

# Herbicides China Monthly Report 202206

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### Headline

Early June, it is learned that rectifications have been completed in Jiangsu Henglong and in its wholly-owned subsidiary Lianyungang Jindun, both located in Liangyungang Chemical Industrial Park, Jiangsu Province. The two have applied for production resumption, but government review is yet to start. If they can pass the check successfully, their production lines, which have been put to a halt since late April 2018, will restart running.

Jiangxi Heyi planned a 15,200 t/a pesticide TC & intermediate relocation and upgrading project in the second factory in Jishan Ecological Industrial Park, in response to local government's call for relocation, transformation and upgrading of chemical enterprises along the Yangtze River. The company will also optimise its product structure with this project.

Shandong Exceris has planned a 10,000 t/a trifluralin TC project, in order to extend its reach along the 4-chlorobenzotrifluoride industrial chain and increase its presence in pesticide business.

Construction has been completed of Jiangsu KingAgroot's industrialisation project concerning four self-developed herbicides TC and their derived formulation products. Currently, the project is at the stage of completion acceptance check. Products and their capacity planned are as the following: 200 t/a bipyrazone TC, 200 t/a cypyrafluone TC, 200 t/a fenpyrazone TC, 400 t/a tripyrasulfone TC and 12,500 t/a formulation products based on the four active ingredients.

Into June, prices of most herbicides TC were quite stable, mainly because of declined downstream demand. Propped up by cost, most herbicides TC saw their prices at a high level.

This month, CCM learned from Nanjing Red Sun that its paraquat export volume in Q1 2022 was much the same as the amount exported in the same period last year. Overall, paraquat export volume from China in Q1 this year is estimated to experience a YoY dip. China's paraquat still has a future in overseas markets, but that will not stop domestic paraquat producers from looking for growth opportunities in paraquat substitute market.

The FOB price of paraquat 42% TK was USD3,077.15/t in June, down by 1.47% MoM.

According to CCM's price monitoring, the ex-works price of pure pyridine in early June was USD4,576.08/t (RMB30,500/t).

Jiangxi Heyi will soon re-acquire sulfentrazone TC registration certificate, and this time not just export-only. The company once held an export-only registration for 94% sulfentrazone TC, which expired on 2 Dec., 2018.

On 7 June, NDRC General Office and NEA Comprehensive Department jointly issued the Notice of Further Promoting Involvement of New Energy Storage in Electricity Market and in Power Dispatching. The document calls for establishment of a market mechanism taking into consideration the participation of energy storage, improvement of power dispatching and management mechanism, full use of energy storage technology, and encourages involvement of new energy storage in national electricity market and better utilisation of energy stored. In the process, market-oriented price strategy must be followed and reasonable profits from energy storage programs guaranteed. All these aim at facilitating healthy development of the energy storage industry.







### Editor's note

Into June, prices of most herbicides TC were quite stable, mainly because of declined downstream demand. Propped up by cost, most herbicides TC saw their prices at a high level, the prices experiencing YoY growth as well as small MoM slip.

As to company dynamics, Jiangxi Heyi plans to optimise its product structure of pesticides TC and intermediates while relocating outside the 1km range to the Yangtze River. Jiangsu Henglong and in its wholly-owned subsidiary Lianyungang Jindun, finishing rectifications, have applied for production resumption and now waits for government approval. Shandong Exceris has planned to expand its trifluralin production capacity.

As the temperature climbed fast in June, stable electricity supply is of growing importance to smooth industrial production. On 7 June, NDRC General Office and NEA Comprehensive Department jointly issued the Notice of Further Promoting Involvement of New Energy Storage in Electricity Market and in Power Dispatching. The notice further clarifies market positioning of new energy storage, calls for establishment and improvement of related market mechanism, pricing mechanism and operating mechanism, and guides the industry onto a healthy development path.

The USD/CNY exchange rate in this newsletter is USD1.00=CNY6.6651 on 1 June, 2022, sourced from the People's Bank of China. All the prices mentioned in this newsletter will include the VAT, unless otherwise specified.





## Company dynamics

### Production resumption in Jiangsu Henglong could be in the offing

Summary: Early June, it is learned that rectifications have been completed in Jiangsu Henglong and in its wholly-owned subsidiary Lianyungang Jindun, both located in Liangyungang Chemical Industrial Park, Jiangsu Province. The two have applied for production resumption, but government review is yet to start. If they can pass the check successfully, their production lines, which have been put to a halt since late April 2018, will restart running.

Early June, CCM learned from Jiangsu Henglong Crop Protection Co., Ltd. (Jiangsu Henglong) that rectifications had been completed in its factory and in its wholly-owned subsidiary Lianyungang Jindun Agrochemical Co., Ltd. (Lianyungang Jindun), both located in Liangyungang Chemical Industrial Park, Jiangsu Province. The two have applied for production resumption, but government review is yet to start. If they can pass the check successfully, their production lines, which have been halted since late April 2018, will restart running. Yet considering uncontrollable factors in reviewing process, resumption approval may be still up in the air.

Liangyungang Chemical Industrial Park is one of the chemical parks along the Guanhe River. Exposure of pollution to the river from chemical enterprises in these parks, and the explosion in Xiangshui in March 2019 are the major reasons for the long period of production suspension.

In April 2018, CCTV reported that several chemical parks along the Guanhe River should be responsible for pollution there, which aroused extensive public concern. Jiangsu provincial government and Liangyungang municipal government soon called for environment restoration and improvement; late April that year, Guannan county government issued notice to all enterprises in Liangyungang Chemical Industrial Park, which required suspension, self-examination & rectification, as well as enterprise standard upgrading & reformation. Jiangsu Henglong and Lianyungang Jindun thus halted production and started their rectification work.

During the rectification, on the other side of the river, a severe explosion took place in Xiangshui Ecological Chemical Industrial Park on 21 March, 2019. A chain reaction came along, which pushed local government set higher bar on resumption approval.

Jiangsu Henglong had put into operation the capacity of 3,500 t/a triazinone, 2,000 t/a metribuzin TC and 800 t/a amitraz TC in the factory in Liangyungang Chemical Industrial Park before the suspension. And by then, Lianyungang Jindun had put into operation the capacity of 2,000 t/a phosgene, 1,500 t/a 1,5-naphthalene diisocyanate, 1,000 t/a maleic hydrazide TC, 3,000 t/a N-chloromethyl-N-phenylcarbamoyl chloride, 900 t/a buprofezin TC, 1,500 t/a oxadiazon TC, 500 t/a oxadiazon phenol and 500 t/a oxadiargyl TC.

