in R&D, production and sale of pesticides. In recent years, Sino-agri Union has achieved great breakthroughs in independent R&D of novel pesticides, of which the trifluenfurunate is a representative. Trifluenfurunate is a new and safe nematicide with particularly high activity against a wide range of nematodes; it has low toxicity and good persistence. Sino-agri Union has already obtained patents for trifluenfurunate in China, the US, the EU, Australia and some other countries or regions. The company is also actively applying for pesticide registration for its trifluenfurunate TC and formulation products.

There is a great variety of nematode species, and they cause ever growing agricultural losses worldwide year by year. In China, nematodes are one of major pests impacting normal agricultural production. To deal with these attackers, chemical control is an important measure, and with its efficiency and convenience, it is popular in the market. It is widely recognised that the global nematicide market still has much void to be filled, and investment is urgently needed for the development of high-efficacy novel nematicides. In the Chinese nematicide market, new varieties like trifluenfurunate, fluensulfone, fluzaindolizine and cyclobutrifluram have attracted much attention. Answering such expectations, Sino-agri Union is actively pushing for large-scale industrial production as early as possible.

Shandong United Pesticide's plant in Daiyue Chemical Industry Park is one of the important production bases for Sino-agri Union. It is believed that this plant will accommodate a large-scale industrial production line for trifluenfurunate once mature technology and stable production of trifluenfurunate TC is mastered. Currently, Shandong United Pesticide has had large-scale capacity for several pesticide TC & intermediates, including 2,000 t/a imidacloprid TC, 2,000 t/a acetamiprid TC, 1,300 t/a nitenpyram TC, 1,200 t/a pymetrozine TC, 1,000 t/a pyridaben TC, 800 t/a chlorfenapyr TC, 300 t/a thiamethoxam TC, 200 t/a thiacloprid TC, 3,000 t/a 2-chloro-5-chloromethylpyridine (CCMP) and 10,000 t/a pesticide formulations. Besides, the company has a 1,300 t/a bifenthrin TC project under construction; it is also expanding the capacity for acetamiprid TC and CCMP by 5,000 t/a and 10,000 t/a, respectively.

### Hubei Jinghesheng plans to build capacity for insecticides TC & intermediates





Summary: On 9 March, the EI report of Hubei Jinghesheng's 13,600 t/a pesticide TC and intermediate project was published before local authorities starts the examination and approval process. The company plans to build capacity for several insecticides and intermediates, including thiamethoxam, clothianidin, flonicamid, pymetrozine and CCMT.

On 9 March, the environmental impact (EI) report of Hubei Jinghesheng Biotechnology Co., Ltd. (Hubei Jinghesheng)'s 13,600 t/a pesticide TC and intermediate project was published, before it goes through examination and approval by the local authorities. This is the Phase I program of a large-scale project. Once it is completed, production capacity of 6,600 t/a insecticides TC (3,000 t/a thiamethoxam, 2,000 t/a clothianidin, 1,000 t/a pymetrozine, 600 t/a flonicamid), 7,000 t/a intermediates (4,000 t/a 2-chloro-5-chloromethylthiazole/CCMT, 1,200 t/a N,N,N',N'-tetramethylethylenediamine, 1,000 t/a chloroacetone, 800 t/a 2-methylbenzoyl cyanide) and some by-products such as sodium chloride and potassium chloride will be added to the company. Phase II program is planned to build 3,000 t/a capacity for glufosinate-ammonium, plus lines for intermediates.

A holding subsidiary of Hubei Jingshengtai Biotechnology Co., Ltd., Hubei Jinghesheng was established in 2021. It is located in the Lingang Industrial Park, Songzi City, Jingzhou City, Hubei province. Hubei Jinghesheng filed this project for record at local government in Nov. 2021, and the EI report (exposure draft) of the project was published in July 2022.

Of the four planned insecticides, thiamethoxam and clothianidin are neonicotinoid insecticides, pymetrozine is a triazinone insecticide and flonicamid a nicotinamide insecticide; all are safe and high-efficacy novel pesticide varieties. As of 13 March, 2023, there were 62 registrations for thiamethoxam TC products, 37 for pymetrozine TC products and 11 for clothianidin and flonicamid TC products each in China. As for Hubei Jinghesheng, no registration certificate for these four insecticides TC has obtained yet.

It is worth noting that flonicamid is safe to bees and friendly to the environment. Flonicamid can be applied on a wide range of crops. In Asia, it is mainly used for the control of pests on cotton, while in Europe mainly on fruits and vegetables, and in North America on fruits, vegetables and cotton. The compound patent for flonicamid has long expired in China, and the production technology has become increasingly mature. The product has rather big development potential in the next five to ten years, though it has seen greater challenges posed by some competitive patented products developed by multinational companies, such as sulfoxaflor and flupyradifurone, whose patents will expire in 2027, and triflumezopyrim, whose patent will expire in 2030. But these competitors are still in the early stage of promotion. Moreover, sulfoxaflor and flupyradifurone have already been banned in some countries—for instance, France banned them from 1 Jan. 2020, over the concern of possible risks to bees. As regards triflumezopyrim, it is mainly used for the control of rice planthopper at present.

### **Multiple planned insecticide TC projects to settle in Gansu**

Summary: From Aug. 2022 to March 2023, many insecticide TC projects have been proposed to be constructed in Gansu Province, with planned products including thiodicarb, malathion, acetamiprid and thiamethoxam.

In recent years, China's chemical industry has been moving to central and western areas from eastern coastal areas. Gansu Province has benefited from this movement and made some progress in raising chemical production enterprises, especially those involved in pesticide





business, as it is one of the priority destinations for new and relocating chemical production capacity. Incomplete statistics show that from Aug. 2022 to March 2023, at least eight insecticide TC-related projects have been proposed in Gansu Province, and products planned include thiodicarb, malathion, acetamiprid and thiamethoxam.





TABLE 1: Insecticide TC projects proposed to be built in Gansu Province, Aug. 2022–March 2023

