

Herbicides China Monthly Report 202307

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Headline

In early July, many herbicides TC had stable price, but some others saw continued price fall. The price of glyphosate TC jumped up over 10% MoM, while the price of glufosinate-ammonium TC went down further.

In late July, prices of the majority of herbicides TC stabilised. On a half-month basis, the prices of glufosinate-ammonium TC and acetochlor TC dipped, while the price of glyphosate TC increased by some 5%. In July, glyphosate TC price enjoyed a 17.96% MoM jump.

In late June, Weifang Rainbow announced that it planned to issue shares to raise a fund no more than USD340.52 million to construct projects including 8,000 t/a clethodim project, 60,000 t/a green continuous-process 2,4-D and 2,4-D-ethylhexyl project, 1,000 t/a clopyralid project and 1,000 t/a flumioxazin project.

On 28 June, the EI report of the phase I program of Shandong Yonghao's project, which involves 2,000 t/a pesticide intermediates, 8,200 t/a pharmaceutical intermediates, etc., was published by local government. The phase I program will build 1,000 t/a pyroxasulfone production lines and supporting facilities.

On 7 July, first-time publication of basic EIA information of Jiangxi Heyi's 7,000 t/a high-efficacy low-toxicity pesticide TC project was released by local government. The company has planned to build capacity for multiple high-efficacy low-toxicity pesticides, including 1,000 t/a picloram and 600 t/a clopyralid.

According to the latest development plan of Rudong MAX, it will reduce the mesotrione TC capacity, which is still under construction, to 250 t/a from the originally planned 500 t/a.

On 30 June, Shanxi Province issued its provincial implementation plan for carbon emission reduction and carbon sequestration in agriculture and rural areas, to foster the establishment of a green and low-carbon development pattern in agriculture sector and rural areas. The plan provides guidance and points out future directions for green energy-saving agricultural machinery, use reduction and efficacy enhancement of fertilisers, improvement of the carbon sink croplands, utilisation of renewable energies, scientific and technological innovation, etc.

In H1 2023, the Department of Agrochemical Management of MARA altogether approved the registration of 167 herbicide products, which include 13 TC products and 4 TK products. Top four forms are OD, EC, SL and SC. The majority of the products are of low toxicity.

In early July, the FOB price of paraquat 42% TK in China dropped by 10.71% MoM, and the ex-works price of pure pyridine in China edged down by 5.26% MoM. The prices of paraquat and pyridine are expected to continue the downtrend in the short term.

In April–May 2023, China's herbicide formulations were mainly exported to Brazil, Ghana, Thailand, Nigeria, etc.; the export volume declined by some 17% YoY. However, import volume of herbicide formulations to China increased by some 26% YoY in this period. A great majority of these products were imported from Malaysia.







Editor's note

In July, prices of the majority of main herbicides TC CCM investigated kept stable. The prices of quizalofop-P-ethyl TC, glufosinate-ammonium TC and acetochlor TC dropped slightly, and the price of diquat TK had a bigger MoM decrease. But the price of glyphosate TC recovered quickly.

Overall, downstream demand for herbicides remained dull and new orders came mainly to supplement stock for current needs. Slow trading in the market deserves a cautious attitude. However, an increasingly buoyant glyphosate market has been witnessed, as overseas demand for glyphosate TC expanded in the midst of relatively restricted supplies by domestic producers.

Although herbicide market has been weak, some enterprises still announced new projects, aiming for larger market benefits. Weifang Rainbow has planned to raise funds to construct several herbicide projects. Jiangxi Heyi has planned a pesticide TC project, which involves herbicides picloram, clopyralid, etc. And Shandong Yonghao has launched a phase I program, which would build 1,000 t/a pyroxasulfone production lines. Yet it should also be noted that Rudong MAX has decided to slash the capacity for mesotrione TC that is currently under construction.

In terms of policy, the Shanxi government issued its provincial implementation plan for carbon emission reduction and carbon sequestration in agriculture and rural areas. The document has provided guidance on and pointed out future directions for multiple aspects, including: agricultural machinery, use reduction and efficacy enhancement of fertilisers, cropland quality improvement, use of renewable energies, scientific and technological innovation, etc.

The USD/CNY exchange rate in this newsletter is USD1.00 = CNY7.2157 on 3 July, 2023, sourced from the People's Bank of China. All the prices mentioned in this newsletter will include the VAT, unless otherwise specified.





Market analysis

Glyphosate price jumps and prices of some herbicides stabilise in early July

Summary: In early July, many herbicides TC had stable price, but some others saw continued price fall. The price of glyphosate TC jumped up over 10% MoM, while the price of glufosinate-ammonium TC went down further.

In early July, many herbicides TC had stable price. Prices of some TC products still went down, such as quizalofop-P-ethyl TC and glufosinate-ammonium TC. However, the price of glyphosate TC increased by 13.64% MoM, as overseas demand recovered and market inventory was consumed at faster pace.

Of the main herbicides TC CCM investigated, triazine herbicides, and most sulfonylurea herbicides and amide herbicides had stable price, except a 4.94% MoM decline in the price of quizalofop-P-ethyl TC and a 1.67% MoM slip in the price of acetochlor TC.

As for organophosphorus herbicides, the price of glyphosate TC jumped up over 10% MoM, while the price of glufosinate-ammonium TC went further down by 8.87% MoM. Overseas demand for glyphosate recovered, but production in some domestic glyphosate producers was restricted; glyphosate inventory in the market thus reduced obviously. Glufosinate-ammonium inventory, in contrast, remained at a high level. Downstream demand was weak and orders were made mainly to meet current needs.

The ex-works price of florasulam TC remained steady. The price of diuron TC dipped by 2.56% MoM. However, diquat TK continued its price tumble in a dull market, down 15.25% MoM.





TABLE 1: Ex-works prices of main herbicides TC in early July 2023

Category	Product	Content of active ingredient	Ex-works price in early July, RMB/t	USD/t	MoM change (based on RMB price)
Triazine herbicide	Atrazine TC	97%	36,000	4,989.12	Basically flat
	Ametryn TC	95%	44,500	6,167.11	Basically flat
Sulfonylurea herbicide	Nicosulfuron TC	95%	193,000	26,747.23	Basically flat
	Quizalofop-P-ethyl TC	95%	192,500	26,677.94	Down
	Bensulfuron-methyl TC	96%	165,000	22,866.80	Basically flat
Amide herbicide	Pretilachlor TC	95%	33,800	4,684.23	Basically flat
	Acetochlor TC	92%	29,500	4,088.31	Down
	Metolachlor TC	97%	50,000	6,929.33	Basically flat
Organophosphorus herbicide	Glufosinate-ammonium TC	95%	64,700	8,966.56	Down
	Glyphosate TC	95%	27,500	3,811.13	Up
Triazolopyrimidine sulfonamide herbicide	Florasulam TC	98%	457,900	63,458.85	Basically flat
Bipyridinium herbicide	Diquat TK	40%	25,000	3,464.67	Down
Substituted phenylurea herbicide	Diuron TC	97%	38,000	5,266.29	Down

Source: CCM

Glyphosate price goes up continuously in late July

Summary: In late July, prices of the majority of herbicides TC stabilised. On a half-month basis, the prices of glufosinate-ammonium TC and acetochlor TC dipped, while the price of glyphosate TC increased by some 5%. In July, glyphosate TC price enjoyed a 17.96% MoM jump.

