

# Survey of Metolachlor in China

The Eighth Edition  
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**Researched & Prepared by:**

**Kcomber Inc.**

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## Contents

<b>Executive summary</b> .....	<b>1</b>
<b>Methodology and source</b> .....	<b>2</b>
<b>1 Overview of metolachlor industry in China</b> .....	<b>4</b>
1.1 Brief introduction to pesticide industry in China.....	4
1.2 Position of metolachlor in China's herbicide industry .....	5
<b>2 Registration of metolachlor in China</b> .....	<b>6</b>
<b>3 Supply</b> .....	<b>8</b>
3.1 Production technology .....	8
3.2 Production of metolachlor in China, 2016–2021 .....	9
<b>4 Circulation</b> .....	<b>12</b>
4.1 Prices of metolachlor technical, 2016–2021.....	12
4.2 Exports of metolachlor, 2016–H1 2021 .....	13
<b>5 Consumption, 2016–2021</b> .....	<b>30</b>
<b>6 Forecast on supply and demand, 2022–2026</b> .....	<b>32</b>

## LIST OF TABLES

Table 1.1-1 China's imports and exports of pesticides and herbicides, 2016–2020
Table 2-1 Valid registrations of metolachlor technical in China, as of 21 March, 2022
Table 2-2 Valid registrations of metolachlor formulations in China, as of 21 March, 2022
Table 3.1-1 Comparison of different routes for producing metolachlor technical
Table 3.2-1 Capacity and output of major metolachlor technical producers in China, 2016–2021
Table 3.2-2 New projects of metolachlor technical in China, as of Dec. 2021
Table 4.2-1 China's exports of metolachlor by month, H1 2021
Table 4.2-2 China's exports of metolachlor by month, 2020
Table 4.2-3 China's exports of metolachlor by month, 2019
Table 4.2-4 China's exports of metolachlor by month, 2018
Table 4.2-5 China's exports of metolachlor by month, 2017
Table 4.2-6 China's exports of metolachlor by month, 2016
Table 4.2-7 China's export volume of metolachlor by destination, H1 2021, tonne
Table 4.2-8 China's export volume of metolachlor by destination, 2020, tonne
Table 4.2-9 China's export volume of metolachlor by destination, 2019, tonne
Table 4.2-10 China's export volume of metolachlor by destination, 2018, tonne
Table 4.2-11 China's export volume of metolachlor by destination, 2017, tonne
Table 4.2-12 China's export volume of metolachlor by destination, 2016, tonne
Table 4.2-13 China's export volume of metolachlor by exporter, H1 2021, tonne
Table 4.2-14 China's export volume of metolachlor by exporter, 2020, tonne
Table 4.2-15 China's export volume of metolachlor by exporter, 2019, tonne
Table 4.2-16 China's export volume of metolachlor by exporter, 2018, tonne

Table 4.2-17 China's export volume of metolachlor by exporter, 2017, tonne

Table 4.2-18 China's export volume of metolachlor by exporter, 2016, tonne

Table 5-1 Application of metolachlor technical in China by crop, 2021

## **LIST OF FIGURES**

Figure 1.1-1 Output and demand of herbicides in China, 2016–2020

Figure 1.2-1 Output share of metolachlor in herbicide industry in China, 2020

Figure 3.1-1 Methoxyacetone route for producing metolachlor technical

Figure 3.1-2 2-Chlorine propanol route for producing metolachlor technical

Figure 3.1-3 2-Bromo-1-methoxyl propane route for producing metolachlor technical

Figure 3.2-1 Capacity and output of metolachlor technical in China, 2016–2021

Figure 4.1-1 Annual ex-works price of 97% metolachlor technical in China, 2016–2021

Figure 4.1-2 Monthly ex-works price of 97% metolachlor technical in China, Jan. 2016–Dec. 2021

Figure 4.2-1 Export volume of metolachlor in China, 2016–H1 2021

Figure 5-1 Actual consumption volume of metolachlor technical in China, 2016–2021

Figure 5-2 Application share of metolachlor technical in China by crop, 2021

Figure 6-1 Forecast on output of metolachlor technical in China, 2022–2026, tonne

Figure 6-2 Forecast on demand for metolachlor technical in China, 2022–2026, tonne

## Executive summary

Metolachlor is a selective herbicide with broad weeding spectrum, high effectiveness and wide application fields. According to statistics from the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs of the People's Republic of China (ICAMA), as of March 2022, a total of 169 valid registrations of metolachlor have been licensed in China, including 18 for technical, 75 for single formulations and 76 for mixed formulations.

The capacity of metolachlor technical in China increased from 23,300 t/a in 2016 to 37,000 t/a in 2018, yet dipped to 29,800 t/a during 2019–2020 and rose to 30,800 t/a in 2021. The output peaked in 2017, but kept below 10,000 tonnes during 2019–2021.

Metolachlor products made in China are export-oriented. Export volume of metolachlor (calculated by 97% technical) in China increased to about 27,225 tonnes in 2017. After a plummet in 2019, it increased to about 12,543 tonnes in 2020. Though large increase was witnessed in 2020, the export volume was still at a low level compared with that in 2017 and 2018.

Regarding metolachlor price in China, prices of both metolachlor technical and metolachlor formulations were on a general increase in 2016–2018. However, in 2019, the annual ex-works price of 97% metolachlor technical decreased to USD3,418/t and dipped further to USD3,309/t in 2020, which was the bottom in the past six years. The annual price rocketed to about USD5,000/t in 2021, and the market saw volatile monthly prices.

In China, metolachlor technical is applied on crops through single formulations of 720g/L EC and 960g/L EC and mixtures of the product with bensulfuron-methyl, atrazine and mefenacet. And metolachlor is mainly applied on corn, vegetables, soybean and some other cash crops in China. In 2021, the consumption volume of metolachlor technical in China edged higher to 3,521 tonnes, up by 0.57% year on year. The consumption of metolachlor technical in corn and vegetables accounted for more than 60% of the total consumption in China.

With increasing demand and some barriers to a jump in metolachlor supply in China, it is predicted that the output of metolachlor technical in China will increase in the next four years and then decrease in 2026. It's unlikely to see too much increase in both supply and demand in China during 2022–2026.

## Methodology and source

This report is drafted by diverse methods as follows:

### (1) Desk research

The sources of desk research are various, including published journals, government statistics, industrial statistics, Customs statistics, as well as information from the Internet. Obtained information has been compiled and analysed. When necessary, checks will be made with Chinese metolachlor suppliers regarding market information such as key producers, production and price trend, etc.

### (2) Telephone interview

Extensive telephone interviews have been carried out in order to grasp the actual market situation of metolachlor in China.

Interviewees cover:

- Producers
- Traders

### (3) Internet search

CCM contacted with the players in this industry through B2B websites and software.

## Data processing and presentation

The data collected and compiled were sourced from:

- Published articles from periodicals, magazines and journals
- Statistics from local governments and international institutes
- Telephone interviews with domestic suppliers, traders, industrial experts
- Third-party data providers
- Information from the Internet

Data obtained from various sources have been combined and cross-checked to make this report as precise and scientific as possible. Throughout the process, a series of internal discussions were made in order to analyse the data and have conclusions drawn.

## Abbreviation & full name

Table Abbreviations and full names in this report

Abbreviation	Full name
AI	Active ingredient
CAGR	Compound annual growth rate
ICAMA	The Institute for the Control of Agrochemicals, Ministry of Agriculture of the People's Republic of China
EA	Effervescent granule
EC	Emulsifiable concentrate
FG	Fine granule
OD	Oil dispersion/Oil-based suspension concentrate
SC	Suspension concentrate
SE	Suspension emulsion/Suspo-emulsion

<b>Abbreviation</b>	<b>Full name</b>
TC	Technical material
WP	Wettable powder
EW	Emulsion, oil in water
ME	Micro-emulsion
GR	Granule

Source: CCM

### Unit

- Tonne: equals to metric ton in this report
- /t: per tonne
- t/a: tonne/annual, tonne per year
- USD: US dollar, currency unit in the US
- RMB: currency unit in China, also named yuan

Table USD/CNY exchange rate, Jan. 2017–Dec. 2021

<b>Year</b>	<b>Jan.</b>	<b>Feb.</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>	<b>Average</b>
2017	6.8918	6.8713	6.8932	6.8845	6.8827	6.8019	6.7772	6.7148	6.5909	6.6493	6.6300	6.6067	6.7662
2018	6.5079	6.3045	6.3352	6.2764	6.3670	6.4078	6.6157	6.8293	6.8347	6.8957	6.9670	6.9431	6.6070
2019	6.8482	6.7081	6.6957	6.7193	6.7344	6.8896	6.8716	6.8938	7.0883	7.0726	7.0437	7.0262	6.8826
2020	6.9614	6.9249	6.9811	7.0771	7.0690	7.1315	7.0710	6.9980	6.8498	6.7796	6.7050	6.5921	6.9284
2021	6.5408	6.4623	6.4754	6.5584	6.4895	6.3572	6.4709	6.4660	6.4680	6.4604	6.4192	6.3693	6.4615

Source: The People's Bank of China

# 1 Overview of metolachlor industry in China

## 1.1 Brief introduction to pesticide industry in China

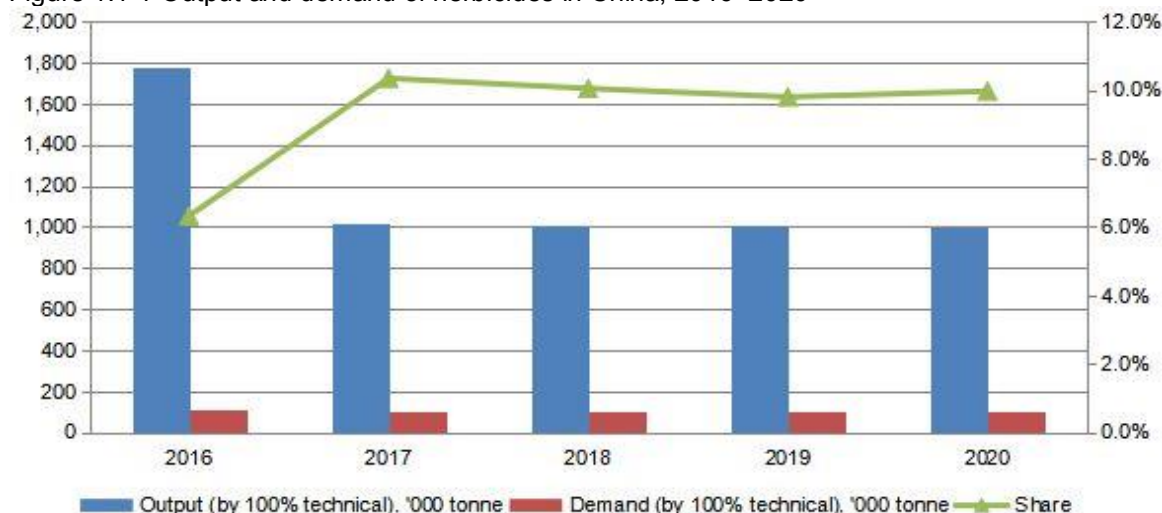
### - Supply and demand

In 2017, China's herbicide industry shrieved as the central government introduced a string of regulations and policies targeting pesticide industry. Even so, China is still a major herbicide supplier globally. The herbicide output (calculated by 100% technical) was 1,004,000 tonnes in China in 2020, down 0.69% year on year.

