

# **Market and Competitive Analysis of Dicamba Industry in China in 2023**

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**Researched & Prepared by:**

**Kcomber Inc.**

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## Executive summary

Dicamba was developed by Syngenta AG early in the 1960s, yet it ushered in a fast development only from 2009. In 2020–2021, the demand for dicamba recovered as dicamba products got approved again in the US. Dicamba is expected to have good market prospects in the future because of two main factors: weeds' serious resistance to glyphosate and the development of dicamba-tolerant crops by international agricultural giants like Bayer and BASF.

The present market situation of dicamba in China is summarised as follows:

-In 2022, the capacity for dicamba technical in China rose to 39,500 t/a from 37,500 t/a in 2021, since Jiangsu Changqing's new dicamba technical production line was put into production in Q3 2021. As for output, it increased to 18,000 tonnes in 2022 from 15,600 tonnes in 2021.

-In 2022, the ex-works price of dicamba 98% technical went down because of the gradual production recovery and weak downstream demand in China. In 2023, although it showed a slight increase before Q1, the price slid again owing to the sluggish demand from the overseas market in H1.

-As of 3 Aug., 2023, there had been 155 dicamba products registered in China—47 registrations for dicamba technical and 108 for formulations (including 37 single formulations and 71 mixed formulations). Among them, 4 single formulations and two kinds of mixtures were newly registered in 2022–H1 2023.

-China is a large dicamba supplier in the world and exports a large amount of dicamba products every year. Large demand from abroad drove China's export volume of dicamba products to a record high in 2017. However, impacted by the Sino-US trade friction and sluggish demand, the export volume decreased sharply in 2019. As China's dicamba manufacturers maintained stable operating rates during the overseas COVID-19 outbreak, it experienced a rebound in 2020–2021 and continued to rise to 14,326 tonnes in 2022.

-In China, most dicamba products are exported and only a small amount is left for domestic application, primarily for weed control in wheat and corn fields. During 2014–2017, more than 90% of dicamba products were exported. However, the percentage declined significantly because of less demand in the US in 2019 and 2020. Along with the ease of the Sino-US trade friction, the percentage rebounded a bit and returned to 89% in 2021. As for application, most of the dicamba technical products are turned into dicamba formulations of 48% AS at home and abroad at present.

-At present, the industry is rather concentrated and there is enough supply. Besides, increasing pesticide resistance and GM crop planting area will bring new growth drivers for the dicamba business. Accordingly, the capacity for and output of dicamba technical in China are estimated to enjoy steady growth in the next five years (2023–2027).

## **Introduction and methodology**

The report is drafted by diverse methods as follows:

### 1. Desk research

The sources of desk research are various, including published magazines, journals, government statistics, industrial statistics, customs statistics, association seminars as well as information from the Internet. Information obtained has been compiled and analysed. When necessary, checks have been made with Chinese suppliers regarding market information such as key producers, key end-users, production and demand.

### 2. Telephone interview

CCM has carried out extensive telephone interviews in order to survey the actual market situation of dicamba in China.

Interviewees cover:

- Key producers
- Key traders
- Associations
- Experts

### 3. Internet research

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

## **Data processing and presentation**

The data collected and compiled are sourced from:

- CCM's database
- Published articles from periodicals, magazines and journals
- Statistics from governments and international institutes
- Telephone interviews with domestic suppliers, end-users, traders and industrial experts
- Third-party data providers
- Customs statistics
- Information from the internet
- Enterprises' financial reports

The 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 held in order to analyse the data and draw conclusions from them.

In the cost analysis, CCM concluded the unit consumption of major raw materials used for producing dicamba technical of specific dicamba producers based on national average level. At the same time, CCM obtained different ex-works prices of these raw materials in different regions where those dicamba producers are located. Finally, the cost of raw materials in those major producers' dicamba production was concluded based on the above-mentioned unit consumption and regional ex-works prices. In addition, costs of other items such as labour are mainly evaluated from those dicamba producers' financial reports accompanied by CCM's understanding and experience in the dicamba industry.

### **Unit**

USD: US dollar, currency unit in the US

CNY: currency unit in China

RMB: currency unit in China

Tonne: ton, equaling to metric ton in this report

t/a: tonne per annum

/t: per tonne

### Full names and abbreviations

Table: Full names and abbreviations

Abbreviation	Full name
AS	Aqueous solution
OD	Oil dispersion
SL	Soluble concentrate
SG	Water soluble granule
SP	Water soluble powder
TC	Technical material
WG	Water dispersible granule
WP	Wettable powder

Table: Exchange rate USD/CNY, Jan. 2018–Aug. 2023

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
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	6.468	6.4604	6.4192	6.3693	6.4615
2022	6.3794	6.3580	6.3014	6.3509	6.5672	6.6651	6.6863	6.7467	6.8821	7.0992	7.2081	7.1225	6.6972
2023	6.9475	6.7492	6.9400	6.8805	6.9054	7.0965	7.2157	7.1283	-	-	-	-	6.9829

Source: The People's Bank of China



## 1 Brief introduction to global dicamba market

### 1.1 Supply

As of June 2023, the capacity of dicamba technical in the world was about 59,500 t/a. The global output in 2022 was about 33,450 tonnes, seeing a year-on-year increase of 20.76%. After quick expansion in 2017, production of dicamba technical has become rather concentrated.

Currently, China is still a major producing country of dicamba technical. Jiangsu Yangnong Chemical Co., Ltd. (Jiangsu Yangnong) owns the largest production capacity (20,000 t/a) in the world, followed by Jiangsu Changqing Agrochemical Co., Ltd. (Jiangsu Changqing), with 11,000 t/a of production capacity.

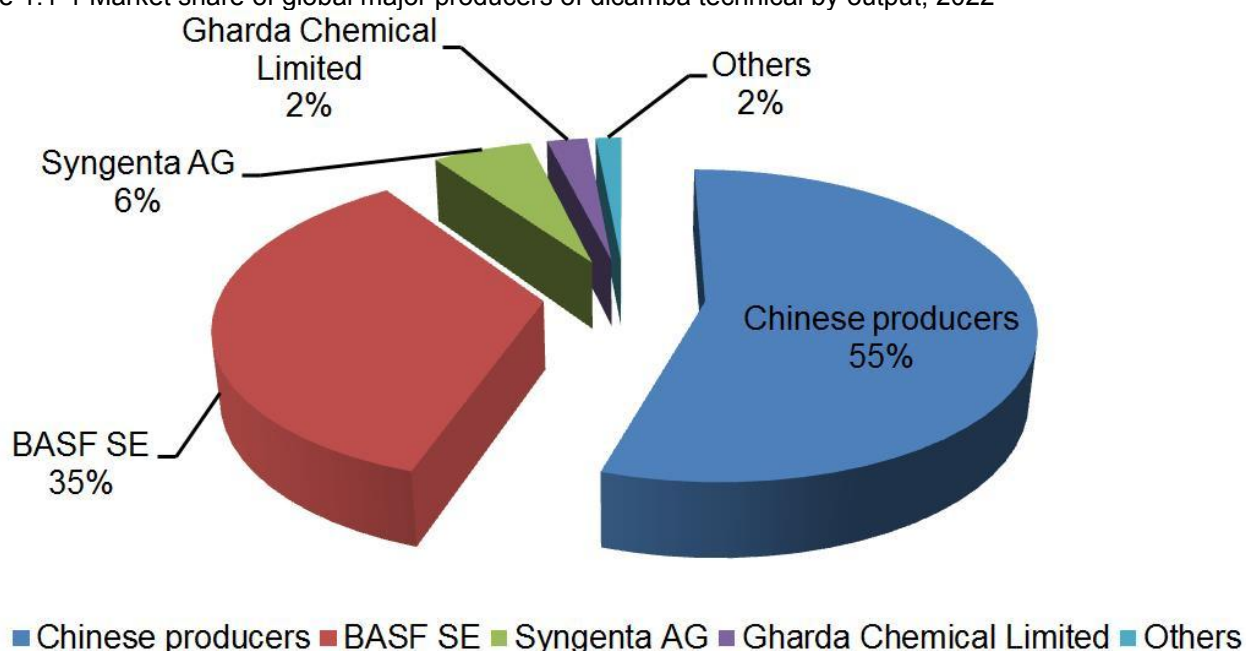
Beyond China, there are three major producers of dicamba technical in the world: BASF SE (BASF), Syngenta AG and Gharda Chemical Limited (Gharda). Among them, BASF, the largest one, started cooperation on joint R&D of dicamba products with Monsanto Company (Monsanto, acquired by Bayer now), the largest global supplier of genetic modified (GM) seed, in 2009. Up to 2011, both companies had come to an agreement that Monsanto can apply BASF's dicamba in its R&D of dicamba-tolerant soybean. It is noteworthy that Bayer canceled its USD1 billion project of building a dicamba production plant in the US in June, 2020. Besides, India is an important dicamba supplier in the world, with producers like Gharda, Tagros Chemicals India Limited and Crophosys India Ltd.

Table 1.1-1 Capacity and output of major producers of dicamba technical outside China

No.	Producer	Capacity, t/a					Output, tonne			
		H1 2023	2022	2021	2020	2019	2022	2021	2020	2019
1	BASF SE	16,000	16,000	12,000	12,000	12,000	11,800	9,000	9,500	9,000
2	Syngenta AG	2,000	2,000	2,000	2,000	2,000	1,950	1,900	1,800	1,500
3	Gharda Chemical Limited	1,000	1,000	1,000	1,000	1,000	800	700	700	700

Source: CCM

Figure 1.1-1 Market share of global major producers of dicamba technical by output, 2022



Source: CCM

## 1.2 Demand

Traditionally, the demand for dicamba mainly comes from graminaceous crops like wheat and corn, which take up about 80% of its total consumption over the world. But the growth in demand for dicamba is mainly attributed to research and promotion of dicamba-tolerant cotton and soybean.

In 2022, the increase in global dicamba demand was driven by two main factors. Firstly, Bayer and BASF have launched dicamba drift-resistant additive to reduce drifting. Secondly, in the US, two dicamba products were newly registered and one extension of a dicamba product registration was approved in Oct. 2020. However, there are also some disincentives. Considering that GM soybean is a major target crop for dicamba, its planting situation in the US would have an impact on dicamba demand. The Sino-US trade war cut China's demand for the US soybean. In addition, extreme weather in the US also affects soybean planting.

It is predicted that the global demand for dicamba will keep rising because many international giants have been developing and promoting GM crops. For example, Bayer launched a dicamba-tolerant soybean "Intacta 2 Xtend" in Brazil in 2021 and submitted an application to the US government for a new GM corn variety, which is tolerant to five herbicides including dicamba; BASF promoted its dicamba-tolerant GM cotton in 2019.

In China, the demand for dicamba is still relatively limited, as most domestic dicamba products are exported to overseas markets. Nevertheless, paraquat, a commonly used herbicide in China, has become less popular and faced official restrictions because of its high toxicity, which will make room for dicamba promotion.

Dicamba still lags behind other major herbicides in overall demand due to its high price. Yet as pesticide resistance has been increasing in recent years and GM crop planting area continues to expand, more dicamba will be needed for dicamba-tolerant GM crops. Therefore, global demand for dicamba is expected to enjoy stable growth in 2023–2027.

## 2 Overall situation of dicamba market in China

### 2.1 Industry development in China

#### 2.1.1 Brief introduction to dicamba industry

Dicamba is a benzoic acid herbicide effective on post-emergent control of annual and perennial broadleaf weeds in the fields of wheat, corn, sorghum, etc. From 2016 to 2017, the share of dicamba technical among herbicides in terms of output in China increased quickly from 0.50% to 2.13% thanks to increasing overseas demand. However, the situation changed—the share dropped thereafter to 0.78% and 0.79% in 2019 and 2020, respectively. In 2021–2022, the share of dicamba technical of the total herbicides output in China witnessed great improvement and reached 1.68% in 2022.

Table 2.1.1-1 Output of herbicides and dicamba technical in China, 2017–2022

Year	Output, tonne		
	Herbicides (by 100% technical)	Dicamba technical (by 100% technical)	Share
2017	1,011,600	21,580	2.13%
2018	1,006,200	17,253	1.71%
2019	948,000	7,365	0.78%
2020	1,004,000	7,938	0.79%
2021	1,090,000	15,600	1.43%
2022	1,073,650	18,000	1.68%

Note: The output data are converted to 100% technical.

Source: China Crop Protection Industry Association (CCPIA) & CCM

#### 2.1.2 Production technology

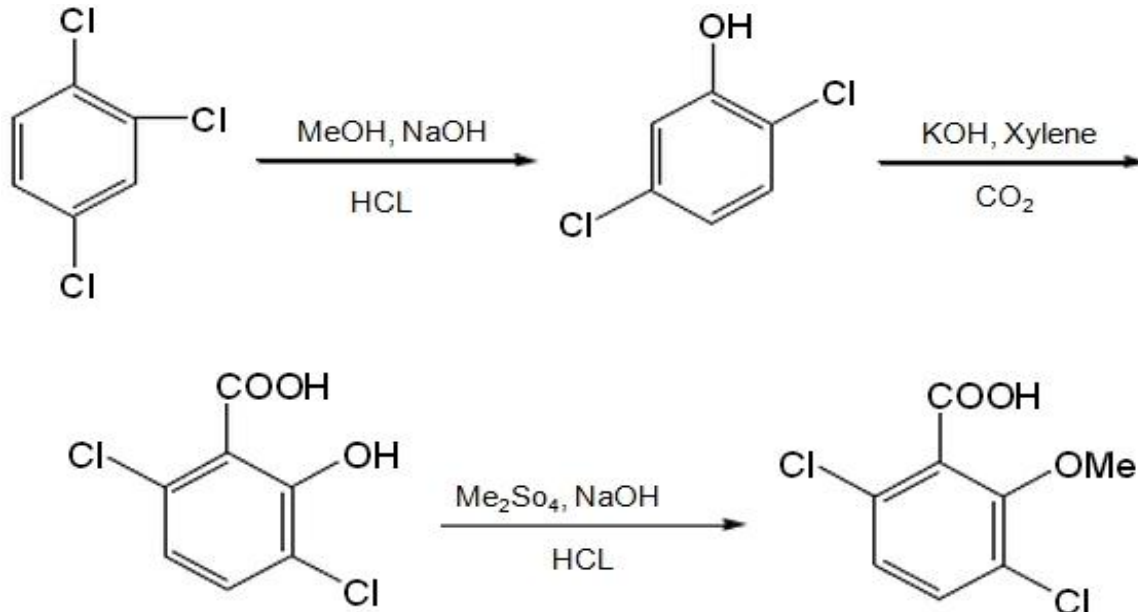
Among methods to produce dicamba technical, two materials widely used in the world are 1,2,4-trichlorobenzene and 2,5-dichloroaniline, as the starting raw materials used in two different routes respectively.

Table 2.1.2-1 Comparison of techniques for producing dicamba technical

No.	Technique	Starting raw material	Advantage	Disadvantage
1	Hydrolysis; carboxylation; methylation	1,2,4-Trichlorobenzene	Short reaction route; simple method	Low efficiency of reaction
2	Diazotization & hydrolysis; carboxylation; methylation	2,5-Dichloroaniline	High availability of raw material; high efficiency of reaction	Serious water pollution

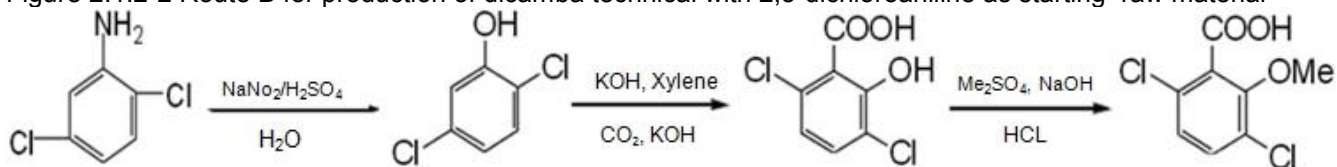
Source: CCM

Figure 2.1.2-1 Route A for production of dicamba technical with 1,2,4-trichlorobenzene as starting raw material



Source: CCM

Figure 2.1.2-2 Route B for production of dicamba technical with 2,5-dichloroaniline as starting raw material



Source: CCM

Table 2.1.2-2 Production technologies adopted by major producers of dicamba technical in the world, as of June 2022

No.	Producer	Production technology by starting raw material
1	Jiangsu Yangnong Chemical Co., Ltd.	2,5-Dichloroaniline
2	BASF	1,2,4-Trichlorobenzene
3	Jiangsu Changqing Agrochemical Co., Ltd.	2,5-Dichloroaniline
		1,2,4-Trichlorobenzene
4	Weifang Sino-Agri Union Chemical Co., Ltd.	2,5-Dichloroaniline

Source: CCM

### 2.1.3 Product registration

According to the Institute for the Control of Agrochemicals, Ministry of Agriculture and Rural Affairs (ICAMA), as of 3 Aug., 2023, there had been 155 dicamba products registered in China—47 registrations for dicamba technical and 108 for formulations (including 37 single formulations and 71 mixed formulations). Among them, 4 single formulations and two kinds of mixtures were newly registered in 2022–H1 2023, including 399 g/L dicamba SL, 478 g/L dicamba SL, 480 g/L dicamba SL and 500 g/L dicamba SL, etc. And there are two new dicamba mixtures with glyphosate or glufosinate-ammonium, namely 33% dicamba · glyphosate SL and 310 g/L dicamba · glufosinate-ammonium SL.