No.	Enterprise	Project	Insecticide TC covered	Construction site	Progress
1	Gansu Hanlong Chemical Co., Ltd.	Pesticide intermediate & TC project (Phase II)	1,500 t/a Thiamethoxam	Yumendong Building Materials Chemical Industrial Park, Yumen City, Jiuquan City	The environmental impact (EI) report was approved by local authorities on 15 March, 2023.
2	Gansu Youtaida Agrochemical Technology Co., Ltd.	7,000 t/a Pesticide TC, 30,000 t/a pesticide formulation and 10,000 t/a O-methylisourea project	3,000 t/a Thiodicarb TC, 1,000 t/a isoprocarb TC, 1,000 t/a fenobucarb TC, 1,000 t/a carbaryl TC	Hexipu Circular Economy Chemical Industrial Park, Yongchang County, Jinchang City	The acceptance of the EI report was announced by local authorities on 7 March, 2023.
3	Yumen Tianying Branch of Gansu Jinse Runsheng Chemical Co., Ltd.	7,600 t/a Pesticide TC and intermediate project	1,000 t/a Fenprothrin TC, 300 t/a flonicamid TC	Yumendong Building Materials Chemical Industrial Park, Yumen City, Jiuquan City	Some brief information on the project was released for the first time on 11 Jan., 2023.
4	Gansu Yinglong Biotechnology Co., Ltd.	800 t/a Amicarbazone TC, 150 t/a penoxsulam TC and 1,000 t/a dinotefuran TC project	1,000 t/a Dinotefuran TC	Yindong Industrial Park, Baiyin High-Tech Zone, Baiyin City	Some brief information on the project was released for the first time on 31 Dec., 2022.
5	Zhongnong Ruihua (Gansu) Pharmaceutical Co., Ltd.	Pesticide & pharmaceutical intermediate and pesticide technical & formulation project (Phase I)	2,000 t/a Acetamiprid TC	Yumendong Building Materials Chemical Industrial Park, Yumen City, Jiuquan City	The EI report was approved by local authorities in early Dec. 2022.
6	Gansu Zhongmao Chemical Co., Ltd.	12,000 t/a Fine chemical product and pesticide TC project	1,000 t/a Chlorantraniliprole TC	Liugou Coal Chemical Industrial Park, Guazhou County, Jiuquan City	The acceptance of the EI report was announced by local authorities on 17 Oct., 2022. Previously on 16 Aug., 2022, the company released a draft EI report on the website of Gansu Environmental Assessment Information Network. The company planned to build a chlorantraniliprole TC production line in Phase II.



7	Gansu Wobilin Plant Protection Co., Ltd.	9,850 t/a Pesticide TC project	5,000 t/a Malathion TC, 800 t/a chlorfenapyr TC	Yumendong Building Materials Chemical Industrial Park, Yumen City, Jiuquan City	The acceptance of the EI report was announced by local authorities on 17 Oct., 2022. Previously on 1 Aug., 2022, the company released a draft EI report on the website of Gansu Environmental Assessment Information Network.
8	Gansu Tailing Technology Co., Ltd.	23,000 t/a Green pesticide and intermediate project (Phase I)	1,000 t/a Acetamiprid TC	Yumendong Building Materials Chemical Industrial Park, Yumen City, Jiuquan City	Some brief information on the project was released for the first time in Sept. 2022.

Source:CCM

With stricter environmental policies rolled out in Jiangsu and Zhejiang provinces, more and more pesticide enterprises in East China, Jiangsu, Zhejiang and Shandong in particular, have started to invest in northern and western China. Hot destinations are Gansu, Ningxia and Inner Mongolia.

Yumen City of Gansu Province, seizing the opportunity and welcoming production capacity transfer projects, has attracted a large number of fine chemical projects to settle. The city aims to construct the first designated pesticide TC production chemical park in western China, and thus is following a strategy of "strengthening leading players, extending industrial chain and forming industry cluster" concerning the development of fine chemical industry, and promoting transformation and upgrading of existing pesticide intermediate production enterprises. Yumen City strives to achieve the goal that by 2025, it will have more than 50 fine chemical enterprises above the designated size, with annual output value surpassing USD2.16 billion (RMB15 billion), and build itself into an influential fine chemical production base in Northwest China.

Several aforementioned insecticide TC projects are planned in the Yumendong Building Materials Chemical Industrial Park. Indeed, the Yumendong Building Materials Chemical Industrial Park and the Old Urban Chemical Industrial Park have become major gathering places for chemical enterprises and basically formed a fine chemical industry cluster for pharmaceutical intermediates & pesticide intermediates, relying on ample industrial by-products such as liquefied petroleum gas, benzene and coke oven gas produced by petrochemical and coal chemical industries.





## Market Analysis

### Prices of some insecticides TC drop in early March

**Summary:** In early March, prices of some insecticides TC dropped. Prices of most organophosphorus insecticides TC and carbamate insecticides TC kept stable, but prices of most pyrethroid insecticides TC and nicotinoid insecticides TC continued a fall due to prolonged sluggish demand.

In early March, prices of some insecticides TC dropped. Prices of most organophosphorus insecticides TC and carbamate insecticides TC kept stable, but prices of most pyrethroid insecticides TC and nicotinoid insecticides TC continued to fall due to prolonged sluggish demand.

**Organophosphorus insecticides:** Ex-works prices of profenofos TC, phoxim TC and malathion TC were stable, while the price of chlorpyrifos TC was still in a downtrend amid continued sluggish demand. Chlorpyrifos production in Nanjing Red Sun Co., Ltd. was yet to resume, but operation in other producers, such as Hubei Benxing Agrochemical Co., Ltd. and Jiangsu Fengshan Group Co., Ltd., was normal. Given a relatively slack demand for organophosphorus insecticides in China, prices of some products may be set lower in the short term.

**Carbamate insecticides:** Ex-works prices of carbofuran TC and isoprocarb TC remained stable while that of methomyl TC went up by 1.25% MoM. Considering weak demand and slow trading in China, prices of carbamate insecticides may keep stable in the short term.

**Pyrethroid insecticides:** Ex-works prices of most pyrethroid insecticides TC decreased mainly due to insufficient demand. Prices of bifenthrin TC, lambda-cyhalothrin TC and cypermethrin TC all went down by over 3% MoM. With dull downstream demand and downward trend in prices of some intermediates, prices of pyrethroid insecticides TC may decline further in the short term.

**Nicotinoid insecticides:** Ex-works prices of nicotinoid insecticides were lowered in general. Slack domestic demand, small amount of overseas orders and downward trend in prices of some intermediates have led to the price fall. Prices of imidacloprid TC and acetamiprid TC went down by over 6% MoM. The market has been glutted with imidacloprid TC—major producers have operated normally, such as Jiangsu Yangnong Chemical Co., Ltd., Shandong United Pesticide Industry Co., Ltd. and Shandong Hailir Chemicals Co., Ltd., and thus there has been ample supply. In addition, prices of 2-chloro-5-chloromethylpyridine (CCMP) and phosphorus oxychloride fell in mid-March. Considering a relatively weak demand for nicotinoid insecticides, their ex-works prices may decline in the short term.



**TABLE 2: Ex-works prices of major insecticide TC products in China in early and mid-March 2023**

Category	Product	Ex-works price (RMB/t)	Ex-works price (USD/t)	RMB MoM change
Organophosphorus insecticide	95% Chlorpyrifos technical	42,800	6,167	-4.25%
	90% Malathion technical	38,000	5,476	0.00%
	90% Phoxim technical	45,000	6,484	0.00%
	90% Profenofos technical	83,800	12,075	0.00%
Carbamate insecticide	98% Carbofuran technical	110,000	15,850	0.00%
	98% Isoprocarb technical	45,500	6,556	0.00%
	98% Methomyl technical	81,000	11,671	1.25%
Pyrethroid insecticide	97% Bifenthrin technical	221,000	31,844	-4.95%
	95% Lambda-cyhalothrin technical	172,000	24,784	-4.44%
	94% Cypermethrin technical	76,000	10,951	-3.80%
	98% Deltamethrin technical	500,000	72,046	0.00%
Nicotinoid insecticide	95% Acetamiprid technical	106,200	15,303	-7.57%
	97% Imidacloprid technical	118,400	17,061	-6.03%

Source:CCM

### Insecticide TC prices remain stable or fall slightly in China in March

Summary: In March, ex-works prices of China's insecticides TC tended to stabilise in general. Some insecticides TC experienced slips in the price due to sluggish downstream market. Specifically, most nicotinoid insecticide TC products witnessed obvious MoM price drops.