As a category of pesticides, herbicides have been playing an increasingly important role in the prevention & control of weeds. The structure of pesticide products in China used to be so imbalanced that the output of insecticides accounted for an extremely large proportion of the whole market, while proportions of other types of pesticides were quite small. For example, in 1994, China's output proportions of insecticides, herbicides and fungicides (calculated by the most frequently used technical) were around 76.4%, 13.0% and 9.5% respectively.

Along with structural adjustment of the pesticide industry and development of products with higher added value and efficacy in recent years, the structure of pesticide output in China has improved. The output structure of pesticides in China has changed fundamentally and the output proportion of herbicides has risen greatly. In 2020, China's output proportion of herbicides (calculated by 100% technical) was around 46.74%, herbicides remaining the largest pesticide category.

Figure 1.1-1 Output and demand of herbicides in China, 2016–2020



Note:  $Share = Demand / Output$

Source: The National Bureau of Statistics of China (NBS) and CCM

## - Import and export

Table 1.1-1 China's imports and exports of pesticides and herbicides, 2016–2020

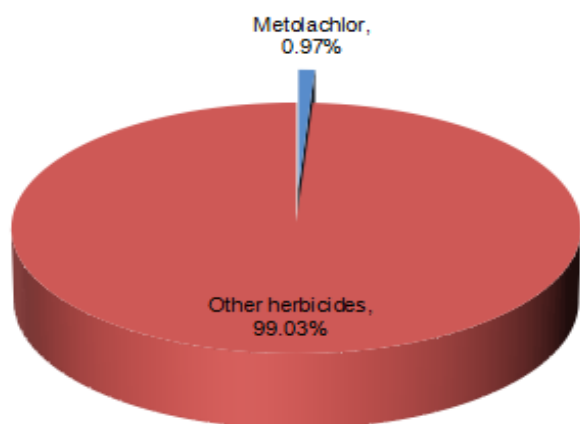
Year	Pesticides				Herbicides				Share of herbicides/pesticides			
	Import		Export		Import		Export		Import		Export	
	Volume, tonne	Value, million USD	Volume, tonne	Value, million USD	Volume, tonne	Value, million USD	Volume, tonne	Value, million USD	Volume	Value	Volume	Value
2016	84,000	673	1,401,000	3,716	21,000	134	965,000	2,109	25.00%	19.91%	68.88%	56.75%
2017	83,000	680	1,632,000	6,760	22,000	129	1,135,000	3,679	26.51%	18.97%	69.55%	54.42%
2018	79,000	489	1,405,400	8,073	23,000	149	989,900	4,355	29.11%	30.47%	70.44%	53.95%
2019	90,000	762	1,468,000	4,860	14,000	100	992,000	2,715	15.56%	13.12%	67.57%	55.86%
2020	110,000	911	2,514,000	7,624	14,000	78	1,236,000	3,069	12.73%	8.56%	49.16%	40.25%

Source: NBS and CCM

### 1.2 Position of metolachlor in China's herbicide industry

In 2020, the output of herbicides in China shrank slightly, while the output of metolachlor technical was basically flat with the previous year. And the share of metolachlor in the herbicide industry (based on output) rose from about 0.91% in 2019 to about 0.97% in 2020. The share of metolachlor export volume in herbicide export volume increased from about 0.58% in 2019 to about 0.98% in 2020.

Figure 1.2-1 Output share of metolachlor in herbicide industry in China, 2020



Source: NBS and CCM



## 2 Registration of metolachlor in China

Table 2-1 Valid registrations of metolachlor technical in China, as of 21 March, 2022

No.	Registrant	Registration No.	Content	Expiry date
1	Hangzhou Nutrichem Co., Ltd.	PD20060080	97%	2026/4/14
2	Anhui Ruichen Plant Protection Engineering Co., Ltd.	PD20096132	96%	2024/6/24
3	Lianyungang Liben Crop Science and Technology Co., Ltd.	PD20093496	96%	2024/3/23
4	Zhongnongfa Henan Agrochemical Co., Ltd.	PD20140151	97%	2024/1/22
5	Shandong Weifang Rainbow Chemical Co., Ltd.	PD20083670	96%	2023/12/15
6	Jiangsu Changlong Agrochemical Co., Ltd.	PD20082123	93%	2023/11/25
7	Shangyu Nutrichem Co., Ltd.	PD20082118	97%	2023/11/25
8	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	PD20082079	96%	2023/11/25
9	Nantong Jiangshan Agrochemical and Chemicals Co., Ltd.	PD20081386	96%	2023/10/28
10	Weifang Sino-Agri Union Chemical Co., Ltd.	PD20183875	98%	2023/8/20
11	Shoujian Technology Co., Ltd.	PD20081075	96%	2023/8/18
12	Shandong Zhongshi Pesticide Co., Ltd.	PD20080744	96%	2023/6/11
13	Shandong Binnong Technology Co., Ltd.	PD20080709	95%	2023/6/4
14	ADAMA Huifeng (Jiangsu) Co., Ltd.	PD20080697	96%	2023/6/4
15	Inner Mongolia Join Dream Fine Chemicals Co., Ltd.	PD20080584	96%	2023/5/12
16	Inner Mongolia Bailing Technology Co., Ltd.	PD20080176	96%	2023/1/3
17	Xiangshui Zhongshan Biological Technology Co., Ltd.	PD20173215	96%	2022/12/19
18	Jiangsu Lanfeng Biochemical Co., Ltd.	PD20070635	96%	2022/12/14

Source: Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA)

Table 2-2 Valid registrations of metolachlor formulations in China, as of 21 March, 2022

Item	Type of formulation	Number
Single formulation	EC	72
	EW	2
	ME	1
Mixed formulation	SE	27
	EC	19
	WP	12
	OD	8
	SC	3
	FG	3
	EA	3
	GR	1
<b>Total</b>		<b>151</b>

Source: ICAMA

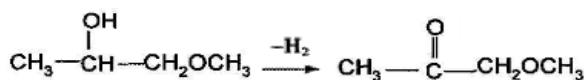
### 3 Supply

#### 3.1 Production technology

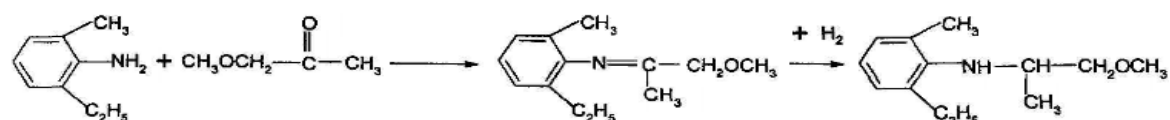
At present, three major methods for producing metolachlor technical have been reported: the methoxyacetone route, the 2-chlorine propanol route and the 2-bromo-1-methoxyl propane route. Among them, the methoxyacetone route has been put into industrial production and adopted by the producers in China.

Figure 3.1-1 Methoxyacetone route for producing metolachlor technical

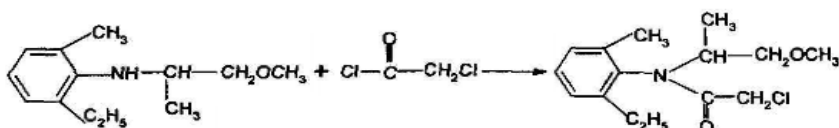
1) Methoxyacetone synthesis



2) 2-Methyl-6-ethyl-N-(1-methyl-2-methoxyethyl) aniline synthesis



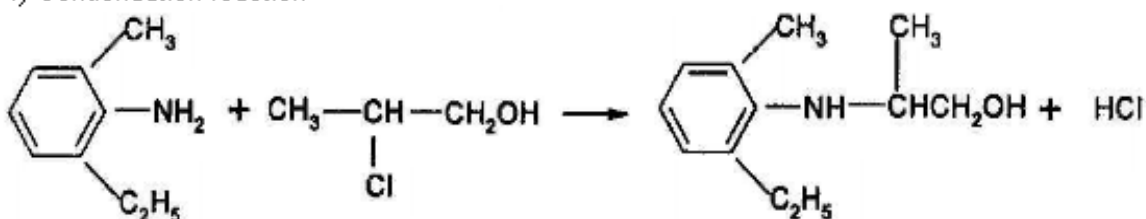
3) Metolachlor synthesis



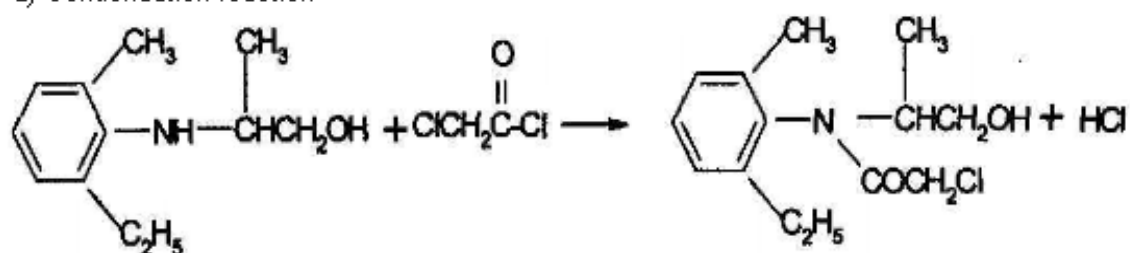
Source: Herbicide Volume, Corpus of Global Pesticides