Table 2.1.3-1 Valid registrations of dicamba technical in China, as of 3 August, 2023

No.	Registrant	Registration number	Content	Expiry date
1	Syngenta AG	PD319-99	80%	2024/12/10
2	Anhui Fengle Agrochemical Co., Ltd.	PD20181645	98%	2028/5/16
3	Jiangsu Lianhe Chemical Technology Co., Ltd.	PD20181513	98%	2028/4/17
4	Ningxia Wynca Technology Co., Ltd.	PD20180690	98%	2028/2/8
5	Trust Crop Protection Technology Co., Ltd.	PD20172522	98%	2027/10/17
6	Inner Mongolia Miraculous Crop Science Co., Ltd.	PD20172419	98%	2027/10/17
7	Hubei Xianlong Chemical Industry Co., Ltd.	PD20171828	98%	2027/9/18
8	Nantong Jiangshan Agrochemical & Chemicals Co., Ltd.	PD20171618	96%	2027/8/20
9	Weihai Hanfu Biochemical Medicine Co., Ltd.	PD20170750	98%	2027/4/9
10	Anhui Guangxin Agrochemical Co., Ltd.	PD20170689	98%	2027/4/9
11	Anhui Yinong Chemical Co., Ltd.	PD20170659	98%	2027/4/9
12	Dingyuan Jiahe Crop Protection Co., Ltd.	PD20170602	98%	2027/4/9
13	Jiangsu Changqing Agrochemical (Nantong) Co., Ltd.	PD20170208	96%	2027/2/12
14	Henan HDF Chemical Co., Ltd.	PD20161567	98%	2026/12/16
15	Liaoning Futuo New Energy Materials Co., Ltd.	PD20161153	98%	2026/9/13
16	Jiangxi Zhonghe Biotechnology Co., Ltd.	PD20161114	98%	2026/8/30
17	Ningxia Gerui Fine Chemical Co., Ltd.	PD20161051	98%	2026/8/30
18	ADAMA Ltd.	PD20160805	98%	2026/6/24
19	Hunan Haili Chemical Industry Co., Ltd.	PD20160795	98%	2026/6/21
20	Liaoning Zhonghui Biotechnology Co., Ltd.	PD20160204	98%	2026/2/24
21	Anhui Hongfeng Fine Chemical Co., Ltd.	PD20160195	98%	2026/2/24
22	Huai'an Glory Chemical Co., Ltd.	PD20152641	98%	2025/12/19
23	Shandong Weunite Biotechnology Co., Ltd.	PD20152420	98%	2025/10/25
24	Weifang Sino-Agri Union Chemical Co., Ltd.	PD20152322	98%	2025/10/21
25	Jiangsu Huifeng Bio Agriculture Co., Ltd.	PD20151844	98%	2025/8/28
26	Hengshui Jingmei Chemical Industry Co., Ltd.	PD20151792	98%	2025/8/28
27	Lianyungang Neutech Chemical Co., Ltd.	PD20150873	98%	2025/5/18

No.	Registrant	Registration number	Content	Expiry date
28	Jiangsu Youjia Plant Protection Co., Ltd.	PD20150294	98%	2025/2/4
29	Fuhua Tongda Chemical Co., Ltd.	PD20141592	98%	2024/6/17
30	ADAMA Huifeng (Jiangsu) Co., Ltd.	PD20141448	98%	2024/6/9
31	Jiangsu Lanfeng Bio-chemical Co., Ltd.	PD20140989	98%	2024/4/14
32	Shandong Binnong Technology Co., Ltd.	PD20132684	98%	2023/12/25
33	Hunan Bide Biotechnology Co., Ltd.	PD20132547	98%	2023/12/16
34	Jiangsu Changqing Agrochemical (Nantong) Co., Ltd.	PD20132217	98%	2023/11/5
35	Jiangsu CF Agrochemical Co., Ltd.	PD20132144	98%	2028/10/28
36	Inner Mongolia Zhonggao Chemical Co., Ltd.	PD20131167	98%	2028/5/26
37	Yongnong Biosciences Co., Ltd.	PD20130996	98%	2028/5/6
38	Shanxi Lvhai Pesticide Science and Technology Co., Ltd.	PD20111273	80%	2026/11/23
39	Inner Mongolia Guanshida Chemical Co., Ltd.	PD20110499	98%	2026/5/11
40	Anhui Huaxing Chemical Industry Co., Ltd.	PD20101840	98%	2025/7/28
41	Zhejiang Heben Pesticide & Chemicals Co., Ltd.	PD20101505	98%	2025/5/10
42	Shandong Weifang Rainbow Chemical Co., Ltd.	PD20100411	98%	2025/1/14
43	Nantong Baoye Chemical Co., Ltd.	PD20091416	98%	2024/2/2
44	Jiangsu Flag Chemical Industry Co., Ltd.	PD20083285	98%	2023/12/11
45	Jiangsu Good Harvest-Weien Agrochemical Co., Ltd.	PD20081499	97.50%	2028/11/4
46	Jiangsu Institute of Ecomones Co., Ltd.	PD20081209	90%	2028/9/10
47	Zhejiang Biok Biotechnology Co., Ltd.	PD20070102	95%	2027/4/25

Note: Established on 21 April, 2021, Inner Mongolia Guanshida Chemical Co., Ltd. was invested by Hebei Guanlong Agrochemical Co., Ltd., which was the previous registrant of PD20110499.

Source: The Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA)

Table 2.1.3-2 Valid registrations of dicamba formulations in China, as of 3 August, 2023

Type of formulation		Common content	Number of registration	Share
Single formulations	AS	48%, 480 g/L	24	67.57%
	WG	70%	3	8.11%
	SG	70%	3	8.11%
	SL	399 g/L, 478 g/L, 480 g/L and 500 g/L	7	16.22%
	<b>Total</b>			<b>37</b>
Mixed formulations	AS	33%, 35%, 40%, 400 g/L, etc.	37	53.52%
	SG	64.5%, 70%, 75%, etc.	12	16.90%
	OD	20%, 24%, 30%	4	5.63%
	SL	33%, 35.8%, 36%, 40%, 310 g/L, etc.	11	14.08%
	SP	70%	3	4.23%
	WP	40%, 62%	4	5.63%
	<b>Total</b>			<b>71</b>

Source: ICAMA

## 2.2 Supply of dicamba in China

### 2.2.1 Major raw materials

Producers of dicamba technical in China use p-Dichlorobenzene or 1,2,4-Trichlorobenzene as the starting raw material during their production.

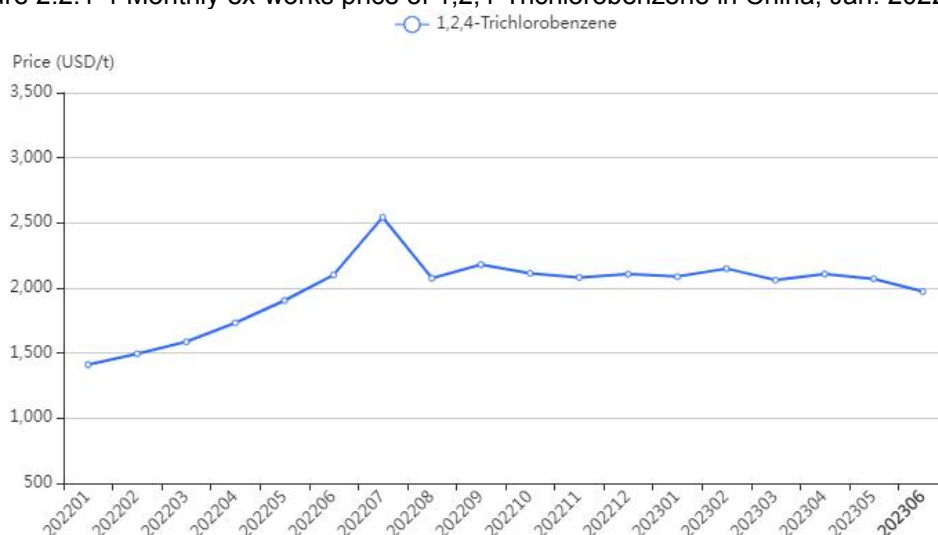
Table 2.2.1-1 Capacity and output of major 1,2,4-Trichlorobenzene producers in China

No.	Producer	Capacity as of June 2023, t/a	Output in 2022, tonne
1	Jiangsu Yangnong Chemical Group Co., Ltd.	11,000	1,000
2	Yangzhou City Jiangdu District Haichen Chemical Co., Ltd.	2,000	1,600

Note: Jiangsu Yangnong Chemical Group Co., Ltd. is the largest shareholder of Jiangsu Yangnong Chemical Co., Ltd.

Source: CCM

Figure 2.2.1-1 Monthly ex-works price of 1,2,4-Trichlorobenzene in China, Jan. 2022–June 2023



Source: CCM

Jiangsu Changqing Agrochemical Co., Ltd. (Jiangsu Changqing) and Jiangsu Yangnong Chemical Co., Ltd. (Jiangsu Yangnong) do not produce key raw materials of dicamba by themselves, but purchase the key raw materials from other companies. Notably, Jiangsu Yangnong is expected to have the supply of raw materials from its subsidiary, Jiangsu Ruiheng New Materials Science and Technology Co., Ltd., since the latter's epichlorohydrin integrated unit started normal production on 6 Jan. 2023. According to CCM's investigation, the unit involves 11,000 t/a 1,2,4-Trichlorobenzene, 8,000 t/a p-Dichlorobenzene projects, etc.

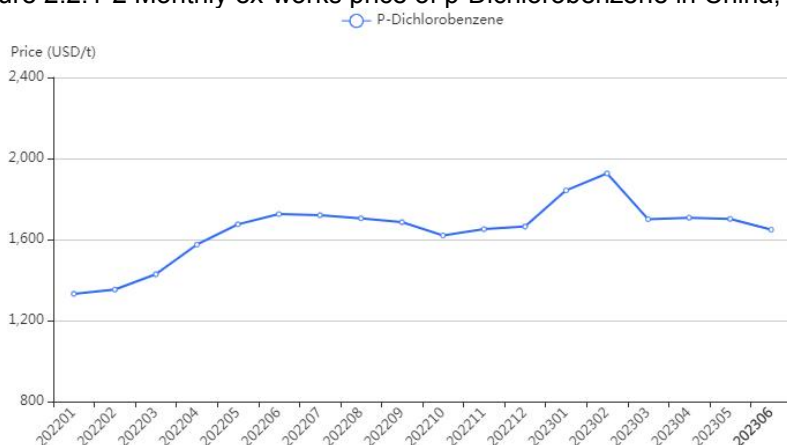
Table 2.2.1-2 Capacity and output of major p-Dichlorobenzene producers in China

No.	Producer	Capacity, t/a as of July 2023	Output in 2022, tonne
1	Jiangsu Huaijiang Technology Co., Ltd.	69,228	44,000
2	Neixiang Wuke Biochemical Products Co., Ltd.	15,000	6,500
3	Jiangsu Yangnong Chemical Group Co., Ltd.	8,000	1,200
4	Jiangsu Longchang Chemical Co., Ltd.	7,210	4,500
5	Wuhai Jinda Fine Chemical Co., Ltd.	5,000	0

Note: Jiangsu Yangnong Chemical Group Co., Ltd. is the largest shareholder of Jiangsu Yangnong Chemical Co., Ltd.

Source: CCM

Figure 2.2.1-2 Monthly ex-works price of p-Dichlorobenzene in China, Jan. 2022–June 2023



Source: CCM



## 2.2.2 Capacity and output (2018–2022)

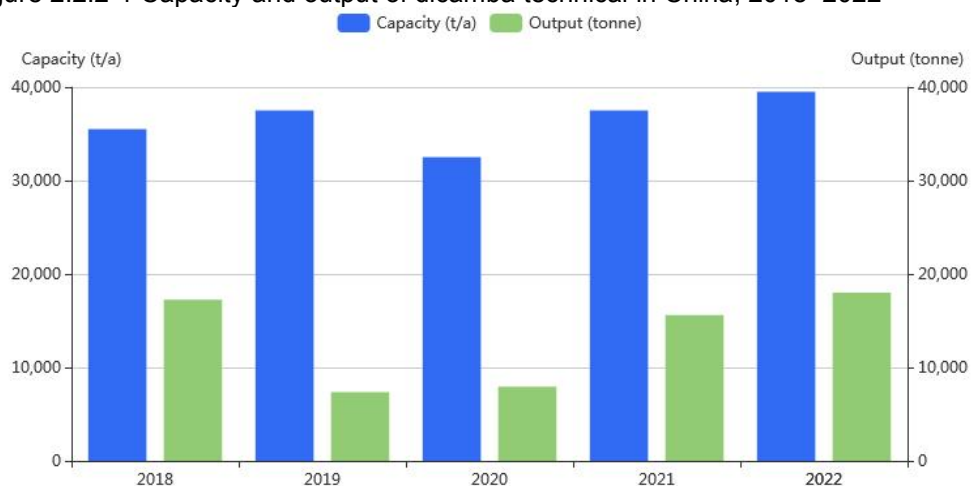
The production scale of dicamba technical has witnessed a dramatic growth in China during 2013–2017, with annual capacity jumping from 5,200 t/a to 35,500 t/a. The output peaked at 21,580 tonnes in 2017. There are two major factors driving the rapid growth of dicamba production in China:

- Firstly, foreign demand for China's dicamba keeps growing these years along with the development of dicamba-tolerant crops.
- Secondly, more dicamba is needed as a substitute for paraquat, a widely used herbicide, the AS formulation of which had been banned for production registration in China from July 2014 and for domestic sales and application from July 2016.

However, the growth slowed since that. There was no new capacity in 2018, and the total capacity even went down to 32,500 t/a in 2020. Since Jiangsu Changqing's new capacity of 6,000 t/a came into trial production in Q3 2021, China's total capacity of dicamba technical reached 39,500 t/a.

As for the output, the output of dicamba technical saw a slump in 2019. Although a marginal increase was recorded in 2020, the respective outputs in 2019 and 2020 were below 8,000 tonnes. However, it started to recover in 2021 and continued the upswing in 2022. Thanks to stable operations of major Chinese manufacturers, the 2022 overall output of dicamba technical returned to 18,000 tonnes.

Figure 2.2.2-1 Capacity and output of dicamba technical in China, 2018–2022



Source: CCM

## 2.2.3 Producers (2022–H1 2023)

The capacity of dicamba technical remains stable in China after a quick expansion in 2017. Since then, the construction of Shandong Sino-Agri United Biotechnology Co., Ltd. (Sino-Agri United)'s production line of 2,000 t/a dicamba technical was completed in Oct. 2019, and Jiangsu Changqing Agrochemical Co., Ltd. (Jiangsu Changqing) put a new production line with 6,000 t/a of production capacity into operation in Q3 2021. As of June 2023, the capacity of dicamba technical in China totalled 39,500 t/a.

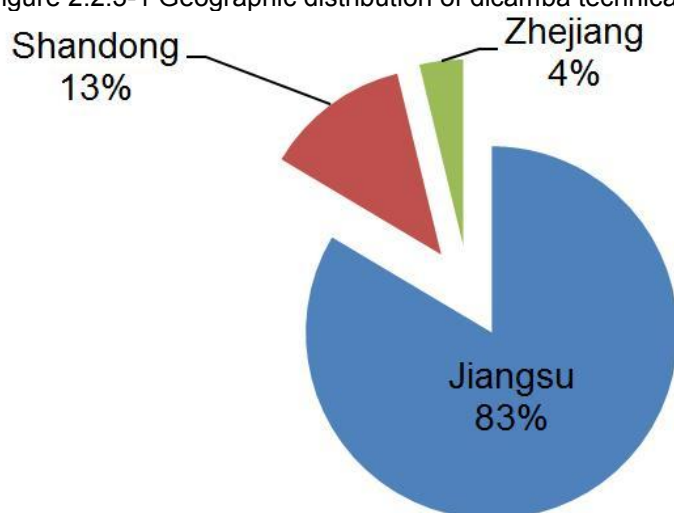
In China, there are three active producers: Jiangsu Yangnong Chemical Co., Ltd., Jiangsu Changqing and Sino-Agri United. Among them, Sino-Agri United updated its 2,000 t/a dicamba technical production line for its own formulation production. Further, some existing producers have adjusted their core business and exited the dicamba technical market temporarily or for good. For instance, Zhejiang Huge Leaf Co., Ltd., the first producer of dicamba technical in China, stopped production in Feb. 2018, due to high pressure from environmental protection regulations and fierce market competition.

Table 2.2.3-1 Capacity and output of dicamba technical producers in China, 2022–June 2023

No.	Producer	Location	Status	Capacity, t/a		Output, tonne	
			as of H1 2023	H1 2023	2022	2022	
1	Jiangsu Yangnong Chemical Co., Ltd.	Jiangsu Province	Active		20,000	20,000	10,399
2	Jiangsu Changqing Agrochemical Co., Ltd.	Jiangsu Province	Active		11,000	11,000	7,942
3	Weifang Sino-Agri Union Chemical Co., Ltd.	Shandong Province	Active		2,000	2,000	20
4	Shandong Weifang Rainbow Chemical Co., Ltd.	Shandong Province	Stopped		3,000	3,000	250
5	Zhejiang Huge Leaf Co., Ltd.	Zhejiang Province	Stopped		1,500	1,500	0
6	Jiangsu Tuoqiu Agriculture Chemical Co., Ltd.	Jiangsu Province	Idle		1,000	1,000	0
7	Jiangsu Jialong Chemical Co., Ltd.	Jiangsu Province	Idle		1,000	1,000	0

Source: CCM

Figure 2.2.3-1 Geographic distribution of dicamba technical producers in China by capacity, as of June 2023



Source: CCM

#### 2.2.4 Potential capacity as of July 2023

Along with promotion of dicamba-resistant GM crops such as soybean and cotton in recent years, mixing dicamba with glyphosate has become one way to kill the spreading glyphosate-resistant weeds and to extend the service life of glyphosate. Therefore, there is huge market potential of dicamba and lots of companies have showed interests in this field. However, most plans were suspended or cancelled because of changes in the market and production restriction; for instance, Nantong Jiangshan Agrochemical and Chemicals Co., Ltd.'s and Fuhua Tongda Agro-chemical Technology Co., Ltd.'s dicamba projects have been in the stage of environmental impact assessment since 2018 with no new progress.

In March 2021, Yongnong Biosciences Co., Ltd. proposed a "technological transformation project for new 8,000 t/a production capacity for high-efficiency pesticide technical products", which includes 100 t/a of production capacity for dicamba technical. The company has been progressing the construction of this project over the recent years, and has put some of the project's capacities into operation. However, as of July 2023, the construction of 100 t/a capacity for dicamba technical has not yet started.