The long-term suspension has not only impacted the development of Jiangsu Henglong, but also disturbed supply of the TC products and intermediates concerned in domestic market. To resume production as early as possible, Jiangsu Henglong has been active in filling the gap between raised bar and standards applied in itself and Lianyungang Jindun. Moreover, it has taken measures to maintain business operation to relieve losses caused by suspension. For example, it outsourced the products to fulfil orders, and in Oct. 2018 acquired Ningxia Yadong Chemical Co., Ltd. (Ningxia Yadong), a pesticide intermediate producer.





Ningxia Yadong, located in Ningxia Zhongwei Industrial Park, Ningxia Hui Autonomous Region, boasts of capacity of 1,500 t/a thiocarbonylhydrazide, 3,000 t/a triazinone, 1,000 t/a thiazole, 800 t/a transposition of triketone, 300 t/a uracil and etc. It has been in normal operation.

This acquisition has helped improve Jiangsu Henglong's performance these years, and means a lot to its long-term sustainable development—it enriches the company's product mix of pesticide intermediates and helps further extend its reach along the industrial chain.

Back to production resumption in chemical parks in Liangyungang City, local administration has rolled out a series of policies to facilitate back-to-normal-operation of quality chemical enterprises therein. In particular, on 30 Oct., 2020, the leading group for work safety & environmental protection rectification and improvement in chemical industry of Liangyungang City issued a notice to clarify the adjusted approval procedures for resumption of chemical enterprises under suspension and rectification, as well as detailed and improved standards in six aspects—work safety, environmental protection, housing and urban-rural development, fire prevention, special equipment, occupational health—applied in approval checks.

Specifically, the notice requires on-site examination and re-examination of rectified chemical enterprises by departments of emergency management, housing and urban-rural development, and fire, at both county/district level and municipal level. Once a re-examination passed and approval gained from the leading group, government at county/district-level should arrange resumption in qualified enterprises.

### **Jiangxi Heyi to optimise pesticide TC & intermediate product structure**

Summary: Jiangxi Heyi planned a 15,200 t/a pesticide TC & intermediate relocation and upgrading project in the second factory in Jishan Ecological Industrial Park, in response to local government's call for relocation, transformation and upgrading of chemical enterprises along the Yangtze River. The company will also optimise its product structure with this project.

Early June, CCM learned from Jiangxi Heyi Chemical Co., Ltd. (Jiangxi Heyi) that it had launched a 15,200 t/a pesticide TC & intermediate relocation and upgrading project, following the local government's call for relocation, transformation and upgrading of chemical enterprises along the Yangtze River. The company plans to relocate some capacity to its second factory in Jishan Ecological Industrial Park and expand capacity for dithianon TC, ethirimol TC, procymidone TC, cyromazine TC, dimetachlone TC, sulfentrazone TC. It also put forward new construction of capacity for clethodim TC. By doing so, Jiangxi Heyi can also improve its product structure.

Jiangxi Heyi's old factory is also in Jishan Ecological Industrial Park, Jiujiang City, Jiangxi Province. Through years' development, the factory accommodates production lines for a variety of pesticide technical, formulation products and pesticide intermediates, mainly including:

- TC products: 4,000 t/a Metamitron, 1,500 t/a iprodione, 1,500 t/a copper oxychloride, 1,000 t/a fosamine, 800 t/a sulfentrazone, 700 t/a dithianon, 300 t/a ethirimol, 300 t/a cyromazine, 300 t/a procymidone, 300 t/a bismethiazol and 200 t/a dimetachlone;





- Formulation products: 10,000 t/a;
- Intermediates: 3,000 t/a 3,5-Dichloroaniline, 3,000 t/a methyl 2-chloropropionate, 1,000 t/a ethyl 2-chloropropionate and 500 t/a 2-chloropropionic acid.

Yet the old factory is so close to the Yangtze River; it will soon no longer be suitable for production and processing of pesticide technical products and intermediates, as per work plan for relocation, transformation and upgrading of chemical enterprises along the Yangtze River released by local government. Production capacity for pesticide formulation products can keep operating though. So Jiangxi Heyi wanted to set up a second production base to continue the technical & intermediate business. It has acquired the right to use a piece of land adjacent to the south end of its old factory. The land is outside the 1km range away from the river, and is eligible to be a home to the relocated production lines.

**TABLE 1:** Product structure and capacity change proposed in Jiangxi Heyi's 15,200 t/a project

Activity	Product	Capacity before, t/a	Capacity after, t/a
Expansion	Dithianon TC	700	1,800
	Sulfentrazone TC	800	1,000
	Procymidone TC	300	800
	Ethirimol TC	300	500
	Cyromazine TC	300	500
	Dimetachlone TC	200	500
Cut-down	Iprodione TC	1,500	1,000
	Copper oxychloride TC	1,500	500
	3,5-Dichloroaniline	3,000	2,000
	2-Chloropropionic acid, methyl 2-chloropropionate, ethyl 2-chloropropionate	4,500	3,000
Phase-out	Metamitron TC	4,000	0
	Fosamine TC	1,000	0
	Bismerthiazol TC	300	0
New construction	Clethodim TC	/	2,000
	1,4-Naphthoquinone	/	1,500

Source: Jiangxi Heyi Chemical Co., Ltd. & CCM







Jiangxi Heyi's 15,200 t/a pesticide TC & intermediate project is deemed in accordance with related policies rolled out by local government. The project has been filed on record in Pengze County Bureau of Industry and Information Technology, and Jiangxi Heyi is currently going through other formalities necessary for project commencement.

In the future, along with the new lines going into operation, Jiangxi Heyi will stop using the production equipment of pesticides TC & intermediates in its old factory, leaving only production capacity for pesticide formulation products and water-soluble fertilisers operating there.

### **Shandong Exceris to build trifluralin TC capacity**

Summary: Shandong Exceris has planned a 10,000 t/a trifluralin TC project, in order to extend its reach along the 4-chlorobenzotrifluoride industrial chain and increase its presence in pesticide business.

Shandong Exceris Chemical Co., Ltd. (Shandong Exceris) has planned to build 10,000 t/a trifluralin TC production capacity. The project is on the to-be-approved list as per an announcement made by local authorities on mid-May. Trifluralin is a downstream product of 4-chlorobenzotrifluoride, and Shandong Exceris has 5,000 t/a 4-chlorobenzotrifluoride production capacity. No wonder the company wants to extend its reach to the downstream sector to increase added value of its products. The move can also strengthen its presence in pesticide business and therefore facilitate its sustainable development in the long run. Once the project finished, Shandong Exceris, with large-scale capacity of trifluralin as well as of the upstream material 4-chlorobenzotrifluoride, will hold quite an obvious advantage over other competing trifluralin producers.