In March, prices of most organophosphorus insecticides TC and carbamate insecticides TC kept stable, but prices of most pyrethroid insecticides TC and nicotinoid insecticides TC fell due to prolonged sluggish demand. In particular, nicotinoid insecticide TC products witnessed greater MoM price drops.

**Organophosphorus insecticides:** Ex-works prices of profenofos TC, phoxim TC and malathion TC were stable, while the price of chlorpyrifos TC was still in a downtrend. As overseas orders shrank, chlorpyrifos inventory in China was relatively large and slowly consumed. In late March, some chlorpyrifos producers suspended production, such as Inner Mongolia Miraculous Crop Science Co., Ltd. and Nanjing Red Sun Co., Ltd. Though chlorpyrifos lines in other producers, such as Chongqing Huage Bio-chemical Co., Ltd., Zhejiang Xinnong Chemical Co., Ltd., Jiangsu Fengshan Group Co., Ltd. (Fengshan Group) and Hubei Benxing Agrochemical Co., Ltd. (Hubei



Benxing), were still in operation, the lines in Fengshan Group and Hubei Benxing were operated at a low level. Raw material price had limited support to the price of chlorpyrifos TC. The price of the intermediate sodium 3,5,6-trichloropyridin-2-olate was stable, while the price of O,O-diethylthiophosphoryl chloride went down. Given a relatively slack demand for organophosphorus insecticides in China, prices of some products may be set lower in the short term.

**Carbamate insecticides:** Ex-works prices of carbofuran TC and isoprocarb TC remained stable while that of methomyl TC went up by 0.62% MoM. Considering weak demand, prices of carbamate insecticides may keep stable in the short term.

**Pyrethroid insecticides:** Ex-works prices of most pyrethroid insecticides TC decreased mainly due to insufficient domestic demand. Prices of bifenthrin TC, lambda-cyhalothrin TC and cypermethrin TC all went down by over 4% MoM. In late March, bifenthrin production in Shandong Gaoxin Runnong Chemical Co., Ltd. was suspended, but operation in other producers, such as Jiangsu Chunjiang Runtian Agrochemical Co., Ltd., Jiangsu Yangnong Chemical Co., Ltd., and Guangdong Liwei Chemical Industry Co., Ltd. was normal. With dull downstream demand and lowered prices of some intermediates, prices of pyrethroid insecticides TC may decline further in the short term.

**Nicotinoid insecticides:** Ex-works prices of nicotinoid insecticides TC had big MoM drops. Reduced overseas orders and a downward trend in prices of some intermediates led to the price fall. Prices of nitenpyram TC, imidacloprid TC and acetamiprid TC went down by over 6% MoM; nitenpyram TC price, in particular, dived over 10% MoM. The downstream demand for nicotinoid insecticide TC was small. At present, prices of intermediates for nicotinoid insecticides like 1-methyl-3-nitroguanidine, 3-methyl-4-nitroiminoperhydro-1,3,5-oxadiazine, 2-nitroaminoimidazoline and ethyl N-cyanoethanimideate are stable, but the price of 2-chloro-5-chloromethylpyridine (CCMP) is in a downtrend. Considering a relatively weak demand for nicotinoid insecticides, their ex-works prices may decline in the short term.





TABLE 3: Ex-works prices of major insecticide TC products in China in March 2023

Category	Product	Ex-works price (RMB/t), 7 March	Ex-works price (RMB/t), 14 March	Ex-works price (RMB/t), 21 March	Ex-works price (RMB/t), 28 March	Ex-works price (monthly average)		
						RMB/t	USD/t	MoM change (based on RMB)
Organophosphorus insecticide	Chlorpyrifos TC	42,800	42,700	42,600	42,500	42,650	6,146	-4.37%
	Malathion TC	38,000	38,000	38,000	38,000	38,000	5,476	0.00%
	Phoxim TC	45,000	45,000	45,000	45,000	45,000	6,484	0.00%
	Profenofos TC	83,800	83,800	83,800	83,800	83,800	12,075	0.00%
Pyrethroid insecticide	Lambda-cyhalothrin TC	172,000	169,000	168,000	165,000	168,500	24,280	-5.07%
	Bifenthrin TC	221,000	219,000	215,500	213,500	217,250	31,304	-5.03%
	Cypermethrin TC	76,000	75,600	74,400	74,000	75,000	10,807	-4.15%
	Deltamethrin TC	500,000	500,000	500,000	500,000	500,000	72,046	0.00%
Carbamate insecticide	Methomyl TC	81,000	81,000	81,000	81,000	81,000	11,671	0.62%
	Carbofuran TC	110,000	110,000	110,000	110,000	110,000	15,850	0.00%
	Isoprocarb TC	45,500	45,500	45,500	45,500	45,500	6,556	0.00%
Nicotinoid insecticide	Nitenpyram TC	170,000	168,000	162,000	160,000	165,000	23,775	-10.81%
	Acetamiprid TC	106,200	104,200	103,000	101,000	103,600	14,928	-7.87%
	Imidacloprid TC	118,400	116,400	114,000	112,000	115,200	16,599	-6.91%

Source:CCM





## Pest

### NATESC: aphids & mites, major pests on wheat in spring 2023

Summary: In late Feb., the NATESC released the Technical Programme for the Prevention and Control of Major Pests and Diseases on Wheat in Spring 2023. It is predicted that there would be an overall relatively heavy occurrence of pests and diseases on wheat this spring and the major pests of concern would be wheat aphids and wheat mites.

In late Feb., the National Agro-Tech Extension and Service Centre (NATESC) released the Technical Programme for the Prevention and Control of Major Pests and Diseases on Wheat in Spring 2023. It is predicted that pests and diseases on wheat would attack relatively heavily in spring 2023 in general, and the major prevention and control targets would be wheat aphids and wheat mites.

Major pests in different wheat planting areas:

- North China & Northwest China: Focus should be put on wheat aphids, and due attention paid to wheat mites, wheat blossom midges, etc.
- Huang-Huai region: Aphids on ears of wheat are of major concern, and due attention should be paid to wheat mites.
- Middle and lower reaches of the Yangtze River: Wheat aphids are the major pests.
- Southwest China: Focus should be put on wheat mites, and due attention paid to wheat aphids and the potential attacker fall armyworm.

Prevention and control measures suggested:

- Reviving-and-jointing stage:
  - Wheat mite: When a population of over 200 is found on wheat plants within an on-average 33 cm-line, it is recommended to spray pesticides such as abamectin, bifenthrin, malathion·phoxim, bifenthrin·triazophos.
  - Wheat aphid: When the population in 100 plants surpasses 500, control measures should be taken.
- Heading-and-flowering stage: During the heading period, prevention and control of adult wheat blossom midges should be the focus. In early booting period, when one or two adults are found by hand-digging the ridge of wheat fields in the morning or at night, it is recommended to apply pesticides such as chlorpyrifos, phoxim, lambda-cyhalothrin, lambda-cyhalothrin·imidacloprid.
- Grain filling stage: When the population of aphids surpasses 800 per 100 ears, or the ratio of natural enemies to aphids is less than 1:150, pesticides like acetamiprid, imidacloprid, pirimicarb, lambda-cyhalothrin, matrine and *Conidioblous thomboides* can be sprayed. Biological control by releasing Aphidiidae or other natural enemies is recommended where possible.