Compared with the prices recorded in early July, in late July, TC products of triazine herbicides, sulfonylurea herbicides and most amide herbicides maintained a stable price, while the prices of glufosinate-ammonium TC and acetochlor TC dropped slightly. Glyphosate TC price, on the contrary, increased by 5.09% from the early-July-level, mainly due to recovered overseas demand and low operating rate in domestic manufacturers.





On a monthly basis, of the main herbicides TC CCM investigated, triazine herbicides, and most sulfonylurea and amide herbicides maintained a stable price in late July, except a 4.94% MoM decline in the price of quizalofop-P-ethyl TC and a 3.33% MoM slip in the price of acetochlor TC.

As for organophosphorus herbicides, the price of glyphosate TC reached USD4,005/t (RMB28,900/t), a jump of 17.96% MoM. Recovering overseas demand, combined with restricted production in some domestic producers has facilitated a pickup in glyphosate market. However, the price of glufosinate-ammonium TC went down by 5.22% MoM to USD8,800/t (RMB63,500/t). Market inventory of this product remained at a high level, as downstream demand was weak and orders were made mainly to meet current needs.

The ex-works prices of florasulam TC and diuron TC remained steady, but diquat TK price continued its price fall in a dull market, down 9.09% MoM.

TABLE 2: Ex-works prices of main herbicides TC in late July 2023

Category	Product	Content of active ingredient	Ex-works price in late July, RMB/t	USD/t	MoM change (based on RMB price)
Triazine herbicide	Atrazine TC	97%	36,000	4,989.12	Basically flat
	Ametryn TC	95%	44,500	6,167.11	Basically flat
Sulfonylurea herbicide	Nicosulfuron TC	95%	193,000	26,747.23	Basically flat
	Quizalofop-P-ethyl TC	95%	192,500	26,677.94	Down
	Bensulfuron-methyl TC	96%	165,000	22,866.80	Basically flat
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Organophosphorus herbicide	Glufosinate-ammonium TC	95%	63,500	8,800.25	Down
	Glyphosate TC	95%	28,900	4,005.16	Up
Triazolopyrimidine sulfonamide herbicide	Florasulam TC	98%	457,900	63,458.85	Basically flat
Bipyridinium herbicide	Diquat TK	40%	25,000	3,464.67	Down
Substituted phenylurea herbicide	Diuron TC	97%	38,000	5,266.29	Basically flat





Source:CCM





Company and supply

Weifang Rainbow plans to issue shares to raise fund for several herbicide projects

Summary: In late June, Weifang Rainbow announced that it planned to issue shares to raise a fund no more than USD340.52 million to construct projects including 8,000 t/a clethodim project, 60,000 t/a green continuous-process 2,4-D and 2,4-D-ethylhexyl project, 1,000 t/a clopyralid project and 1,000 t/a flumioxazin project.

In late June, Shandong Weifang Rainbow Chemical Co., Ltd. (Weifang Rainbow) published a prospectus for the issuance of A-shares to specific targets and listing on the ChiNext Market. The company has intended to raise no more than USD340.52 million (RMB2,457.12 million) through the share issuance, and the fund will be used to construct five projects and serve as supplementary working capital.

TABLE 3: Planned investment in Weifang Rainbow's new projects

No.	Project	Investment, million USD	Planned use of raised fund, million USD
1	8,000 t/a Clethodim project	110.60	101.68
2	60,000 t/a Green continuous-process 2,4-D and 2,4-D-ethylhexyl project	105.65	100.03
3	1,000 t/a Clopyralid project	25.34	23.89
4	1,000 t/a Flumioxazin project	36.05	34.02
5	Global operation digital management upgrade project	20.47	19.92
6	Supplementary working capital	60.99	60.99
Total		359.09	340.52

Source: Weifang Rainbow's prospectus concerning the issuance of A-shares filed in late June 2023

For the projects No.1 and No.2, Weifang Rainbow will make use of technologies and processes adopted in previous production of these products and its accumulated advanced technical fruits in recent years, and expand production capacity featured with green and continuous process. At present, the company has active capacity of 2,000 t/a clethodim TC, 25,000 t/a 2,4-D TC and 10,000 t/a 2,4-D-ethylhexyl TC. Once the two capacity expansion projects are completed, its capacity for clethodim TC will increase to 10,000 t/a, for 2,4-D TC to 65,000 t/a and for 2,4-D-ethylhexyl TC to 30,000 t/a.

As for the projects No.3 and No.4, since Weifang Rainbow has not yet mass produced the two herbicides TC, it cannot ensure smooth application of green technologies and continuous process on a large scale, and thus there are uncertainties of the time for full operation of the lines, the realisation of product specifications, etc.

According to Weifang Rainbow, the main reasons for investing the to-be-raised fund in pesticide TC projects are that its existing capacity





for TC products is too small to satisfy its business needs and the product structure needs further improvement. If the large increases in its production capacity for clethodim TC and 2,4-D TC is finished, the company will have a strong boost in production efficiency, cost control and product quality, and it can better serve the market. Meanwhile, clopyralid and flumioxazin are two herbicides with quite good market potentials; new capacity for the two TC products will enrich the company's pesticide TC product mix. Besides, with its strength in the production of formulations based on the active ingredients, it will consolidate its advantage and overall competitiveness after extending its reach to the production of TC products.

Weifang Rainbow mainly engages in the R&D, production and sale of pesticide TC and formulation products. It has the capability to synthesise TC products and process formulation products for a variety of crop protection products covering herbicides, insecticides, fungicides, etc. Its main products are herbicide TC and formulation products based on the active ingredients of glyphosate, 2,4-D, atrazine and paraquat. So far, the company has established a complete business chain for R&D and production of pesticide TC and formulation products, as well as branding, distribution, marketing and other services that serve globally. As of 31 March, 2023, Weifang Rainbow had acquired 271 patents (241 Chinese patents and 30 overseas patents), which include 215 patents for invention (191 Chinese patents and 24 overseas patents).

Shandong Yonghao plans to build 1,000 t/a pyroxasulfone capacity

Summary: On 28 June, the EI report of the phase I program of Shandong Yonghao's project, which involves 2,000 t/a pesticide intermediates, 8,200 t/a pharmaceutical intermediates, etc., was published by local government. The phase I program will build 1,000 t/a pyroxasulfone production lines and supporting facilities.

On 28 June, the environmental impact (EI) report of the phase I program of Shandong Zhanhua Yonghao Pharmaceutical & Tech Co., Ltd. (Shandong Yonghao)'s project for pesticide intermediates, pharmaceutical intermediates and by-products was published by the People's Government of Zhanhua District. Shandong Yonghao has obtained recordation certificate issued by Shandong provincial government for the overall project (project code: 2203-371600-04-01-126922).