Shandong Exceris is based in Bohai Chemical Industrial Park, Shouguang City, Shandong Province, mainly engaged in fine chemical and pesticide businesses. Besides 4-chlorobenzotrifluoride capacity, it has capacity of 5,000 t/a N-butyl chloride, 150 t/a cyromazine TC, 300 t/a cyromazine 10% SC, 100 t/a cyromazine 70% WP and some production devices for other pesticide formulation products.

As to cyromazine, there are limited producers of TC products in China. A big player is Jiangxi Heyi Chemical Co., Ltd., which has capacity of 300 t/a TC, 500 t/a 75% WP and 500 t/a 75% WG.

As to trifluralin, it is a selective pre-emergence dinitroaniline herbicide controlling against annual gramineous weeds and some broadleaf weeds, applicable on cotton, soybean, rape, peanut and etc. To expand its application, this active ingredient can be mixed with other pesticides, such as imazamox, flufenacet, pretilachlor, fomesafen and glyphosate.

The new 10,000 t/a capacity will bring Shandong Exceris into the big-player group and change the present supply pattern. Currently, large trifluralin TC producers in China include Jiangsu Fengshan Group Co., Ltd. (Jiangsu Fengshan), Shandong Binnong Technology Co., Ltd. and Qingdao Hansen Biologic Science Co., Ltd.

Jiangsu Fengshan, in particular, holds 6,000 t/a trifluralin TC production capacity. The lines were run at high operating rates in recent





years (96.27% in 2018, 110.64% in 2020 and 102.71% 2021), except for a low rate of 28.82% in 2019 due to forced suspension caused by heating interruption and March explosion in Xiangshui County. The suspension started from April 2019 and ended in Oct. the same year; during this period, Jiangsu Fengshan carried out an extensive inspection and overhauled and upgraded its production lines.

At last, it should be pointed out that there are still some uncertainties over whether Shandong Exceris's trifluralin TC project could successfully go into operation. A series of government reviews and approvals should be went through, and moreover, registration certificate required by *Regulation on Pesticide Administration* must be acquired before its TC product appear on the market.

### **Jiangsu KingAgroot's novel herbicides project waits for acceptance check**

Summary: Construction has been completed of Jiangsu KingAgroot's industrialisation project concerning four self-developed herbicides TC and their derived formulation products. Currently, the project is at the stage of completion acceptance check. Products and their capacity planned are as the following: 200 t/a bipyrazone TC, 200 t/a cypirafluone TC, 200 t/a fenpyrazone TC, 400 t/a tripyrasulfone TC and 12,500 t/a formulation products based on the four active ingredients.

As of June, Construction has been completed of the industrialisation project concerning four newly-developed herbicides TC and their derived formulation products (here referred to as novel herbicides project) of Jiangsu KingAgroot Resistant Weeds Control Co., Ltd. (Jiangsu KingAgroot); trial operation has started in these lines and the project now awaits acceptance check. The four HPPD-inhibitor herbicides—tripyrasulfone, bipyrazone, cypirafluone and fenpyrazone—are all patented novel products self-developed by Qingdao KingAgroot Crop Protection Services Co., Ltd., parent company of Jiangsu KingAgroot. Fenpyrazone is used to control weeds in corn field, tripyrasulfone targets against weeds in rice paddy, and bipyrazone and cypirafluone are for weed management in wheat field. At present, Jiangsu KingAgroot exclusively holds pesticide registrations for all products containing the four active ingredients in China.



**TABLE 2:** Product and capacity planned in Jiangsu KingAgroot's novel herbicides project

No.	Product	Designed capacity, t/a
1	25% Cypirafluone · isoproturon OD	4,000
2	25% Fenpyrazone · atrazine OD	2,500
3	10% Tripyrasulfone · anilofos OD	2,000
4	6% Cypirafluone OD	500
5	25% Cypirafluone · chlortoluron OD	500
6	6% Tripyrasulfone OD	500
7	28% Tripyrasulfone · propanil OD	500
8	22% Bipyrazone · fluroxypyr SE	500
9	10% Bipyrazone SE	500
10	15% Mesosulfuron-methyl · bipyrazone · fluroxypyr SE	500
11	6% Topramezone · bipyrazone SE	500
12	Tripyrasulfone TC	400
13	Bipyrazone TC	200
14	Cypirafluone TC	200
15	Fenpyrazone TC	200

Source: Jiangsu KingAgroot Resistant Weeds Control Co., Ltd.

Jiangsu KingAgroot, established in Dec. 2015, is located in Salt Chemicals & New Materials Industrial Park, Huai'an City, Jiangsu Province. The park is one of the specialised chemical parks positioned for pesticide production in Jiangsu, with full sets of utilities needed; it is also a rare park, under strict supervision in Jiangsu, that can still give approval to new project of pesticides encouraged in China. So far, Jiangsu KingAgroot has invested in two projects in this park—a 13,000 t/a environment-friendly herbicides project and the novel herbicides project.

The 13,000 t/a herbicides project went into normal production in 2020. All products planned in this project are formulation products. To improve product competitiveness and snatch more market share, Jiangsu KingAgroot decides to carry out technological transformation to the 13,000 t/a lines, expanding formulation types to AS, EC, EW, ME and SL, as well as enriching active ingredients and mixtures covered. On 19 April, 2022, Jiangsu KingAgroot acquired file record of the transformation project at economic development administration of



industrial parks of Huai'an City. Other formalities necessary for a project kick-off are currently under way.

**TABLE 3:** Product and capacity of Jiangsu KingAgroot's 13,000 t/a environment-friendly herbicides project

No.	Product	Capacity, t/a
1	Quizalofop-P-ethyl · fluoroglycofen-ethyl · glyphosate 33% OD	3,000
2	Mesotrione · atrazine 25% OD	1,000
3	Atrazine 25% OD	1,500
4	Cyhalofop-butyl 10% OD	1,000
5	Cyhalofop-butyl · quinclorac 17% OD	1,000
6	Florasulam · clodinafop-propargyl 7% OD	1,000
7	Glufosinate-ammonium · fluoroglycofen-ethyl 20% OD	1,000
8	Florasulam · mesosulfuron-methyl 1% OD	500
9	Florasulam · fluroxypyr-meptyl 16% SE	1,000
10	Florasulam · 2,4-D-ethylhexyl 469g/L SE	1,000
11	Mesotrione 10% SC	500
12	Bispyribac-sodium 10% SC	500

Source: Jiangsu KingAgroot Resistant Weeds Control Co., Ltd.