Figure 3.1-2 2-Chlorine propanol route for producing metolachlor technical

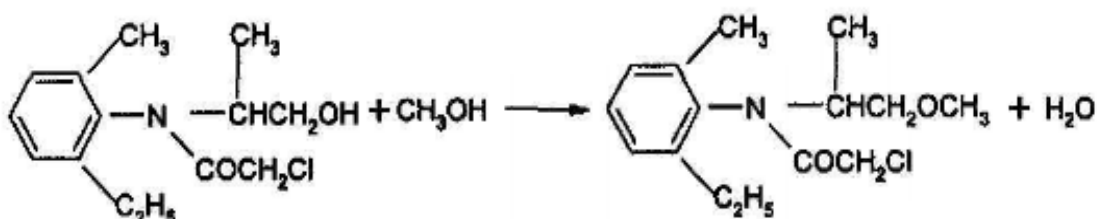
1) Condensation reaction



2) Condensation reaction

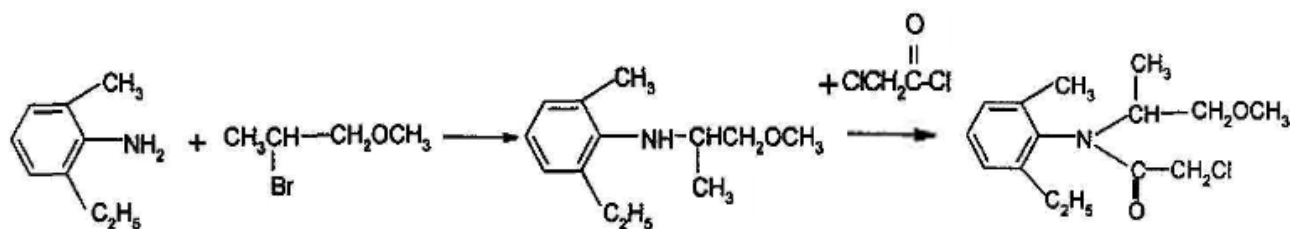


3) Etherification



Source: Herbicide Volume, Corpus of Global Pesticides

Figure 3.1-3 2-Bromo-1-methoxyl propane route for producing metolachlor technical



Source: *Herbicide Volume, Corpus of Global Pesticides*

Table 3.1-1 Comparison of different routes for producing metolachlor technical

Route	Advantage	Disadvantage
Methoxyacetone route	a. The raw materials used are low-toxic. b. The yield coefficient of catalytic hydrogenation (step 2) is high. c. The general yield coefficient is high.	Attrition loss of catalysts will increase the cost of production.
2-Chlorine propanol route	/	a. The 2-chlorine propanol needed is highly toxic and volatile. b. The yield coefficient of step 2 is low.
2-Bromo-1-methoxyl propane route	Fewer reaction steps	a. Requirements for equipment are high in process. b. The waste gas (HBr) is toxic.

Source: *Herbicide Volume, Corpus of Global Pesticides*

### 3.2 Production of metolachlor in China, 2016–2021

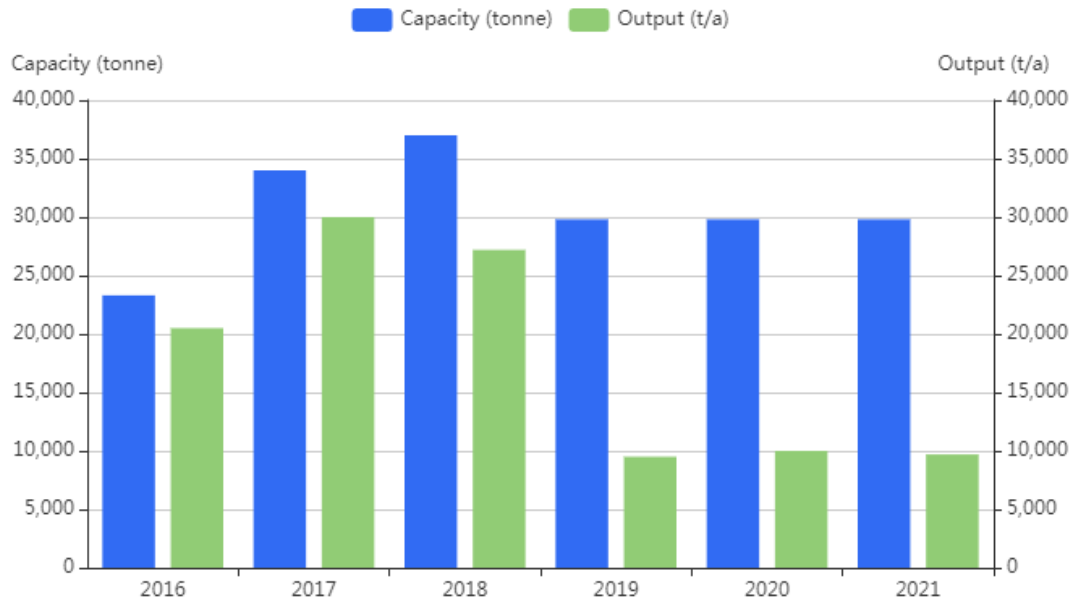
During 2016–2021, the capacity and output of metolachlor technical in China enjoyed growth first, then followed a downtrend mainly due to decreasing demand from abroad. The capacity increased from 23,300 t/a in 2016 to 37,000 t/a in 2018, yet dipped to 29,800 t/a during 2019–2020 and increased to 30,800 t/a in 2021. The output of metolachlor technical peaked at 30,000 t/a tonnes in 2017 but declined to about 9,700 tonnes in 2021.

In 2020, there were five metolachlor technical producers in China, which are located in Shandong, Zhejiang and Anhui provinces. In 2021, there came a new player—Nantong Jiangshan Agrochemical & Chemicals Co., Ltd., located in Jiangsu Province. Its 1,000 t/a metolachlor technical production lines entered the commissioning stage in Nov. 2021.

Previously, on 3 July, 2020, the Binhai Branch of the Ecology and Environment Bureau of Weifang City approved the environmental impact assessment report of Weifang Sino-Agri Union Chemical Co., Ltd.'s 12,000 t/a herbicide TC project, including 6,000 t/a 98% metolachlor TC. However, in Oct. 2021, only devices for 1,000 t/a prosulfocarb TC completed construction and passed environmental protection acceptance; the company dropped the plan of new capacity for other products.

It is noteworthy that the pressure from environmental protection has been heavy. Some metolachlor producers in China had to suspend their production from time to time. It is believed that environmental protection will continue to be the chief barrier to metolachlor industry in China in the near future.

Figure 3.2-1 Capacity and output of metolachlor technical in China, 2016–2021



Source: CCM

Table 3.2-1 Capacity and output of major metolachlor technical producers in China, 2016–2021

No.	Producer	Location	Status, as of March 2022	2021		2020		2019		2018		2017		2016	
				Capacity, t/a	Output, tonne	Capacity, t/a	Output, tonne	Capacity, t/a	Output, tonne	Capacity, t/a	Output, tonne	Capacity, t/a	Output, tonne	Capacity, t/a	Output, tonne
1	Shandong Binnong Technology Co., Ltd.	Shandong Province	Active	12,800	4,700	12,800	3,200	12,800	2,800	20,000	12,000	20,000	19,000	7,000	7,000
2	Shandong Qiaochang Chemical Co., Ltd.	Shandong Province	Active	3,000	2,100	3,000	1,000	3,000	1,000	6,000	5,600	6,000	3,500	6,000	5,500
3	Shangyu Nutrichem Co., Ltd.	Zhejiang Province	Active	4,000	1,100	4,000	3,100	4,000	2,600	5,000	5,000	5,000	4,500	5,000	5,000
4	Hangzhou Nutrichem Co., Ltd.	Zhejiang Province	Active	7,000	1,800	7,000	2,700	7,000	3,100	3,000	3,000	3,000	3,000	3,000	2,500
5	Anhui Zhongshan Chemical Co., Ltd.	Anhui Province	Idle	3,000	0	3,000	0	3,000	0	3,000	1,600	0	/	0	/
6	Nantong Jiangshan Agrochemical & Chemicals Co., Ltd.	Jiangsu Province	Commissioning stage	1,000	0	0	/	0	/	0	/	0	/	0	/

Source: CCM

Table 3.2-2 New projects of metolachlor technical in China, as of Dec. 2021

No.	Producer	Capacity, t/a	Current status
1	Shandong Weifang Rainbow Chemical Co., Ltd.	5,000	It is under environmental impact assessment again after changes to previous plan.

Source: CCM

## 4 Circulation

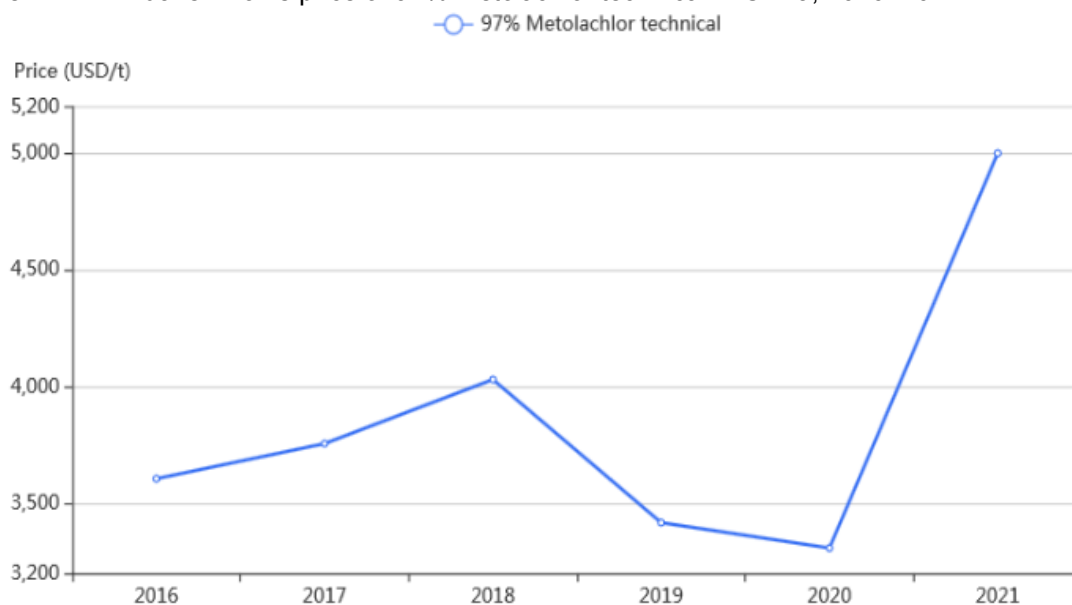
### 4.1 Prices of metolachlor technical, 2016–2021

In 2016–2018, prices of both metolachlor technical and metolachlor formulations were on a general increase. Specifically, the annual average ex-works price of 97% metolachlor technical rose from USD3,606/t in 2016 to USD4,030/t in 2018. In Feb. 2018, monthly ex-works price of 97% metolachlor technical increased to USD4,679/t. For one thing, stringent environmental inspection has pushed up the price. For another, increasing demand from overseas market also drove up the price. Yet later in 2018, as the new capacity of Anhui Zhongshan Chemical Co., Ltd. was put into production, the price of metolachlor technical began to decline.

In 2019, the annual ex-works price of 97% metolachlor technical decreased to USD3,418/t, decreasing by about 15.20% year on year. And it dipped further to USD3,309/t in 2020, which was the bottom in the past six years. The key reason for the price fall was the overall downturn in demand for metolachlor products in foreign markets in 2019, and thus metolachlor supply in domestic market exceeded the demand.