Project overview

- Project name: 2,000 t/a Pesticide intermediates, 8,200 t/a pharmaceutical intermediates with by-products 2,000 t/a sulfuryl chloride, 1,400 t/a chloroethane, 8,300 t/a hydrochloric acid and 1,500 t/a sulfuric acid project;
- Construction nature: New construction;
- Location: The company's existing plant in the Binhai Chemical Park, Binzhou City, Shandong Province;
- Investment: USD42.68 million (RMB308 million) for the whole project, of which USD14.97 million (RMB108 million) for the phase I program;
- Construction content: Workshops and production equipment for ethyl 4,4,4-trifluoroacetoacetate, trifluoroacetic acid, pyroxasulfone, dichloropyridines, diethyl phosphite, and supporting facilities including warehouses. For the phase I, production lines for 1,000 t/a pyroxasulfone and some supporting facilities will be built.
- Construction period for the phase I: Six months.

Currently, Shandong Yonghao has active production capacity for flonicamid (300 t/a) and several intermediates such as diethyl 4-





toluenesulfonyloxymethylphosphonate (1,500 t/a) and ethyl 4,4,4-trifluoroacetoacetate (500 t/a). Once the company owns pyroxasulfone capacity, it will broaden the space for future development and strengthen its overall competitiveness.

Pyroxasulfone is a pesticide co-developed and commercialised by two Japanese companies, Kumiai Chemical Industry Co., Ltd. and Ihara Chemical Industry Co., Ltd. It is a novel, broad-spectrum pre-emergent herbicide with high activity and good safety profile that needs low-volume application. Compound patent for the product (application No.: CN1257895C) expired in China in 2022. According to the data from the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA), as of early July 2023, only Shanghai Qunli Chemical Co., Ltd. had acquired pesticide registration for pyroxasulfone products in China. It is expected that pyroxasulfone will gradually substitute for widely-used chloroacetamides like acetochlor and metolachlor, and become a herbicide with considerable sales potential.

Jiangxi Heyi plans to build capacity for multiple high-efficacy low-toxicity pesticides TC

Summary: On 7 July, first-time publication of basic EIA information of Jiangxi Heyi's 7,000 t/a high-efficacy low-toxicity pesticide TC project was released by local government. The company has planned to build capacity for multiple high-efficacy low-toxicity pesticides, including 1,000 t/a picloram and 600 t/a clopyralid.

On 7 July, the People's Government of Pengze County released first-time publication of basic environmental impact assessment (EIA) information of Jiangxi Heyi Chemical Co., Ltd. (Jiangxi Heyi)'s 7,000 t/a high-efficacy low-toxicity pesticide TC project. The company has planned to invest USD69.29 million (RMB500 million) in this project, which will build production lines of 1,000 t/a picloram, 600 t/a clopyralid, 50 t/a triclopyr-butotyl, 300 t/a aminopyralid, 50 t/a triclopyr, 4,000 t/a metamitron and 1,000 t/a picoxystrobin in its existing plant in the Pengze Jishan Industrial Park, Jiujiang City, Jiangxi Province.

The majority of the products planned in the project are herbicides, some of which are new products to the company, such as picloram, clopyralid and aminopyralid. And with this project, Jiangxi Heyi will enrich its product pool for pesticides, especially for herbicides, and thus can better meet market demand.

Previously in H2 2022, the environmental impact report of Jiangxi Heyi's 15,200 t/a pesticide TC & intermediate relocation and upgrading project was published by local government. The company proposed, with a total investment of USD90.08 million (RMB650 million), to set up a second plant which will be located outside the 1km-range to the Yangtze River, and build 15,200 t/a production capacity in the new plant, which include 1,800 t/a dithianon, 500 t/a ethirimol, 1,000 t/a iprodione, 500 t/a dimetachlone, 1,000 t/a sulfentrazone, 2,000 t/a 3,5-dichloroaniline, 3,000 t/a 2-chloropropionic acid series and 2,000 t/a clethodim; after the completion of the project, it will suspend and finally phase out the lines for 18 products in its old plant, including 200 t/a dimetachlone, 300 t/a cyromazine, 700 t/a dithianon, 3,000 t/a 3,5-dichloroaniline, 1,500 t/a iprodione, 1,500 t/a copper oxychloride, 4,000 t/a metamitron, 1,000 t/a fosamine, 800 t/a sulfentrazone. In the end, only the capacity for environment-friendly pesticide formulations will be left in the old plant. This relocation project is Jiangxi Heyi's response to national as well as provincial policies, and also a move to improve its product mix and product quality.





Jiangxi Heyi, established in 2005, is a wholly-owned subsidiary of Nutrichem Co., Ltd. It mainly engages in the R&D, production and sale of pesticides and fine chemicals. Currently, its main products are: ethirimol, dithianon, cyromazine, copper oxychloride, iprodione, dimetachlone, procymidone, etc.

Rudong MAX to slash mesotrione TC capacity still under construction

Summary: According to the latest development plan of Rudong MAX, it will reduce the mesotrione TC capacity, which is still under construction, to 250 t/a from the originally planned 500 t/a.

In July, CCM learned that MAX (Rudong) Chemicals Co., Ltd. (Rudong MAX) had recently decided to slash the total mesotrione TC capacity that is currently under construction. Its original plan was to build 500 t/a mesotrione TC, yet the new decision is to halve it. Therefore, once the previous project is completed, Rudong MAX will only have 250 t/a new mesotrione TC capacity added.

Rudong MAX is a Sino-foreign joint venture, located in the Yangkou Chemical Park, Rudong County, Nantong City, Jiangsu Province. It has established a large pesticide production plant in the park. It is worth noting that although the local government would restrict the total number of pesticide enterprises in this chemical park, and by the end of 2030 there will be less than 23 pesticide enterprises that could be left in the park, Rudong MAX is among the fortunate ones to keep its place according to government planning.

At present, the company has had active production capacity for quite a few pesticide intermediates, TC products and formulations. In terms of pesticides TC, it boasts production lines of 500 t/a trinexapac-ethyl, 400 t/a triclopyr-butotyl, 1,200 t/a prodiamine, 80 t/a dithiopyr, 200 t/a terbacil, 100 t/a thidiazuron, 150 t/a chlorpropham, 60 t/a sulfometuron-methyl and 100 t/a fluridone. In addition, it has been constructing 300 t/a flumioxazin TC and 300 t/a linuron TC lines (with no change to the capacity planned for the two TC products so far announced), aside from the aforementioned mesotrione TC line. In terms of pesticide formulations, its active capacity is quite big. Meanwhile, it recently proposed a 9,200 t/a high-efficacy environment-friendly pesticide formulation processing technological transformation project to increase its overall capacity for formulation products.

The new 9,200 t/a pesticide formulation project, once finished and the lines put into full operation, will definitely lead to an increase in Rudong MAX's total pollutant emission, if no measure is taken to balance it out. In order to achieve the control of its pollutant emission, and thus facilitate a smooth pass in necessary formalities for the new project, the company has chosen to slash the mesotrione TC capacity, and adjust the capacity for existing formulation products with larger emission of pollutants. It should be mentioned that the company will make no modification for its existing capacity for TC products.