It should be mentioned that innovation on novel pesticides has been speeding up in China. Besides the four products developed aforementioned, novel herbicides self-developed by Chinese enterprises include but not limited to monosulfuron, monosulfuron ester, shuangjiaancaomi, pyribambenz-propyl, pyribambenz-isopropyl, Jialiumihuanglong, jjajikuicaotong, quinotrione, kuicaoxi. However, mass production of many of these innovative fruits cannot be followed up due to various reasons. This time, large-scale production lines for the four novel herbicides of Jiangsu KingAgroot, if put into operation successfully, lay a solid foundation for future herbicide variants based on these active ingredients. It will also set a good example for industrialisation of other novel pesticides in the future.



## Market analysis

### Most herbicides TC see quite stable price in June

Summary: Into June, prices of most herbicides TC were quite stable, mainly because of declined downstream demand. Propped up by cost, most herbicides TC saw their prices at a high level.

Into June, prices of most herbicides TC were quite stable. For one thing, herbicide technical market has gradually come to off-season, and the numbers of new orders dropped. For another, price of many upstream materials stayed high, so price of most herbicides TC was at a high level, experiencing YoY growth, though small MoM slip at the same time.

Price of triazine herbicides TC dropped slightly due to shrinking downstream orders. Sulfonylurea herbicides TC were in a similar situation, so many suppliers lowered their ex-works prices. Many amide herbicides TC saw the price decrease as downstream sectors did not stock them in large quantity.

Price of organophosphorus herbicides TC did see MoM increase. However, the downstream did not buy it. In mid- and late-June, ex-works price of organophosphorus herbicides TC stabilised. Florasulam TC price was supported by raw material cost, yet it started to decrease in late-June due to poor sales. Although ex-works price of diquat TK kept stable, the suppliers got few overseas orders. It is noteworthy that ex-works price of diuron TC reversed the previous downtrend due to tight supply.





TABLE 4: Ex-works prices of main herbicides TC in early June 2022

Category	Product	Content of active ingredient	Ex-works price on 8 June, RMB/t	USD/t	MoM change based on RMB
Triazine herbicides	Atrazine TC	97%	38,000	5,701	Down
	Ametryn TC	95%	48,000	7,202	Basically flat
Sulfonylurea herbicides	Nicosulfuron TC	95%	290,000	43,510	Down
	Quizalofop-P-ethyl TC	95%	220,000	33,008	Down
	Bensulfuron-methyl TC	96%	200,000	30,007	Basically flat
Amide herbicides	Pretilachlor TC	95%	47,750	7,164	Down
	Acetochlor TC	92%	42,500	6,376	Down
	Metolachlor TC	97%	52,000	7,802	Basically flat
Organophosphorus herbicides	Glufosinate-ammonium TC	95%	255,000	38,259	Up
	Glyphosate TC	95%	65,500	9,827	Up
Triazolo[1,5-a]pyrimidine-2-sulfonanilide herbicides	Florasulam TC	98%	520,000	78,018	Basically flat
Bipyridinium herbicides	Diquat TK	40%	58,000	8,702	Basically flat
Substituted phenylurea herbicides	Diuron TC	97%	45,500	6,827	Up

Source:CCM





## Import and export

### Overseas & substitute markets, the future for Chinese paraquat producers

Summary: This month, CCM learned from Nanjing Red Sun that its paraquat export volume in Q1 2022 was much the same as the amount exported in the same period last year. Overall, paraquat export volume from China in Q1 this year is estimated to experience a YoY dip. China's paraquat still has a future in overseas markets, but that will not stop domestic paraquat producers from looking for growth opportunities in paraquat substitute market.

Incomplete statistics show that paraquat export from China was at about 23,512.74 tonnes (actual volume, the same hereafter) in Q1 2022. If calculated with this figure, there is a -27% YoY decline. But part of export data in February and March will be updated later, the actual decline should be smaller. It is estimated that the Q1 export this year would decrease slightly from that in Q1 2021.

Nanjing Red Sun Co., Ltd. (Nanjing Red Sun) is the largest paraquat producer in China. In Q1 2022, the company experienced increases in export volume combined and export price of its main products, such as paraquat and diquat, which gave a positive push to its quarterly performance. Nanjing Red Sun exported 6,620.47 tonnes of paraquat products in the first three months, which did not change much from the figure recorded in the same period last year. The company also expressed that export in Q2 would go down due to COVID-19 resurgence in multiple cities in China, especially the longer-than-expected lockdown in Shanghai. The company has actively involved in communication with related parties and tried best to smooth the way towards stable export. As the COVID-19 situation in Shanghai eases, export from Nanjing Red Sun would quickly recover.

Supply-side reform and stricter environmental protection policies have been pushing further concentration of paraquat production capacity in China. Globally, paraquat capacity is around 67,500 t/a, but overall operating rate is not high. Syngenta's 10,000 t/a abroad has cut down production due to COVID situation, and so far this year only six domestic producers have their paraquat lines in operation. But Nanjing Red Sun still believes that paraquat, a non-selective, broad-spectrum contact herbicide, holds huge advantage over other herbicides, since it is cheap, fast and effective, rain-resistant unharmed to roots, deactivated in soil, and thus popular among farmers. Although many countries have banned its use, market demand for paraquat has remained quite stable. Reasons for the steadiness include:

- Cost effectiveness of paraquat products has become more prominent against price surges of other non-selective herbicides like glyphosate, glufosinate-ammonium and diquat. Raw materials for paraquat production are coal-based, prices of which have increased by smaller degrees.
- The US has exempted additional duties on paraquat products from China. Besides, pesticide application by drones is allowed in the US. These two factors have stimulated its demand for paraquat.
- There is rigid demand for the product in Southeast Asia, where weeds spread fast in rainy season. Bans are repeatedly introduced and repealed in countries like Malaysia and Thailand, because of objections to such bans from farmers, who cannot find easy alternatives.

It is worth mentioning that Chinese paraquat producers are accelerating their pace in building up capacity for substitutes to paraquat, beyond their competing with each other for more shares in overseas paraquat markets. With similar chemical properties, diquat is the





main alternative to paraquat. According to estimation by Nanjing Red Sun, in theory, a gap of over 30,000 tonnes (converted into 100% AI) is created along with paraquat ban in large consuming countries/regions like China and Brazil. The calculation is based on a peak demand for paraquat worldwide at some 80,000 tonnes (100% AI) or 260,000 tonnes (actual volume). As prices of glufosinate-ammonium and glyphosate are at a high level, diquat stands out with better cost effectiveness. Thus Nanjing Red Sun projects a promising future for diquat products. Its patented product diquat dichloride, with high efficacy and low cost, is a competent challenger to paraquat and diquat dibromide. The company has been speeding up overseas registration of this product with core competitiveness, aiming to fill the void left by paraquat. At present, other major diquat dibromide producers in China are Syngenta Nantong Crop Protection Co., Ltd., Weifang Luba Chemical Co., Ltd. and Yongnong BioSciences Co., Ltd.