Table 2.2.4-1 Potential capacity of dicamba technical in China, as of July 2023

No.	Producer	Location	Potential capacity, t/a	Project progress
1	Yongnong Biosciences Co., Ltd.	Zhejiang Province	100	Planning
2	Nantong Jiangshan Agrochemical and Chemicals Co., Ltd.	Jiangsu Province	20,000	Environmental assessment
3	Fuhua Tongda Agro-chemical Technology Co., Ltd.	Sichuan Province	20,000	Environmental assessment

Note: Nantong Jiangshan Agrochemical and Chemicals Co., Ltd. and Fuhua Tongda Agro-chemical Technology Co., Ltd. have a same shareholder, and they signed an agreement to avoid horizontal competition in 2018.

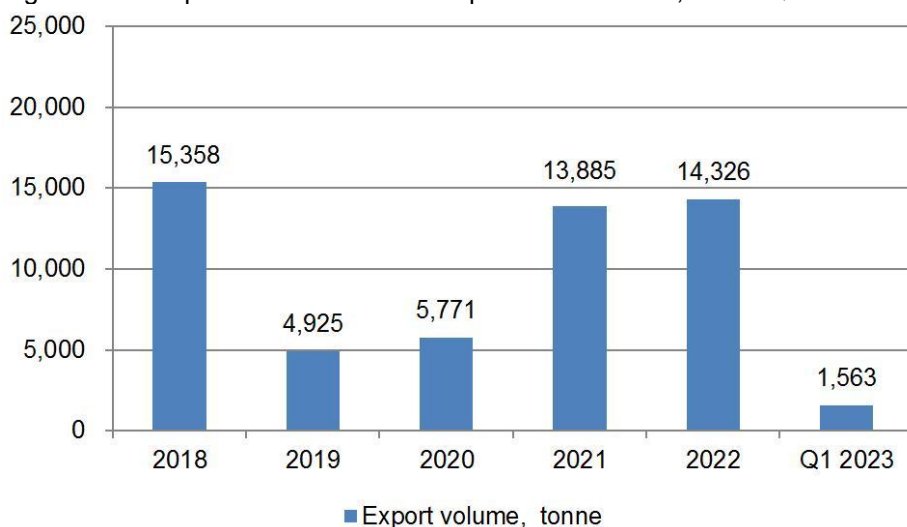
Source: CCM

### 2.3 Export (2018–Q1 2023)

China is a large dicamba supplier in the world and exports a large amount of the products every year. In the past five years, the increasing demand from abroad drove China's dicamba exports to a record high. In 2018, China's export volume of dicamba products registered 15,358 tonnes, while the figures in 2019–2020 decreased sharply, mainly affected by the Sino-US trade friction and sluggish overseas demand.

As China's dicamba manufacturers maintained stable operating rates during the overseas COVID-19 outbreak, the export volume rebounded, reaching 13,885 tonnes in 2021 and 14,326 tonnes in 2022. In Q1 2023, with the sluggish overseas demand, the export volume of dicamba went down significantly year on year, by 75.25% to 1,563 tonnes.

Figure 2.3-1 Export volume of dicamba products in China, 2018–Q1 2023



Note: 1. Since May 2020, China's export data are sourced from data of the customs of various destinations. 2. All the volumes are calculated by 100% technical.

Source: China Customs & CCM

Table 2.3-1 China's export volume of dicamba technical and dicamba formulations, 2018–Q1 2023, tonne

Year	98% TC	97% TC	96% TC	95% TC	48% AS	70% WG	70% SG	Total
2018	15,406.550	/	0.120	2.400	573.972	14.460	16.934	16,014.436
2019	4,679.423	/	128.800	16.000	468.909	2.424	9.744	5,305.300
2020	5,716.955	/	/	/	260.878	/	87.940	6,065.773
2021	14,134.706	/	/	/	48.177	18.364	/	14,201.247
2022	14,512.757	16.000	/	/	136.614	45.692	/	14,711.064
Q1 2023	565.401	982.000	/	/	56.371	48.000	/	1,651.772

Note: 1. Nuances in some data are mainly caused by rounding principle. 2. Product "48% AS" is applied as "480L/g AS" specification for import and export.

Source: China Customs & CCM

### 2.3.1 By month

In 2017–2020, shrinking overseas demand for dicamba led to the decline of its export prices. For example, the average price of 98% dicamba technical, one of the key products, dropped from USD13.14/kg in 2017 to USD11.24/kg in 2020.

In 2021, the average price of 98% dicamba technical reached USD11.98/kg with a slight year-on-year increase, which is attributed to the rising overseas demand.

In 2022, despite an overall increase in both the price and exports of dicamba products, the price of 98% dicamba technical showed a downtrend and averaged USD12.55/kg, which weakened the gross margins of the major producers, and this impact is expected to continue in 2023. In Q1 2023, the average price of 98% dicamba technical slipped down to USD10.15/kg.

#### - 98% Dicamba technical

Table 2.3.1-1 China's exports of 98% dicamba technical by month, Q1 2023

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	422.900	9.73	4,115,291
February	30.100	10.23	307,994
March	112.401	11.70	1,315,484
<b>Total</b>	<b>565.401</b>	<b>10.15</b>	<b>5,738,768</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

Table 2.3.1-2 China's exports of 98% dicamba technical by month, 2022

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	1,280.740	13.95	17,861,816
February	2,225.200	13.94	31,027,529

Month	Quantity, tonne	Price, USD/kg	Value, USD
March	2,074.000	13.71	28,435,054
April	1,484.400	12.48	18,521,593
May	1,190.800	11.86	14,125,023
June	1,169.000	11.82	13,812,481
July	883.400	12.37	10,931,383
August	676.400	12.56	8,497,722
September	835.460	12.05	10,064,008
October	1,299.754	11.36	14,760,426
November	1,188.000	10.00	11,883,589
December	205.603	10.52	2,162,864
<b>Total</b>	<b>14,512.757</b>	<b>12.55</b>	<b>182,083,489</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.1-3 China's exports of 98% dicamba technical by month, 2021

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	521.691	13.93	7,267,762
February	929.600	11.70	10,873,731
March	983.919	11.91	11,722,189
April	514.889	11.54	5,941,926
May	1,480.808	11.56	17,122,427
June	1,562.040	11.75	18,355,139
July	1,751.526	11.67	20,441,852
August	1,810.732	11.70	21,192,147
September	1,792.960	11.65	20,886,844
October	1,268.580	11.71	14,849,222
November	893.160	13.22	11,803,917
December	624.800	14.19	8,864,712
<b>Total</b>	<b>14,134.706</b>	<b>11.98</b>	<b>169,321,869</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.1-4 China's exports of 98% dicamba technical by month, 2020

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	489.200	10.49	5,130,529
February	544.800	11.74	6,394,527
March	600.200	10.97	6,585,270
April	966.739	10.71	10,354,276
May	282.221	11.77	3,320,715
June	339.570	10.66	3,620,807
July	507.950	11.67	5,928,391
August	309.882	12.58	3,898,638
September	357.852	10.35	3,703,456
October	371.317	11.64	4,321,263
November	370.344	11.50	4,258,851
December	576.880	11.67	6,729,326
<b>Total</b>	<b>5,716.955</b>	<b>11.24</b>	<b>64,246,050</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.1-5 China's exports of 98% dicamba technical by month, 2019

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	897.600	12.81	11,498,194
February	462.400	12.60	5,827,326
March	464.626	12.27	5,699,585
April	163.100	12.59	2,053,286
May	160.300	14.34	2,299,179
June	1,170.950	13.11	15,347,610
July	576.900	14.63	8,441,567
August	254.125	12.02	3,053,618
September	148.050	12.71	1,881,172
October	121.760	11.98	1,459,061
November	150.700	11.36	1,711,925

Month	Quantity, tonne	Price, USD/kg	Value, USD
December	108.912	11.44	1,246,280
<b>Total</b>	<b>4,679.423</b>	<b>12.93</b>	<b>60,518,803</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

Table 2.3.1-6 China's exports of 98% dicamba technical by month, 2018

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	2,582.850	13.45	34,742,252
February	1,384.000	13.50	18,678,960
March	978.125	13.18	12,893,613
April	941.200	13.80	12,987,776
May	1,614.830	13.69	22,099,636
June	1,148.000	13.81	15,848,722
July	1,216.450	13.68	16,637,985
August	3,315.600	13.53	44,846,329
September	1,088.350	13.93	15,164,760
October	121.600	12.81	1,557,476
November	186.050	13.12	2,441,570
December	829.500	12.43	10,307,029
<b>Total</b>	<b>15,406.550</b>	<b>13.51</b>	<b>208,206,108</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

#### - Dicamba 48% AS

Table 2.3.1-7 China's exports of dicamba 48% AS by month, Q1 2023

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	6.507	3.91	25,461
February	47.544	7.69	365,700
March	2.320	9.68	22,463
<b>Total</b>	<b>56.371</b>	<b>7.34</b>	<b>413,624</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

Table 2.3.1-8 China's exports of dicamba 48% AS by month, 2022

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	6.240	6.56	40,950
February	6.704	2.19	14,700
March	2.000	7.50	15,000
April	26.040	12.98	338,061
May	18.000	12.95	233,100
June	0.000	/	0
July	39.405	10.03	395,120
August	2.000	10.30	20,600
September	14.666	11.46	168,046
October	0.000	/	0
November	0.000	/	0
December	21.560	2.63	56,733
<b>Total</b>	<b>136.614</b>	<b>9.39</b>	<b>1,282,311</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.1-9 China's exports of dicamba 48% AS by month, 2021

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	16.000	6.66	106,560
February	5.825	6.01	35,037
March	0.000	/	0
April	0.000	/	0
May	0.000	/	0
June	19.322	5.89	113,806
July	0.000	/	0
August	0.000	/	0
September	6.000	7.16	42,989
October	0.000	/	0
November	1.030	/	46,785



Month	Quantity, tonne	Price, USD/kg	Value, USD
December	0.000	/	0
<b>Total</b>	<b>48.177</b>	<b>7.16</b>	<b>345,177</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

Table 2.3.1-10 China's exports of dicamba 48% AS by month, 2020

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	68.516	5.81	398,276
February	0.000	/	0
March	64.975	4.9	318,401
April	44.699	5.57	248,979
May	4.520	5.75	26,000
June	0.000	/	0
July	17.266	5.48	94,695
August	0.000	/	0
September	0.000	/	0
October	39.593	6.75	267,293
November	0.000	/	0
December	21.310	5.00	106,600
<b>Total</b>	<b>260.878</b>	<b>5.60</b>	<b>1,460,244</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

Table 2.3.1-11 China's exports of dicamba 48% AS by month, 2019

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	14.164	5.87	83,185
February	40.768	6.86	279,588
March	16.450	7.49	123,153
April	23.715	7.08	167,872
May	11.839	6.20	73,446
June	2.262	6.72	15,196
July	28.548	6.87	196,134

Month	Quantity, tonne	Price, USD/kg	Value, USD
August	2.554	6.52	16,655
September	37.832	6.59	249,333
October	5.700	6.61	37,695
November	102.333	6.70	685,462
December	182.744	4.99	911,299
<b>Total</b>	<b>468.909</b>	<b>6.05</b>	<b>2,839,018</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.1-12 China's exports of dicamba 48% AS by month, 2018

Month	Quantity, tonne	Price, USD/kg	Value, USD
January	109.450	7.28	796,835
February	38.561	7.67	295,619
March	25.578	6.50	166,165
April	125.103	4.00	500,611
May	14.355	7.01	100,601
June	30.026	7.16	214,987
July	6.050	7.53	45,552
August	8.772	8.00	70,182
September	76.352	6.59	503,029
October	99.082	7.21	714,316
November	13.594	7.12	96,775
December	27.049	6.63	179,304
<b>Total</b>	<b>573.972</b>	<b>6.42</b>	<b>3,683,976</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

### 2.3.2 By destination

#### - 98% Dicamba technical

The US remains to be a large consumption market of Chinese 98% dicamba technical. 12,532 tonnes and 11,969 tonnes of 98% dicamba technical were exported from China to the US in 2021 and 2022 respectively, which in total accounted for about 85% of China's 98% dicamba technical exports in this two-year period. That proportion is ten percentage points higher than the counterpart in 2019–2020, 75%.

In Q1 2023, 98% dicamba technical exports dropped sharply YoY to 565 tonnes, and the average unit price was USD10.15/kg, a record low price since 2018.

Besides, Argentina is a potential market for China's dicamba products, and imported 1,200 tonnes of 98% dicamba technical from China in 2022; in Q1 2023, 90 tonnes of 98% dicamba technical were exported from China to Argentina, accounting for nearly 7.5% of the total volume in 2022.

Table 2.3.2-1 China's exports of 98% dicamba technical by destination, Q1 2023

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	408.000	9.64	3,933,038
2	Argentina	90.400	10.85	980,409
3	Mexico	34.401	10.07	346,259
4	Russia	16.500	10.43	172,036
5	Moldova	10.000	24.87	248,710
6	Paraguay	5.600	9.50	53,200
7	The UK	0.500	10.23	5,116
<b>Total</b>		<b>565.401</b>	<b>10.15</b>	<b>5,738,768</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-2 China's exports of 98% dicamba technical by destination, 2022

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	11,969.000	12.57	150,405,569
2	Argentina	1,200.200	12.72	15,262,257
3	Netherlands	760.000	10.58	8,038,736
4	Russia	342.400	15.89	5,442,445
5	Poland	62.754	12.16	762,908
6	Belgium	47.460	12.05	571,706
7	Australia	44.240	12.39	548,170
8	Mexico	30.400	12.04	365,996
9	South Korea	18.200	11.83	215,333
10	Turkey	14.500	14.97	217,000
11	Ukraine	14.400	10.64	153,216
12	Paraguay	6.403	11.91	76,272
13	Vietnam	2.000	7.30	14,600

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
14	South Africa	0.800	11.60	9,280
<b>Total</b>		<b>14,512.757</b>	<b>12.55</b>	<b>182,083,489</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-3 China's exports of 98% dicamba technical by destination, 2021

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	12,531.689	11.91	149,263,478
2	Argentina	1,221.000	12.37	15,099,066
3	The Netherlands	230.000	11.51	2,646,209
4	Japan	100.000	17.09	1,709,419
5	Mexico	28.800	11.88	342,275
6	Australia	10.042	11.68	117,255
7	Ukraine	7.050	11.13	78,497
8	Paraguay	5.600	10.55	59,080
9	Turkey	0.500	12.48	6,240
10	Brazil	0.025	14.00	350
<b>Total</b>		<b>14,134.706</b>	<b>11.98</b>	<b>169,321,869</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-4 China's exports of 98% dicamba technical by destination, 2020

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	4,202.892	11.20	47,091,057
2	Argentina	1,067.039	11.35	12,107,626
3	Australia	171.039	10.96	1,875,302
4	The Netherlands	124.000	11.43	1,417,937
5	Russia	63.010	11.86	747,324
6	Chile	37.550	11.28	423,439
7	Mexico	19.200	11.30	216,885
8	Ukraine	11.325	10.56	119,625
9	Paraguay	10.200	11.51	117,402

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
10	The Republic of Croatia	5.000	12.06	60,279
11	Germany	2.400	11.20	26,889
12	New Zealand	2.200	13.37	29,422
13	South Africa	1.100	11.69	12,862
<b>Total</b>		<b>5,716.955</b>	<b>11.24</b>	<b>64,246,050</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.2-5 China's exports of 98% dicamba technical by destination, 2019

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	3,600.002	13.13	47,266,081
2	Belgium	314.910	12.31	3,877,975
3	Argentina	208.000	12.44	2,587,232
4	Australia	194.825	11.74	2,286,788
5	Russia	152.600	11.39	1,738,747
6	Colombia	116.000	14.14	1,639,680
7	Greece	32.000	11.80	377,600
8	South Africa	12.026	12.05	144,885
9	Turkey	10.000	11.89	118,920
10	The Netherlands	10.000	11.47	114,725
11	The Republic of Slovenia	8.500	12.84	109,101
12	Austria	8.000	11.72	93,761
13	Ukraine	6.600	11.80	77,848
14	New Zealand	3.200	15.65	50,082
15	The UK	2.560	12.55	32,128
16	Germany	0.100	20.00	2,000
17	Paraguay	0.100	12.50	1,250
<b>Total</b>		<b>4,679.423</b>	<b>12.93</b>	<b>60,518,803</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.2-6 China's exports of 98% dicamba technical by destination, 2018

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	14,844.000	13.50	200,420,477
2	Colombia	181.500	14.20	2,578,125
3	Australia	137.600	13.48	1,854,244
4	Argentina	100.000	13.61	1,361,040
5	Russia	84.425	13.53	1,142,276
6	Germany	21.600	13.50	291,600
7	The Republic of Slovenia	7.600	16.10	122,360
8	Ukraine	6.350	13.06	82,932
9	South Africa	6.000	14.03	84,189
10	Romania	5.000	13.71	68,567
11	Poland	4.800	15.88	76,216
12	Mongolia	3.125	15.60	48,741
13	New Zealand	2.900	17.34	50,278
14	Turkey	1.350	14.71	19,857
15	Azerbaijan	0.300	17.35	5,206
<b>Total</b>		<b>15,406.550</b>	<b>13.51</b>	<b>208,206,108</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

#### - Dicamba 48% AS

Table 2.3.2-7 China's exports of dicamba 48% AS by destination, Q1 2023

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	Kazakhstan	31.320	8.36	261,900
2	Uzbekistan	20.944	5.54	116,104
3	Moldova	2.320	9.68	22,463
4	Romania	1.787	7.36	13,157
<b>Total</b>		<b>56.371</b>	<b>7.34</b>	<b>413,624</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-8 China's exports of dicamba 48% AS by destination, 2022