## Policy

### Guangxi to strengthen pesticide supervision and administration

Summary: In late Feb., the Guangxi government released a notice on strengthening pesticide supervision and administration, with the aims of improving the regulatory work on the pesticide market, safeguarding the quality and safety of agricultural products, and promoting reduced use of chemical pesticides.

In late Feb., the Department of Agriculture and Rural Affairs in Guangxi Zhuang Autonomous Region released a notice on strengthening pesticide supervision and administration in the region, with the aims of improving pesticide regulatory work, safeguarding the quality and safety of agricultural products, and promoting reduction in chemical pesticide use.

Key tasks proposed for municipal bureaus of agriculture and rural affairs in the notice are as follows:

- **Thoroughly fulfil the duties for pesticide supervision and administration.** Local bureaus should strengthen inspections on pesticide production and business licensing, improve the pesticide administrative examination and approval services, intensify regular pesticide supervision, and regulate pesticide production and operation activities.
- **Reinforce supervision and administration on pesticide quality.** Local bureaus should strengthen the supervision on pesticide distribution. Based on characteristics of agricultural production and pesticide use, the regulators can combine routine supervision with irregular inspections. For key products and in key areas, strict administration is needed.
- **Push forward with recycling and disposal of pesticide packaging wastes.** County-level agencies should cooperate with other departments and strengthen routine supervision on pesticide producers, distributors and users concerning their obligations of recycling and disposal of pesticide packaging wastes.
- **Strengthen preparedness for pesticide safety risks in key areas.** The risks in production, operation and use of highly toxic pesticides and hazardous chemical pesticides should be rigorously guarded against.
- **Improve pesticide industry development guidance and services.** Local bureaus should prompt relevant enterprises to enter chemical parks in accordance with related regulations. These enterprises are encouraged to develop high-efficiency and low-risk pesticides and to phase out backward production capacity that is highly polluting and risky. The pesticide industry should follow a development path featuring intensiveness, scale and greenness.
- **Promote scientific and safe use of pesticides.** Local bureaus should monitor safety risks of pesticide use, and strengthen guidance and technical training on safe use of pesticides. The guidance should be increased on pesticide use in production bases for crops such as vegetables, fruits, tea, traditional Chinese medicinal crops and edible mushrooms. Crack down on use of banned pesticides, highly toxic pesticides, unregistered pesticides and out-of-range use of restricted pesticides.
- **Promote reduced consumption of chemical pesticides.** An environmentally-friendly, ecological-inclusive all-round technology system for prevention & control of crop diseases and pests should be established. It is encouraged to substitute biological pesticides for chemical ones, high-efficiency and low-risk pesticides for old ones, and precision spraying machinery for outdated one.







## Import and Export

### China's chlorpyrifos TC exports to Colombia see big jump in 2022

Summary: In 2022, chlorpyrifos products from China were mainly exported to Brazil, Pakistan, Colombia, Mexico, etc. Although the total export volume of China's chlorpyrifos TC to major destinations decreased, the export to Colombia saw a big YoY increase.

According to the import and export data updated on 1 March from Tranalysis, in 2022, chlorpyrifos products from China were mainly exported to Brazil, Pakistan, Colombia, Mexico, Peru, etc. The export volume to these major destinations totalled 13,023.51 tonnes (actual volume), or 10,473.59 tonnes (100% AI volume).

Details of China's chlorpyrifos exports in 2022 are as follows:

- Specifications for export: 94% TC, 95% TC, 97% TC, 98% TC, 400g/L EC, 480g/L EC, 15% GR
- Export price & export volume: A total of 9,128.34 tonnes (actual volume), or 8,836.26 tonnes (100% AI volume), of TC products were exported at an average price of USD7.08/kg, and 3,895.17 tonnes (actual volume), or 1,637.33 tonnes (100% AI volume), of formulation products were exported at an average price of USD4.60/kg. The chlorpyrifos exports peaked in June with 1,701.16 tonnes (actual volume) delivered.
- Major exporter: The top three exporters, Zhejiang Xinnong Chemical Co., Ltd. (Zhejiang Xinnong), Jiangsu Fengshan Group Co., Ltd. and Shandong Weifang Rainbow Chemical Co., Ltd., together exported 4,497.36 tonnes (100% AI volume) of chlorpyrifos products, the amount making up nearly 43% (calculated on 100% AI volume) of the total chlorpyrifos exports to major destinations.

The export volume of China's chlorpyrifos TC to major destinations decreased by some 30% YoY (calculated on 100% AI volume) in 2022, but the chlorpyrifos TC export to Colombia saw a yearly 54% jump to 1,248.86 tonnes (100% AI volume). Zhejiang Xinnong was the biggest exporter of China's chlorpyrifos TC to Colombia during this period, and the main product it exported was 97% TC.





TABLE 4: Exports of chlorpyrifos products from China, 2022

Category	Specification	Volume, kg	Average price, USD/kg
Technical	97% TC	8,164,840	7.11
	95% TC	827,500	6.78
	94% TC	76,000	7.19
	98% TC	60,000	7.92
	<b>Subtotal</b>	<b>9,128,340</b>	<b>7.08</b>
Formulation	480g/L EC	2,375,253	4.85
	400g/L EC	1,473,919	4.20
	15% GR	46,000	4.14
	<b>Subtotal</b>	<b>3,895,173</b>	<b>4.60</b>
<b>Total</b>	<b>13,023,513</b>	<b>6.34</b>	

Note: The data were updated by Tranalysis on 1 March, 2023.

Source: Tranalysis



TABLE 5: Exports of chlorpyrifos products from China by month, 2022

Month	Volume, tonne	Value, USD million
Jan.	996	5.74
Feb.	1,400	10.09
March	1,317	8.23
April	1,600	10.01
May	1,173	7.66
June	1,701	10.02
July	1,411	8.58
Aug.	1,376	9.01
Sept.	913	6.17
Oct.	694	4.23
Nov.	275	1.71
Dec.	168	1.11
<b>Total</b>	<b>13,024</b>	<b>82.56</b>

Note: The data were updated by Tranalysis on 1 March, 2023.