**TABLE 5:** Export volume of paraquat products from China, Jan.–March 2022, tonne

Month	20% AS	25% AS	42% TK	Total
January	6,120.003	0.000	7,583.598	13,703.601
February	2,891.924	41.652	4,956.968	7,890.545
March	67.888	0.000	1,850.708	1,918.596
<b>Total</b>	<b>9,079.815</b>	<b>41.652</b>	<b>14,391.275</b>	<b>23,512.742</b>

Source:Tranalysis





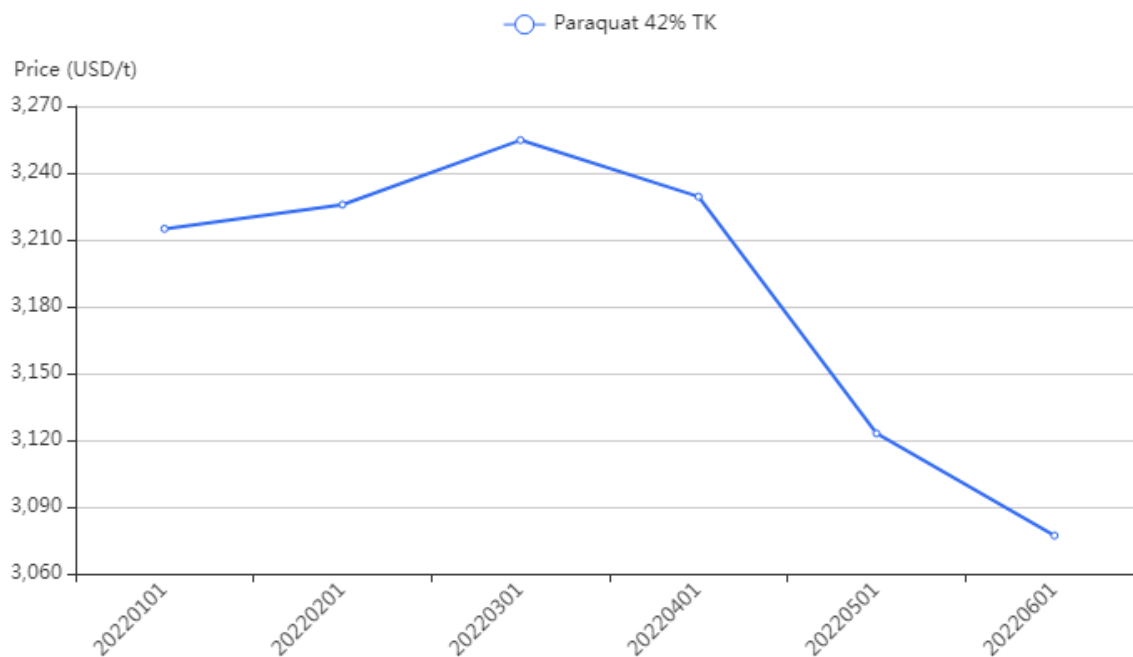


### Paraquat and Pyridine

#### FOB Price of paraquat TK drops in June

Summary: The FOB price of paraquat 42% TK was USD3,077.15/t in June, down by 1.47% MoM.

FIGURE 1: FOB price of paraquat 42% TK in China, Jan. 2022–June 2022



Source:CCM

#### Price of pure pyridine keeps stable in early June

Summary: According to CCM's price monitoring, the ex-works price of pure pyridine in early June was USD4,576.08/t (RMB30,500/t).





FIGURE 2: Ex-works price of pure pyridine in China, Jan. 2022–June 2022



Source:CCM





## Registration

### Jiangxi Heyi to re-acquire sulfentrazone TC registration certificate

Summary: Jiangxi Heyi will soon re-acquire sulfentrazone TC registration certificate, and this time not just export-only. The company once held an export-only registration for 94% sulfentrazone TC, which expired on 2 Dec., 2018.

In late April, the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA) released the fourth-batch list of pesticide products to be approved; the publicity period lasted from 29 April to 7 May. The list includes a 94% sulfentrazone TC product from Jiangxi Heyi Chemical Co., Ltd. (Jiangxi Heyi). The company once held an export-only registration for the product, which expired on 2 Dec., 2018. It is worth noting that this time, Jiangxi Heyi applied for a certificate not limited to export.

Sulfentrazone is a triazolone herbicide developed by FMC Corporation (FMC). It is of high efficacy, low toxicity and broad spectrum, mainly used in sugarcane field, and also applicable in fields of soybean, corn, sorghum, peanut, sunflower, etc. It can effectively remove and control annual broadleaf weeds, gramineous weeds and sedges; good results can be achieved in controlling difficult targets like morning glory, goosefoots, *Xanthium sibiricum* and *Cyperus rotundus*.

For a long time, sulfentrazone market has been dominated by FMC. But its sulfentrazone TC has been supplied by its business partners in China and India. Chinese producers like Jiangsu Lianhe Chemical Technology Co., Ltd., Jiangsu Baozong & Baoda Pharmaceutical Co., Ltd. and Oriental (Luzhou) Agrochemicals Co., Ltd. have signed long-term supply contract with FMC.

Jiangxi Heyi is not such a partner, but an early pioneer in self-developing sulfentrazone TC production technology. Jiangxi Heyi and its parent company Nutrichem Co., Ltd. won the case lodged by FMC, who claimed that they had infringed upon its patent rights on sulfentrazone. This success has paved the way for other domestic producers to enter the sulfentrazone market without facing infringement claims. In China, sulfentrazone has indeed become a popular herbicide, and will attract greater attention in the future.

Jiangxi Heyi is a high-tech enterprise mainly engaged in R&D, production and sale of pesticide products. It is located in Jishan Ecological Industrial Park, Jiujiang City, Jiangxi Province. The company boasts of 800 t/a sulfentrazone TC production capacity, but it suspended the lines since May 2017 due to adjustment of its development plan and some other factors, which also led to a decision to not extend the export-only registration.

The day Jiangxi Heyi re-acquires registration certificate of 94% sulfentrazone TC, means not just one more valid registered sulfentrazone TC product in China, but marks reinvigoration of this business line in Jiangxi Heyi.