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	Australia	72.771	8.51	619,290
2	Zimbabwe	46.500	12.58	584,800
3	Uzbekistan	15.304	4.04	61,860
4	New Zealand	2.000	7.50	15,000
5	Kazakhstan	0.040	34.03	1,361
<b>Total</b>		<b>136.614</b>	<b>9.39</b>	<b>1,282,311</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-9 China's exports of dicamba 48% AS by destination, 2021

No.	Destination	Quantity, kg	Price, USD/kg	Value, USD
1	The US	19.322	5.89	113,806
2	Vietnam	16.000	6.66	106,560
3	South Africa	6.000	7.16	42,989
4	Paraguay	5.825	6.01	35,037
5	Nigeria	1.030	/	46,785
<b>Total</b>		<b>48.177</b>	<b>7.16</b>	<b>345,177</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-10 China's exports of dicamba 48% AS by destination, 2020

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	Ukraine	65.718	6.04	396,860
2	Australia	49.707	5.45	270,833
3	Russia	48.392	5.65	273,377
4	The US	40.505	6.21	251,588
5	The Dominican Republic	18.240	2.56	46,671
6	Serbia	13.395	5.65	75,631
7	Uruguay	9.722	5.26	51,126
8	Zimbabwe	9.000	6.34	57,044
9	New Zealand	5.521	5.97	32,974

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
10	The Republic of Moldova	0.678	6.11	4,140
<b>Total</b>		<b>260.878</b>	<b>5.60</b>	<b>1,460,244</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.2-11 China's exports of dicamba 48% AS by destination, 2019

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	The US	193.242	5.12	989,685
2	The Republic of Croatia	52.468	7.42	389,157
3	Russia	51.970	6.39	332,077
4	Vietnam	37.120	6.96	258,238
5	Uruguay	32.866	6.44	211,587
6	Australia	13.691	4.74	64,901
7	Egypt	13.450	7.00	94,117
8	Zimbabwe	12.867	6.35	81,663
9	Bulgaria	11.620	7.50	87,169
10	Ukraine	10.252	5.97	61,167
11	Serbia	9.310	7.53	70,130
12	South Africa	8.645	6.29	54,419
13	Kazakhstan	5.800	8.44	48,952
14	New Zealand	4.910	6.57	32,267
15	The Republic of Moldova	4.181	5.84	24,397
16	Chile	2.890	5.60	16,192
17	Mozambique	1.872	5.65	10,579
18	Romania	1.755	7.02	12,321
<b>Total</b>		<b>468.909</b>	<b>6.05</b>	<b>2,839,018</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis



Table 2.3.2-12 China's exports of dicamba 48% AS by destination, 2018

No.	Destination	Quantity, tonne	Price, USD/kg	Value, USD
1	Russia	96.727	7.15	691,629
2	Kazakhstan	85.920	2.34	200,947
3	The Republic of Croatia	80.119	7.74	620,379
4	South Africa	62.280	6.80	423,614
5	The US	57.792	6.36	367,467
6	Uruguay	48.038	7.48	359,281
7	Ukraine	32.133	6.29	202,099
8	Mongolia	19.370	6.58	127,523
9	Vietnam	18.560	7.30	135,562
10	Mexico	16.146	6.99	112,890
11	Lithuania	15.523	7.96	123,552
12	Australia	13.427	7.40	99,372
13	Zimbabwe	12.096	7.04	85,114
14	Serbia	7.896	8.08	63,822
15	New Zealand	3.510	7.44	26,100
16	Mozambique	1.880	7.23	13,600
17	Poland	1.170	7.38	8,630
18	The UK	1.035	18.00	18,630
19	French Polynesia	0.350	10.76	3,765
<b>Total</b>		<b>573.972</b>	<b>6.42</b>	<b>3,683,976</b>

Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis

### 2.3.3 By exporter

#### - 98% Dicamba technical

Table 2.3.3-1 China's exports of 98% dicamba technical by exporter, Q1 2023

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Sharda Cropchem Limited	272.000	9.64	2,622,026

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
2	Nufarm Chemical (Shanghai) Co., Ltd.	136.000	9.64	1,311,013
3	Shandong Weifang Rainbow Chemical Co., Ltd.	58.401	10.24	598,259
4	Nanjing Bioagriland Crop Care Co., Ltd.	24.000	10.60	254,400
5	Shanghai Proagro Bio-tech Co., Ltd.	16.000	10.38	166,076
6	Youjia Crop Protection Co., Ltd.	16.000	10.35	165,624
7	Zhejiang Hengdian Import and Export Co., Ltd.	16.000	10.72	171,542
8	Red Surcos Trade (Shanghai) Co., Ltd.	10.400	13.16	136,843
9	China Jiangsu International Economic and Technical Cooperation Group, Ltd.	10.000	24.87	248,710
10	Iprochem Co., Ltd.	5.600	9.50	53,200
11	Jiangsu Rotam Chemistry Co., Ltd.	0.500	10.23	5,116
12	Shandong Qiaochang Chemical Co., Ltd.	0.500	11.92	5,960
<b>Total</b>		<b>565.401</b>	<b>10.15</b>	<b>5,738,768</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.3-2 China's exports of 98% dicamba technical by exporter, 2022

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Nufarm Chemical (Shanghai) Co., Ltd.	5,055.460	11.61	58,679,285
2	Youjia Crop Protection Co., Ltd.	3,625.440	13.60	49,298,007
3	Jiangsu Changqing Agrochemical Co., Ltd.	3,226.600	12.53	40,425,836
4	Sharda Cropchem Limited	976.000	13.07	12,759,926
5	Shandong Weifang Rainbow Chemical Co., Ltd.	294.400	13.52	3,981,234
6	Suzhou Greenlands Chemical Co., Ltd.	160.000	13.12	2,099,773
7	Nanjing Bioagriland Crop Care Co., Ltd.	144.000	12.51	1,801,063
8	Agrobeats Tech Co., Ltd.	128.000	13.64	1,745,912
9	Ningbo Generic Chemical Co., Ltd.	94.900	12.57	1,193,132
10	Platform Agrotech Co., Ltd.	83.000	14.42	1,196,918
11	Red Surcos Trade (Shanghai) Co., Ltd.	80.000	14.76	1,180,554
12	Zhejiang Shenghua Biok Chemical Import and Export Co., Ltd.	64.800	12.65	819,508

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
13	Jiangsu Trustchem Co., Ltd.	64.000	10.72	686,308
14	Zhejiang Shenghua Biok Biology Co., Ltd.	64.000	10.50	672,191
15	Shanghai Risen International Trade Co., Ltd.	62.754	12.16	762,908
16	Jiangsu Changqing Agrochemical Trading Co., Ltd.	48.000	11.86	569,366
17	Zhangjiagang Harmotech International Co., Ltd.	48.000	12.01	576,378
18	Guangdong Keywa Chemical Trading Center Co., Ltd.	32.000	14.12	451,892
19	Zhejiang Wynca Import and Export Co., Ltd.	26.000	11.26	292,779
20	DVA Agro GmbH	24.000	11.11	266,640
	Others	211.403	12.41	2,623,880
	<b>Total</b>	<b>14,512.757</b>	<b>12.55</b>	<b>182,083,489</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-3 China's exports of 98% dicamba technical by exporter, 2021

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Youjia Crop Protection Co., Ltd.	6,782.609	11.93	80,915,079
2	Jiangsu Changqing Agrochemical Co., Ltd.	3,215.980	12.17	39,150,476
3	Nufarm Chemical (Shanghai) Co., Ltd.	1,927.420	11.82	22,772,586
4	Sharda Cropchem Limited	674.160	11.77	7,937,862
5	Nutrichem Co., Ltd.	594.624	11.69	6,953,668
6	Red Surcos Trade (Shanghai) Co., Ltd.	176.000	13.66	2,403,448
7	Nanjing Bioagriland Crop Care Co., Ltd.	123.200	11.36	1,400,081
8	Agrobeats Tech Co., Ltd.	96.000	11.91	1,143,160
9	Shandong Weifang Rainbow Chemical Co., Ltd.	65.800	11.50	756,874
10	Jiangsu Rotam Chemistry Co., Ltd.	60.722	11.70	710,447
11	Dai Co., Ltd.	40.000	10.96	438,250
12	Ningbo Generic Chemical Co., Ltd.	32.500	13.15	427,243
13	Gross Procedure Management International Ltd.	32.000	17.63	564,000
14	Nanjing Red Sun Co., Ltd.	24.000	11.64	279,280
15	Guangdong Keywa Chemical Trading Center Co., Ltd.	16.000	11.35	181,600

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
16	Nufarm Services (Singapore) Pte Ltd.	16.000	10.20	163,200
17	Zhejiang Hengdian Import and Export Co., Ltd.	14.400	11.95	172,083
18	Sinochem Agro Co., Ltd.	10.042	11.68	117,255
19	Shanghai Fanta-Lake Industrial Co., Ltd.	6.050	11.22	67,897
20	Ningbo Agroskyrun Trading Co., Ltd.	5.600	10.55	59,080
	Others	221.600	12.22	2,708,301
	<b>Total</b>	<b>14,134.706</b>	<b>11.98</b>	<b>169,321,869</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-4 China's exports of 98% dicamba technical by exporter, 2020

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Jiangsu Youjia Plant Protection Co., Ltd.	2,003.142	11.11	22260807
2	Zhangjiagang Harmotech International Co., Ltd.	1,376.720	11.56	15910042
3	Jiangsu Changqing Agrochemical Co., Ltd.	1,220.052	11.13	13575825
4	Red Surcos Trade (Shanghai) Co., Ltd.	203.200	11.99	2,435,892
5	Shandong Weifang Rainbow Chemical Co., Ltd.	201.839	11.24	2,269,014
6	Nutricem Company Limited	128.000	10.05	1,286,400
7	Jiangsu Oubei Technology Co., Ltd.	109.600	10.93	1,197,611
8	Ningbo Generic Chemical Co., Ltd.	86.400	11.04	953,783
9	Zhejiang Hengdian Imp. & Exp. Co., Ltd.	74.550	11.64	867,521
10	Nanjing Bioagriland Crop Care Co., Ltd.	58.000	10.82	627,348
11	Zhejiang Wynca Import and Export Co., Ltd.	44.000	11.17	491,642
12	Zhejiang Shenghua Biok Chemical Import and Export Co., Ltd.	29.600	11.03	326,472
13	Shandong Sino-Agri United Biotechnology Co., Ltd.	29.463	10.93	322,125
14	Deqing Rensi Industrial Co., Ltd.	16.000	11.20	179,200
15	Shanghai Bioagriland Crop Care Co., Ltd.	16.000	10.52	168,320
16	Anhui Alex Chemical Co., Ltd.	15.218	11.43	173,940
17	Jiangsu Changqing Agrochemical Trade Co., Ltd.	11.325	10.56	119,625
18	Ningbo Agroskyrun Trading Co., Ltd.	10.200	11.51	117,402

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
19	Anhui Alic Chemicals Co., Ltd.	9.636	12.03	115,963
20	Zhejiang Chemicals Import & Export Corporation	5.010	14.81	74,198
21	Ningbo Sanyi Biotechnology Co., Ltd.	5.000	12.06	60,279
	Others	64.000	11.14	712,640
	<b>Total</b>	<b>5,716.955</b>	<b>11.24</b>	<b>64,246,050</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.3-5 China's exports of 98% dicamba technical by exporter, 2019

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Jiangsu Youjia Plant Protection Co., Ltd.	2,132.100	13.53	28,849,131
2	Jiangsu Changqing Agrochemical Co., Ltd.	1,536.060	12.07	18,532,684
3	Zhangjiagang Rongjiayike Trade Co., Ltd.	432.000	14.32	6,187,680
4	Shandong Weifang Rainbow Chemical Co., Ltd.	213.676	11.53	2,464,339
5	Nutrichem Co., Ltd.	100.000	12.59	1,259,200
6	Zhejiang Shenghua Biok Chemical Import and Export Co., Ltd.	76.000	11.35	862,720
7	Red Surcos Trade (Shanghai) Co., Ltd.	64.000	13.05	835,000
8	Nanjing Bioagriland Crop Care Co., Ltd.	32.100	12.78	410,370
9	Yangzhou Pioneer Chemical Co., Ltd.	32.000	11.80	377,600
10	Deqing Rensi Industrial Co., Ltd.	16.000	11.65	186,347
11	Shanghai MIO Chemical Co., Ltd.	10.000	11.89	118,920
12	Ningbo Generic Chemical Co., Ltd.	10.000	11.47	114,725
13	Jiangsu Flag International Trading Co., Ltd.	8.500	12.84	109,101
14	Jiangsu Trustchem Co., Ltd.	7.200	12.73	91,622
15	Jiangsu Changqing Agrochemical Trade Co., Ltd.	4.100	11.65	47,747
16	Jiangsu Rotam Chemistry Co., Ltd.	2.560	12.55	32,128
17	Shanghai Nongjia Industrial Co., Ltd.	2.500	12.04	30,101
18	Hangzhou Qinong Biotechnology Co., Ltd.	0.600	15.17	9,100
19	Shandong Sino-Agri United Biotechnology Co., Ltd.	0.025	11.52	288
	<b>Total</b>	<b>4,679.423</b>	<b>12.93</b>	<b>60,518,803</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

Table 2.3.3-6 China's exports of 98% dicamba technical by exporter, 2018

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Jiangsu Youjia Plant Protection Co., Ltd.	6,740.800	13.67	92,160,498
2	Jiangsu Yangnong Chemical Co., Ltd.	4,224.000	13.36	56,414,438
3	Jiangsu Changqing Agrochemical Co., Ltd.	1,906.000	12.89	24,566,061
4	Zhangjiagang Rongjiayike Trade Co., Ltd.	1,584.000	14.16	22,421,760
5	Nutrichem Co., Ltd.	756.800	13.14	9,947,680
6	Red Surcos Trade (Shanghai) Co., Ltd.	52.000	13.77	716,240
7	Shandong Weifang Rainbow Chemical Co., Ltd.	31.950	14.59	466,048
8	Jiangsu Trustchem Co., Ltd.	26.350	14.14	372,684
9	Zhejiang Shenghua Biok Biology Co., Ltd.	16.000	13.30	212,800
10	Zhejiang Chemicals Import & Export Corporation	16.000	12.48	199,713
11	Zhejiang Biok Biology Co., Ltd.	16.000	11.45	183,200
12	Jiangsu Changqing Agrochemical Trade Co., Ltd.	15.000	14.40	216,000
13	Jiangsu Flag International Trading Co., Ltd.	7.600	16.10	122,360
14	Zhejiang Shenghua Biok Chemical Import and Export Co., Ltd.	3.200	14.05	44,960
15	Shanghai Xinyi Chemical Co., Ltd.	3.125	15.60	48,741
16	High Hope Int'l Group Jiangsu Native Produce Import & Export Corp., Ltd.	2.400	14.40	34,560
17	Zhejiang Rayfull Chemicals Co., Ltd.	1.850	13.15	24,326
18	Kingtai Chemicals Co., Ltd.	1.025	15.4	15,785
19	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	1.000	15.96	15,960
20	Anhui Whywin International Co., Ltd.	0.800	15.95	12,756
21	Shanghai Nongjia Industrial Co., Ltd.	0.350	12.38	4,332
22	Ningbo Generic Chemical Co., Ltd.	0.300	17.35	5,206
<b>Total</b>		<b>15,406.550</b>	<b>13.51</b>	<b>208,206,108</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

**- Dicamba 48% AS**

Table 2.3.3-7 China's exports of dicamba 48% AS by exporter, Q1 2023

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Yangzhou Chemical Import and Export Co., Ltd.	31.320	8.36	261,900
2	Shenzhen Baocheng Chemical Industry Co., Ltd.	16.224	6.40	103,800
3	Zhejiang Qianjiang Biochemical Co., Ltd.	4.720	2.61	12,304
4	China Jiangsu International Economic and Technical Cooperation Group, Ltd.	2.320	9.68	22,463
5	High Hope Zhongtian Corporation	1.787	7.36	13,157
<b>Total</b>		<b>56.371</b>	<b>7.34</b>	<b>413,624</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-8 China's exports of dicamba 48% AS by exporter, 2022

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Shandong Weifang Rainbow Chemical Co., Ltd.	74.771	8.48	634,290
2	Shanghai Mingdou Chemical Co., Ltd.	46.500	12.58	584,800
3	Zhejiang Qianjiang Biochemical Co., Ltd.	9.064	2.31	20,910
4	Shenzhen Baocheng Chemical Industry Co., Ltd.	6.240	6.56	40,950
5	Iprochem Co., Ltd.	0.040	34.03	1,361
<b>Total</b>		<b>136.614</b>	<b>9.39</b>	<b>1,282,311</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-9 China's exports of dicamba 48% AS by exporter, 2021

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Shandong Weifang Rainbow Chemical Co., Ltd.	22.000	6.80	149,549
2	Jiangsu Changqing Agrochemical Co., Ltd.	19.322	5.89	113,806
3	Ningbo Agroskyrun Trading Co., Ltd.	5.825	6.01	35,037
4	Shanghai E-tong Chemical Co., Ltd.	1.030	/	46,785
<b>Total</b>		<b>48.177</b>	<b>7.16</b>	<b>345,177</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-10 China's exports of dicamba 48% AS by exporter, 2020

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Shandong Weifang Rainbow Chemical Co., Ltd.	89.914	5.43	488,533
2	Jiangsu Changqing Agrochemical Co., Ltd.	45.185	6.19	279,588
3	Zhejiang Kenso Agrochemical Co., Ltd.	18.314	5.60	102,497
4	Ningbo Sanyi Biotechnology Co., Ltd.	18.240	2.56	46,671
5	Acre Trade Ltd.	16.353	6.75	110,400
6	Nanjing Bioagriland Crop Care Co., Ltd.	16.215	6.04	97,980
7	ASA Swiss AG	15.660	5.08	79,500
8	Shandong Sino-Agri United Biotechnology Co., Ltd.	13.395	5.65	75,631
9	Shanghai Mingdou Chemical Co., Ltd.	9.000	6.34	57,044
10	Shenzhen Iprochem Co., Ltd.	5.612	5.95	33,400
11	Yangzhou West Central Chemical Co., Ltd.	5.000	7.00	35,000
12	Zhejiang Sunrise Fine Chemical Co., Ltd.	4.520	5.75	26,000
13	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	2.320	9.00	20,880
14	Shaanxi Succeed Trading Co., Ltd.	1.150	6.19	7,120
<b>Total</b>		<b>260.878</b>	<b>5.60</b>	<b>1,460,244</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-11 China's exports of dicamba 48% AS by exporter, 2019

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Jiangsu Changqing Agrochemical Co., Ltd.	195.582	5.14	1,006,085
2	Shandong Weifang Rainbow Chemical Co., Ltd.	106.650	6.26	667,096
3	Ningbo Sanyi Biotechnology Co., Ltd.	58.268	7.33	427,168
4	Jiangsu Trustchem Co., Ltd.	32.760	6.82	223,507
5	Agro Crown Group	17.400	6.30	109,620
6	Shanghai Ailong International Trading Co., Ltd.	13.450	7.00	94,117
7	Ningbo Generic Chemical Co., Ltd.	12.958	7.29	94,421
8	Shanghai Mingdou Chemical Co., Ltd.	8.000	6.70	53,581
9	Yangzhou Chemical Import & Export Co., Ltd.	5.800	8.44	48,952



No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
10	Shanghai Bioagriland Crop Care Co., Ltd.	3.528	6.22	21,935
11	Shandong Binnong Technology Co., Ltd.	2.890	5.60	16,192
12	Ningbo Cycle Chemical Co., Ltd.	2.554	6.52	16,655
13	Suzhou Everfortune Imp. & Exp. Co., Ltd.	1.872	5.65	10,579
14	High Hope Zhongtian Corporation	1.755	7.02	12,321
15	Jiangsu Haowo Biological Technology Co., Ltd.	1.732	6.95	12,042
16	Shaanxi Succeed Trading Co., Ltd.	1.732	6.33	10,968
17	Shenzhen Iprochem Co., Ltd.	1.398	7.00	9,786
18	Shenzhen Horizon Industry Co., Ltd.	0.580	6.88	3,993
<b>Total</b>		<b>468.909</b>	<b>6.05</b>	<b>2,839,018</b>

Note: Nuances in some data are mainly caused by rounding principle.