Source: Tranalysis

**TABLE 6:** Top 10 exporters of chlorpyrifos products in China, 2022 vs 2021

No.	2022			2021		
	Exporter	100% AI volume, tonne	Share	Exporter	100% AI volume, tonne	Share
1	Zhejiang Xinnong Chemical Co., Ltd.	2,653	25.33%	Shandong Weifang Rainbow Chemical Co., Ltd.	1,784	12.01%
2	Jiangsu Fengshan Group Co., Ltd.	1,020	9.74%	Zhejiang Xinnong Chemical Co., Ltd.	1,334	8.98%
3	Shandong Weifang Rainbow Chemical Co., Ltd.	825	7.87%	Nanjing Bodao Logistics Co., Ltd.	847	5.70%
4	Nanjing Bodao Logistics Co., Ltd.	648	6.19%	Nanjing Red Sun Co., Ltd.	621	4.18%
5	Zhejiang Chemicals Import and Export Corp.	533	5.08%	Sino-Agri Red Sun Bio-Technology Co., Ltd.	490	3.30%
6	Shandong Luba Chemical Co., Ltd.	310	2.96%	Jiangsu Fengshan Group Co., Ltd.	453	3.05%
7	JAT Offshore S.A.L.	253	2.42%	Zhejiang Chemicals Import and Export Corp.	410	2.76%
8	Sinochem Agro Co., Ltd.	234	2.24%	China Jiangsu International Economic and Technical Cooperation Group, Ltd.	337	2.27%
9	Nanjing Red Sun Co., Ltd.	224	2.14%	JAT Offshore S.A.L.	255	1.72%
10	Zhuochen Industries (Shanghai) Co., Ltd.	175	1.67%	Shandong Rainbow International Co., Ltd.	215	1.45%

Note: The data were updated by Tranalysis on 1 March, 2023.

Source: Tranalysis



TABLE 7: Top 10 destinations of chlorpyrifos TC exported from China, 2022 vs 2021

No.	2022			2021		
	Destination	100% AI volume, tonne	Share	Destination	100% AI volume, tonne	Share
1	Brazil	3,588	40.61%	Brazil	4,094	32.37%
2	Pakistan	1,310	14.82%	Pakistan	1,525	12.06%
3	Colombia	1,249	14.13%	Argentina	1,348	10.66%
4	Mexico	566	6.41%	Mexico	906	7.17%
5	Peru	382	4.33%	Indonesia	869	6.87%
6	India	310	3.51%	Colombia	808	6.39%
7	Russia	306	3.46%	Peru	560	4.43%
8	Egypt	272	3.07%	The US	517	4.09%
9	Australia	237	2.68%	Australia	420	3.32%
10	The Philippines	228	2.58%	Russia	397	3.14%

Note: The data were updated by Tranalysis on 1 March, 2023.

Source: Tranalysis





## Registration

### Cyenoxyrafen's registration protection & cyantraniliprole's compound patent to expire in China

Summary: The six-year registration protection period for the AI cyenoxyrafen will expire in China in May 2023 and the compound patent of cyantraniliprole in China is about to expire in Jan. 2024. As of 2 March, 2023, there were two valid registrations for cyenoxyrafen acaricides and eleven valid registrations for cyantraniliprole insecticides in China.

The six-year registration protection period for the AI cyenoxyrafen will expire in China in May 2023 and the compound patent of cyantraniliprole in China is about to expire in Jan. 2024. According to the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA), as of 2 March, 2023, there were two valid registrations for cyenoxyrafen acaricides and eleven valid registrations for cyantraniliprole insecticides in China.

Cyenoxyrafen is a novel pyrazole acaricide developed by Nissan Chemical Industries, Ltd. (now the Nissan Chemical Corporation) at the beginning of the 21st century. It is low toxic, broad-spectrum and of high efficacy. Compound patent of the ingredient in China (CN1227229C) expired in April 2017. The company acquired temporary registration in China on 31 May, 2017 and later on 30 Jan., 2019 was granted official registration; the six-year registration protection period for this AI will soon end in China. ICAMA data show that as of 2 March, 2023, there were two valid cyenoxyrafen registrations, both held by Nissan Chemical Corporation, one for 95% TC and the other for 30% SC; the registered control targets are *Tetranychus urticae*, red spider mite on apple trees and *Tetranychus urticae* on strawberry. Cyenoxyrafen seems quite an ideal alternative as pests show little cross-resistance to it and thus it satisfies the needs of agricultural production nowadays; its similar products include cyflumetofen developed by Otsuka Chemical Co., Ltd. and cyetpyrafen developed by Shenyang Sinochem Agrochemicals R&D Co., Ltd.

Cyenoxyrafen is mainly applied to control pests on fruits and vegetables. Along with ever increasing demand for high quality fruits and vegetables, more cyenoxyrafen will be needed. And it will soon attract greater attentions once the protection period passes in May.

As to cyantraniliprole, it is a diamide insecticide developed by E. I. du Pont de Nemours and Company, Inc. (DuPont). At the end of 2017, the Dow Chemical Company merged with DuPont, and DuPont's crop protection business (cyantraniliprole and chlorantraniliprole products included) was divested to FMC Corporation. The compound patent of the ingredient cyantraniliprole in China (CN100441576C) will go off-patent from 20 Jan., 2024. And data from ICAMA show that as of 2 March, 2023, there were valid registrations for eleven cyantraniliprole products, covering two TC and nine formulations (single formulations as well as mixed ones with diafenthiuron, pymetrozine, triflumezopyrim and thiamethoxam).

Cyantraniliprole has better absorption and is applicable to a wider range of crops than chlorantraniliprole. Since the compound patent for chlorantraniliprole in China expired in Aug. 2022, registration for chlorantraniliprole TC & formulation products has grown considerably. It is foreseeable that a cyantraniliprole registration rush will come soon in China, possibly starting right from the next year.



**TABLE 8: Valid cyenopyrafen registrations in China, as of 2 March, 2023**

No.	Product	Total content	Expiry date	Registrant
1	Cyenopyrafen TC	95%	2024/1/29	Nissan Chemical Corporation
2	Cyenopyrafen SC	30%	2024/1/29	

Source: ICAMA

**TABLE 9: Valid cyantraniliprole registrations in China, as of 2 March, 2023**

No.	Active ingredient	Form	Total content	Expiry date	Registrant
1	Cyantraniliprole	TC	94%	2025/6/26	FMC (Shanghai) Agricultural Sciences Co., Ltd.
2	Cyantraniliprole	TC	94%	2024/2/13	FMC Corporation
3	Diafenthiuron·cyantraniliprole	SC	480g/L	2025/10/27	Syngenta AG
4	Cyantraniliprole	SC	19%	2024/11/21	FMC Corporation
5	Cyantraniliprole·triflumezopyrim	SC	23%	2023/8/20	Shaanxi Biaozheng Crop Science Co., Ltd.
6	Cyantraniliprole·thiamethoxam	FS	40%	2025/10/20	Syngenta AG
7	Cyantraniliprole	FS	48%	2025/4/15	Syngenta AG
8	Pymetrozine·cyantraniliprole	WG	40%	2026/7/1	Syngenta AG
9	Cyantraniliprole	OD	10%	2024/2/13	FMC Corporation
10	Cyantraniliprole	SE	10%	2025/6/26	FMC Corporation
11	Cyantraniliprole	RB	0.50%	2023/7/23	Syngenta AG

Note: The No.11 cyantraniliprole 0.50% RB is a hygienic insecticide product.

Source: ICAMA

## 27 Insecticide TC products approved of registration renewal in early March

Summary: In early March 2023, the Department of Agrochemical Management of MARA released a batch of products obtained registration renewal approval, which include 342 insecticide products, of which 27 are insecticide TC products.