**TABLE 6:** Registration of sulfentrazone TC products in China, as of June 2022

No.	Registrant	Product	Expiry date
1	Oriental (Luzhou) Agrochemicals Co., Ltd.	95% Sulfentrazone TC	2027/8/20
2	FMC Corporation	91% Sulfentrazone TC	2027/2/9
3	Changzhou August Agrochem Co., Ltd.	97% Sulfentrazone TC	2023/8/20
4	Jiangsu Agrochem Laboratory Co., Ltd.	97% Sulfentrazone TC	2023/7/23
5	Ningxia Gerui Fine Chemical Co., Ltd.	94% Sulfentrazone TC	2023/6/27
6	Jiangsu Repont Agrochemical Co., Ltd.	95% Sulfentrazone TC	2023/4/17
7	Jiangsu Lianhe Chemical Technology Co., Ltd.	91% Sulfentrazone TC	2023/3/11
8	Jiangsu Baozong & Baoda Pharmaceutical Co., Ltd.	91% Sulfentrazone TC	2023/3/11

Source: ICAMA



## Policy

### **Notice of Further Promoting Involvement of New Energy Storage in Electricity Market and in Power Dispatching released**

Summary: On 7 June, NDRC General Office and NEA Comprehensive Department jointly issued the Notice of Further Promoting Involvement of New Energy Storage in Electricity Market and in Power Dispatching. The document calls for establishment of a market mechanism taking into consideration the participation of energy storage, improvement of power dispatching and management mechanism, full use of energy storage technology, and encourages involvement of new energy storage in national electricity market and better utilisation of energy stored. In the process, market-oriented price strategy must be followed and reasonable profits from energy storage programs guaranteed. All these aim at facilitating healthy development of the energy storage industry.

On 7 June, General Office of National Development and Reform Commission (NDRC) and Comprehensive Department of the National Energy Administration (NEA) jointly issued the Notice of Further Promoting Involvement of New Energy Storage in Electricity Market and in Power Dispatching. The notice further clarifies market positioning of new energy storage, calls for establishment and improvement of related market mechanism, pricing mechanism and operating mechanism, and increased utilisation of new energy storage programs, and it guides the industry onto a healthy development path. New energy storage has advantages of rapid response, flexible site selection and short construction cycle. It can play a role in peak-load power supply, peak shaving, frequency regulation, power ramping, black start, so it serves an important integral part in a new-type power system. Thus a market mechanism accommodating new energy storage should be set up. Meanwhile, the government encourages involvement of new energy storage in national electricity market, improvement of power dispatching and management mechanism, and better utilisation of energy stored. Energy storage technology should be made full use of, market-oriented pricing strategy be followed, and reasonable profits from energy storage programs guaranteed. Eventually, a healthy development of the industry will come along.

This time, new energy storage is allowed to participate as a standalone energy storage force in domestic electricity market. The government encourages construction of new energy storage projects to support other regional power sources and help regulate the peak-load. Standalone new energy storage operators can provide ancillary services via taking full advantage of their technological advances. Domestic power dispatching and management mechanism shall be optimised, and a market-oriented mechanism is preferred in most of the time. Development of user-side energy storage is much advocated. As to national power grids, pricing mechanism is to be probed into in their own supporting standalone energy storage stations. Local governments and governing companies shall formulate related policies, provide guidance and technical support, and work out supervision measures. Specifically, detailed work plans based on current situation of new energy storage development in each provincial region and large SOE in this sector shall be worked out and the implementation watched for; relevant planning results and progresses shall be submitted to the NDRC and the NEA before 30 Sept., 2022.

Due attention should be paid to participation of standalone energy storage in mid- and long-term market and in spot market, progress of which is to be accelerated, as the document says. Currently, storage capacity of such programs is quite small, so contracts for peak-load and low-load supplement are encouraged with standalone storage operators, to assist in load shifting and peak-load supply. For standalone storage stations delivering electricity to national power grid, they shall be exempted from transmission and distribution price,





governmental fund and additional for the electricity transmitted. And according to the Measures for the Administration of Electricity Ancillary Services, the cost generated shall be shouldered by grid-connected entities and power consumers. It requires local governments to broaden price gap between the peak-load and low-load to an extent appropriate for their actual supply-demand dynamics of electricity, which will leave room for the development of user-side energy storage. A similar tactic—further widening the gap between price ceiling and bottom in mid- and long-term market and in spot market—is welcomed, which could arouse users' interest in installing new energy storage devices with greater profits. Users are also advised to adopt such technology to reduce their demand in peak time, so that some investment in capacity increment could be saved.





## News in Brief

### Zhejiang Wynca to put 3kt/a glufosinate-ammonium TC lines into production

In late May, Zhejiang Wynca Chemical Industrial Group Co., Ltd. (Zhejiang Wynca) disclosed that the company had completed construction of the Ningxia-based 3,000 t/a glufosinate-ammonium TC project (phase I) and put the lines into a trial run. Normal production is expected soon.

Zhejiang Wynca has been enriching its agrochemical product portfolio, starting from the herbicide glyphosate and extending to glufosinate-ammonium, diuron and etc. Its business lines consist of herbicides, insecticides, fungicides, biological control products and etc. Recently, the company has been vigorously accelerating construction of the glufosinate-ammonium and key intermediates project of Ningxia Wynca Technology Co., Ltd., one of its holding subsidiaries. Zhejiang Wynca has also been strengthening its presence in the US and Brazilian markets.

### ISO approves common names of three herbicide AIs developed by Chinese companies

In June, common names of three herbicide active ingredients (AI) developed by Chinese enterprises were granted provisional approval by the International Organization for Standardization (ISO). Two AIs, "Fulvancaozhi" (common name: fluchloraminopyr) and "Fucaoding" (flufenoximacil), were developed by Qingdao KingAgroot Crop Science Co., Ltd. And the third one, "Fumidingcaomi" (pyriflubenzoxim), was developed by Jiangsu Agrochem Laboratory Co., Ltd.

### Stakeholders in paraquat business successfully defend themselves

The tenth meeting of the Conference of the Parties to the Rotterdam Convention was held in Geneva, Switzerland from 6 June to 17 June. Chinese paraquat producers, represented by Sino-Agri Red Sun Bio-Technology Co., Ltd., in collaboration with customers across the globe, have elaborated the prominent contribution and irreplaceability of paraquat in ensuring global food security. Keeping paraquat out of Appendix III this time is a successful defence launched by these stakeholders.

### Fluroxypyr TC in short supply so its price increases

In June, fluroxypyr TC was in short supply in the market; spot goods were also rare in the producers. According to many producers, production was arranged to fulfil existing orders and the earliest delivery time for a new order was half a month later. During the month, the ex-works price of fluroxypyr TC in China increased.