As regards to mesotrione, it is an environment-friendly and high-efficacy triketone herbicide that has been on the market for quite a while. It targets a relatively broad spectrum of weeds, and has high activity and good safety profile. Its application in maize fields has been greatly promoted. Mesotrione products play a big role in weed control in a large number of major maize producing countries, including Brazil, the US, Germany, France and China.

Beyond maize fields, mesotrione has also exhibited no less potential in rice fields, sugarcane fields, lawn, etc. In fact, its market for these





fields has been growing steadily. Moreover, some international agrochemical giants have developed unconventional crops that are tolerant to mesotrione. It is possible that with the help of genetically modified crops, mesotrione market will usher in a new round of growth.

Deemed as one of the biggest rivals to mesotrione, tembotrione, also a triketone herbicide, has better performance in herbicidal activity and safety than mesotrione. It has attracted much attention in Chinese pesticide market, as the compound patent for the product expired in China in Sept. 2019, which opened the door for domestic pesticide enterprises to pursue tembotrione production. Production capacity for tembotrione TC in China will gradually grow with completion of tembotrione projects launched in the last few years. Nevertheless, in the short term, the rise of tembotrione will not much affect mesotrione market in China.

Continuously promising sales prospect of mesotrione products is echoed with fast expansion of mesotrione TC capacity in China. Some mesotrione producers, represented by Shangyu Nutrichem Co., Ltd. and Zhangye Dagong Pesticide Chemistry Co., Ltd. that previously had built up lines for the commercial production of the product, have accomplished their expansion projects; some new comers have also brought their mesotrione TC lines into operation. At present, active mesotrione TC producers in China mainly include: Shandong Binnong Technology Co., Ltd., Shangyu Nutrichem Co., Ltd., Zhangye Dagong Pesticide Chemistry Co., Ltd., Jiangsu Youjia Crop Protection Co., Ltd., Shenyang Sciencreat Chemicals Co., Ltd., Inner Mongolia Zhonggao Chemical Co., Ltd., Anhui Zhongshan Chemical Co., Ltd., Limin Chemical Co., Ltd., Liaoning Longtian Chemical Technology Co., Ltd. and Hubei Guangfulin Biological Products Co., Ltd.

Many more have their new mesotrione TC lines under construction or intend to invest in mesotrione projects. Rudong MAX is just an example. It is not surprising that the total production capacity for mesotrione TC will keep growing in China. Mesotrione TC supply in the market will be further improved, which is good. However, it should also be borne in mind that stiffer competition surely lies ahead in the mesotrione TC market.





Policy

Shanxi rolls out implementation plan for carbon emission reduction and carbon sequestration in agriculture and rural areas

Summary: On 30 June, Shanxi Province issued its provincial implementation plan for carbon emission reduction and carbon sequestration in agriculture and rural areas, to foster the establishment of a green and low-carbon development pattern in agriculture sector and rural areas. The plan provides guidance and points out future directions for green energy-saving agricultural machinery, use reduction and efficacy enhancement of fertilisers, improvement of the carbon sink croplands, utilisation of renewable energies, scientific and technological innovation, etc.

On 30 June, the Department of Agriculture and Rural Affairs of Shanxi Province issued its provincial implementation plan for carbon emission reduction and carbon sequestration in agriculture and rural areas. The plan proposes that by 2025, the carbon emission reduction and carbon sequestration in agriculture and rural areas will have been basically integrated with other initiatives such as food security, rural revitalisation; greenhouse gas emission intensity per unit of agricultural product from farming and breeding industries will stabilise or decrease; the capacity of cropland soil in sequestering carbon will be strengthened; the share of renewable energies to total energy use in rural areas will expand; positive progress will be achieved in green and low-carbon transition in agriculture and rural areas in the province. By 2030, a green and low-carbon development pattern in agriculture sector and rural areas will be well established in the province, with further lowered greenhouse gas emission intensity per unit of agricultural product from farming and breeding industries, and big leaps in carbon sequestration capacity of croplands and the use of renewable energies in rural areas. The plan provides guidance on and points out future directions for multiple aspects, including:

Agricultural machinery: The goal is to speed up popularisation and application of green energy-saving equipment, and mechanisation technologies that are cost-saving and efficiency-increasing. Focuses should be put on R&D and innovation on green high-efficiency machines, the establishment of a system for high-efficiency and energy-saving mechanised operations, and the promotion of smart agricultural machinery technology and equipment.

Fertilisers: Reduce use and enhance the efficacy of fertilisers. Following an idea centred on high yield, economic effectiveness and eco-friendliness, agrotechnicians and farmers should optimise application methods, fine-tune fertiliser combination structure, make greater use of organic fertiliser resources, increase fertiliser utilisation rate, and cut down nitrous oxide emissions from croplands.

Croplands: Increase organic matter content in the soil, and strengthen carbon sequestration capability of croplands. Accelerate the development of high-standard farmlands and improve the quality of cultivated lands.

Renewable energies: Make full use of energy resource potential in rural areas. Increase the development and utilisation of renewable energies like biomass energy and solar energy in rural areas. Promote diversified utilisation of biomass energy, and encourage fast development of photovoltaic energy, so as to effectively propel the replacement of fossil energies.





Scientific and technological innovation: Reinforce R&D on and popularisation of low-carbon technologies. Launch programs for research on efficient planting techniques, product creation and equipment application. Make progress in technologies for green development of agricultural industry. Actively cultivate innovative enterprises focusing on green and low-carbon technologies for agricultural purposes, and support competitive enterprises to set up top-level research centres to delve further into green and low-carbon fields. Encourage cooperation and supporting production among big, medium- and small-sized companies, and accelerate commercialisation of technological achievements. Support technological innovations on seed breeding, pesticides, veterinary drugs, fertilisers, fodder, agricultural machinery, agricultural product processing, etc.





Registration

167 Herbicide products approved of registration in H1 2023

Summary: In H1 2023, the Department of Agrochemical Management of MARA altogether approved the registration of 167 herbicide products, which include 13 TC products and 4 TK products. Top four forms are OD, EC, SL and SC. The majority of the products are of low toxicity.

Data show that as of 1 July, the Department of Agrochemical Management of the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA) had approved the registration of 167 herbicide products in the first half of this year. Of the approved herbicide products, 13 are TC products and 4 are TK products. The majority of the products are of low toxicity, and top four forms are OD, EC, SL and SC. Top three active ingredients are topramezone, tembotrione and glufosinate-p. In H1 2023, seven registrants had at least four herbicide products approved of registration.

Of the 167 approved herbicide products, 34 products are for export only. Shandong Weifang Rainbow Chemical Co., Ltd. had the most herbicide products approved of export-only registration, the number reaching 13, which include 3 TC products—a 98% chloridazon TC, a 98% butoxydim TC and a 97% fluoro-chloridone TC.