In early March 2023, the Department of Agrochemical Management of the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA) released a batch of products obtained registration renewal approval, which include altogether 1,027 pesticide products from 420 registrants. Of them, 342 are insecticide products (including 48 hygienic insecticide products), and specifically, 27 are insecticide TC products. The majority of these insecticides are of low or mild toxicity. For formulation products, top three forms are SC, EC



and WG.

As regards insecticide TC products, dinotefuran, thiamethoxam, spirotetramat, diflubenzuron and bifenthrin are the top five active ingredients this time. It should be noted that three are two renewals of 96% spirotetramat TC, one from Hebei Lanrun Plant Protection Technology Co., Ltd. and the other from Xinyi Yongcheng Chemical Industrial Co., Ltd. And four registrants have two insecticide TC products approved of renewal: Jingmen Jinxianda Biotechnology Co., Ltd., Jiangsu Agrochem Laboratory Co., Ltd., Brat Agrotree India Pvt. Ltd. and Aestar (Zhongshan) Co., Ltd.

**TABLE 10:** Insecticide products approved of registration renewal by toxicity, March 2023

No.	Toxicity	Number
1	Low	220
2	Mild	54
3	Moderate	40
4	Low (TC: highly toxic)	15
5	Moderate (TC: highly toxic)	12
6	Low (TC: moderately toxic)	1
<b>Total</b>		<b>342</b>

Source: The Department of Agrochemical Management of MARA





TABLE 11: Insecticide products approved of registration renewal by form, March 2023

No.	Form	Number
1	SC	94
2	EC	45
3	WG	31
4	TC	27
5	WP	27
6	EW	17
7	ME	15
8	GR	11
9	CS	8
10	SP	6
	Others	61
	<b>Total</b>	<b>342</b>

Source: The Department of Agrochemical Management of MARA

**TABLE 12:** Active ingredients of insecticide TC products approved of registration renewal, March 2023

No.	Active ingredient	Number of TC products
1	Dinotefuran	5
2	Thiamethoxam	3
3	Spirotetramat	2
4	Diflubenzuron	2
5	Bifenthrin	2
6	Buprofezin	1
7	Alpha-Cypermethrin	1
8	Bioallethrin	1
9	Fenpropathrin	1
10	Emamectin Benzoate	1
11	Bifenazate	1
12	Cartap	1
13	Chlorpyrifos	1
14	Lufenuron	1
15	Flufenoxuron	1
16	D-Allethrin	1
17	Cypermethrin	1
18	Flonicamid	1
<b>Total</b>		<b>27</b>

Source: The Department of Agrochemical Management of MARA

**TABLE 13:** Registrants with at least two insecticide TC products approved of registration renewal, March 2023

No.	Registrant	Product	Toxicity	Category
1	Jingmen Jinxianda Biotechnology Co., Ltd.	Dinotefuran TC	Low	Insecticide
2		Thiamethoxam TC	Low	Insecticide
3	Jiangsu Agrochem Laboratory Co., Ltd.	Thiamethoxam TC	Low	Insecticide
4		Diflubenzuron TC	Low	Insecticide
5	Brat Agrotree India Pvt. Ltd.	Cypermethrin TC	Moderate	Insecticide
6		Alpha-cypermethrin TC	Moderate	Insecticide
7	Aestar (Zhongshan) Co., Ltd.	D-Allethrin TC	Low	Hygienic insecticide
8		Bioallethrin TC	Low	Hygienic insecticide

Source: The Department of Agrochemical Management of MARA



## News in Brief

### El report of Tongling BSM's 5 t/a methoxyfenozide pilot-scale project accepted

In late Feb., the environmental impact (EI) report of Tongling BSM Technology Co., Ltd. (Tongling BSM)'s 5 t/a methoxyfenozide pilot-scale test project was accepted by local authorities. Tongling BSM plans to build a 5 t/a methoxyfenozide line for the preliminary pilot-scale testing in its existing plant in the East Park of Tongling Economic and Technological Development Zone, Tongling City, Anhui Province.

Tongling BSM was established in Oct. 2020 by Shaoxing BSM Chemical Co., Ltd. (Shaoxing BSM). The parent company began to prepare for the construction of a production line for methoxyfenozide products in 2019. It finished acceptance check of the lab scale test project in Aug. 2020, which lays the foundation for the pilot-scale test project this time.

### Yumen Haotai plans to build capacity for raw materials of insecticides

On 6 March, brief information on Yumen Haotai Chemical Co., Ltd. (Yumen Haotai)'s 71,000 t/a pesticide and pesticide intermediate project (Phase I) was revealed on the Gansu Environmental Assessment Information Network. Yumen Haotai has planned to build lines of 10,000 t/a dimethyl disulfide, 20,000 t/a dimethyl sulfate and 40,000 t/a sodium sulfide in the Phase I program in the Old Downtown Area Chemical Industrial Park, Yumen City, Jiuquan City, Gansu Province.

Among these planned products, dimethyl disulfide is used in the synthesis of 3-methyl-4-(methylthio)phenol, an intermediate of organophosphorus insecticides fenthion and fenamithion, and 4-(methylthio)phenol, an intermediate of the organophosphorus insecticide sulprofos. Dimethyl sulfate, a methylating agent, can be used in the synthesis of insecticides and acaricides such as methamidophos, acephate, pirimicarb and nissol.

### Huludao Zaidayingjia to build capacity for 5-chloro-1-indanone, intermediate of indoxacarb

On 8 March., the environmental impact report of Huludao Zaidayingjia Chemical Co., Ltd. (Huludao Zaidayingjia)'s 800 t/a 5-chloro-1-indanone and 1,000 t/a quinclorac intermediate project was accepted by local authorities. The planned product 5-chloro-1-indanone is an important intermediate of the insecticide indoxacarb, which was developed by E. I. du Pont de Nemours and Company, Inc.

Huludao Zaidayingjia, established in June 2014, is located in the Chemical Industrial Park of Huludao Economic Development Zone, Huludao City, Liaoning Province. It mainly produces fluorine-containing pharmaceutical and pesticide intermediates such as 4-(trifluoromethoxy)aniline.

### Registration of four new insecticide products approved

On 6 March, the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA) approved registration of ten new pesticide products from four enterprises, which cover five new active ingredients. Of these ten products, four are insecticide products, all of mild toxicity and registered by Anhui Kewu Biotechnology Co., Ltd. (Anhui Kewu).



**TABLE 14:** Anhui Kewu's four new insecticide products approved of registration in March 2023

No.	Registration code	Active ingredient & content	Form	Applicable crop	Control target
1	PD20230095	<i>Anagrapha falcifera</i> multiple nuclear polyhedrosis virus (AfMNPV) Kew1 10 billion PIB/mL	TK	/	/
2	PD20230103	<i>Spodoptera frugiperda</i> multiple nuclear polyhedrosis virus (SfMNPV) Hub1 10 billion PIB/mL	TK	/	/
3	PD20230093	AfMNPV Kew1 2 billion PIB/mL	SC	Maize	Maize borer
4	PD20230100	SfMNPV Hub1 2 billion PIB/mL	SC	Maize	Fall armyworm

Source: MARA

### El report of Haili Guixi's carbosulfan TC capacity expansion project to be approved

On 6 March, it was announced that the environmental impact (EI) report of Haili Guixi New Material Technology Co., Ltd. (Haili Guixi)'s carbosulfan TC capacity expansion project was to be approved by local authorities. Haili Guixi has intended to double its carbosulfan TC capacity to 6,000 t/a, by adding equipment and optimising production technology.