### China issues new plan to boost synergy of pollution and carbon emission reduction

In mid-June, the Ministry of Ecology and Environment of the People's Republic of China, in collaboration with other six departments, jointly issued the *Implementation Plan for Boosting Synergy of Reducing Pollution and Carbon Emissions*. The document suggests that coordinated advances in pollution reduction and carbon emission reduction should be basically fostered by 2025 and a significant synergy of the two reductions be accomplished by 2030.

The implementation plan puts forward major measures focusing on six main aspects:





- Ramp up source control: Efforts should be made to reinforce zoning control of ecological environment, strengthen access administration, beef up the transition toward green & low-carbon energy, encourage green ways of living, and etc.;
- Highlight key fields: Advancement in synergy of the two reductions should be first pursued in industrial field, transportation, urban-rural development, agriculture, ecological construction;
- Optimise environmental management: More work should be done to push forward a synergistic control in treatment of atmospheric, water, soil, solid waste pollution;
- Innovate methods to foster such a synergy: Related governments should lead and encourage exploration of ways to achieve better synergy in major or strategic geographic regions, pilot cities, industrial parks and enterprises in key industries;
- Scale up the supporting capability: Greater attention should be paid to reinforcing R&D and application of related technologies, improving relevant financial policies and standards, and shoring up monitoring, management, supervision and review;
- Bolster the implementation capability: Related governments at all levels should shoulder their due responsibilities, increase publicity and education activities, develop international cooperation, and establish an evaluation system responding to new requirements on such a synergy.

### **Climatic anomaly to increase in China in July and Aug.**

It is expected that in the July-Aug. period of 2022 China will suffer more severe droughts and floods, experience larger number of extreme weather events and greater intraseasonal climatic variability, the National Climate Center said in late June. Details are as follows:

- Regions with heavy rainfall: the southern part of Northeast China, North China, the eastern part of Northwest China, the northern parts of East China and Central China, most of South China and Southwest China, and the southern part of the Tibet Autonomous Region. Therefore, these areas would be stricken harder by floods;
- Regions with low precipitation: the western part of Northwest China (including the Xinjiang Uygur Autonomous Region), the central and southern parts of East China, and the central part of Central China. These areas may be affected by fits of droughts. More high-temperature days will be witnessed in Xinjiang, East China and Central China, where periodical heat waves will visit.

Into 2022, since the spring, the summer monsoon in the South China Sea and main rainy seasons in different parts of China (the pre-flood season in South China, rainy season in Southwest China, and plum rain seasons in the middle and lower reaches of Yangtze River and the Yangtze River basin) have come earlier than usual, affected by the La Nina conditions in central and eastern equatorial Pacific Ocean. Other than La Nina, various factors also contributes to climatic anomaly in China, including sea surface temperature changes in the Indian Ocean and Atlantic Ocean, changes to snow cover, polar ice and etc.

### **Ningxia Gerui remains under production suspension**

As of late June, Ningxia Gerui Fine Chemical Co. Ltd. (Ningxia Gerui), a holding subsidiary of Shandong Weifang Rainbow Chemical Co., Ltd. (Weifang Rainbow), had remained in production suspension. Ningxia Gerui mainly produces propanil TC and ametryn TC. With short supply of propanil TC in the market, the product's ex-works price has been set higher. But the ex-works price of ametryn TC has maintained stable due to weak downstream demand.

According to Weifang Rainbow, production resumption in Ningxia Gerui has not been decided yet. But the company would satisfy customers' needs via boosting outsourcing.

In late May, an accident causing two deaths occurred when two workers hired by an outside contractor of Ningxia Gerui were repairing a







breather valve of a wastewater storage tank. The accident forced Ningxia Gerui into production suspension and workplace safety check. The company now fully cooperates with relevant authorities in investigation and analysis of the cause. To date, details of the accident are still under investigation.

### **ADAMA rolls out pre-emergent herbicide for soybean in Brazil**

In late June, ADAMA Ltd. (ADAMA) rolled out in the Brazilian market Apresa (4.2% flumioxazin and 84% S-metolachlor OD), a pre-emergent herbicide for soybean. The mixture is exclusively held by ADAMA.

Nowadays, soybean has become ever more vulnerable to the weeds *Digitaria insularis* and *Eleusine indica*, which rank among top invaders to soybean in Brazil as they can inhibit proper growth of soybean. Therefore, if soybean growers wanted to avoid losses induced by such weeds, effective pre-emergent management was vital, as ADAMA pointed out. Otherwise, the weeds will negatively impact the crop over the whole growth period, especially the early stage. For instance, *Digitaria insularis* alone could cause as much as 45% productivity losses.

### **FMC launches Boral Full against weeds in sugarcane field**

In June, FMC Corporation (FMC) debuted Boral Full at the 21st edition of Herbishow. Boral Full is an upgraded product in the company's Boral series, taking up a new formulation form. With innovative mixture of active ingredients sulfentrazone and tebuthiuron, the product can control broad-spectrum broadleaf weeds and narrow-leaf weeds. As per FMC, this selective pesticide, flexible and user-friendly in application, has the potential to become one of the most popular products enjoying great sales volume. In addition, FMC has always been devoting serious energy to boosting sugarcane production, and much innovating efforts have been focused on sugarcane. The company strives to be a partner to sugarcane industry in achieving more efficient management.

### **Ex-works price and output of nicosulfuron TC decline in June**

Ex-works price of nicosulfuron TC further declined in late June, registering a 3%–4% decrease from that in early June. This month, two nicosulfuron TC producers, Zibo Nab Agrochemicals Limited and Anhui Huaxing Chemical Industry Co., Ltd., have maintained normal operation. However, facing a glut of the product in the market and increasing pressure on sales, the two lowered their operating rates.





## Price Update

## Ex-works prices of key herbicide raw materials in China, 8 June, 2022

TABLE 7: Ex-works prices of key herbicide raw materials in China, 8 June, 2022

Raw Materials	20220508		20220608	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
98% Glycine	21,000	3,197.71	19,000	2,850.67
92% Iminodiacetonitrile	9,300	1,416.13	9,300	1,395.33
99% Isopropylamine	9,550	1,454.2	9,550	1,432.84
98% N-(Phosphonmethyl) Iminodiacetic acid	39,000	5,938.6	39,000	5,851.38
99% Phosphorus trichloride	11,100	1,690.22	10,830	1,624.88
99.9% Pyridine	30,500	4,644.29	30,500	4,576.08

Note: Ex-works price includes VAT.