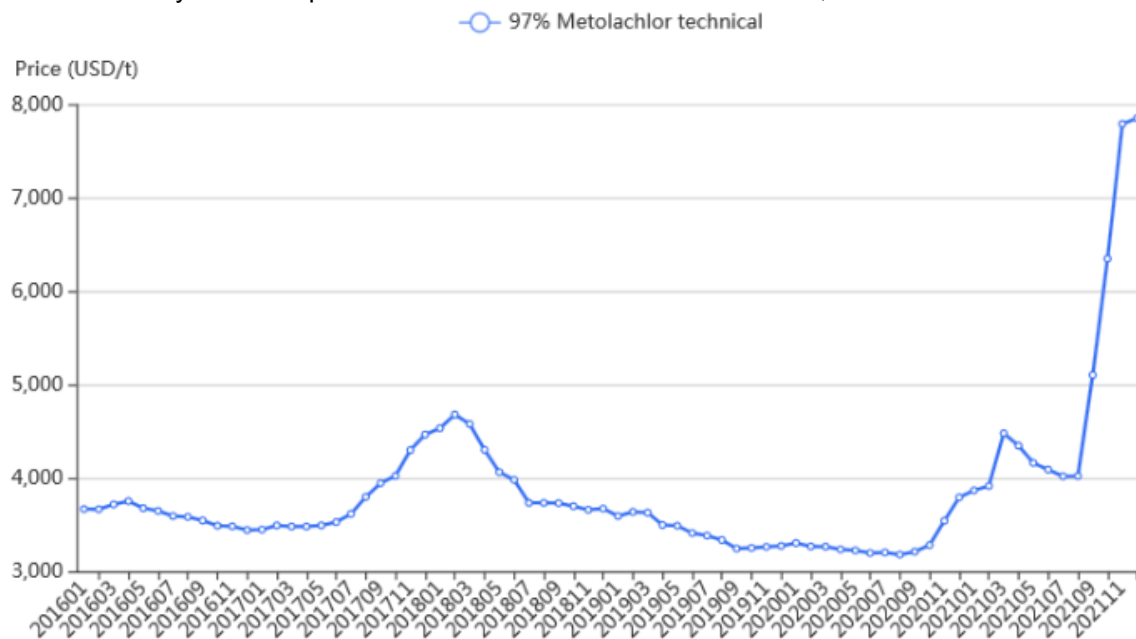
The annual ex-works price rocketed to about USD5,000/t in 2021, and the market saw volatile monthly prices. The Dec. 2021 price surged to USD7,850/t due to high production cost and limited supply, more than double the Dec. 2020 price. As the price of its raw materials kept high in recent months, the price of metolachlor technical will fluctuate at a high level in the near future.

Figure 4.1-1 Annual ex-works price of 97% metolachlor technical in China, 2016–2021



Source: CCM

Figure 4.1-2 Monthly ex-works price of 97% metolachlor technical in China, Jan. 2016–Dec. 2021



Source: CCM

#### 4.2 Exports of metolachlor, 2016–H1 2021

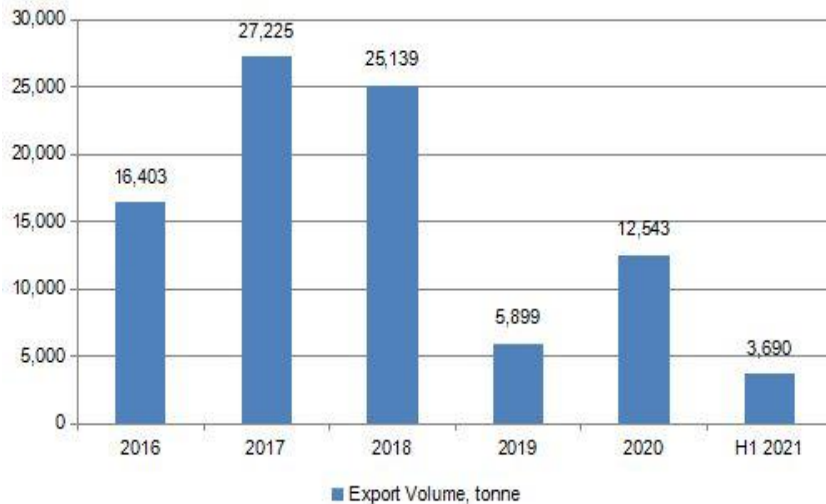
Metolachlor products made in China are export-oriented. In 2016–2018, the share of annual export volume of metolachlor (calculated by 97% technical, the same below) against the national total output went up continuously, reaching 92.42% in 2018. The share dipped to slightly over 60% in 2019, but bounced back strongly in 2020. In China, 95% technical, 96% technical, 97% technical, 720g/L EC and 960g/L EC are the major specifications exported. Metolachlor technical is a popular product on overseas market at present.

The export volume of metolachlor (calculated by 97% technical) in China increased from about 5,899 tonnes in 2019 to about 12,543 tonnes in 2020. Though large increase was witnessed in 2020, the export volume was still at a low level compared with that in 2017 and 2018.

And it is worth noting that the US was the largest overseas market for China's metolachlor for most of the time in 2016–H1 2021. Shandong Binnong Technology Co., Ltd. was the largest exporter for China's metolachlor in 2016–2019.



Figure 4.2-1 Export volume of metolachlor in China, 2016–H1 2021



Note: Export volume of metolachlor is calculated by 97% technical.  
Source: China Customs & CCM

### - By month

Table 4.2-1 China's exports of metolachlor by month, H1 2021

Month	960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
1	11.000	3.33	702.630	3.50	32.000	3.53	260.900	3.60
2	44.000	3.32	284.850	3.97	64.200	3.54	885.003	3.97
3	0.000	/	189.900	4.52	213.280	4.51	434.660	4.52
4	0.000	/	227.880	4.39	0.000	/	0.000	/
5	0.000	/	236.080	4.92	12.000	5.69	4.000	4.60
6	0.000	/	132.930	4.14	0.000	/	0.000	/
<b>Total</b>	<b>55.000</b>	<b>/</b>	<b>1,774.270</b>	<b>/</b>	<b>321.480</b>	<b>/</b>	<b>1,584.563</b>	<b>/</b>

Source: China Customs & CCM

Table 4.2-2 China's exports of metolachlor by month, 2020

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
1	464.060	3.06	148.660	3.49	0.000	/	17.600	2.83	0.000	/
2	0.000	/	38.500	4.05	5.000	3.80	47.980	2.91	96.000	3.10
3	63.600	3.04	37.426	3.54	0.000	/	196.720	3.24	279.000	3.11
4	25.500	3.17	141.542	4.00	989.900	2.97	9.000	3.35	605.000	3.02
5	3.000	3.45	23.400	4.11	0.000	/	270.080	3.24	250.817	3.17
6	0.000	/	2.000	4.10	0.000	/	219.440	3.46	53.160	3.20
7	0.000	/	0.000	/	0.000	/	224.368	3.26	0.000	/
8	3.000	3.35	2.000	4.10	523.280	3.23	377.360	3.20	961.283	4.42
9	0.000	/	0.000	/	117.105	3.55	675.200	3.00	468.828	3.55
10	0.000	/	0.000	/	617.175	3.07	13.420	3.02	578.848	3.29
11	0.000	/	0.000	/	0.000	/	264.640	3.22	2,267.458	3.12
12	0.000	/	0.000	/	569.700	3.38	32.000	3.53	1,151.651	3.05
<b>Total</b>	<b>559.160</b>	<b>/</b>	<b>393.528</b>	<b>/</b>	<b>2,822.160</b>	<b>/</b>	<b>2,347.808</b>	<b>/</b>	<b>6,712.045</b>	<b>/</b>

Source: China Customs &amp; CCM

Table 4.2-3 China's exports of metolachlor by month, 2019

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
1	141.616	3.91	165.770	3.93	0.000	/	0.000	/	148.800	3.54
2	120.500	3.64	15.400	3.74	0.000	/	0.000	/	16.000	3.40
3	79.171	3.72	9.900	4.19	12.000	3.63	64.620	3.39	87.600	3.83
4	0.000	/	143.230	4.35	38.600	3.99	17.000	3.50	254.000	3.19
5	4.000	4.16	98.453	4.13	260.200	3.51	13.420	3.41	420.000	3.18
6	73.265	3.23	30.800	4.12	148.600	3.49	0.200	3.46	272.400	3.63
7	34.720	3.57	197.460	3.99	301.200	3.42	53.280	3.95	110.000	3.32
8	29.090	3.93	407.814	3.76	60.600	3.35	10.120	3.00	2.000	4.43
9	170.000	3.41	44.770	3.79	49.200	3.57	22.880	3.00	0.000	/
10	26.776	3.34	155.818	4.21	748.000	3.09	4.840	3.14	35.200	3.29

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
11	382.000	3.13	27.729	3.53	0.000	/	9.400	3.82	138.000	3.45
12	398.408	3.06	134.786	3.64	0.000	/	0.000	/	329.360	3.21
<b>Total</b>	<b>1,459.546</b>	<b>/</b>	<b>1,431.930</b>	<b>/</b>	<b>1,618.400</b>	<b>/</b>	<b>195.760</b>	<b>/</b>	<b>1,813.360</b>	<b>/</b>

Source: China Customs & CCM

Table 4.2-4 China's exports of metolachlor by month, 2018

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
1	126.000	3.44	129.140	4.70	750.000	4.20	17.600	4.06	528.000	3.94
2	0.000	/	20.900	5.48	252.000	4.21	214.000	4.25	99.200	4.20
3	0.000	/	146.194	5.06	818.300	4.18	293.800	4.28	280.000	4.21
4	0.000	/	85.580	5.22	84.750	4.18	434.800	4.38	417.625	4.63
5	0.630	3.95	64.970	4.79	54.000	4.10	345.200	4.39	1,529.200	3.87
6	5.775	4.17	64.769	4.52	1,278.600	3.91	0.000	/	1,105.200	3.76
7	17.000	4.03	385.662	4.70	997.900	3.85	265.000	3.70	523.000	3.92
8	8.880	4.97	431.563	5.28	2,028.900	3.81	25.000	3.88	2,182.800	3.74
9	0.770	4.21	252.573	4.21	549.000	3.60	52.800	3.90	994.020	3.77
10	315.000	3.38	78.870	4.37	2,483.700	3.57	0.000	/	348.000	3.77
11	156.360	3.66	121.320	4.42	1,117.000	3.85	442.600	3.52	1,041.600	3.60
12	170.650	3.69	56.980	4.23	0.000	/	909.000	3.51	707.200	3.59
<b>Total</b>	<b>801.065</b>	<b>/</b>	<b>1,838.521</b>	<b>/</b>	<b>10,414.150</b>	<b>/</b>	<b>2,999.800</b>	<b>/</b>	<b>9,755.845</b>	<b>/</b>