TABLE 4: Herbicide products approved of registration by toxicity in H1 2023

No.	Toxicity	Number
1	Low	155
2	Mild	11
3	Moderate	1
Total		167

Source: Department of Agrochemical Management of MARA



**TABLE 5:** Major active ingredients of herbicide products approved of registration in H1 2023

No.	Active ingredient	Number
1	Topramezone	18
2	Tembotrione	14
3	Glufosinate-p	12
4	Atrazine	10
5	Glufosinate-ammonium	10
6	Metamifop	9

Source: Department of Agrochemical Management of MARA



TABLE 6: Herbicide products approved of registration by form in H1 2023

No.	Form	Number
1	OD	39
2	EC	36
3	SL	27
4	SC	20
5	TC	13
6	ME	9
7	SE	6
8	WG	5
9	TK	4
10	SP	3
11	CS	2
12	GR	1
13	WP	1
14	EW	1
Total		167

Source: Department of Agrochemical Management of MARA

TABLE 7: Herbicide TC products approved of registration in H1 2023

No.	Registrant	Active ingredient & content
1	Hunan Lier Biotechnology Co., Ltd.	90% Glufosinate-p
2	Shandong Weifang Rainbow Chemical Co., Ltd.	98% Chloridazon
3	Shandong Weifang Rainbow Chemical Co., Ltd.	98% Butroxydim
4	Weifang Sino-Agri Union Chemical Co., Ltd.	98% Pyrasulfotole
5	Synwill (Nantong) Chemical Co., Ltd.	96% Metamifop
6	Shandong Aokun Crop Science Co., Ltd.	98% Topramezone
7	Shandong Weifang Rainbow Chemical Co., Ltd.	97% Fluorochloridone
8	Jiangsu Flag Chemical Industry Co., Ltd.	96% Metamifop
9	Jiangsu Flag Chemical Industry Co., Ltd.	95% Pinoxaden
10	Lier Chemical Co., Ltd.	93% Nicosulfuron
11	Weifang Sino-Agri Union Chemical Co., Ltd.	96% Dimethenamid-p
12	Limin Chemical Co., Ltd.	97% Tembotrione
13	Jiangsu Agrochem Laboratory Co., Ltd.	94% Foramsulfuron

Source: Department of Agrochemical Management of MARA

TABLE 8: Registrants with at least four herbicide products approved of registration in H1 2023

No.	Registrant	Number
1	Zenenorva Crop Protection (Anhui) Co., Ltd.	13
2	Shandong Weifang Rainbow Chemical Co., Ltd.	13
3	Shandong Binnong Technology Co., Ltd.	10
4	Jilin Jinqiu Pesticide Co., Ltd.	5
5	Anhui Lantian Agricultural Development Co., Ltd.	4
6	Shandong Aokun Crop Science Co., Ltd.	4
7	Weifang Sino-Agri Union Chemical Co., Ltd.	4



Source: Department of Agrochemical Management of MARA



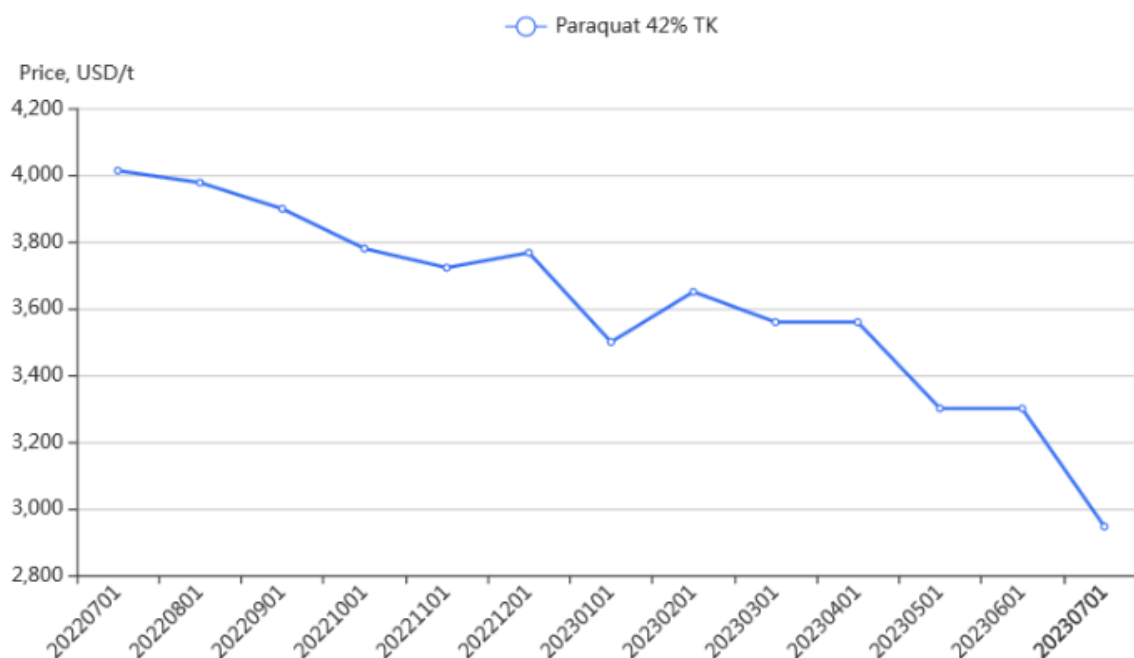
Paraquat and pyridine

July prices of pyridine and paraquat both see YoY decrease

Summary: In early July, the FOB price of paraquat 42% TK in China dropped by 10.71% MoM, and the ex-works price of pure pyridine in China edged down by 5.26% MoM. The prices of paraquat and pyridine are expected to continue the downtrend in the short term.

CCM's price monitoring data show that the FOB price of paraquat 42% TK in China dived 10.71% MoM to USD2,947/t in early July; on a yearly basis, the price registered a 26.57% decrease. The ex-works price of pure pyridine slipped by 5.26% MoM to USD2,495/t (RMB18,000/t), which was 40.98% lower than the price in July 2022. Considering sluggish demand and weakened pyridine and paraquat markets, the prices of paraquat and pyridine are expected to go down further in the short term.

FIGURE 1: FOB price of paraquat 42% TK in China, July 2022–July 2023



Note: The monthly prices here are the prices recorded early each month.

Source: CCM



FIGURE 2: Ex-works price of pure pyridine in China, July 2022–July 2023



Note: The monthly prices here are the prices recorded early each month.
Source: CCM



Trade analysis

Export volume of China's herbicide formulations has YoY decrease in April–May

Summary: In April–May 2023, China's herbicide formulations were mainly exported to Brazil, Ghana, Thailand, Nigeria, etc.; the export volume declined by some 17% YoY. However, import volume of herbicide formulations to China increased by some 26% YoY in this period. A great majority of these products were imported from Malaysia.

According to statistics from General Administration of Customs of China (China Customs), in April–May 2023, China exported 218,939.74 tonnes (actual volume, the same hereafter) of herbicide formulation products with a total export value of USD707.18 million. Major export destinations were Brazil, Ghana, Thailand, Nigeria, etc. Compared with the export volume achieved in April–May 2022, this year's figure contracted 16.94%, or a reduction of some 44,638 tonnes. As regards herbicide formulation imports, in the same period, China imported 3,306.78 tonnes of herbicide formulation products with a value totalling USD25.79 million. The import volume expanded 26.29% YoY. A great majority of these products were imported from Malaysia.