Source: CCM

## Ex-works prices of main herbicides in China, 8 June, 2022



**TABLE 8:** Ex-works prices of main herbicides in China, 8 June, 2022

Product	20220508		20220608	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
92% Acetochlor technical	45,000	6,852.24	42,500	6,376.5
97% Atrazine technical	39,000	5,938.6	38,000	5,701.34
96% Bensulfuron-methyl technical	200,000	30,454.38	200,000	30,007.05
92% Butachlor technical	45,000	6,852.24	41,000	6,151.45
95% Clomazone technical	118,000	17,968.08	115,000	17,254.05
95% Cyhalofop-butyl technical	200,000	30,454.38	188,000	28,206.63
97% Diuron technical	43,000	6,547.69	45,500	6,826.6
98% Fenclorim technical	160,000	24,363.5	160,000	24,005.64
95% Fenoxaprop-P-ethyl technical	190,000	28,931.66	190,000	28,506.7
96% Fluroxypyr technical	175,000	26,647.58	175,000	26,256.17
95% Fomesafen technical	142,000	21,622.61	142,000	21,305.01
95% Glufosinate ammonium technical	240,000	36,545.26	256,500	38,484.04
95% Glyphosate technical	65,000	9,897.67	65,300	9,797.3
95% Haloxyfop-P-methyl technical	235,000	35,783.9	230,000	34,508.11
97% Metolachlor technical	52,000	7,918.14	52,000	7,801.83
95% Metsulfuron-methyl technical	135,000	20,556.71	135,000	20,254.76
95% Nicosulfuron technical	310,000	47,204.29	290,000	43,510.22
97% Oxyfluorfen technical	244,000	37,154.34	240,000	36,008.46
95% Pendimethalin technical	63,500	9,669.27	63,500	9,527.24
95% Pretilachlor technical	48,500	7,385.19	48,500	7,276.71
97% Pyrazosulfuron-ethyl technical	300,000	45,681.57	300,000	45,010.58
80% Quinclorac technical	136,200	20,739.43	134,500	20,179.74



95% Quizalofop-P-ethyl technical	230,000	35,022.54	220,000	33,007.76
95% Tribenuron-methyl technical	160,000	24,363.5	155,000	23,255.47
95% Trifluralin technical	40,000	6,090.88	38,000	5,701.34

Note: Ex-works price includes VAT.

Source: CCM

### Shanghai Port prices of main herbicides in China, 8 June, 2022



TABLE 9: Shanghai Port prices of main herbicides in China, 8 June, 2022

Product	20220508		20220608	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
92% Acetochlor technical	45,500	6,928.37	43,000	6,451.52
97% Atrazine technical	39,500	6,014.74	38,500	5,776.36
96% Bensulfuron-methyl technical	200,500	30,530.52	200,500	30,082.07
92% Butachlor technical	45,500	6,928.37	41,500	6,226.46
95% Clomazone technical	118,500	18,044.22	115,500	17,329.07
95% Cyhalofop-butyl technical	200,500	30,530.52	188,500	28,281.65
97% Diuron technical	43,500	6,623.83	46,000	6,901.62
98% Fenclorim technical	160,500	24,439.64	160,500	24,080.66
95% Fenoxaprop-P-ethyl technical	190,500	29,007.8	190,500	28,581.72
96% Fluroxypyr technical	175,500	26,723.72	175,500	26,331.19
95% Fomesafen technical	142,500	21,698.75	142,500	21,380.02
95% Glufosinate ammonium technical	240,500	36,621.39	257,000	38,559.06
95% Glyphosate technical	65,500	9,973.81	65,800	9,872.32
95% Haloxyfop-P-methyl technical	235,500	35,860.03	230,500	34,583.13
97% Metolachlor technical	52,500	7,994.27	52,500	7,876.85
95% Metsulfuron-methyl technical	135,500	20,632.84	135,500	20,329.78
95% Nicosulfuron technical	310,500	47,280.42	290,500	43,585.24
97% Oxyfluorfen technical	244,500	37,230.48	240,500	36,083.48
95% Pendimethalin technical	64,000	9,745.4	64,000	9,602.26
95% Pretilachlor technical	49,000	7,461.32	49,000	7,351.73
97% Pyrazosulfuron-ethyl technical	300,500	45,757.7	300,500	45,085.6
80% Quinclorac technical	136,700	20,815.57	135,000	20,254.76



95% Quizalofop-P-ethyl technical	230,500	35,098.67	220,500	33,082.77
95% Tribenuron-methyl technical	160,500	24,439.64	155,500	23,330.48
95% Trifluralin technical	40,500	6,167.01	38,500	5,776.36

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

*Source: CCM*

### FOB Shanghai prices of main herbicides in China, 8 June, 2022





TABLE 10: FOB Shanghai prices of main herbicides in China, 8 June, 2022, USD/t

Product	20220508	20220608
92% Acetochlor technical	6,825.05	6,360.04
97% Atrazine technical	5,732.13	5,507.2
96% Bensulfuron-methyl technical	29,777.59	29,340.21
92% Butachlor technical	6,825.05	6,141.18
95% Clomazone technical	17,634.96	16,938.21
95% Cyhalofop-butyl technical	28,729.23	26,618.35
97% Diuron technical	6,528.89	6,797.75
98% Fenclorim technical	23,854.36	23,503.97
95% Fenoxaprop-P-ethyl technical	28,296.78	27,881.15
96% Fluroxypyr technical	26,075.57	25,692.56
95% Fomesafen technical	21,188.9	20,877.67
95% Glufosinate ammonium technical	34,442.8	36,259.11
95% Glyphosate technical	10,652.94	10,544.18
95% Haloxyfop-P-methyl technical	34,960.43	33,717.38
97% Metolachlor technical	7,861.62	7,746.14
95% Metsulfuron-methyl technical	20,152.33	19,856.33
95% Nicosulfuron technical	46,066.5	42,471.73
97% Oxyfluorfen technical	35,014.15	33,936.89
Paraquat 42% TK	3,123.03	3,077.15
95% Pendimethalin technical	9,564.55	9,424.06
95% Pretilachlor technical	7,343.33	7,235.47
97% Pyrazosulfuron-ethyl technical	44,585.69	43,930.79
80% Quinclorac technical	20,330.03	19,783.37





95% Quizalofop-P-ethyl technical	34,220.02	32,258.32
95% Tribenuron-methyl technical	23,854.36	22,774.44
95% Trifluralin technical	5,874.97	5,507.2

*Note: FOB Shanghai price considers factors of Shanghai port price, port sur-charges, loading charges, traders' profits and export tax refund. And the shipment cost shall be paid by the buyer. This FOB price is the average of quotations offered by enterprises and it may be lower than the one reported in customs data which is the actual purchase price.*

*Source: CCM*





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