Source: China Customs & CCM

Table 4.2-5 China's exports of metolachlor by month, 2017

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
1	50.400	3.05	250.558	3.79	0.000	/	1,501.305	3.38	289.600	3.27
2	0.000	/	225.780	4.18	0.000	/	1,625.680	3.31	750.800	3.37
3	90.896	4.49	66.897	4.10	0.000	/	497.400	3.36	559.600	3.21
4	77.935	4.12	91.190	4.82	0.000	/	674.020	3.65	724.800	3.20
5	5.280	3.48	82.756	4.69	0.000	/	1,809.250	3.38	785.400	3.10
6	14.000	3.77	259.788	3.90	0.000	/	1,915.150	3.40	372.800	3.12
7	35.040	3.64	313.014	4.08	0.000	/	2,633.000	3.54	1,305.040	3.37
8	12.320	3.76	116.370	4.18	0.000	/	2,515.450	3.93	512.840	3.35
9	39.900	3.52	295.291	4.34	0.000	/	481.460	3.41	469.560	3.74
10	168.000	3.40	178.010	4.05	0.000	/	2,093.200	3.79	384.000	3.40
11	134.400	3.46	109.778	5.13	12.000	4.61	1,375.060	4.16	640.000	3.45
12	91.900	3.90	111.490	4.82	0.000	/	1,076.600	4.12	14.000	5.57
<b>Total</b>	<b>720.071</b>	<b>/</b>	<b>2,100.922</b>	<b>/</b>	<b>12.000</b>	<b>/</b>	<b>18,197.575</b>	<b>/</b>	<b>6,808.440</b>	<b>/</b>

Source: China Customs &amp; CCM

Table 4.2-6 China's exports of metolachlor by month, 2016

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
1	18.200	3.88	121.000	4.20	0.000	/	566.980	3.50	1,008.000	3.24
2	182.350	3.98	182.600	3.79	0.000	/	37.000	3.72	566.400	3.31
3	132.596	3.78	33.398	6.81	0.000	/	418.240	3.45	645.000	3.35
4	0.000	/	47.430	4.08	0.000	/	994.600	3.40	426.200	3.29
5	3.000	4.28	7.612	5.20	0.000	/	792.900	3.71	556.640	3.30
6	8.000	3.42	44.004	4.02	722.600	3.40	132.200	3.49	397.360	3.20
7	10.500	3.29	618.620	3.97	494.400	3.33	332.800	3.34	84.920	3.28
8	3.150	3.67	337.182	3.90	1,512.000	3.37	164.800	3.33	0.000	/
9	5.450	5.95	118.836	3.97	736.000	3.33	380.400	3.42	0.000	/
10	7.757	3.33	111.260	4.17	549.000	3.14	280.000	3.25	0.000	/

Month	720g/L EC		960g/L EC		95% Technical		96% Technical		97% Technical	
	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg	Quantity, tonne	Price, USD/kg
11	0.000	/	60.220	7.86	1,198.000	3.46	208.000	3.27	0.012	1.83
12	4.340	2.98	177.528	3.81	1,324.400	3.14	9.577	3.50	105.600	3.25
<b>Total</b>	<b>375.343</b>	<b>/</b>	<b>1,859.690</b>	<b>/</b>	<b>6,536.400</b>	<b>/</b>	<b>4,317.497</b>	<b>/</b>	<b>3,790.132</b>	<b>/</b>

Source: China Customs & CCM

#### - By destination

Table 4.2-7 China's export volume of metolachlor by destination, H1 2021, tonne

No.	Destination	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	The US	0.000	1,538.190	185.680	1,572.863	<b>3,296.733</b>
2	Argentina	0.000	236.080	0.000	0.000	<b>236.080</b>
3	Pakistan	0.000	0.000	135.800	0.000	<b>135.800</b>
4	Ukraine	55.000	0.000	0.000	7.700	<b>62.700</b>
5	Vietnam	0.000	0.000	0.000	4.000	<b>4.000</b>
<b>Total</b>		<b>55.000</b>	<b>1,774.270</b>	<b>321.480</b>	<b>1,584.563</b>	<b>3,735.313</b>

Source: China Customs & CCM

Table 4.2-8 China's export volume of metolachlor by destination, 2020, tonne

No.	Destination	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	The US	0.000	0.000	2,796.260	1,941.200	6,122.465	<b>10,859.925</b>
2	Argentina	0.000	0.000	20.900	109.000	413.000	<b>542.900</b>
3	Ukraine	312.250	124.460	0.000	48.620	35.200	<b>520.530</b>
4	Cote d'Ivoire	204.410	0.000	0.000	0.000	0.000	<b>204.410</b>
5	Pakistan	0.000	0.000	0.000	167.800	0.000	<b>167.800</b>
6	Russia	0.000	120.118	0.000	0.000	0.000	<b>120.118</b>
7	Australia	0.000	0.000	0.000	38.688	70.380	<b>109.068</b>
8	South Africa	0.000	0.000	0.000	0.000	64.000	<b>64.000</b>
9	Uruguay	0.000	61.600	0.000	0.000	0.000	<b>61.600</b>
10	Vietnam	6.000	4.000	0.000	26.000	0.000	<b>36.000</b>
11	South Korea	0.000	0.000	5.000	16.500	7.000	<b>28.500</b>
12	Myanmar	27.500	0.000	0.000	0.000	0.000	<b>27.500</b>
13	Panama	0.000	23.400	0.000	0.000	0.000	<b>23.400</b>
14	Nicaragua	0.000	21.230	0.000	0.000	0.000	<b>21.230</b>
15	Chile	0.000	17.600	0.000	0.000	0.000	<b>17.600</b>
16	Nigeria	0.000	11.220	0.000	0.000	0.000	<b>11.220</b>
17	Malaysia	1.000	6.600	0.000	0.000	0.000	<b>7.600</b>
18	Thailand	6.000	0.000	0.000	0.000	0.000	<b>6.000</b>
19	Tanzania	0.000	3.300	0.000	0.000	0.000	<b>3.300</b>
20	Suriname	2.000	0.000	0.000	0.000	0.000	<b>2.000</b>
<b>Total</b>		<b>559.160</b>	<b>393.528</b>	<b>2,822.160</b>	<b>2,347.808</b>	<b>6,712.045</b>	<b>12,834.701</b>

Source: China Customs &amp; CCM

Table 4.2-9 China's export volume of metolachlor by destination, 2019, tonne

No.	Destination	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Argentina	0.000	0.000	532.400	0.000	920.000	<b>1,452.400</b>
2	Ukraine	1,104.520	203.496	0.000	0.000	30.360	<b>1,338.376</b>
3	The US	0.000	0.000	935.000	0.000	352.000	<b>1,287.000</b>
4	South Africa	8.800	676.567	123.200	10.000	185.600	<b>1,004.167</b>
5	Israel	0.000	0.000	0.000	0.000	256.000	<b>256.000</b>
6	Russia	39.856	154.143	0.000	0.000	0.000	<b>193.999</b>
7	Uruguay	0.000	150.860	0.000	0.000	0.000	<b>150.860</b>
8	South Korea	0.000	0.000	14.600	101.420	16.600	<b>132.620</b>
9	Zimbabwe	0.000	119.594	0.000	0.000	0.000	<b>119.594</b>
10	Myanmar	102.900	0.000	13.200	0.000	0.000	<b>116.100</b>
11	Pakistan	0.000	0.000	0.000	63.200	52.800	<b>116.000</b>
12	Poland	84.800	0.000	0.000	0.000	0.000	<b>84.800</b>
13	Senegal	50.571	0.000	0.000	0.000	0.000	<b>50.571</b>
14	Chile	17.760	31.240	0.000	0.000	0.000	<b>49.000</b>
15	Slovenia	22.896	0.000	0.000	4.840	0.000	<b>27.736</b>
16	Malaysia	9.608	15.400	0.000	2.400	0.000	<b>27.408</b>
17	Nicaragua	0.000	22.000	0.000	0.000	0.000	<b>22.000</b>
18	Vietnam	8.755	0.000	0.000	13.100	0.000	<b>21.855</b>
19	Paraguay	0.000	19.800	0.000	0.000	0.000	<b>19.800</b>
20	Thailand	3.000	16.720	0.000	0.000	0.000	<b>19.720</b>
	Others	6.080	22.110	0.000	0.800	0.000	<b>28.990</b>
	<b>Total</b>	<b>1,459.546</b>	<b>1,431.930</b>	<b>1,618.400</b>	<b>195.760</b>	<b>1,813.360</b>	<b>6,518.996</b>

Source: China Customs &amp; CCM

Table 4.2-10 China's export volume of metolachlor by destination, 2018, tonne

No.	Destination	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	The US	0.000	0.000	8,919.000	1,331.000	7,060.025	<b>17,310.025</b>
2	Argentina	0.000	0.000	1,252.400	1,323.775	1,610.000	<b>4,186.175</b>
3	South Africa	0.000	1,141.221	154.000	193.600	657.200	<b>2,146.021</b>
4	Ukraine	631.600	93.448	0.000	0.000	0.000	<b>725.048</b>
5	Israel	0.000	0.000	0.000	0.000	256.000	<b>256.000</b>
6	Pakistan	0.000	0.000	0.000	112.000	129.600	<b>241.600</b>
7	Russia	0.630	150.700	0.000	5.625	0.000	<b>156.955</b>
8	Uruguay	0.000	145.890	0.000	0.000	0.000	<b>145.890</b>
9	Singapore	0.000	115.500	0.000	0.000	0.000	<b>115.500</b>
10	Poland	113.400	0.000	0.000	0.000	0.000	<b>113.400</b>
11	South Korea	0.000	0.000	43.000	13.000	43.020	<b>99.020</b>
12	Thailand	16.000	0.000	32.000	0.000	0.000	<b>48.000</b>
13	Chile	26.640	15.984	0.000	0.000	0.000	<b>42.624</b>
14	Malaysia	9.400	25.960	0.000	2.000	0.000	<b>37.360</b>
15	Paraguay	0.000	31.900	0.000	0.000	0.000	<b>31.900</b>
16	Vietnam	0.000	0.000	12.750	18.800	0.000	<b>31.550</b>
17	Zimbabwe	0.000	30.153	0.000	0.000	0.000	<b>30.153</b>
18	Nigeria	0.000	26.400	0.000	0.000	0.000	<b>26.400</b>
19	Nicaragua	0.000	22.000	0.000	0.000	0.000	<b>22.000</b>
20	Colombia	0.000	19.439	0.000	0.000	0.000	<b>19.439</b>
	Others	3.395	19.926	1.000	0.000	0.000	<b>24.321</b>
	<b>Total</b>	<b>801.065</b>	<b>1,838.521</b>	<b>10,414.150</b>	<b>2,999.800</b>	<b>9,755.845</b>	<b>25,809.381</b>