In terms of export, average export price during April–May 2023 plunged by 40.63% YoY to USD3.23/kg, mainly affected by weak herbicide demand this year. There were big inventories in the market. Glufosinate-ammonium and glyphosate, main organophosphorus herbicides in the market, have experienced bigger downward price swing than last year. Price falls of the two products brought down the herbicide export price in general. China's herbicide formulations were exported to at least 120 countries and regions in the two months. Compared with the same period last year, the export to Brazil, the largest destination, plummeted 63.50% YoY to 26,782 tonnes from 73,376 tonnes.

In terms of import, import price of herbicide formulations averaged at USD7.80/kg during April–May 2023, down 7.25% YoY. Over 85% of the total herbicide formulations were imported from Malaysia; and the volume from Malaysia saw an increase of 35.51% YoY.

TABLE 9: April and May exports of herbicide formulations from China, 2023 vs 2022

Month	2023		2022	
	Volume, kg	Average price, USD/kg	Volume, kg	Average price, USD/kg
April	106,134,390	3.41	110,379,904	5.66
May	112,805,351	3.07	153,197,350	5.28
Total	218,939,741	3.23	263,577,254	5.44

Note:1. The data were updated to 11 July, 2023.

2. All the data here are calculated by actual volume.

Source:China Customs

TABLE 10: Top 10 destinations of herbicide formulations exported from China, April–May 2023 vs April–May 2022

No.	April–May 2023			April–May 2022		
	Destination	Volume, tonne	Share	Destination	Volume, tonne	Share
1	Brazil	26,782	12.23%	Brazil	73,376	27.84%
2	Ghana	18,732	8.56%	Thailand	16,031	6.08%
3	Thailand	15,365	7.02%	Nigeria	14,878	5.64%
4	Nigeria	11,114	5.08%	The US	14,840	5.63%
5	Cameroon	7,445	3.40%	Ghana	12,091	4.59%
6	Kazakhstan	7,352	3.36%	Australia	11,679	4.43%
7	Cambodia	7,272	3.32%	Canada	9,322	3.54%
8	Indonesia	7,091	3.24%	Indonesia	7,624	2.89%
9	Cote d'Ivoire	5,947	2.72%	Cambodia	7,604	2.88%
10	Paraguay	5,539	2.53%	Argentina	7,382	2.80%

Note:1. The data were updated to 11 July, 2023.

2. All the data here are calculated by actual volume.

Source:China Customs

TABLE 11: April and May imports of herbicide formulations to China, 2023 vs 2022

Month	2023		2022	
	Volume, kg	Average price, USD/kg	Volume, kg	Average price, USD/kg
April	1,741,315	8.92	1,954,040	9.55
May	1,565,461	6.56	664,396	5.03
Total	3,306,776	7.80	2,618,436	8.41

Note:1. The data were updated to 11 July, 2023.

2. All the data here are calculated by actual volume.

Source:China Customs



TABLE 12: Major origins of herbicide formulations imported to China, April–May 2023 vs April–May 2022

No.	April–May 2023			April–May 2022		
	Origin	Volume, tonne	Share	Origin	Volume, tonne	Share
1	Malaysia	2,843	85.97%	Malaysia	2,098	80.13%
2	Indonesia	330	9.98%	Indonesia	186	7.10%
3	The US	40	1.20%	The US	157	5.99%
4	India	38	1.14%	Germany	127	4.84%
5	Germany	35	1.05%	Hungary	40	1.51%
6	Japan	21	0.62%	Japan	11	0.43%
7	France	1	0.03%	/	/	/

Note:1. The data were updated to 11 July, 2023.

2. All the data here are calculated by actual volume.

3. Due to rounding, the total may not equal 100.00%.

Source:China Customs





Brief news

Yumen Minghua to construct capacity for metamitron intermediate

In late June, the Jiuquan Ecological Environment Bureau announced the approval of environmental impact report of the pesticide intermediate production line project of Yumen Minghua Chemical Co., Ltd. (Yumen Minghua). Relying on the existing production workshops and public auxiliary facilities, the company has planned to construct production lines of 800 t/a methyl benzoylformate (an intermediate for the herbicide metamitron), 2,000 t/a by-product ammonium sulphate and 500 t/a 2-(3-chloro-5-(trifluoromethyl)pyridin-2-yl)ethanamine hydrochloride with an investment totalling USD2.77 million (RMB20 million).

WMO forecasts high probability of El Nino event in H2 2023

On 4 July, the World Meteorological Organisation (WMO) declared that El Nino conditions had developed in the tropical Pacific and forecasted that there would be high probability of the El Nino event in H2 2023. El Nino will fuel further global temperature increase. Its influences on the pesticide industry include:

- Changes to climate conditions like temperature and precipitation in different regions in the world caused by El Nino event would affect plant growth and elevate the occurrence rate of pests & diseases on crops, which will drive up pesticide use.
- Besides potential increase in the demand for pesticides, production and transportation of pesticides may also be affected. Diminished supply in the market and growing consumption need will push up pesticide price.
- Facing growing pesticide consumption, local governments may introduce stricter regulations on pesticide utilisation.

Wuqiao Pesticides to build capacity for clethodim TK and multiple herbicide formulations

On 6 July, the Administrative Examination and Approval Bureau of Wuqiao County announced that it was to approve the environmental impact report of the 3,000 t/a clethodim 37% TK and 30,000 t/a high-efficacy and low-toxicity pesticide formulation technological transformation project of Wuqiao Pesticides Co., Ltd. (Wuqiao Pesticides). The company has planned to construct the project in acquired land next to its existing plant with an investment of USD20.79 million (RMB150 million). Planned herbicide formulations mainly include glufosinate-ammonium AS and clethodim EC.

Located in Songmen Industrial Park, Wuqiao Economic Development Zone, Cangzhou City, Hebei Province, Wuqiao Pesticides engages in the production of pesticides. The company now has production lines for 1,000 t/a clethodim TC and 1,000 t/a acetamiprid TC, yet the lines will be dismantled with the completion of the new project.



**TABLE 13:** Herbicide formulation products planned in Wujiao Pesticides' technological transformation project

No.	Product	Capacity, t/a
1	Clethodim 37% TK	3,000
2	Clethodim 240g/L EC	4,000
3	Clethodim 35% EC	3,950
4	Glufosinate-Ammonium 200g/L AS	10,000
5	Fenoxaprop-P-Ethyl 69g/L EW	100
6	Quizalofop-P-Ethyl 8% ME	500
7	Haloxypop-P-Methyl 108g/L EC	500
8	Quinclorac 250g/L SC	800
9	Cyhalofop-Butyl 20% SC	300
10	Diuron 80% SC	500
11	Nicosulfuron 40g/L SC	200

Source: Environmental impact report of Wujiao Pesticides' technological transformation project

Lier Chemical estimates YoY decrease in net profit in H1 2023

On 6 July, Lier Chemical Co., Ltd. (Lier Chemical) released the performance projection for H1 2023. Induced by significant drops in sales prices of glufosinate-ammonium products, the company's flagship products, Lier Chemical expected that the net profit attributable to equity holders of the listed company would shrink by 54.7% to 53.7% YoY and range between USD65.83 million (RMB475 million) and USD67.21 million (RMB485 million). Its earnings per share during this period were estimated to range between USD0.0822 (RMB0.5934) and USD0.0840 (RMB0.6059), down 58.2% to 57.3% YoY.