Source: Tranalysis

Table 2.3.3-12 China's exports of dicamba 48% AS by exporter, 2018

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
1	Shandong Weifang Rainbow Chemical Co., Ltd.	185.434	6.80	1,260,735
2	Yangzhou Chemical Import & Export Co., Ltd.	85.920	2.34	200,947
3	Shanghai Mingdou Chemical Co., Ltd.	51.000	6.97	355,316
4	Ninghua Group Co., Ltd.	47.265	7.86	371,729
5	Guangdong Keywa Chemical Exchange Center Stock Co., Ltd.	32.854	7.57	248,650
6	Zhejiang Biok Biology Co., Ltd.	26.539	6.80	180,420
7	Zhejiang Zhongshan Chemical Industry Group Co., Ltd.	15.960	7.57	120,866
8	Jiangsu Bvco Biological Technology Co., Ltd.	15.772	7.18	113,232
9	Anhui Whywin International Co., Ltd.	15.523	7.96	123,552
10	Jiangsu Trustchem Co., Ltd.	13.860	6.14	85,104
11	Yangzhou Luyuan Bio-chemical Co., Ltd.	13.320	6.15	81,971
12	Ningbo Generic Chemical Co., Ltd.	10.450	7.93	82,852
13	Suzhou Everfortune Imp. & Exp. Co., Ltd.	8.190	6.91	56,625
14	China Jiangsu International Economic Technical Cooperation Group Co., Ltd.	7.462	8.58	64,016

No.	Exporter	Quantity, tonne	Price, USD/kg	Value, USD
15	Zhejiang Xingma Trade Co., Ltd.	6.419	7.41	47,565
16	Shandong Qiaochang Modern Agriculture Import & Export Co., Ltd.	6.050	7.53	45,552
17	Zhejiang Shenghua Biok Biology Co., Ltd.	5.850	7.56	44,250
18	Nanjing Bioagriland Crop Care Co., Ltd.	5.840	7.38	43,099
19	Nanjing Redsun Group International Trade Co., Ltd.	5.775	6.76	39,037
20	Jiangsu Changqing Agrochemical Co., Ltd.	3.510	7.44	26,100
21	Jiangsu Qiwang New Materials Technology Co., Ltd.	3.510	6.86	24,084
22	Shanghai Lvmao Industry Co., Ltd.	2.096	8.71	18,253
23	Zhejiang Biok Biology Co., Ltd.	1.880	7.23	13,600
24	Nanjing Bestgreen Chemical Co., Ltd.	1.740	6.50	11,306
25	Hebei Wangqi Chemical Technology Co., Ltd.	1.035	18.00	18,630
26	Ningbo Huili Import and Export Co., Ltd.	0.368	7.39	2,720
27	Shaanxi Succeed Trading Co., Ltd.	0.350	10.76	3,765
<b>Total</b>		<b>573.972</b>	<b>6.42</b>	<b>3,683,976</b>

*Note: Nuances in some data are mainly caused by rounding principle.  
Source: Tranalysis*

## 2.4 Demand

### 2.4.1 Consumption volume (2018–2022)

In China, most dicamba products are exported and only a small amount is left for domestic application, primarily for weed control in wheat and corn fields. As for application, most of dicamba technical is turned into dicamba formulations of 48% AS at home and abroad at present.

During 2014–2017, more than 90% of dicamba products were exported. However, the percentage declined in 2018 and 2019 because of less demand in the US, especially in 2019. Since the US is the largest export destination of China's dicamba products, its reduced demand has resulted in a high inventory in China. In Oct. 2020, the US Environmental Protection Agency approved registrations for dicamba products again, leading to increased demand in the US. As a result, the percentage presented a great improvement in 2020–2021 from 72.7% to 89.0%. In 2022, the percentage dropped slightly to 81.7%.

Table 2.4.1-1 Production, export and apparent consumption of dicamba in China, 2018–2022

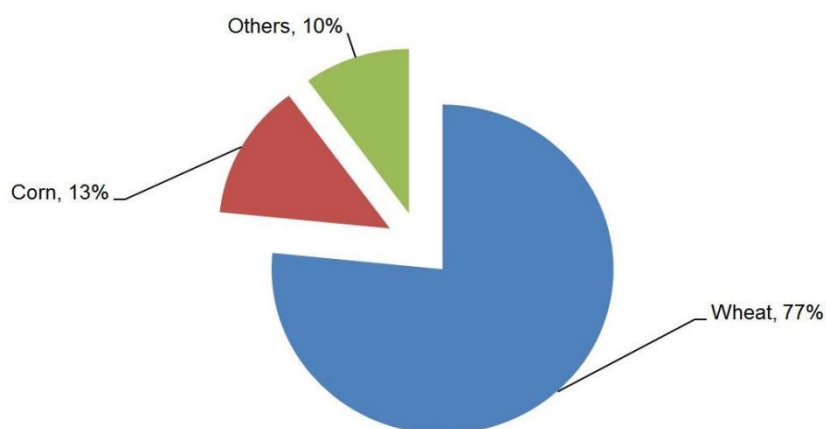
Year	Capacity, t/a	Output, tonne	Export volume, tonne								Apparent consumption (converted to 100% TC), tonne
			98% TC	97% TC	96% TC	95% TC	48% AS	70% WG	70% SG	Total (converted to 100% TC)	
2018	35,500	17,253	15,407	0	0	2	574	14	17	15,358	1,895
2019	37,500	7,365	4,679	0	129	16	469	2	10	4,925	2,439
2020	32,500	7,938	5,717	0	0	0	261	0	88	5,771	2,167
2021	37,500	15,600	14,135	0	0	0	48	18	0	13,885	1,715
2022	39,500	18,000	14,513	16	0	0	137	46	0	14,711	3,289

Source: China Customs & CCM

## 2.4.2 Consumption pattern

As traditional broadleaf crops are very susceptible to dicamba, it is mainly applied for weed control in wheat and corn fields. Since the development of GM crops is still in its infancy, dicamba is hardly used in soybean and cotton fields in China. In addition, dicamba is expensive compared to other herbicide products and therefore has not been widely used in China. Its application rate in paddy fields is very low and is still in the experimental stage.

Figure 2.4.2-1 Share of apparent consumption of dicamba in China by crop, 2022



Source: CCM

## 2.5 Price

### 2.5.1 Historical price (2011–June 2023)

The yearly average ex-works price of dicamba 98% TC experienced a huge rise in 2012 and continued to grow until reaching its record high at USD23,740/t in 2014, with a CAGR of 15.33% during 2011–2014. Then it dropped quickly—the yearly average price in 2016 saw a tumble of almost 25% over the previous year. The price dipped further to USD11,970/t in 2020 and then turned stable in 2021–2022.

In 2022, the price went down because of the gradual production recovery and weak downstream demand in China. In 2023, although it showed a slight increase before Q1 and stood at USD10,816/t in Feb., the price slid again owing to the sluggish demand from the overseas market in H1. According to CCM market monitoring results, the ex-works price of dicamba 98% TC in June was USD9,639/t, a record low price since 2021.

Figure 2.5.1-1 Annual ex-works price of dicamba 98% technical in China, 2011–2022



Source: CCM

Figure 2.5.1-2 Monthly ex-works price of dicamba 98% technical in China, Jan. 2022–June 2023



Source: CCM

### 2.5.2 Influencing factors behind price trends

Wide promotion of dicamba-tolerant crops once led to a price rise of dicamba technical. Since 2014, however, ex-works prices of dicamba products have continued to decline, largely driven by the oversupply following the rapid expansion of production capacity in recent years, and falling oil prices in 2015.

In 2019–2020, shrinking demand suppressed the price of dicamba technical; but the price rose slightly in Q1 2021 because of the price hikes of cruel oil during the COVID-19 pandemic, and even further soared to about USD13,300/t in Q4 due to the producers' low operating rates.

During 2022–H1 2023, the glut of dicamba products resulted in a price downtrend, and the price slid to USD9,639/t in June 2023. However, with increasing production costs and suppressed margins, major manufacturers may lower operating rates of dicamba production plants in the second half of 2023.

### 2.5.3 Future price trends

In H1 2023, the ex-works price of China's dicamba technical in June registered a 8.27% decrease from Jan., yet it still stayed at a high level due to the increasing prices of raw materials and manufacturers' low operating rates that were caused by power shortage. In the near future, with the industrialisation of GM crops in China, the demand for dicamba technical is likely to increase and the price will rebound accordingly.

In China, production of dicamba technical has been concentrated on Jiangsu Yangnong Chemical Co., Ltd. and Jiangsu Changqing Agrochemical Co., Ltd. They produced more than 90% of domestic dicamba technical in 2022. In particular, Jiangsu Changqing put its 6,000 t/a dicamba technical project into trial production in Dec. 2021; but the project failed to fully deliver the economic benefits that were previously anticipated, as it was still in the commissioning period in H1 2022. In the overseas market, the main producers of dicamba technical are multinational pesticide giants such as BASF and Syngenta, and some Indian producers.

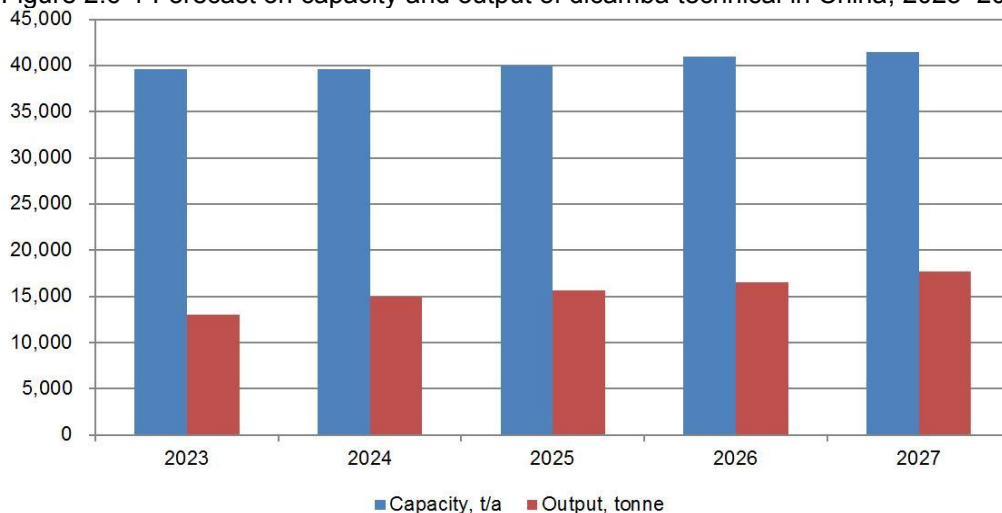
On the other hand, demand for dicamba technical will be encouraged by the development of dicamba-resistant GMO crops, slowing down the price fall of dicamba technical. Bayer (Monsanto)'s 3rd-generation dicamba-tolerant soybean Intacta 2 Xtend hit the Brazilian market on 10 June, 2021.

Moreover, on 27 Oct., 2020, the U.S. Environmental Protection Agency (EPA) announced that it had approved new five-year registrations for two dicamba products and extended the registration of an additional dicamba product. The approved registrations are for dicamba-tolerant cotton and soybeans only, and will be expired in 2025. The approval is expected to revive demand from the US market for dicamba products and have a positive effect on dicamba prices.

### 2.6 Forecast on supply and demand (2023–2027)

On the whole, capacity and output of dicamba technical in China marked a great improvement in 2022. It is estimated to fluctuate slightly over the next five years (2023–2027). Meanwhile, capacity expansion may slow down as the industry is rather concentrated and there is enough supply now. Nevertheless, the industrialisation of GM crops may bring new opportunities to the market.

Figure 2.6-1 Forecast on capacity and output of dicamba technical in China, 2023–2027



Source: CCM

The growth in global demand for dicamba was witnessed in 2021, which was reflected in increasing sales orders from the overseas market. It is predicted that the global demand for dicamba will keep rising in the next few years, mainly for the following reasons:

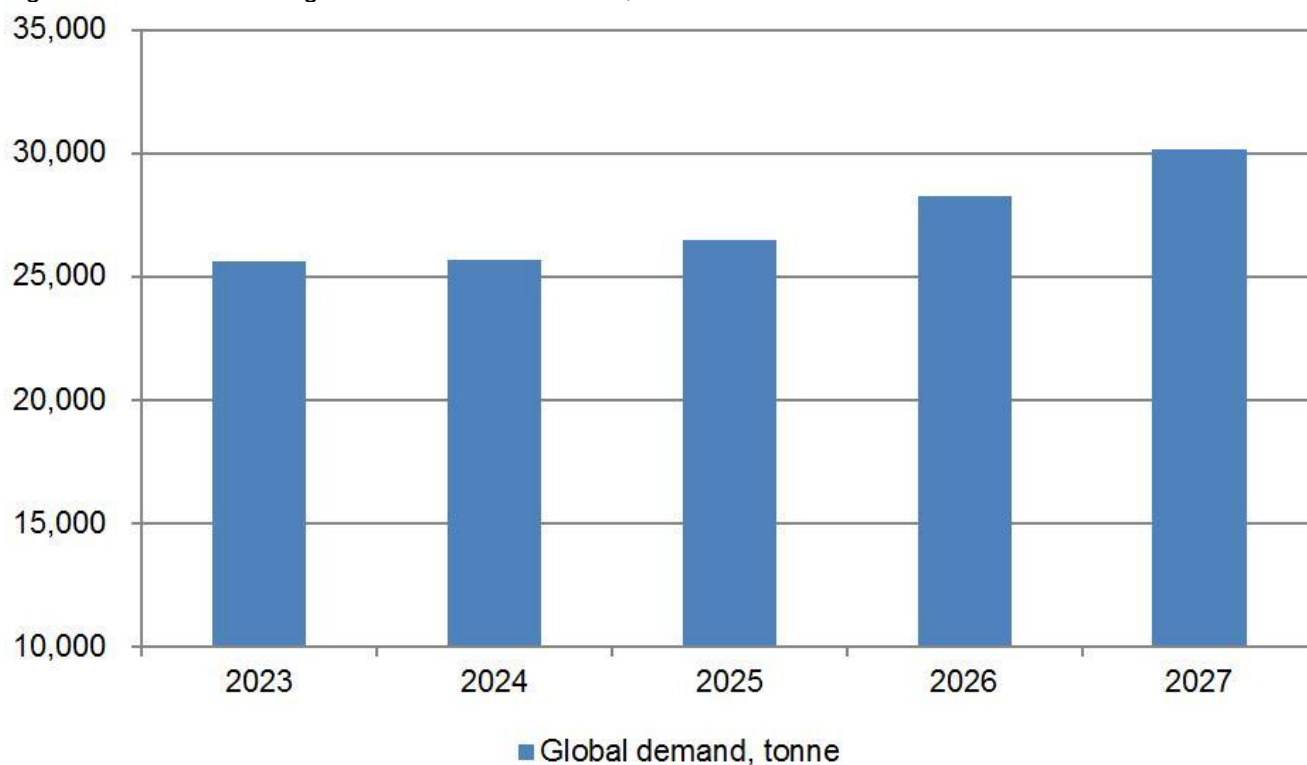
- Firstly, with the official launch of third-generation dicamba-tolerant GM soybean "Intacta 2 XTend" in Brazil in June 2021, planting areas of dicamba-tolerant soybean may show an uptrend.
- Secondly, the US EPA has approved new five-year registrations for two dicamba products and extended the registration of a dicamba product in Oct. 2020. These products are only for use on dicamba-tolerant cotton

and soybean and their registrations will expire in 2025.

- Thirdly, the biggest obstacle in promoting dicamba products is the drifting problem, which raises much concern among farmers; Bayer has suffered heavy losses in related litigation, and it found that an additional chemical agent would help reduce drifting.

- Fourthly, with weeds' tolerance to glyphosate increasing, new effective herbicides are in urgent need.