Source: China Customs &amp; CCM



Table 4.2-11 China's export volume of metolachlor by destination, 2017, tonne

No.	Destination	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	The US	0.000	0.000	0.000	11,187.200	3,920.000	<b>15,107.200</b>
2	Argentina	0.000	0.000	0.000	5,491.600	787.640	<b>6,279.240</b>
3	South Africa	12.320	915.823	0.000	643.260	52.800	<b>1,624.203</b>
4	Israel	0.000	0.000	0.000	16.000	1,590.000	<b>1,606.000</b>
5	Ukraine	453.600	451.044	0.000	96.000	252.000	<b>1,252.644</b>
6	Vietnam	12.700	0.000	0.000	375.470	0.000	<b>388.170</b>
7	Pakistan	0.000	0.000	0.000	195.000	172.800	<b>367.800</b>
8	Russia	0.000	250.140	0.000	0.000	0.000	<b>250.140</b>
9	Uruguay	51.470	188.076	0.000	0.000	0.000	<b>239.546</b>
10	Australia	13.300	81.540	0.000	73.505	0.000	<b>168.345</b>
11	South Korea	0.000	0.000	12.000	69.460	33.200	<b>114.660</b>
12	Zimbabwe	0.000	75.800	0.000	0.000	0.000	<b>75.800</b>
13	Mali	69.646	0.000	0.000	0.000	0.000	<b>69.646</b>
14	Ghana	50.285	0.000	0.000	0.000	0.000	<b>50.285</b>
15	Malaysia	12.550	34.880	0.000	0.000	0.000	<b>47.430</b>
16	Thailand	41.000	0.000	0.000	0.000	0.000	<b>41.000</b>
17	Lithuania	0.000	0.000	0.000	38.680	0.000	<b>38.680</b>
18	Chile	0.000	36.528	0.000	0.000	0.000	<b>36.528</b>
19	Nicaragua	0.000	17.600	0.000	0.000	0.000	<b>17.600</b>
20	Paraguay	0.000	15.400	0.000	0.000	0.000	<b>15.400</b>
	Others	3.200	34.091	0.000	11.400	0.000	<b>48.691</b>
	<b>Total</b>	<b>720.071</b>	<b>2,100.922</b>	<b>12.000</b>	<b>18,197.575</b>	<b>6,808.440</b>	<b>27,839.008</b>

Source: China Customs &amp; CCM

Table 4.2-12 China's export volume of metolachlor by destination, 2016, tonne

No.	Destination	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	The US	0.000	0.000	6,122.000	1,354.000	1,356.812	<b>8,832.812</b>
2	Argentina	0.000	0.000	231.200	1,119.100	1,297.600	<b>2,647.900</b>
3	Israel	0.000	0.000	0.000	953.600	736.000	<b>1,689.600</b>
4	South Africa	0.000	801.920	0.000	457.600	152.680	<b>1,412.200</b>
5	Ukraine	67.520	348.788	0.000	37.000	7.600	<b>460.908</b>
6	Pakistan	0.000	35.200	0.000	233.377	139.640	<b>408.217</b>
7	Australia	1.357	17.760	106.000	65.000	99.800	<b>289.917</b>
8	Singapore	0.000	211.200	0.000	0.000	0.000	<b>211.200</b>
9	Uruguay	0.000	115.728	10.800	7.040	0.000	<b>133.568</b>
10	South Korea	0.000	0.000	50.400	74.600	0.000	<b>125.000</b>
11	Burkina Faso	107.875	0.000	0.000	0.000	0.000	<b>107.875</b>
12	Mali	98.991	0.000	0.000	0.000	0.000	<b>98.991</b>
13	Russia	0.000	73.150	0.000	0.000	0.000	<b>73.150</b>
14	Thailand	61.000	0.000	0.000	0.000	0.000	<b>61.000</b>
15	Malaysia	8.380	35.692	0.000	0.000	0.000	<b>44.072</b>
16	Paraguay	0.000	41.600	0.000	0.000	0.000	<b>41.600</b>
17	Hungary	0.000	35.200	0.000	0.000	0.000	<b>35.200</b>
18	Zimbabwe	0.000	32.898	0.000	0.000	0.000	<b>32.898</b>
19	Tanzania	5.450	20.936	0.000	0.000	0.000	<b>26.386</b>
20	Mozambique	2.200	18.700	0.000	0.000	0.000	<b>20.900</b>
	Others	22.570	70.918	16.000	16.180	0.000	<b>125.668</b>
	<b>Total</b>	<b>375.343</b>	<b>1,859.690</b>	<b>6,536.400</b>	<b>4,317.497</b>	<b>3,790.132</b>	<b>16,879.062</b>

Source: China Customs &amp; CCM

**- By exporter**

Table 4.2-13 China's export volume of metolachlor by exporter, H1 2021, tonne

No.	Exporter	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Shandong Binnong Technology Co., Ltd.	55.000	1,761.290	135.800	7.700	<b>1,959.790</b>
2	Hangzhou Nutrichem Co., Ltd.	0.000	0.000	0.000	265.860	<b>265.860</b>
3	Kingland Chemicals Co., Ltd.	0.000	0.000	0.000	168.800	<b>168.800</b>
4	Shandong Weifang Rainbow Chemical Co., Ltd.	0.000	12.980	0.000	0.000	<b>12.980</b>
5	Eastchem Co., Ltd.	0.000	0.000	0.000	4.000	<b>4.000</b>
	Others	0.000	0.000	185.680	1,138.203	<b>1,323.883</b>
	<b>Total</b>	<b>55.000</b>	<b>1,774.270</b>	<b>321.480</b>	<b>1,584.563</b>	<b>3,735.313</b>

Source: China Customs & CCM

Table 4.2-14 China's export volume of metolachlor by exporter, 2020, tonne

No.	Exporter	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Kingland Chemicals Co., Ltd.	0.000	0.000	0.000	0.000	2,922.323	<b>2,922.323</b>
2	Shandong Binnong Technology Co., Ltd.	8.000	36.520	1,893.760	216.420	0.000	<b>2,154.700</b>
3	Nutrichem Company Limited	0.000	0.000	0.000	0.000	868.950	<b>868.950</b>
4	Anhui Zhongshan Chemical Co., Ltd.	0.000	0.000	0.000	641.440	0.000	<b>641.440</b>
5	Shangyu Nutrichem Co., Ltd.	0.000	0.000	0.000	0.000	625.600	<b>625.600</b>
6	Hangzhou Nutrichem Co., Ltd.	296.800	172.982	0.000	0.000	111.304	<b>581.086</b>
7	Zhejiang Zhongda Newland Co., Ltd.	204.410	0.000	0.000	0.000	0.000	<b>204.410</b>
8	Shandong Weifang Rainbow Chemical Co., Ltd.	0.000	0.000	0.000	111.000	0.000	<b>111.000</b>
9	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	0.000	0.000	0.000	0.000	64.000	<b>64.000</b>
10	Oasis AgroScience Ltd.	0.000	61.600	0.000	0.000	0.000	<b>61.600</b>
11	Zhejiang Chemicals Import & Export Corporation	0.000	52.896	0.000	0.000	0.000	<b>52.896</b>
12	Jiangsu Jinlikai Chemical Co., Ltd.	0.000	0.000	0.000	38.688	0.000	<b>38.688</b>
13	Xingjinshi (Xiamen) Trade Co., Ltd.	27.500	0.000	0.000	0.000	0.000	<b>27.500</b>
14	Ningbo Sanyi Biotechnology Co., Ltd.	0.000	21.230	0.000	0.000	0.000	<b>21.230</b>
15	Nanjing Essence Fine Chemical Co., Ltd.	0.000	20.900	0.000	0.000	0.000	<b>20.900</b>
16	Hisigma Chemicals Co., Ltd.	0.000	0.000	0.000	16.500	0.000	<b>16.500</b>
17	Hangzhou Ruijiang Agricultural Technology Co., Ltd.	15.450	0.000	0.000	0.000	0.000	<b>15.450</b>
18	Eastchem Co., Ltd.	0.000	0.000	0.000	14.000	0.000	<b>14.000</b>
19	Shandong Rainbow Agrosiences Co., Ltd.	0.000	4.000	0.000	10.000	0.000	<b>14.000</b>
20	Nanjing Bioagriland Crop Care Co., Ltd.	0.000	0.000	0.000	0.000	13.000	<b>13.000</b>
Others		7.000	23.400	928.400	1,299.760	2,106.868	<b>4,365.428</b>
<b>Total</b>		<b>559.160</b>	<b>393.528</b>	<b>2,822.160</b>	<b>2,347.808</b>	<b>6,712.045</b>	<b>12,834.701</b>

Source: China Customs &amp; CCM

Table 4.2-15 China's export volume of metolachlor by exporter, 2019, tonne

No.	Exporter	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Shandong Binnong Technology Co., Ltd.	5.000	528.550	939.400	49.600	0.000	<b>1,522.550</b>
2	Nutrichem Company Limited	0.000	27.720	0.000	0.000	1,465.000	<b>1,492.720</b>
3	Hangzhou Nutrichem Co., Ltd.	1,171.480	199.679	0.000	0.000	83.160	<b>1,454.319</b>
4	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	0.000	2.200	562.200	0.000	107.200	<b>671.600</b>
5	Suzhou Everfortune Imp. & Exp. Co., Ltd.	9.680	140.800	0.000	0.000	0.000	<b>150.480</b>
6	Shangyu Nutrichem Co., Ltd.	0.000	0.000	0.000	0.000	112.000	<b>112.000</b>
7	Hangzhou Qingfeng Import and Export Co., Ltd.	84.800	12.448	0.000	0.000	0.000	<b>97.248</b>
8	Hisigma Chemicals Co., Ltd.	0.000	0.000	0.000	88.000	0.000	<b>88.000</b>
9	Guangdong Keywa Chemical Exchange Center Stock Co., Ltd.	0.000	61.600	17.600	0.000	0.000	<b>79.200</b>
10	Shanghai Mingdou Chemical Co., Ltd.	0.000	71.630	0.000	0.000	0.000	<b>71.630</b>
11	Shandong Weifang Rainbow Chemical Co., Ltd.	21.090	17.760	0.000	17.000	0.000	<b>55.850</b>
12	Nanjing Red Sun Co., Ltd.	0.000	0.000	54.000	0.000	0.000	<b>54.000</b>
13	Zhejiang Chemicals Import & Export Corporation	0.000	52.896	0.000	0.000	0.000	<b>52.896</b>
14	Shanghai Chengxin Agricultural Technology Co., Ltd.	0.000	52.800	0.000	0.000	0.000	<b>52.800</b>
15	Shandong Kesai Eagrow Chemical Co., Ltd.	50.571	0.000	0.000	0.000	0.000	<b>50.571</b>
16	Eastchem Co., Ltd.	44.100	0.000	0.000	5.000	0.000	<b>49.100</b>
17	Xingjinshi (Xiamen) Trade Co., Ltd.	46.200	0.000	0.000	0.000	0.000	<b>46.200</b>
18	Nanjing Essence Fine Chemical Co., Ltd.	0.000	39.205	0.000	0.000	0.000	<b>39.205</b>
19	Ningbo Generic Chemical Co., Ltd.	0.000	0.000	0.000	0.000	38.000	<b>38.000</b>
20	Chongqing Shining Fine Chemical Co., Ltd.	0.000	37.876	0.000	0.000	0.000	<b>37.876</b>
Others		26.625	186.766	45.200	36.160	8.000	<b>302.751</b>
<b>Total</b>		<b>1,459.546</b>	<b>1,431.930</b>	<b>1,618.400</b>	<b>195.760</b>	<b>1,813.360</b>	<b>6,518.996</b>