The previous 3,000 t/a production lines building project was approved by the Jiangxi Provincial Ecology and Environment Department in Oct. 2019 and Haili Guixi completed the environmental protection self-acceptance check in July 2021. However, lines for other products planned in the same project were cancelled due to market changes. For the same reason, the company called off a 3,000 t/a sulfentrazone project, even though EI report of this project was approved by local authorities in July 2020.

### El report of Liaoning Youchuang's pesticide TC & intermediate project approved

On 9 March, the environmental impact (EI) report of Liaoning Youchuang Crop Protection Co., Ltd. (Liaoning Youchuang)'s 15,650 t/a pesticide TC & 7,000 t/a pesticide intermediate project was approved by local authorities. Liaoning Youchuang has planned to build 11 production lines for multiple products, including lines of 3,000 t/a cyhalothrin, 1,300 t/a chlorantraniliprole and 200 t/a tetrachlorantraniliprole.

Tetrachlorantraniliprole is an insecticide independently developed by Shenyang Sinochem Agrochemicals R&D Co., Ltd. (Shenyang Agrochemicals R&D). As of March 2023, only a tetrachlorantraniliprole TC product and a tetrachlorantraniliprole SC product had been granted registration certificate in China; the two are registered by Shenyang Sciencreat Chemicals Co., Ltd. (Shenyang Sciencreat).

Liaoning Youchuang, Shenyang Agrochemicals R&D and Shenyang Sciencreat are subsidiaries of Jiangsu Yangnong Chemical Co., Ltd.

### Shandong Lukang plans to build capacity for biological insecticides BT & spinosad



On 13 March, acceptance of the environmental impact (EI) report of Shandong Lukang Biological Pesticide Co., Ltd. (Shandong Lukang)'s biopesticide production base project was announced by local authorities. Shandong Lukang has planned to build a new base in Zoucheng Chemical Industrial Park, Zoucheng City, Shandong Province, with capacity of 200 t/a *Bacillus thuringiensis* (BT), 50 t/a spinosad, 1,000 t/a kasugamycin, 200 t/a polyoxin, 30 t/a gibberellic acid A3, 100 t/a trans-aconitic acid and 12,600 t/a pesticide formulations. Among them, BT and spinosad are biological insecticides.

Shandong Lukang is a wholly-owned subsidiary of Shandong Lukang Pharmaceutical Co., Ltd. It was established in Aug. 2019, based in Qihe Economic Development Zone, Qihe County, Dezhou City, Shandong Province. The company's main products cover four categories—biological insecticide, fungicide, plant growth regulator and biological fungicide. Main biopesticides available in Shandong Lukang are BT, spinosad, polyoxin, gibberellic acid, *Bacillus subtilis*, etc.

### Brazil sets and revises maximum residue limits for some pesticides in food

On 8 March, the Brazilian government issued two normative instructions concerning formulation and revision of maximum residue limits for pesticides such as abamectin, captan, chlorfenapyr, chlorantraniliprole, fenpyroximate, prothioconazole in selected foods. The instructions went into force on the date of release.

**TABLE 15:** Maximum residue limits for insecticides/acaricides in some foods newly set in Brazil

No.	Active ingredient	Food	Maximum residue limit (newly set): mg/kg	Maximum residue limit (before): mg/kg
1	Abamectin	Macadamia, walnut	0.06	/
2	Chlorfenapyr	Eggplant, pepper, okra	0.4	/
3	Chlorantraniliprole	Cashew	0.1	/
4	Fenpyroximate	Peanut, pea, chickpea, lentil	0.03	/

Source: Brazilian Health Regulatory Agency (ANVISA)

### Inner Mongolia Miraculous has EI report of chlorantraniliprole TC project approved

On 17 March, the Administrative Examination & Approval and Administrative Services Bureau of Alxa High-tech Zone (Wusitai Town) announced that the environmental impact (EI) report of Inner Mongolia Miraculous Crop Science Co., Ltd. (Inner Mongolia Miraculous)'s 20,000 t/a chlorantraniliprole TC project (Phase I: 10,000 t/a chlorantraniliprole TC) had passed expert review and thus had been approved. The report, revised according to experts' opinions, shows that the project is environmentally feasible as long as the environmental protection measures are strictly implemented.

### Shandong to improve safety in chemical parks

On 16 March, Shandong Provincial Department of Emergency Management released the *Three-Year Action Plan for Promoting the Construction of a Green, Low-Carbon and High-Quality Development Pilot Zone*. The Plan proposes that by 2025, 90% of chemical parks





in the province should be rated at D Level (low safety risk).

The Plan sets upgrading safety in chemical parks as one of the government's key tasks in this period. Shandong will organise the drawing-up of individual plan for risk rectification and safety upgrade in each of the 84 chemical industrial parks across the province, following the spirits of "Ten Haves & Two Prohibitions" requirements:

- **Ten Haves:** for a chemical park, it should have a master planning and an industry plan; have management agency, personnel and system; have a set boundary; have a safety control line of surrounding land-use planning; have public utilities and supporting facilities; have closed-off management; have reserved parking lots for vehicles carrying hazardous chemicals; have a digital management & control platform; have a training base for chemical safety skills; and have fire-fighting facilities or a fire station.
- **Two Prohibitions:** for a chemical park, it should set up its own version of "Banned, Restricted, and Controlled" catalogue and work out safety-related access conditions for new projects; residential areas and labour-intensive enterprises are prohibited in the park.





## Price Update

## Ex-works prices of major insecticides in China on 8 March 2023

TABLE 16: Ex-works prices of major insecticides in China, 8 March, 2023

Product	20230208		20230308	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
95% Abamectin technical	526,000	77,935.16	500,000	72,046.11
97% Acephate technical	55,000	8,149.11	55,000	7,925.07
95% Acetamiprid technical	114,900	17,024.24	106,200	15,302.59
95% Azocyclotin technical	185,000	27,410.66	220,000	31,700.29
95% Beta-Cypermethrin technical	152,000	22,521.19	141,500	20,389.05
97% Bifenthrin technical	232,500	34,448.53	221,000	31,844.38
95% Buprofezin technical	75,000	11,112.43	73,000	10,518.73
98% Carbofuran technical	110,000	16,298.23	110,000	15,850.14
98% Chlorfenapyr technical	215,000	31,855.63	200,000	28,818.44
95% Chlorfluazuron technical	440,000	65,192.91	430,000	61,959.65
95% Chlorpyrifos technical	44,700	6,623.01	42,800	6,167.15
94% Cypermethrin technical	79,000	11,705.09	76,000	10,951.01
99% Cyromazine technical	148,000	21,928.52	143,000	20,605.19
98% Deltamethrin technical	500,000	74,082.85	500,000	72,046.11
95% Diafenthiuron technical	135,000	20,002.37	130,000	18,731.99
98% Dimethoate technical	47,600	7,052.69	47,600	6,858.79
70% Emamectin benzoate technical	497,000	73,638.36	466,900	67,276.66
92% Fenvalerate technical	135,000	20,002.37	133,000	19,164.27
95% Fipronil technical	540,000	80,009.48	530,000	76,368.88
98% Hexaflumuron technical	500,000	74,082.85	500,000	72,046.11