Figure 2.6-2 Forecast on global demand for dicamba, 2023–2027



Source: CCM

As for dicamba consumption in China, the demand will also increase mainly for the following factors:

- Firstly, GM crop planting areas in China will increase in the near future upon the industrialisation of transgenic crops in China. In 2022, the National Crop Variety Approval Committee (NCVAC) issued the *National Standards for the Approval of Genetically Modified Soybean and Corn Varieties (Trial)* on 8 June, after the Ministry of Agriculture and Rural Affairs (MARA)'s issuance of the *Certification Standards for Major Crops Varieties* in Jan. Accordingly, more dicamba technical will be needed as dicamba plays an important role in dicamba-tolerant GM crops.

- Secondly, the promotion of dicamba products will be accelerated as drifting issue has been relieved to a certain extent.

- Thirdly, the application of dicamba is expanded in seed dressing. Dicamba-based seed dressing agents, which are mainly used in wheat, have started to be applied in other crops including corn, cotton and soybean as seed dressing technologies in China are developing.

- Fourthly, great attention has been paid to the safety and abuse of pesticide. China's official ban on domestic sales and application of paraquat AS would make some market space for dicamba. Moreover, pesticide resistance has become increasingly serious in recent years.

- Fifthly, the application of dicamba in other crops like rice, which is still at the testing stage, may also raise demand for it.

### 3 Benchmarking research on major producers in China

#### 3.1 Jiangsu Yangnong Chemical Co., Ltd.

##### 3.1.1 Basic information of the company

Table 3.1.1-1 Basic information of Jiangsu Yangnong Chemical Co., Ltd.

<b>Business address</b>	2/F-5/F High-tech Zone Building, Anqiao Road, Hanjiang District, Yangzhou City, Jiangsu Province 225012, P. R. China
<b>Website</b>	http://www.yangnongchem.com
<b>Tel.</b>	+86-514-85888888, 85889958
<b>Fax</b>	+86-514-85881788, 85889900
<b>Date of establishment</b>	Dec. 1999
<b>Registered capital, as of July 2023</b>	RMB309.90 million
<b>Company type</b>	State-owned and listed (the Shanghai Stock Exchange since 2002; stock code: 600486)
<b>Main business</b>	Production and sales of pesticides (including pyrethroids, glyphosate, dicamba, fluazinam, pyraclostrobin and others) and basic chemical products (including dichlorobenzene, dichloronitrobenzene, chlorobenzene, etc.)
<b>Certification</b>	ISO9001, ISO14001, OHSAS18001
<b>Employee, as of Dec. 2022</b>	3,129 (including 542 technicians)
<b>Import-export right</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Party ID</b>	3210910161

Source: Jiangsu Yangnong & CCM

##### 3.1.2 Key points in company history

In 1958, the predecessor of Jiangsu Yangnong Chemical Group Co., Ltd. (Yangnong Group), Yangzhou Pesticide Factory, was founded.

In 1990, Yangnong Group was established, and merged with other enterprises and transformed into a group enterprise from its predecessor—Yangzhou Pesticide Factory.

In Dec. 1999, Jiangsu Yangnong Chemical Co., Ltd. (Jiangsu Yangnong) was established with a registered capital of RMB309 million.

In 2002, Jiangsu Yangnong was listed on the Shanghai Stock Exchange (Stock Code: 600486).

In 2002, Yangnong Group obtained the ISO9001 Quality Management System certification.

In 2003, Jiangsu Yangnong started to research production technology for glyphosate technical. It is the earliest glyphosate technical supplier adopting the IDA pathway in China.

In 2004, Yangnong Group obtained the ISO14001 International Environment System certification.

In 2006, Yangnong Group's imidacloprid was identified as China's top brand product by the General

Administration of Quality Supervision, Inspection and Quarantine of China.

In 2007, the brand Yangnong was identified as a Chinese well-known trademark.

In 2008, Yangnong Group started to produce dicamba technical.

In March 2010, Ningxia Ruitai Technology Co., Ltd. was founded by Yangnong Group.

In 2012, Sinochem International Corporation became the second largest shareholder of Jiangsu Yangnong by holding 40.53% shares of the latter.

In 2017, Jiangsu Youjia Plant Protection Co., Ltd. was selected as one of the first batch of national "Green Factory" by Ministry of Industry and Information Technology (MIIT).

In 2018, Jiangsu Yangnong won the "Best Supplier" award at Agrow Awards for the third time and ranked 17th out of the "Top 20 Agrochemical Enterprises in the World" in 2017 by Agrow.

In 2018 and 2019, Jiangsu Yangnong ranked 5th in the list of China's top 100 enterprises in pesticide sales, a list annually released by China Crop Protection Industry Association (CCPIA). From 2020 to 2023, Jiangsu Yangnong ranked second in the list for four consecutive years.

### 3.1.3 Current ownership structure

As of March 2023, there were 18,844 shareholders in Jiangsu Yangnong, the top 10 of which held 55.94% of its shares.

Table 3.1.3-1 Top 10 shareholders of Jiangsu Yangnong Chemical Co., Ltd., as of March 2023

No.	Shareholder	Share holding
1	Syngenta Group China Co., Ltd.	36.17%
2	Yangzhou Fuyuan Chemical Technology Co., Ltd.	5.49%
3	Hong Kong Securities Clearing Co., Ltd.	3.04%
4	National Social Security Fund - Portfolio 106	2.76%
5	Postal Savings Bank of China Limited - Yifangda New Income Flexible Allocation of Hybrid Securities Investment Fund	1.70%
6	Shanghai Pudong Development Bank - Yifangda Yufeng Return Bond Investment Fund	1.60%
7	Basic Endowment Insurance Fund - Portfolio 308	1.55%
8	National Social Security Fund - Portfolio 103	1.48%
9	Bank of Ningbo Co Ltd. - Zhongtai Xingyuan Value Preferred Flexible Allocation Mixed Securities Investment Fund	1.13%
10	Industrial Bank Co., Ltd. - Yifangda Yuexing One-Year Holding Term Hybrid Securities Investment Fund	1.02%
<b>Total</b>		<b>55.94%</b>

Source: Jiangsu Yangnong



Table 3.1.3-2 Major subsidiaries of Jiangsu Yangnong Chemical Co., Ltd., as of March 2023

No.	Subsidiary	Share holding
1	Youth Chemical Co., Ltd.	100%
2	Jiangsu Youjia Plant Protection Co., Ltd.	100%
3	Shenyang Sinochem Agrochemicals Research and Development Co., Ltd.	100%
4	Sinochem International Crop Care Co., Ltd.	100%
5	Liaoning Youchuang Plant Protection Co., Ltd.	100%

Source: Jiangsu Yangnong

### 3.1.4 Overall business performance

In 2019, the revenue of Jiangsu Yangnong was USD1.26 billion with YoY growth of 1.38% (based on RMB value, same below), and the net profit was USD170.41 million with YoY growth of 14.54%. The increases mainly resulted from high sales prices and excellent business performance of pyrethroids in H1 2019.

In 2020, the revenue of Jiangsu Yangnong achieved USD1.42 billion, up by 12.98% YoY, and the net profit was USD174.76 million, up by 3.24% YoY. Facing challenges during the COVID-19 pandemic and global economic recession, Jiangsu Yangnong still strengthened sales of superior products and expanded its customer base in 2020, which were the main reasons for the growth.

In 2021, with rising product prices, Jiangsu Yangnong's annual sales performance went up, with total revenue of USD1.83 billion, up 20.45% YoY, and net profit of USD189.28 million, up by 1.01% YoY.

In 2022, Jiangsu Yangnong achieved a new record in revenue (USD2.36 billion, up by 33.52% YoY) and net profit (USD268.12 million, up by 46.82% YoY) and the company attributed the growth to increased production and reduced costs.

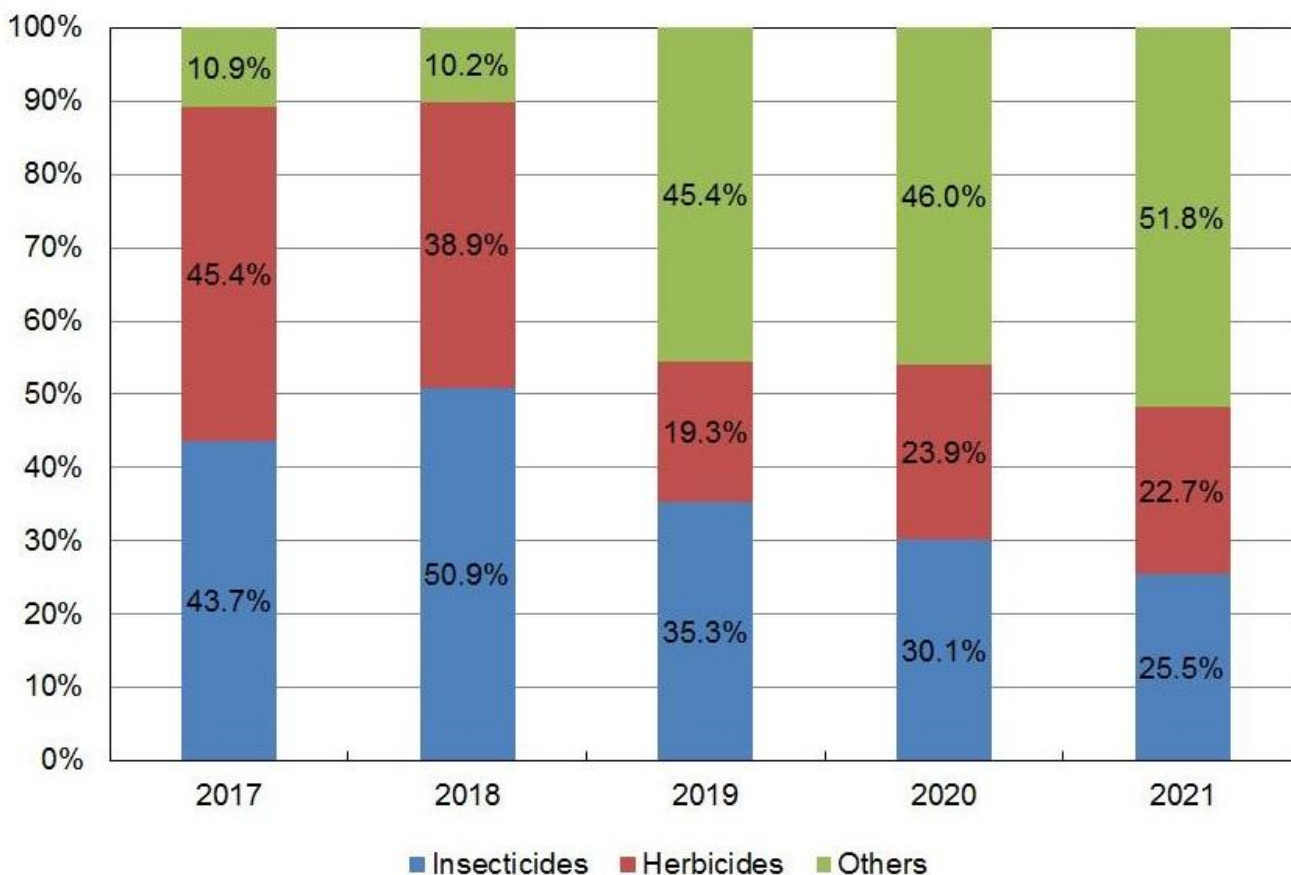
- By taking precautionary measures to ensure supply and staggering production arrangement in summer, the company made sure of its four factories' stable operation and delivered 100% of received orders in 2022.
- In 2022, the company's annual output hit a new high. Its output of pesticide technical exceeded 90,000 tonnes, up by 9.46% YoY. Its subsidiary Jiangsu Youjia also made progress—the stage I of Jiangsu Youjia's phase IV project has reached designed production capacity.
- Jiangsu Yangnong saved USD17.62 million on production expenditures in 2022, through savings on raw material and energy consumption, auxiliary materials, and maintenance.

Table 3.1.4-1 Total assets, revenue and profit of Jiangsu Yangnong Chemical Co., Ltd., 2018–2022

Time	Year-end total assets, USD	Revenue, USD	Net profit, USD
2018	1,587,694,009	1,299,123,140	154,983,681
2019	1,400,268,048	1,264,271,024	170,406,257
2020	1,572,522,226	1,418,970,013	174,762,074
2021	2,027,722,943	1,832,618,495	189,277,305
2022	2,208,902,768	2,360,801,415	268,119,991

Note: In 2019, Jiangsu Yangnong adjusted part of its financial statistics of 2017 and 2018; figures given in the table are after adjustment.  
Source: Jiangsu Yangnong

Figure 3.1.4-1 Revenue structure of Jiangsu Yangnong Chemical Co., Ltd. by product type, 2018–2021



Note: 1. Revenue mainly comes from its pesticide business. 2. In 2019-2021, "Insecticides" refers to revenue from insecticides technical; "Herbicides" refers to revenue from herbicides technical; and "Others" contains revenue from other technical, formulations, trading, and other revenue of pesticide-related business. 3. The revenue structure of 2022 wasn't disclosed.  
Source: Jiangsu Yangnong

### 3.1.5 Marketing and sales mode

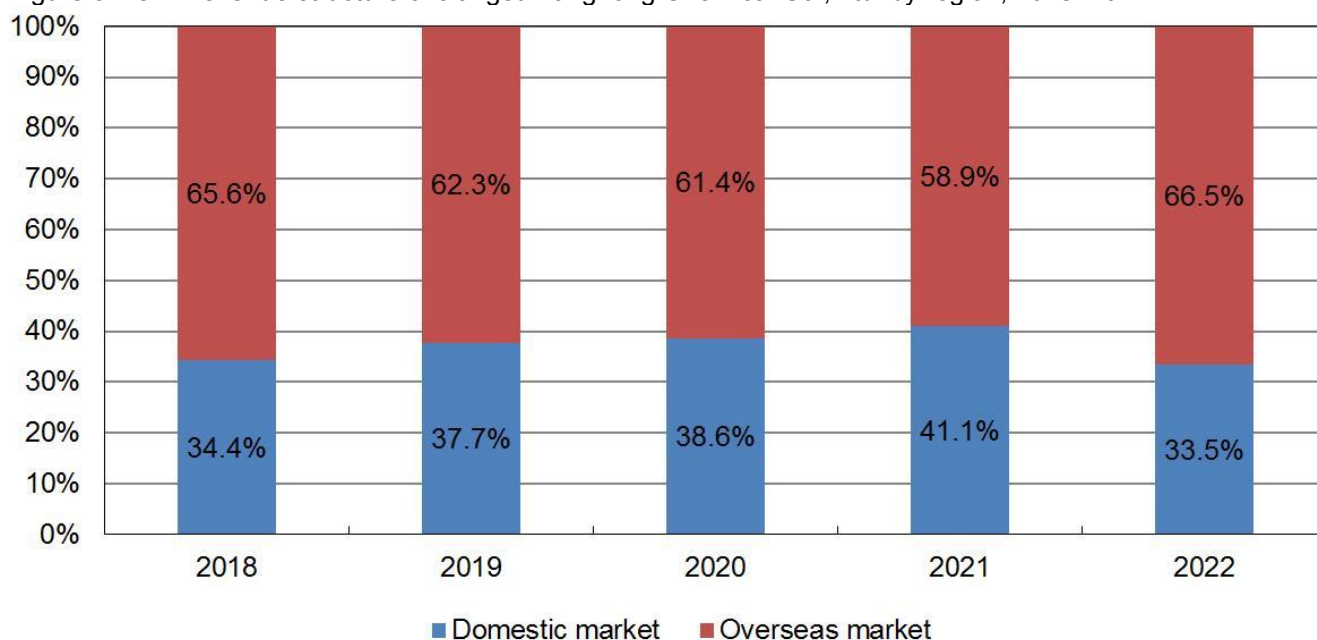
Jiangsu Yangnong's revenue mainly comes from its pesticide business.

It has brand advantage. Its pyrethroid products under brand name Moju have won the titles of Brand Products in Jiangsu Province and the Most Competitive Brand for years. The brands Moju and Youshi are well-known trademarks in China.

Jiangsu Yangnong focuses on both domestic and overseas markets, and the revenue from overseas market accounted for 58.9% of the total in 2021 and 66.5% in 2022.

As for marketing strategy, Jiangsu Yangnong gives consideration to both large and small markets in China. Besides, it pays attention to the sale of large-quantity and key products in overseas market, seeking for cooperation with more multinational companies. For technical products, clients are mainly large pesticide companies at home and abroad, enterprises producing mosquito-repellent incense, aerosol and sanitary disinfection products, and large enterprises producing pesticide formulations, by the means of direct selling. For formulation products, Jiangsu Yangnong has domestic distribution channels, while exports by itself.

Figure 3.1.5-1 Revenue structure of Jiangsu Yangnong Chemical Co., Ltd. by region, 2018–2022



Source: Jiangsu Yangnong

### 3.1.6 Commercial activity

In Nov. 2013, Jiangsu Yangnong built a post-doctoral researching workstation. In 2013, Jiangsu Youjia Plant Protection Co., Ltd. (Jiangsu Youjia) invested USD85 million in the first phase of the Rudong Project, which proposed to establish production lines of dicamba technical (5,000 t/a), 3,3-dimethyl-4-pentenoic acid methyl ester (5,000 t/a), bifenthrin technical (800 t/a), fluazinam technical (600 t/a) and trinexapac-ethyl technical (300 t/a). By the end of 2014, all these production lines had been put into operation.

In 2014, Jiangsu Yangnong became one of the first companies to be affirmed as high-tech enterprises.

On 16 June, 2014, Jiangsu Yangnong invested USD32.26 million to purchase trust estate with a deadline of one year.

On 25 Dec., 2014, Yangnong Group won the title of Model Enterprise with Brand Cultivation at the Summarisation Convention of China Petroleum & Chemical Industry Quality Activity in Beijing.

In May 2016, the construction of the Rudong Project (Phase II) started, mainly involving the production line of dicamba technical with 20,000 t/a of capacity. In April 2017, the partial production capacity in Rudong Project (Phase II), including 10,000 t/a for dicamba technical, came on stream. In Jan. 2018, the whole Rudong Project (Phase II) finished construction, and entered equipment commissioning.