Source: China Customs &amp; CCM

Table 4.2-16 China's export volume of metolachlor by exporter, 2018, tonne

No.	Exporter	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Shandong Binnong Technology Co., Ltd.	18.625	501.240	10,119.100	350.575	0.000	<b>10,989.540</b>
2	Nutrichem Company Limited	0.000	194.040	0.000	0.000	8,108.225	<b>8,302.265</b>
3	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	0.000	0.000	0.000	600.000	926.000	<b>1,526.000</b>
4	Hangzhou Nutrichem Co., Ltd.	745.630	173.008	0.000	0.000	105.600	<b>1,024.238</b>
5	Shandong Weifang Rainbow Chemical Co., Ltd.	26.640	70.374	0.000	846.000	0.000	<b>943.014</b>
6	Suzhou Everfortune Imp. & Exp. Co., Ltd.	0.770	319.000	0.000	158.400	193.600	<b>671.770</b>
7	Shandong Qiaochang Modern Agriculture Import & Export Co., Ltd.	0.000	0.000	0.000	425.000	0.000	<b>425.000</b>
8	Shanghai Agrohao International Trade Co., Ltd.	0.000	0.000	0.000	306.000	0.000	<b>306.000</b>
9	Nanjing Red Sun Group International Trade Co., Ltd.	0.000	0.000	196.000	0.000	0.000	<b>196.000</b>
10	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	0.000	2.750	0.000	35.200	88.000	<b>125.950</b>
11	Shandong Qiaochang Chemical Co., Ltd.	0.000	0.000	0.000	125.200	0.000	<b>125.200</b>
12	Shandong Runke International Trade Co., Ltd.	0.000	0.000	0.000	120.000	0.000	<b>120.000</b>
13	Chongqing Shining Fine Chemical Co., Ltd.	0.000	119.460	0.000	0.000	0.000	<b>119.460</b>
14	Jiangsu Flag International Trading Co., Ltd.	0.000	115.500	0.000	0.000	0.000	<b>115.500</b>
15	Nanjing Red Sun Co., Ltd.	0.000	0.000	0.000	0.000	108.000	<b>108.000</b>
16	Nanjing Bioagriland Crop Care Co., Ltd.	0.000	0.000	0.000	0.000	105.600	<b>105.600</b>
17	High Hope Zhongtian Corporation	0.000	4.400	0.000	0.000	70.400	<b>74.800</b>
18	Shanghai Chengxin Agricultural Technology Co., Ltd.	0.000	62.700	0.000	0.000	0.000	<b>62.700</b>
19	Hisigma Chemicals Co., Ltd.	0.000	0.000	29.700	0.000	26.420	<b>56.120</b>
20	Shanghai E-tong Chemical Co., Ltd.	0.000	46.410	0.000	0.000	0.000	<b>46.410</b>
	Others	9.400	229.639	69.350	33.425	24.000	<b>365.814</b>
	<b>Total</b>	<b>801.065</b>	<b>1,838.521</b>	<b>10,414.150</b>	<b>2,999.800</b>	<b>9,755.845</b>	<b>25,809.381</b>

Source: China Customs &amp; CCM

Table 4.2-17 China's export volume of metolachlor by exporter, 2017, tonne

No.	Exporter	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Shandong Binnong Technology Co., Ltd.	30.700	320.144	12.000	12,610.140	0.000	<b>12,972.984</b>
2	Nutrichem Company Limited	0.000	110.880	0.000	0.000	6,366.040	<b>6,476.920</b>
3	Shandong Weifang Rainbow Chemical Co., Ltd.	0.000	171.229	0.000	3,761.000	0.000	<b>3,932.229</b>
4	Hangzhou Nutrichem Co., Ltd.	403.200	412.940	0.000	0.000	424.800	<b>1,240.940</b>
5	Suzhou Everfortune Imp. & Exp. Co., Ltd.	52.640	469.128	0.000	369.600	0.000	<b>891.368</b>
6	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	0.000	63.056	0.000	529.105	0.000	<b>592.161</b>
7	Eastchem Co., Ltd.	0.000	0.000	0.000	209.270	0.000	<b>209.270</b>
8	Shandong Gufa Import and Export Co., Ltd.	0.000	0.000	0.000	208.000	0.000	<b>208.000</b>
9	Chongqing Shining Fine Chemical Co., Ltd.	0.000	140.470	0.000	0.000	0.000	<b>140.470</b>
10	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	0.000	57.750	0.000	35.200	17.600	<b>110.550</b>
11	Shanghai E-tong Chemical Co., Ltd.	0.000	103.010	0.000	0.000	0.000	<b>103.010</b>
12	Guangdong Keywa Chemical Trading Center Co., Ltd.	0.000	0.000	0.000	88.000	0.000	<b>88.000</b>
13	Hangzhou Lvhe Chemical Co., Ltd.	0.000	0.000	0.000	88.000	0.000	<b>88.000</b>
14	Shanghai Agrohao International Trade Co., Ltd.	0.000	0.000	0.000	80.000	0.000	<b>80.000</b>
15	Jinan Kesai Agrochem Co., Ltd.	69.646	0.000	0.000	0.000	0.000	<b>69.646</b>
16	Hisigma Chemicals Co., Ltd.	0.000	0.000	0.000	64.400	0.000	<b>64.400</b>
17	Shanghai MIO Chemical Co., Ltd.	50.400	5.504	0.000	0.000	0.000	<b>55.904</b>
18	Shandong Runke International Trade Co., Ltd.	0.000	0.000	0.000	54.000	0.000	<b>54.000</b>
19	Shandong Kesai Eagrow Chemical Co., Ltd.	50.285	0.000	0.000	0.000	0.000	<b>50.285</b>
20	United Pesticide Industry Limited	9.000	0.000	0.000	36.000	0.000	<b>45.000</b>
Others		54.200	246.811	0.000	64.860	0.000	<b>365.871</b>
<b>Total</b>		<b>720.071</b>	<b>2,100.922</b>	<b>12.000</b>	<b>18,197.575</b>	<b>6,808.440</b>	<b>27,839.008</b>

Source: China Customs &amp; CCM

Table 4.2-18 China's export volume of metolachlor by exporter, 2016, tonne

No.	Exporter	720g/L EC	960g/L EC	95% Technical	96% Technical	97% Technical	Total
1	Shandong Binnong Technology Co., Ltd.	3.150	195.788	6,536.400	1,737.240	0.000	<b>8,472.578</b>
2	Nutrichem Company Limited	0.000	138.600	0.000	0.000	3,253.492	<b>3,392.092</b>
3	Shanghai MIO Chemical Co., Ltd.	0.000	6.600	0.000	953.600	0.000	<b>960.200</b>
4	Suzhou Everfortune Imp. & Exp. Co., Ltd.	2.200	510.400	0.000	174.400	0.000	<b>687.000</b>
5	Shanghai Bioagriland Crop Care Co., Ltd.	0.000	6.600	0.000	510.400	0.000	<b>517.000</b>
6	Shandong Weifang Rainbow Chemical Co., Ltd.	0.000	113.046	0.000	376.700	0.000	<b>489.746</b>
7	Hangzhou Nutrichem Co., Ltd.	8.380	78.980	0.000	0.000	301.400	<b>388.760</b>
8	Sino-Agri Leading Biosciences Co., Ltd.	0.000	0.000	0.000	264.000	0.000	<b>264.000</b>
9	Jiangsu Flag International Trading Co., Ltd.	0.000	211.200	0.000	0.000	0.000	<b>211.200</b>
10	Zhejiang Chun'an Foreign Trade Co., Ltd.	0.000	211.200	0.000	0.000	0.000	<b>211.200</b>
11	Beijing DTE Sino-Africa International Trade Co., Ltd.	206.866	0.000	0.000	0.000	0.000	<b>206.866</b>
12	Hangzhou Qingfeng Import and Export Co., Ltd.	0.000	0.000	0.000	0.000	121.440	<b>121.440</b>
13	Nanjing Ruikangjia Chemical Co., Ltd.	0.000	58.850	0.000	32.000	2.200	<b>93.050</b>
14	Hangzhou Lvhe Chemical Co., Ltd.	0.000	0.000	0.000	88.000	0.000	<b>88.000</b>
15	Hangzhou March Chemicals Co., Ltd.	0.000	0.000	0.000	0.000	88.000	<b>88.000</b>
16	Hangzhou Ruijiang Crop Science Co., Ltd.	67.520	17.600	0.000	0.000	0.000	<b>85.120</b>
17	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	0.000	21.516	0.000	52.200	0.000	<b>73.716</b>
18	Hisigma Chemicals Co., Ltd.	0.000	0.000	0.000	63.200	0.000	<b>63.200</b>
19	Jiangsu Jiatai Chemical Co., Ltd.	40.000	0.000	0.000	0.000	0.000	<b>40.000</b>
20	Yangzhou Huijie Import and Export Co., Ltd.	0.000	0.000	0.000	37.000	1.000	<b>38.000</b>
Others		47.227	289.310	0.000	28.757	22.600	<b>387.894</b>
<b>Total</b>		<b>375.343</b>	<b>1,859.690</b>	<b>6,536.400</b>	<b>4,317.497</b>	<b>3,790.132</b>	<b>16,879.062</b>



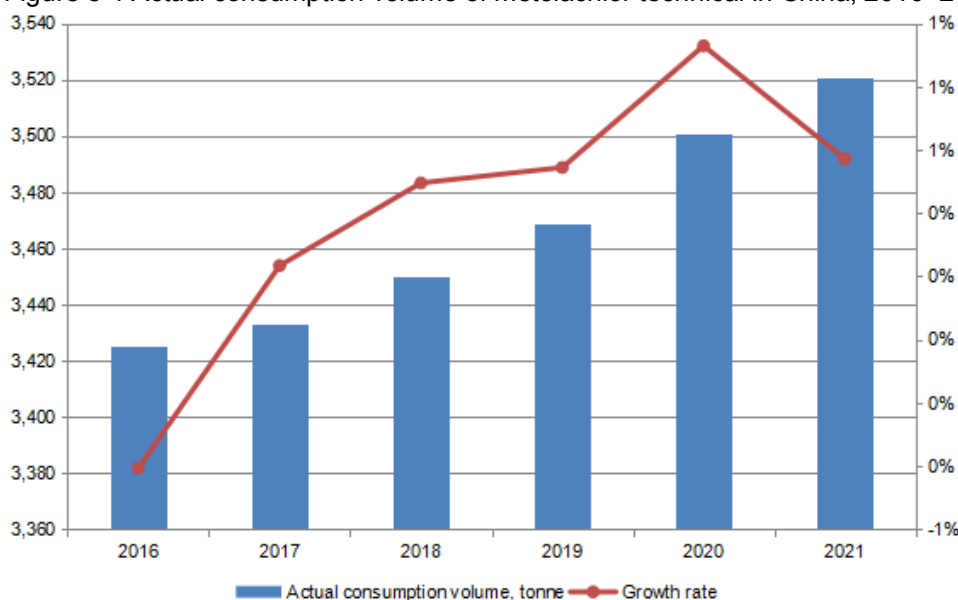
## 5 Consumption, 2016–2021

In 2021, the consumption volume of metolachlor technical in China has edged higher to 3,521 tonnes, up by 0.57% year on year. Notably, the growth slowed down in 2021 for the first time since 2016.