97% Imidacloprid technical	126,000	18,668.88	118,400	17,060.52
98% Isoprocarb technical	45,500	6,741.54	45,500	6,556.2
95% Lambda-cyhalothrin technical	180,000	26,669.83	172,000	24,783.86
90% Malathion technical	38,000	5,630.3	38,000	5,475.5
95% Methidathion technical	90,000	13,334.91	90,000	12,968.3
Methomyl 90% SP	74,000	10,964.26	75,000	10,806.92
98% Methomyl technical	80,000	11,853.26	81,000	11,671.47
75% Omethoate technical	52,000	7,704.62	52,000	7,492.8
90% Phoxim technical	45,000	6,667.46	45,000	6,484.15
90% Profenofos technical	83,800	12,416.29	83,800	12,074.93
90% Propargite technical	60,000	8,889.94	60,000	8,645.53
95% Pymetrozine technical	119,300	17,676.17	115,500	16,642.65
95% Pyridaben technical	105,000	15,557.4	105,000	15,129.68
97% Spirodiclofen technical	160,000	23,706.51	158,000	22,766.57
85% Triazophos technical	59,000	8,741.78	59,000	8,501.44

Note: Ex-works price includes VAT.

Source: CCM

### Shanghai Port prices of major insecticides in China, 8 March 2023





TABLE 17: Shanghai Port prices of major insecticides in China, 8 March, 2023

Product	20230208		20230308	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
95% Abamectin technical	526,500	78,009.25	500,500	72,118.16
97% Acephate technical	55,500	8,223.2	55,500	7,997.12
95% Acetamiprid technical	115,400	17,098.32	106,700	15,374.64
95% Azocyclotin technical	185,500	27,484.74	220,500	31,772.33
95% Beta-Cypermethrin technical	152,500	22,595.27	142,000	20,461.1
97% Bifenthrin technical	233,000	34,522.61	221,500	31,916.43
95% Buprofezin technical	75,500	11,186.51	73,500	10,590.78
98% Carbofuran technical	110,500	16,372.31	110,500	15,922.19
98% Chlorfenapyr technical	215,500	31,929.71	200,500	28,890.49
95% Chlorfluazuron technical	440,500	65,266.99	430,500	62,031.7
95% Chlorpyrifos technical	45,200	6,697.09	43,300	6,239.19
94% Cypermethrin technical	79,500	11,779.17	76,500	11,023.05
99% Cyromazine technical	148,500	22,002.61	143,500	20,677.23
98% Deltamethrin technical	500,500	74,156.94	500,500	72,118.16
95% Diafenthiuron technical	135,500	20,076.45	130,500	18,804.03
98% Dimethoate technical	48,100	7,126.77	48,100	6,930.84
70% Emamectin benzoate technical	497,500	73,712.44	467,400	67,348.7
92% Fenvalerate technical	135,500	20,076.45	133,500	19,236.31
95% Fipronil technical	540,500	80,083.57	530,500	76,440.92
98% Hexaflumuron technical	500,500	74,156.94	500,500	72,118.16
97% Imidacloprid technical	126,500	18,742.96	118,900	17,132.56
98% Isoprocarb technical	46,000	6,815.62	46,000	6,628.24





95% Lambda-cyhalothrin technical	180,500	26,743.91	172,500	24,855.91
90% Malathion technical	38,500	5,704.38	38,500	5,547.55
95% Methidathion technical	90,500	13,409	90,500	13,040.35
Methomyl 90% SP	74,500	11,038.35	75,500	10,878.96
98% Methomyl technical	80,500	11,927.34	81,500	11,743.52
75% Omethoate technical	52,500	7,778.7	52,500	7,564.84
90% Phoxim technical	45,500	6,741.54	45,500	6,556.2
90% Profenofos technical	84,300	12,490.37	84,300	12,146.97
90% Propargite technical	60,500	8,964.03	60,500	8,717.58
95% Pymetrozine technical	119,800	17,750.25	116,000	16,714.7
95% Pyridaben technical	105,500	15,631.48	105,500	15,201.73
97% Spirodiclofen technical	160,500	23,780.6	158,500	22,838.62
85% Triazophos technical	59,500	8,815.86	59,500	8,573.49

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 in China, 8 March 2023





TABLE 18: FOB Shanghai prices of major insecticides in China, 8 March, 2023, USD/t

Product	20230208	20230308
95% Abamectin technical	75,943.14	70,204.61
97% Acephate technical	7,801.36	7,586.88
95% Acetamiprid technical	16,694.5	15,006.2
95% Azocyclotin technical	26,817.65	31,014.48
95% Beta-Cypermethrin technical	21,279.1	19,264.55
97% Bifenthrin technical	32,457.75	30,004.09
95% Buprofezin technical	10,961.57	10,375.93
98% Carbofuran technical	15,999.88	15,560
98% Chlorfenapyr technical	31,135.92	28,167.36
95% Chlorfluazuron technical	63,555.67	60,403.61
95% Chlorpyrifos technical	6,590.09	6,136.5
94% Cypermethrin technical	11,132.23	10,415.06
99% Cyromazine technical	20,720.08	19,469.67
98% Deltamethrin technical	69,641.82	67,727.17
95% Diafenthiuron technical	18,920.34	17,718.68
98% Dimethoate technical	6,772.85	6,586.65
70% Emamectin benzoate technical	71,764.37	65,564.56
92% Fenvalerate technical	18,920.34	18,127.57
95% Fipronil technical	77,960.75	74,413.37
98% Hexaflumuron technical	72,200.93	70,215.93
97% Imidacloprid technical	18,301.64	16,724.92
98% Isoprocarb technical	6,480.98	6,302.8
95% Lambda-cyhalothrin technical	25,170.53	23,390.58





90% Malathion technical	5,438.57	5,289.05
95% Methidathion technical	13,124.95	12,764.11
Methomyl 90% SP	10,819.55	10,664.28
98% Methomyl technical	12,721.51	12,526.4
75% Omethoate technical	7,386.23	7,183.16
90% Phoxim technical	6,599.12	6,417.69
90% Profenofos technical	11,803.82	11,479.3
90% Propargite technical	8,802.32	8,560.32
95% Pymetrozine technical	16,725.31	15,747.39
95% Pyridaben technical	15,286.27	14,866.01
97% Spirodiclofen technical	22,395.02	21,507.08
85% Triazophos technical	8,658.23	8,420.19

Note: FOB price is calculated mainly based on ex-works price, tax refund, value added tax rate, exchange rate, etc.

Source: CCM



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