In Dec. 2018, Jiangsu Yangnong paid USD12.96 million for the 5% equity of Youth Chemical Co., Ltd. and USD16.28 million for the 5% equity of Jiangsu Youjia Plant Protection Co., Ltd. held by Yangzhou Tianping Chemical Plant Co., Ltd. After that, Jiangsu Yangnong owns 100% equity of the two companies.

In Nov. 2019, Jiangsu Yangnong paid USD132.87 million for the 100% equity of Sinochem International Crop Care Co., Ltd. and Shenyang Sinochem Agrochemicals Research and Development Co., Ltd. held by Sinochem Group.

In Jan. 2020, its subsidiary Jiangsu Youjia obtained 100% equity of Nantong Baoye Chemical Co., Ltd.

In Aug. 2020, Jiangsu Youjia's phase III project was put into trial production, which includes 10,825 t/a pyrethroids insecticides, 50 t/a metoxadiazole, 200 t/a thidiazuron, 2,000 t/a propiconazole, 200 t/a chlorfluzuron, 500 t/a haloxyfop-R-methyl and 1,000 t/a difenoconazole.

In Dec. 2020, Sinochem International Corporation (Sinochem International) announced that it would obtain

39.88% stake in Yangnong Group transferred from Syngenta Group Co., Ltd. (Syngenta Group). Meanwhile, Yangnong Group will transfer 36.17% stake of its subsidiary Jiangsu Yangnong to Syngenta Group. And on 13 July, 2021, the controlling shareholder of Jiangsu Yangnong was officially changed to Syngenta Group.

In 2021, the construction of stage I of Jiangsu Youjia's phase IV project was completed. And relevant product lines were put into trial production in early 2022. Stage I involves four products, namely difenoconazole, mesotrione, bifenthrin and fluazinam.

In Jan. 2022, the first stage of Jiangsu Youjia's phase IV project was put into trial production, including a total of 7,310 t/a of pyrethroid pesticides production lines for difenoconazole, mesotrione, bifenthrin, and fluazinam.

On 9 March, 2023, the environmental impact (EI) report of "15,650 t/a pesticide technical materials and 7,000 t/a pesticide intermediates project", submitted by Liaoning Youchuang Plant Protection Co., Ltd. (Liaoning Youchuang)—a wholly-owned subsidiary of Jiangsu Yangnong, was approved by local environmental authority. Liaoning Youchuang proposes to invest USD606.63 million (RMB4.21 billion) into this project. According to the EI report, 11 new production lines will be built in Liaoning Youchuang's factory compound, delivering 7,000 t/a of production capacity for pesticide intermediates, and 15,650 t/a for pesticide technical materials that include 1,500 t/a for imazethapyr, 200 t/a for imazamox, 100 t/a for imazameth, 5,000 t/a for clethodim, 250 t/a for sethoxydim, 500 t/a for anilofos, 100 t/a for pyrisoxazole, 500 t/a for diflufenican, 500 t/a for paclobutrazol, 3,000 t/a for lambda-cyhalothrin, 2,500 t/a for pydiflumetofen and 1,500 t/a for diamide insecticides.

### 3.1.7 Analysis of dicamba production costs

Table 3.1.7-1 Production costs of dicamba technical in Jiangsu Yangnong Chemical Co., Ltd., March 2023

No.		Item	Cost, USD/t	Share
1	Raw material	2,5-Dichloroaniline (98%)	2,383	25.6%
		Potassium carbonate (99%)	798	8.6%
		Potassium hydroxide (48%)	881	9.5%
		Liquid caustic soda (30%)	409	4.4%
		Methyl chloride (99.5%)	175	1.9%
		Nitric acid (98%)	118	1.3%
		Hydrochloric acid (30%)	165	1.8%
		Dimethylbenzene (99.5%)	95	1.0%
		Toluene (99.5%)	61	0.7%
		Sulfur dioxide (99.5%)	47	0.5%
		Carbon dioxide (99.5%)	37	0.4%
2	Labor	/	202	2.2%
3	Packing	/	85	0.9%
Others			3,846	41.3%
<b>Total</b>			<b>9,302</b>	<b>/</b>

Note: Due to rounding, the total of the shares may not equal 100.0%.

Source: CCM

### 3.1.8 Financial analysis

Table 3.1.8-1 Important financial ratio of Jiangsu Yangnong Chemical Co., Ltd., 2017–2022

Item	2022	2021	2020	2019	2018	2017
Return on equity (ROE)	23.2%	19.0%	22.0%	22.7%	21.2%	15.9%
Return on total assets (ROA)	12.9%	10.2%	11.8%	11.7%	12.9%	9.5%
Pre-tax profit margins	13.5%	12.2%	14.4%	16.1%	20.6%	15.7%
Turnover of total assets	1.1	1.0	1.0	0.9	0.7	0.7
Turnover of accounts receivable	6.7	7.0	7.4	6.5	6.4	6.0
Liabilities/assets ratio	42.3%	47.0%	45.4%	47.5%	35.1%	42.8%
Current ratio	1.6	1.4	1.6	1.4	1.9	1.4
Quick ratio	1.3	1.0	1.2	1.0	1.7	1.2

Source: Jiangsu Yangnong & CCM

### 3.1.9 SWOT analysis

#### Strength

##### - Brand advantage

Jiangsu Yangnong focuses on brand building. Its brands Moju and Youshi are well-recognised in domestic market.

##### - Technology advantage

By the end of 2022, Jiangsu Yangnong has operated nearly 70 varieties of technical products, and has been granted more than 750 patents in China and the world. There were 542 technicians in the company. Core products of the company are under patent protection. Particularly, flumorph, a new fungicide developed by Jiangsu Yangnong, is the first pesticide product with independent intellectual property right that has been officially registered in China. Jiangsu Yangnong is also the only domestic pyrethroid producer that has a complete industrial chain covering from raw materials, intermediates to pyrethroid technical and formulations.

##### - Product advantage

Jiangsu Yangnong is one of the few global pyrethroid producers which can manufacture pyrethroids for both public health and agricultural use, and its pyrethroid products such as tetramethrin,  $\beta$ -cypermethrin and permethrin enjoy high market share. Since 2020, its production capacity for pyrethroids has been further strengthened with the completion of the third phase of the Rudong Project. Moreover, lambda-cyhalothrin formulation product from Jiangsu Yangnong has won "International Famous Brand to be Cultivated and Developed in Jiangsu Province" for many years in a row.

#### Weakness

Jiangsu Yangnong is a state-owned enterprise, suggesting possible systemic problems that enterprises of its kind in China would normally have, such as employees in excessive numbers. With the increase of retirees, Jiangsu Yangnong needs to undertake increasing costs.

#### Opportunity

By making full use of the resources in its R&D centres, Jiangsu Yangnong has achieved results in R&D of innovative varieties, original generic technical products and formulation products. Moreover, Jiangsu Yangnong has made improvements to a number of products, having achieved significant results in the

reduction of three wastes (wastewater, waste gas and solid waste), capacity enhancement, quality improvement, reduction of raw material consumption, and essential safety.

Jiangsu Yangnong has strengthened top-level design and improved scientific and technological innovation mechanism. In 2022, among Jiangsu Yangnong's projects, one project was approved as a national key science and technology (S&T) project in the "14th Five-Year Plan" period (2021–2025), 9 projects were approved as provincial-level S&T projects, 4 projects were awarded the Sinochem S&T Progress Award, and one project was awarded the First Prize of China's Pesticide Innovation Contribution. Meanwhile, the company was granted 75 patents in the year, 2 of which were awarded China Patent Excellence Award and Sinochem Patent Silver Award respectively.

## Threat

Falling product prices or soaring raw material costs could negatively impact the company's profits.

Fluctuations in CNY exchange rates and tariffs will affect Jiangsu Yangnong's pesticide exports, since the company's export business is quite large, accounting for more than 50% of total sales. If the CNY depreciates or tariffs rise, the cost of sales will increase. Given that more than 60% of the company's revenue comes from overseas markets, the global economic and political environment will also affect its business to a certain extent. For example, the escalation of geopolitical conflicts in Eastern Europe is not favourable to maritime logistics.

## 3.2 Jiangsu Changqing Agrochemical Co., Ltd.

### 3.2.1 Basic information of the company

Table 3.2.1-1 Basic information on Jiangsu Changqing Agrochemical Co., Ltd.

<b>Business address</b>	No. 1006 Wenchang East Road, Jiangdu District, Yangzhou City, Jiangsu Province 225200, P. R. China
<b>Website</b>	www.jscq.com
<b>Tel.</b>	+86-514-86168288, 86882666
<b>Fax</b>	+86-514-86421039
<b>Date of establishment</b>	Jan. 2001
<b>Registered capital, as of April 2023</b>	RMB649.60 million (with RMB653.90 million paid-in)
<b>Company type</b>	Listed company (stock code: 002391)
<b>Main business</b>	Production and sale of pesticide technical and formulations
<b>Certification</b>	ISO9001, ISO14001, OHSAS18001, GB/T28001
<b>Employee, as of Dec. 2022</b>	2,355 (including 572 technicians)
<b>Import-export right</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Party ID</b>	3210960505

Source: Jiangsu Changqing & CCM

### 3.2.2 Key points in company history

In 1970, the predecessor of Jiangsu Changqing Group Co., Ltd., Putou Pesticide Factory, was founded.

In 1982, Putou Pesticide Factory was renamed as Pesticide Factory of Jiangdu County, and changed as Jiangdu Pesticide Factory in 1994.

In 1999, Jiangdu Pesticide Factory was re-formatted as Jiangsu Changqing Group Co., Ltd.

In 2001, Jiangsu Changqing Agrochemical Co., Ltd. (Jiangsu Changqing) was founded. And Jiangsu Changqing Group Co., Ltd. was no longer engaged in pesticide business.

In 2001, Jiangsu Changqing was awarded "Key High-tech Enterprise of State Torch Plan" by the Ministry of Science and Technology of the People's Republic of China (PRC).

In 2003, Jiangsu Changqing was awarded "National Sincere Enterprise Abiding by Laws".

In 2003, Jiangsu Changqing was awarded "National Post-doctoral Researching Workstation" by the Ministry of Personnel of PRC.

In 2004, Jiangsu Changqing was awarded "Enterprise Stressing both Contract and Credit" by the State Administration for Industry & Commerce of PRC.

In 2006, Jiangsu Changqing's brand "Changqing" was awarded "National Famous Brand", and its imidacloprid products were praised as "National Famous Products".

In 2010, Jiangsu Changqing was listed on the Shenzhen Stock Exchange (Stock Code: 002391).

In 2012, Jiangsu Changqing held 55% stocks in Hunan Changqing Runkangbao Agrochemical Co., Ltd. by capital subscription.

In 2014, the R&D and industrialisation of S-Metolachlor of Jiangsu Changqing was listed as a scientific and technological transformative project in Jiangsu Province.

In Sept. 2015, Jiangsu Changqing participated in setting industrial standards for pesticide products including dicamba.

In 2016, Jiangsu Changqing achieved revenue of USD275.9 million, ranking 16th among all pesticide technical producers in China.

In Aug. 2018, Zhou Ruxiang, deputy general manager of Jiangsu Changqing was sentenced to three-year imprisonment for illegal disposal of hazardous wastes. Jiangsu Changqing paid USD29.99 million to repair the land contaminated.

In 2018, Jiangsu Changqing was listed 13th of "China's top 100 enterprises in pesticide sales of 2018" issued by China Crop Protection Industry Association (CCPIA) and ranked 8th among all pesticide technical producers in China by export value.

Jiangsu Changqing was listed 11th of "China's top 100 enterprises in pesticide sales of 2019" and 20th of "China's top 100 enterprises in pesticide sales of 2020" issued by CCPIA.

In 2022, Jiangsu Changqing was listed as 19th in the "List of 2022 China Top 100 Pesticide Enterprises" issued by CCPIA; by export value, it ranked 20th among all pesticide manufacturers in China.

In May 2023, Jiangsu Changqing ranked 24th in the "list of China's top 100 enterprises in pesticide sales of 2023" issued by CCPIA.

### 3.2.3 Current ownership structure

As of April 2023, there were 27,565 shareholders in Jiangsu Changqing and 50.83% shares were held by the top ten.

Table 3.2.3-1 Top 10 shareholders of Jiangsu Changqing Agrochemical Co., Ltd., as of April 2023

No.	Shareholder	Share holding
1	Yu Guoquan	25.40%
2	Huang Nanzhang	5.70%
3	Zhou Xiulai	3.80%
4	Zhou Ruxiang	3.80%
5	Yu Guoqing	3.80%
6	Ji Zhiyang	2.32%
7	Liu Changfa	1.64%
8	Taikang Asset Fengrui Mixed Pension Product-Industrial and Commercial Bank of China Limited	1.57%
9	Zhou Zhijin	1.51%
10	Taikang Life Insurance Co., Ltd. - General - General Insurance Products (019L-CT001 Shen)	1.29%
<b>Total</b>		<b>50.83%</b>

Source: Jiangsu Changqing

Table 3.2.3-2 Subsidiaries of Jiangsu Changqing Agrochemical Co., Ltd., as of April 2023

No.	Subsidiary	Share holding
1	Xinghua Changqing Agricultural Science and Technology Service Co., Ltd.	60%
2	Jiangsu Changqing Investment Industrial Co., Ltd.	100%
3	Jiangsu Changqing Agrochemical Trade Co., Ltd.	100%
4	Yangzhou Changqing International Travel Service Co., Ltd.	100%
5	Jiangsu Changsheng Environmental Technology Co., Ltd.	100%
6	Jiangsu Changqing Agrochemical Nantong Co., Ltd.	100%
7	Hunan Changqing Runkangbao Agrochemical Co., Ltd.	68%
8	Jiangsu Changqing Bio-tech Co., Ltd.	100%
9	Changqing (Hubei) Biotechnology Co., Ltd.	100%
10	Changqing (Heilongjiang) Agricultural Science and Technology Co., Ltd.	100%

Source: Jiangsu Changqing



### 3.2.4 Overall business performance

In 2019, Jiangsu Changqing achieved a 12.54% (based on RMB value, same below) year-on-year increase in revenue and a 16.09% YoY uplift in net profit. The sales revenue from herbicides and fungicides increased by 11.76% and 22.15% YoY respectively.

In 2020, faced with severe challenges brought by the COVID-19 pandemic, the revenue and net profit of Jiangsu Changqing dropped by 10.92% and 47.29% YoY respectively. However, the sales revenue from fungicides increased by 36.30% YoY.

In 2021, with sales figures improving, its revenue and net profit grew by 25.15% and 27.03% YoY respectively.

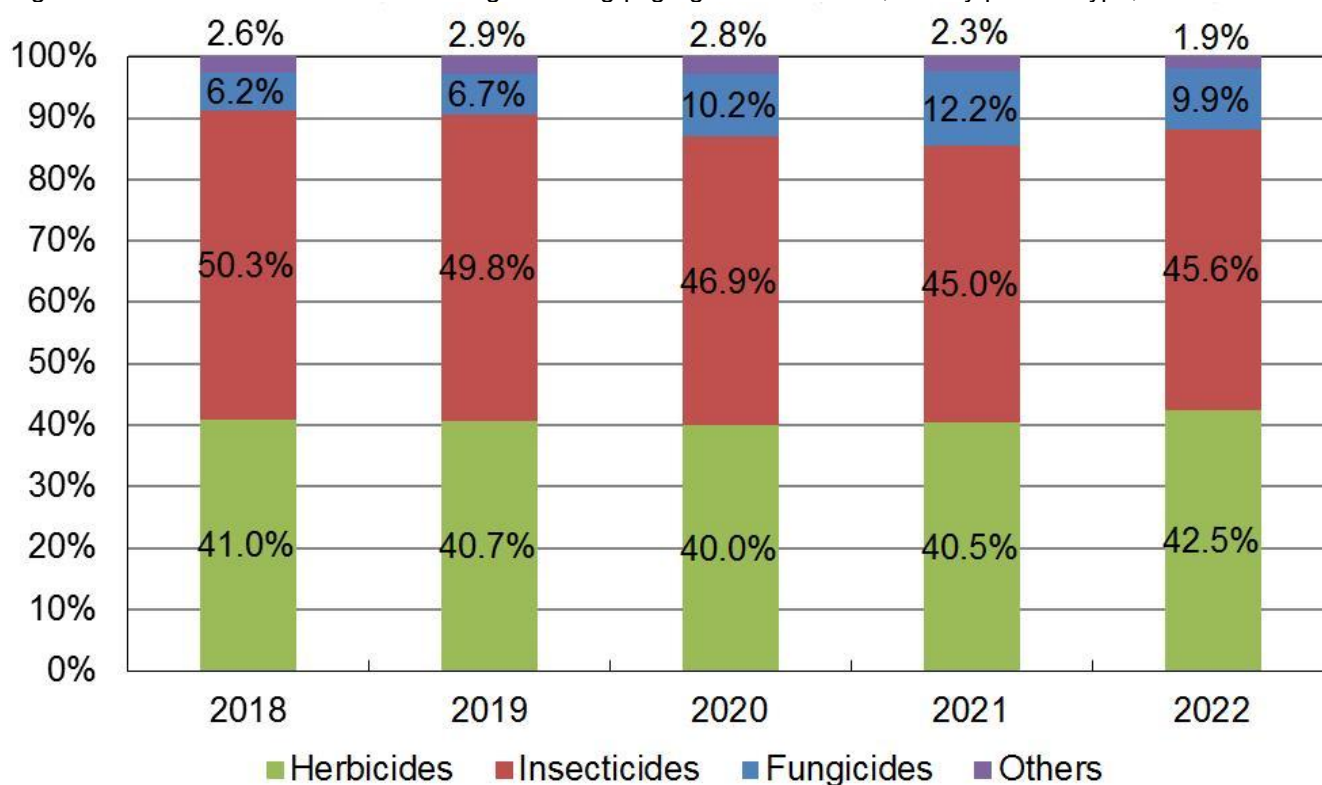
In 2022, its revenue and net profit went up by 12.72% and 6.15% YoY respectively. In particular, the sales revenue from herbicides reached USD269.34 million (=42.51% of total revenue), up by 18.38% YoY.