In H1 2023, there was sufficient supply of glufosinate-ammonium products in Chinese pesticide market, yet the demand was slack. Accordingly, the price of glufosinate-ammonium was on a continuous decline in China. Seeing continued weak market, domestic glufosinate-ammonium producers maintained a low operating rate.

Inner Mongolia Chuangxin files for its pesticide intermediate project

On 10 July, Inner Mongolia Chuangxin Chemical Co., Ltd. (Inner Mongolia Chuangxin) filed for recordation at the Development and Reform Commission of the Inner Mongolia Autonomous Region for its high-efficacy pesticide intermediate project.

Overview of the project





- Total investment: USD49.89 million (RMB360 million);
- Location: Tuoqing Economic Development Zone, Togtoh County, Hohhot City, Inner Mongolia Autonomous Region;
- Product plan:
 - Phase I: 2,4-Dihydro-5-methyl-2-phenyl-3H-1,2,4-triazol-3-one with production capacity of 1,200 t/a. The product is an intermediate for the production of herbicide sulfentrazone. According to Inner Mongolia Chuangxin's plan, construction for the Phase I will be finished by 30 June 2024;
 - Phase II: Nitro compounds with production capacity of 1,200 t/a. The Phase II is scheduled to be completed by 30 June 2025.

Huludao Zaidayingjia plans to expand capacity for two herbicide intermediates

In late June, some basic environmental impact assessment information of Huludao Zaidayingjia Chemical Co., Ltd. (Huludao Zaidayingjia)'s 13,000 t/a biofertiliser-grade ammonium sulphate, 1,000 t/a methyl 3-bromomethyl-2-chloro-4-methylsulfonylbenzoate and 3,000 t/a 3-chloro-2-methylaniline project was released for the first time. The company proposed to construct five workshops in its plant located in the No.36 Liaohe Road, Beigang Industrial Park, Huludao Economic Development Zone, Huludao City, Liaoning Province.

Of the planned products, methyl 3-bromomethyl-2-chloro-4-methylsulfonylbenzoate is a common intermediate for the production of herbicides tembotrione and tefuryltrione, and 3-chloro-2-methylaniline is an intermediate for the production of herbicide quinclorac.

Limin Chemical's crop protection project passes expert review

In late June, Limin Group Co., Ltd. announced that the crop protection product technological transformation project, which is to be invested by its wholly-owned subsidiary Limin Chemical Co., Ltd. (Limin Chemical), had passed expert review. Once the crop protection project is completed, production capacity will be built up in Limin Chemical of 1,100 t/a difenoconazole TC, 5,000 t/a fosetyl-sodium AS, 2,000 t/a amobam AS, 500 t/a tembotrione TC, 1,000 t/a mesotrione TC and 3,000 t/a zineb TC, along with capacity for a series of by-products.

Nanjing Red Sun to complete construction of 10kt/a glufosinate-p lines in Dec.

In July, Nanjing Red Sun Co., Ltd. (Nanjing Red Sun) revealed that construction of the 10,000 t/a glufosinate-p lines, phase I of the 20,000 t/a glufosinate-p project, was scheduled to be completed in Dec., and its 2,000 t/a chlorantraniliprole project had been put into operation in Wanzhou production base in Chongqing Municipality.

Glufosinate-p, an L-type chiral isomer of glufosinate-ammonium with the same mechanism of action, boasts more than twice as much herbicidal activity as glufosinate-ammonium. To promote the application of glufosinate-p can help reduce pesticide use, as one-tonne glufosinate-p use means one-tonne reduction of the inactive D-enantiomer of glufosinate-ammonium in cropland. This could effectively relieve some environmental burdens caused by farming activities, and thus answer to the call of the policy of use reduction and efficacy enhancement of pesticides.

EU extends approval periods of three herbicidal active substances

In July, the European Union (EU), in accordance with the Regulation (EC) No 1107/2009 concerning plant protection products, extended the approval period of the active substance halosulfuron-methyl to 31 March, 2025, and that of sulcotrione and metamitron to 30 Nov.,





2026.

Jiangsu Huifeng does not regain 5kt/a glufosinate-ammonium project ownership

On 24 July, Jiangsu Huifeng Bio Agriculture Co., Ltd. (Jiangsu Huifeng) notified that it had received a paper of civil judgment sent by the Shijiazhuang Intermediate People's Court. The judgement affirmed the first instance judgement made by the Zhaoxian County People's Court that the involved 5,000 t/a glufosinate-ammonium TC project should be owned by Shijiazhuang Richem Co., Ltd. (Shijiazhuang Richem).

According to Jiangsu Huifeng, it will lodge an appeal to a superior court. It also warns that if failed, the company would see a decline in current profit.

In 2015, Jiangsu Huifeng acquired 51% equity in Shijiazhuang Richem, aiming to step into production of the herbicide glufosinate-ammonium. In 2016, Jiangsu Huifeng invested in advance into a 5,000 t/a glufosinate-ammonium TC production line technology transformation project with self-raised funds of USD1.04 million (RMB7.53 million). However, Shijiazhuang Richem later claimed that the glufosinate-ammonium project was constructed and funded by itself and Jiangsu Huifeng sold the project without Shijiazhuang Richem's consent. The courts judged Shijiazhuang Richem owned the project on the basis that Shijiazhuang Richem had lent USD23.98 million (RMB173 million) to Jiangsu Huifeng for the construction of the project, and at the same time provided manpower as well as technical services.

Veyong Bio-chemical to put 10kt/a glufosinate-p project into trial run by Dec.

In July, Limin Group Co., Ltd. revealed that its wholly-owned subsidiary Hebei Veyong Bio-chemical Co., Ltd. (Veyong Bio-chemical) had sound progress in the construction of the 10,000 t/a glufosinate-p project (phase I), and the project had come into production equipment installation stage. Trail run of the lines is expected to start by late 2023. The environmental impact report of the project is currently at the publication stage. Besides, the company has been pushing ahead with glufosinate-p registration in China and oversea markets in an orderly manner.

After completion, the project will bring Veyong Bio-chemical new production capacity of 18,348.6 t/a glufosinate-p SL with the mass fraction of glufosinate-ammonium salt reaching 10.9%, and 326 t/a by-product acetone. The phase I project will not change the company's existing glufosinate-ammonium capacity (700 t/a glufosinate-ammonium TC, 1,000 t/a glufosinate-ammonium 10% AS and 1,000 t/a glufosinate-ammonium 20% AS).