As a substitute for acetochlor in crop planting, metolachlor is becoming popular in China at present due to its relatively safer properties. That has driven up the domestic consumption of metolachlor technical in China since 2017. But it's worthy to note that there is a strong competitive product for metolachlor, namely S-metolachlor. Though the price of S-metolachlor technical is higher, it has better performance than metolachlor. In addition, pyroxasulfone, a preemergence herbicide, is also a potential competitive product for metolachlor that can be used in most crop fields. Its mechanism of action is similar to that of acetochlor and related herbicides, but its biological activity is far greater than that of acetochlor and metolachlor. And data show that it is not an endocrine-disrupting chemical.

Generally, metolachlor technical is applied on crops through single formulations of 720g/L EC and 960g/L EC and mixtures of the product with bensulfuron-methyl, atrazine and mefenacet on the domestic market currently. And metolachlor is mainly applied on corn, vegetables, soybean and some other economic crops in China. In 2021, the consumption volume of metolachlor technical in corn and vegetables accounted for more than 60% of its total consumption volume in China.

Figure 5-1 Actual consumption volume of metolachlor technical in China, 2016–2021



Note: Actual consumption volume of metolachlor is calculated by 97% technical.

Source: CCM

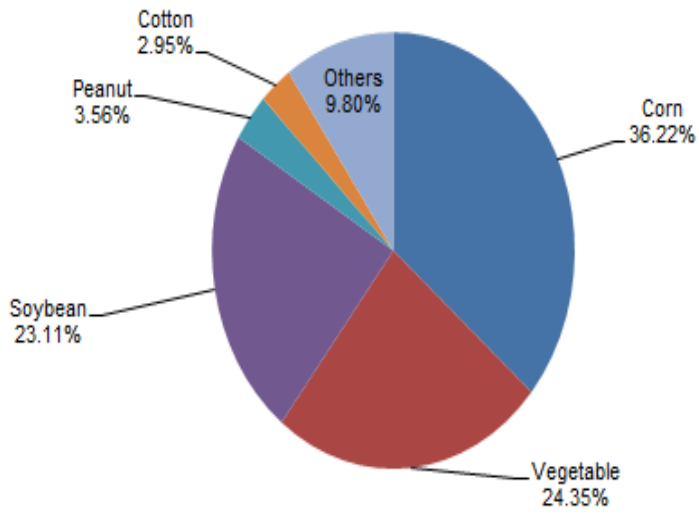
Table 5-1 Application of metolachlor technical in China by crop, 2021

Crop	Consumption volume, tonne
Corn	1,275
Vegetable	858
Soybean	814
Peanut	125
Cotton	104
Others	345
<b>Total</b>	<b>3,521</b>

Note: Consumption volume of metolachlor is calculated by 97% technical.

Source: CCM

Figure 5-2 Application share of metolachlor technical in China by crop, 2021



*Note: Due to rounding, the total may not equal 100.00%.  
Source: CCM*

## 6 Forecast on supply and demand, 2022–2026

### - Supply

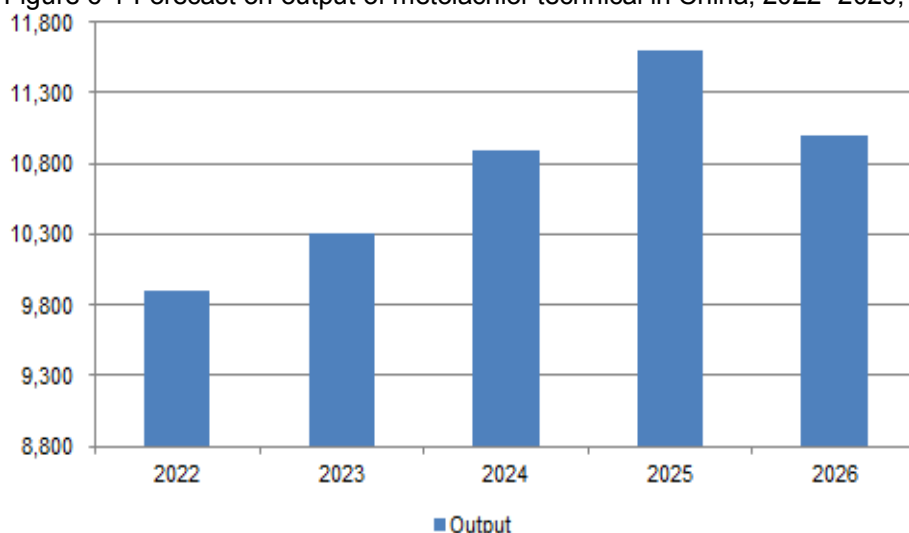
Because of draconian environmental inspection at home and increasing production cost, the supply of metolachlor technical in China has been relatively tight in 2021. Thanks to increasing demand at home, it is predicted that the output of metolachlor technical in China will increase in the next four years and then decrease in 2026.

As to capacity expansion projects, Nantong Jiangshan Agrochemical & Chemicals Co., Ltd.'s 1,000 t/a metolachlor production line has entered the commissioning stage, while Shandong Weifang Rainbow Chemical Co., Ltd.'s 5,000 t/a metolachlor project is under environmental impact assessment since some changes had been made to its original plan. The new capacity is expected to be gradually put into use in China before 2025.

However, there are also some barriers limiting the output increase in China. First, as metolachlor products made in China are export-oriented, decreasing overseas demand will impact manufacturers' confidence in the market. Second, S-metolachlor may undermine metolachlor's market competitiveness. Furthermore, increasingly strict environmental inspection in China puts greater pressure on metolachlor producers, since higher environmental cost must be taken into consideration.

Therefore, it's unlikely to see too much increase in the output of metolachlor in China in the following five years. It is estimated that the output of metolachlor technical in China will peak at 11,600 tonnes in 2025 and then start to fall in 2026.

Figure 6-1 Forecast on output of metolachlor technical in China, 2022–2026, tonne



Source: CCM

### - Demand

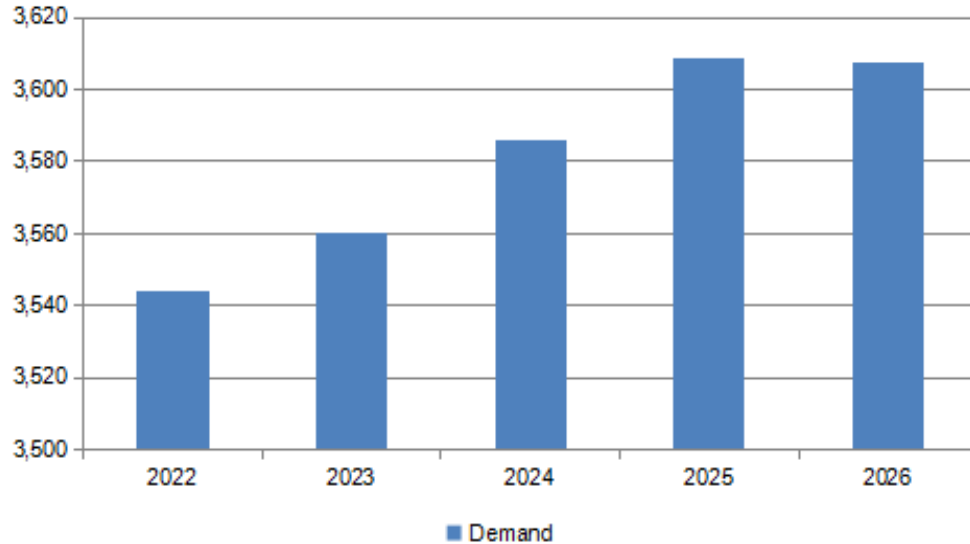
It's estimated that consumption of metolachlor technical in China will enjoy slight increase in 2022–2025 with more metolachlor being applied on crops as a substitute for acetochlor. But domestic demand for metolachlor technical may decrease in 2026.

Besides, the planting area of soybean, one of the main application fields of metolachlor on crops, will continue to increase under the implementation of soybean revitalization plan in China. With more soybeans being planted, more metolachlor will be needed in China. The Ministry of Agriculture and Rural Affairs of the People's Republic of China issued the Development Plan of National Planting Industry in the 14th Five-Year Plan Period (2021–2025) in Dec. 2021, which pointed out that China would strive to expand the soybean planting area to better satisfy the rapidly increasing demand. To raise soybean self-sufficiency level, China would strive to plant about 10.07 million ha (160 million mu) of soybean by 2025. This move brings good news to metolachlor consumption and will promote domestic demand at least in the near future.

However, it's believed that it's unlikely to see large increase in metolachlor consumption in China. Generally speaking, a major factor limits the growth of metolachlor consumption in China.

S-metolachlor is a strong competitive product of metolachlor. The more S-metolachlor is used in crops, the less metolachlor is needed. S-metolachlor is a selective herbicide with broad weeding spectrum, sharing similar herbicidal mechanism, application fields and application methods with metolachlor. It's deemed as an upgrade of metolachlor for its higher herbicidal activity and lower toxicity. In recent years, the S-metolachlor industry has been expanding in China, which can be reflected by the number of registrants. According to the ICAMA, there were only eight registrations of S-metolachlor (three for technical) in 2013, while the figure increased to 76 (24 for technical) as of Dec. 2021. And it's worthy to note that even for those potential producers of metolachlor, they expressed that they would not launch their metolachlor production lines immediately and would act according to actual needs. Moreover, they expressed that they preferred to have production lines of S-metolachlor at the same time.

Figure 6-2 Forecast on demand for metolachlor technical in China, 2022–2026, tonne



Source: CCM

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