Price update

Ex-works prices of key herbicide raw materials in China, 8 July, 2023

TABLE 14: Ex-works prices of key herbicide raw materials in China, 8 July, 2023

Raw Materials	20230608		20230708	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
98% Glycine	11,250	1,585.29	11,250	1,559.1
92% Iminodiacetonitrile	8,600	1,211.87	8,600	1,191.85
99% Isopropylamine	9,550	1,345.73	9,550	1,323.5
98% N-(Phosphonmethyl) Iminodiacetic acid	16,300	2,296.91	16,000	2,217.39
99% Phosphorus trichloride	5,460	769.39	5,770	799.65
99.9% Pyridine	19,000	2,677.38	18,000	2,494.56

Note: Ex-works price includes VAT.

Source: CCM

Ex-works prices of main herbicides in China, 8 July, 2023





TABLE 15: Ex-works prices of main herbicides in China, 8 July, 2023

Product	20230608		20230708	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
98% 2,4-D technical	14,000	1,972.8	13,200	1,829.34
92% Acetochlor technical	30,000	4,227.44	29,500	4,088.31
97% Atrazine technical	36,000	5,072.92	36,000	4,989.12
96% Bensulfuron-methyl technical	165,000	23,250.9	165,000	22,866.8
92% Butachlor technical	22,000	3,100.12	22,000	3,048.91
95% Clomazone technical	105,800	14,908.76	104,000	14,413.02
95% Cyhalofop-butyl technical	131,700	18,558.44	129,000	17,877.68
97% Diuron technical	39,000	5,495.67	38,000	5,266.29
98% Fenclorim technical	112,000	15,782.43	108,000	14,967.36
95% Fenoxaprop-P-ethyl technical	170,000	23,955.47	157,000	21,758.11
96% Fluroxypyr technical	138,000	19,446.21	125,000	17,323.34
95% Fomesafen technical	133,900	18,868.46	133,900	18,556.76
95% Glufosinate ammonium technical	71,000	10,004.93	64,700	8,966.56
95% Glyphosate technical	24,200	3,410.13	27,500	3,811.13
95% Haloxyfop-P-methyl technical	154,000	21,700.84	143,000	19,817.9
97% Metolachlor technical	50,000	7,045.73	50,000	6,929.33
95% Metsulfuron-methyl technical	135,000	19,023.46	135,000	18,709.2
95% Nicosulfuron technical	193,000	27,196.51	193,000	26,747.23
97% Oxyfluorfen technical	157,000	22,123.58	150,000	20,788
95% Pendimethalin technical	62,000	8,736.7	61,500	8,523.08
95% Pretilachlor technical	33,800	4,762.91	33,800	4,684.23
97% Pyrazosulfuron-ethyl technical	231,800	32,663.99	231,800	32,124.4





80% Quinclorac technical	142,500	20,080.32	133,000	18,432.03
95% Quizalofop-P-ethyl technical	202,500	28,535.19	192,500	26,677.94
95% Tribenuron-methyl technical	102,000	14,373.28	97,000	13,442.91
95% Trifluralin technical	40,500	5,707.04	40,500	5,612.76

Note: Ex-works price includes VAT.

Source: CCM

Shanghai port prices of main herbicides in China, 8 July, 2023



TABLE 16: Shanghai port prices of main herbicides in China, 8 July, 2023

Product	20230608		20230708	
	Original Price (RMB/t)	Price (USD/t)	Original Price (RMB/t)	Price (USD/t)
98% 2,4-D technical	14,500	2,043.26	13,700	1,898.64
92% Acetochlor technical	30,500	4,297.89	30,000	4,157.6
97% Atrazine technical	36,500	5,143.38	36,500	5,058.41
96% Bensulfuron-methyl technical	165,500	23,321.36	165,500	22,936.1
92% Butachlor technical	22,500	3,170.58	22,500	3,118.2
95% Clomazone technical	106,300	14,979.22	104,500	14,482.31
95% Cyhalofop-butyl technical	132,200	18,628.9	129,500	17,946.98
97% Diuron technical	39,500	5,566.12	38,500	5,335.59
98% Fenclorim technical	112,500	15,852.89	108,500	15,036.66
95% Fenoxaprop-P-ethyl technical	170,500	24,025.93	157,500	21,827.4
96% Fluroxypyr technical	138,500	19,516.66	125,500	17,392.63
95% Fomesafen technical	134,400	18,938.91	134,400	18,626.05
95% Glufosinate ammonium technical	71,500	10,075.39	65,200	9,035.85
95% Glyphosate technical	24,700	3,480.59	28,000	3,880.43
95% Haloxyfop-P-methyl technical	154,500	21,771.3	143,500	19,887.19
97% Metolachlor technical	50,500	7,116.18	50,500	6,998.63
95% Metsulfuron-methyl technical	135,500	19,093.92	135,500	18,778.5
95% Nicosulfuron technical	193,500	27,266.96	193,500	26,816.53
97% Oxyfluorfen technical	157,500	22,194.04	150,500	20,857.3
95% Pendimethalin technical	62,500	8,807.16	62,000	8,592.37
95% Pretilachlor technical	34,300	4,833.37	34,300	4,753.52
97% Pyrazosulfuron-ethyl technical	232,300	32,734.45	232,300	32,193.69





80% Quinclorac technical	143,000	20,150.78	133,500	18,501.32
95% Quizalofop-P-ethyl technical	203,000	28,605.65	193,000	26,747.23
95% Tribenuron-methyl technical	102,500	14,443.74	97,500	13,512.2
95% Trifluralin technical	41,000	5,777.5	41,000	5,682.05

*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 July, 2023





TABLE 17: FOB Shanghai prices of main herbicides in China, 8 July, 2023, USD/t

Product	20230608	20230708
98% 2,4-D technical	2,009.43	1,863.3
92% Acetochlor technical	4,217.78	4,078.97
97% Atrazine technical	4,912.31	4,831.16
96% Bensulfuron-methyl technical	22,739.33	22,363.69
92% Butachlor technical	3,141.18	3,089.29
95% Clomazone technical	14,638.28	14,151.53
95% Cyhalofop-butyl technical	17,521.22	16,878.5
97% Diuron technical	5,460.92	5,233
98% Fenclorim technical	15,481.88	14,682.34
95% Fenoxaprop-P-ethyl technical	23,437.22	21,287.39
96% Fluroxypyr technical	19,030.14	16,952.69
95% Fomesafen technical	18,493.03	18,187.53
95% Glufosinate ammonium technical	9,445.76	8,465.42
95% Glyphosate technical	3,690.05	4,123.96
95% Haloxyfop-P-methyl technical	21,225.92	19,384.19
97% Metolachlor technical	7,003.94	6,888.23
95% Metsulfuron-methyl technical	18,649.25	18,341.17
95% Nicosulfuron technical	26,570.65	26,131.72
97% Oxyfluorfen technical	20,864.77	19,605.18
Paraquat 42% TK	3,300	2,946.63
95% Pendimethalin technical	8,642.08	8,430.78
95% Pretilachlor technical	4,780.31	4,701.34
97% Pyrazosulfuron-ethyl technical	31,900.76	31,373.77





80% Quinclorac technical	19,672.35	18,057.55
95% Quizalofop-P-ethyl technical	27,878.53	26,064.02
95% Tribenuron-methyl technical	14,082.76	13,171.19
95% Trifluralin technical	5,512.7	5,421.63

*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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