Table 3.2.4-1 Total assets, revenue and profit of Jiangsu Changqing Agrochemical Co., Ltd., 2018–2022

Time	Year-end total assets, USD	Revenue, USD	Net profit, USD
2018	616,395,836	454,182,491	48,347,407
2019	747,167,033	490,682,246	53,880,173
2020	819,058,066	434,194,058	28,139,271
2021	1,062,485,972	582,638,348	38,426,588
2022	1,115,986,448	633,636,858	39,353,039

Source: Jiangsu Changqing

Figure 3.2.4-1 Revenue structure of Jiangsu Changqing Agrochemical Co., Ltd. by product type, 2018–2022



Note: Due to rounding, the total of the shares may not equal 100.0%.

Source: Jiangsu Changqing

### 3.2.5 Marketing and sales mode

At present, Jiangsu Changqing focuses not only on the domestic market, but also on the foreign market. For the domestic market, the company pays much attention to the changes in the pesticide market, adjusts product structure actively, and carries out differentiated marketing strategies according to different needs. Regarding export, the company continues to strengthen communication with multinational enterprises, follow up their demand timely and expand its presence in foreign markets actively.

In 2019, Jiangsu Changqing's revenue from the overseas market came in at 58.3% at the total revenue; it achieved a year-on-year increase of 12.12% in sales revenue by self-support export.

In 2020, as the market environment changed under the impact of the COVID-19 pandemic, Jiangsu Changqing adjusted its marketing strategy and paid more attention to the domestic market. The share of revenue from overseas markets fell to 54.0%.

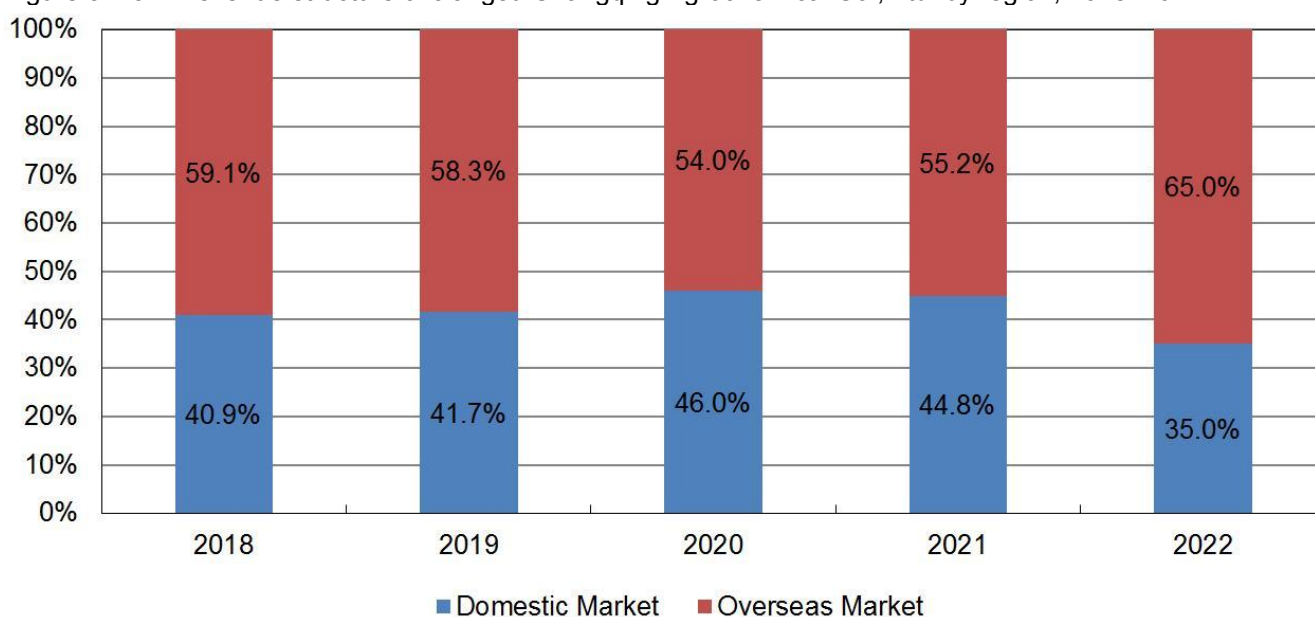
In 2021, in the face of fluctuating prices of pesticide products and "Dual Control System" (governmental control on energy consumption and energy intensity), Jiangsu Changqing kept growth in the main business, achieving year-on-year sales growth of 27.72% and 22.12% in its export and domestic business respectively.

In 2022, although the costs of chemical raw materials and energy remained high, Jiangsu Changqing took efficient measures in safety control and environmental protection, presenting a high operating rate. Its exports accounted for 65% of total sales, up by 32.8%

year on year

; in export sales, the sales of direct export showed a year-on-year increase of 49.1%.

Figure 3.2.5-1 Revenue structure of Jiangsu Changqing Agrochemical Co., Ltd. by region, 2018–2022



Source: Jiangsu Changqing

### 3.2.6 Commercial activity

On 17 Feb., 2012, Jiangsu Changqing purchased part of stakes of Hunan Changqing Runkangbao Agrochemical Co., Ltd. (Changqing Runkangbao). In the meantime, the company subscribed and increased capital in the latter and held 55% stocks in it.

In Oct. 2013, eight new products researched and developed independently by Jiangsu Changqing passed the provincial appraisal.

In June 2014, Jiangsu Changqing issued USD104 million of convertible bonds. Afterwards, it got listed on the Shenzhen Stock Exchange on 9 July, 2014. As of 16 April, 2015, all convertible bonds of the company have been redeemed or transferred.

In Dec. 2015, Jiangsu Changqing's fenoxanil obtained the title of "Top 10 Pesticide Products" awarded by the Jiangsu Province Agricultural Science and Technology and Production Material Marketing and Application Association.

In June 2016, Jiangsu Changqing ranked 13th in the list of 2016 Chinese Top 100 Pesticide Enterprises by Sales Revenue, which was released at the third Pesticide Industry Economy Operating Analysis Meeting. Jiangsu Changqing's fenoxanil 20% SC under the brand name "Changqing" was awarded the title of Best Selling Brand Fungicide Product in Chinese Crop Protection Market in 2015. At the same time, its cyhalofop-butyl 15% EW under the brand name "Youxian" was on the list of Market-explosive Brand Products in Chinese Crop Protection Market in 2015.

On 15 Oct., 2016, "Continuous Asymmetric Catalytic Hydrogenation S-metolachlor Industrialisation Technology", jointly developed by Jiangsu Changqing and Nanjing Tech University, was awarded Technology Innovation First Prize in the sixteenth AgroChemEx.

In 2017, seven products of Jiangsu Changqing got rated as high-tech products in Jiangsu Province and three patents for invention were granted.

On 27 Feb., 2019, Jiangsu Changqing issued 9,138,000 convertible corporate bonds to the public, each with RMB100 face value. The total amount raised through this means was USD130.06 million. It is to be used for the construction of six production projects, including a 6,000 t/a dicamba technical production line.

In 2019, Jiangsu Changqing established two subsidiaries—Changqing (Hubei) Biotechnology Co., Ltd. (Changqing Hubei) and Jiangsu Changsheng Environmental Technology Co., Ltd.

In H1 2020, the 6,000 t/a dicamba technical production line started construction. As of late 2021, the facilities were installed and were put into operation gradually.

In 2022, at its production base in Hubei Province, the company's production lines for 10,000 t/a 2-Ethyl-6-methylaniline, 2,000 t/a cyhalothrin technical, and 600 t/a fipronil technical were put into operation; and the 10,000 t/a S-Metolachlor technical and 3,000 t/a thiamethoxam technical project was put into trial operation, while the 1,000 t/a bifenthrin technical project was at the equipment installation stage.

### 3.2.7 Analysis of dicamba production costs

Table 3.2.7-1 Production costs of dicamba technical in Jiangsu Changqing Agrochemical Co., Ltd., April 2023

No.	Item	Cost, USD/t	Share	
1	Raw material	1,2,4-Trichlorobenzene (99%)	2,212	23.3%
		Sodium hydroxide (98%)	320	3.4%
		Carbon dioxide	66	0.7%
		Dimethylbenzene (99%)	4,529	47.7%
		Hydrochloric acid (30%)	59	0.6%
		Potassium hydroxide (99%)	304	3.2%
		Potassium carbonate (99%)	818	8.6%
		Sulfuric acid (98%)	20	0.2%
		Liquid caustic soda (32%)	249	2.6%
		Methyl chloride (99%)	162	1.7%

No.	Item		Cost, USD/t	Share
2	Water	/	14	0.2%
3	Steam	/	79	0.8%
4	Electricity	/	30	0.3%
5	Labor	/	144	1.5%
6	Packing	/	80	0.8%
Others			400	4.2%
<b>Total</b>			<b>9,486</b>	<b>100.0%</b>

Source: Jiangsu Changqing

### 3.2.8 Financial analysis

Table 3.2.8-1 Important financial ratio of Jiangsu Changqing Agrochemical Co., Ltd., 2018–2022

Item	2022	2021	2020	2019	2018
Return on equity (ROE)	5.8%	5.6%	5.0%	11.0%	10.1%
Return on total assets (ROA)	3.7%	4.0%	3.6%	8.1%	8.1%
Pre-tax profit margins	6.4%	7.1%	6.8%	12.4%	12.2%
Turnover of total assets	0.6	0.6	0.6	0.7	0.8
Turnover of accounts receivable	8.2	7.7	6.3	9.1	11.3
Liabilities/assets ratio	37.8%	34.3%	23.0%	32.4%	19.5%
Current ratio	1.1	1.7	2.2	3.2	2.3
Quick ratio	0.6	1.1	1.3	2.1	1.2

Source: Jiangsu Changqing

### 3.2.9 SWOT analysis

#### Strength

- A wide variety of products and a good product structure

Jiangsu Changqing had obtained registrations and production permits for

more than 30 kinds of pesticide technical and 120 kinds of pesticide formulations as of April 2023. The variety of products enables Jiangsu Changqing to carry out differentiated marketing strategies according to different needs.

- Strong financing capability

As a listed enterprise, Jiangsu Changqing has strong financing capability. In 2019, Jiangsu Changqing raised more than USD100 million by issuing convertible corporate bonds. All money is used to expand the production capacity for competitive products.

- Marketing advantages

Jiangsu Changqing has built a marketing network that covers more than 30 areas in China. In the overseas market, the company has signed product supply contracts with the world's top pesticide suppliers, such as Syngenta, Dow AgroSciences, Bayer, etc.; it exports products to more than 20 countries.

**Weakness**

Management of the company is relatively concentrated as a quarter of its shares is held by Yu Guoquan, the biggest shareholder, which means that he can exert huge influence on the company's business operation and management decisions.

**Opportunity**

To win more market shares in the industry, the company is building new production lines, among which: the facilities of dicamba technical (6,000 t/a), hydroxylamine hydrochloride (5,000 t/a), diafenthiuron technical (1,600 t/a), and clomazone technical (500 t/a) have completed construction and been put into production. As of June 2023, the 3,500 t/a glufosinate-ammonium technical project, which is financed by the funds raised in the company's issuance of convertible bonds, is still at the preparation stage. Additionally, it was announced in Nov. 2021 that the 2,000 t/a fomesafen technical and 500 t/a acifluorfen technical project had been canceled. Meanwhile, the company is expanding its business to intermediates and formulations, which will help to form a whole industrial chain and improve its competitiveness.

To gain more shares in the overseas market, the company has successfully registered many products in countries such as the US, Paraguay, Spain, South Korea, Thailand, Pakistan and Vietnam in recent years, which is favourable for its product sales in these countries.

**Threat**

- Competition and market changes

The development of competitors, price changes in products and raw materials, as well as capacity expansion, will affect the company's prospective return. The change in foreign trade environment will also bring risks to its performance since the export business accounts for a rather high proportion of its total revenue.

- Environmental protection

With the implementation of new environmental protection laws, more strict environmental protection policies have been issued, which means that Jiangsu Changqing has to spend more to meet the environmental protection requirements.

**3.3 Shandong Sino-Agri United Biotechnology Co., Ltd.**

**3.3.1 Basic information of the company**

Table 3.3.1-1 Basic information on Shandong Sino-Agri United Biotechnology Co., Ltd.

<b>Business address</b>	14/F Block A, Golden Times Square, No. 9999 Jingshi Road, Lixia District, Jinan City, Shandong Province 250014, P. R. China
<b>Website</b>	www.sdznlh.com
<b>Tel.</b>	+86-531-86401563
<b>Fax</b>	+86-531-88977160
<b>Date of establishment</b>	Dec. 2006
<b>Registered capital, as of April 2023</b>	RMB109.60 million
<b>Ownership</b>	Listed company (stock code: 003042)
<b>Main business</b>	Production and sale of acetamiprid technical product, imidacloprid technical product, pyridaben technical product, propamocarb technical product, thiacloprid technical product, bifenthrin technical product, fenpyroximate technical product, and myclobutanil technical product, etc., and agrochemical intermediates and hundreds of formulations.

<b>Certification</b>	ISO 9001, ISO 14000, OHSAS18000
<b>Employee, as of Dec. 2022</b>	1,885 (including 253 technicians)
<b>Import-export right</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Party ID</b>	3701963772

Source: Sino-Agri United & CCM

### 3.3.2 Key points in company history

On 19 Dec. 2006, Shandong Sino-Agri United Biotechnology Co., Ltd. (Sino-Agri United) was founded, subordinating to China National Agricultural Means of Production Group Corporation. It wholly controls Shandong United Pesticide Industry Co., Ltd. (Shandong Union) and Weifang Sino-Agri Union Chemical Co., Ltd. (Weifang Union). Shandong Union was established in 1995, engaging in the production and sale of biological pesticides, chemical pesticides, intermediates and fine chemicals. And Weifang Union was established in 2006.

In 2012, the third subsidiary Shandong Sino-Agri United Crop Science and Technology Co., Ltd. (Sino-Agri Crop) was founded.

In 2016, Sino-Agri United was listed as 35th of "China's top 100 enterprises in pesticide sales of 2016" and ranked 41st in the list of 2017.

On 22 March 2017, Sino-Agri United was officially listed in the National Equities Exchange and Quotations (NEEQ), and the stock code was 871103.

In Aug. 2017, the subsidiary Shandong Union was punished by the environmental protection department because of water pollution.

In Dec. 2018, Sino-Agri United received pre-listing tutoring for its Initial Public Offering (IPO), which is a major move after delisting from the NEEQ in April.

In 2019, Sino-Agri United was listed 35th of "China's top 100 enterprises in pesticide sales of 2019" and ranked 44th in the list of 2018.

In 2021, Sino-Agri United ranked 47th in sales of pesticide industry nationwide, a slight drop from the 43rd in the 2020 list. On 6 April, 2021, Sino-Agri United went public on Shenzhen Stock Exchange, with the stock code of 003042.

In H1 2022, Shandong Union was rated as the "2022 Shandong Provincial Green Factory".

In May 2023, Sino-Agri United was listed as 46th of "China's top 100 enterprises in pesticide sales of 2023" issued by CCPIA.

### 3.3.3 Current ownership structure

As of April 2023, there were 33,104 shareholders in Sino-Agri United and 58.50% of shares are held by the top ten.

Table 3.3.3-1 Top 10 shareholders of Sino-Agri United, as of April 2023

No.	Shareholder	Share holding
1	China National Agricultural Means of Production Group Corporation Shanghai Branch	30.57%
2	Xu Hui	9.58%
3	China National Agricultural Means of Production Group Corporation	6.73%
4	Qi Laicheng	1.82%
5	Xiao Changhai	1.82%
6	China Co-op Group Co., Ltd.	1.82%
7	Beijing China United Energy Investment Management Partnership (Limited Partnership)	1.82%
8	Qingdao Chuangxin Marine Economy of Venture Investment Fund Center (Limited Partnership)	1.82%
9	Si Yong	1.43%
10	Jiangsu High-tech Industry Investment Co., Ltd.	1.09%
<b>Total</b>		<b>58.50%</b>

*Note: China National Agricultural Means of Production Group Corporation Shanghai Branch is a wholly-owned subsidiary company of China National Agricultural Means of Production Group Corporation.  
Source: Sino-Agri United*

Table 3.3.3-2 Subsidiaries of Sino-Agri United, as of April 2023

No.	Subsidiary	Share holding
1	Weifang Sino-Agri Union Chemical Co., Ltd.	100.00%
2	United Plant Protection Co., Ltd.	100.00%
3	Shandong Sino-Agri United Crop Science and Technology Co.,Ltd.	100.00%
4	United Crop Protection Mexico,S.DE R.L. DE C.V	99.90%
5	Shandong United Pesticide Industry Co., Ltd.	100.00%

*Source: Sino-Agri United*

### 3.3.4 Overall business performance

In 2019, the company's revenue and net profit went down by 3.26% and 39.62% YoY respectively (based on RMB value, same below); while in 2020, Sino-Agri United's revenue increased by 14.74% YoY, yet the net profit dropped by 29.64% YoY.

In 2021, despite the sharp decrease in H1 sales, Sino-Agri United showed a 3.63% year-on-year increase in revenue, while the net profit went down by 4.76% YoY, as the production costs were driven by soaring prices of major raw materials, such as acrylonitrile, ethylenediamine, etc.

In 2022, Sino-Agri United's revenue hit a record high, with an 18.97% year-on-year increase. However the net profit went down by 25.82% YoY.

The company's estimated results for H1 2023, which were disclosed on 15 July, 2023, showed that its net

profit for H1 2023 would range from -USD1.45 million to -USD2.02 million (-RMB10.00 million to -RMB14.00 million) and would drop by 124.09%–133.73% on a year-on-year basis, indicating financial losses in this reporting period. Due to the effects of macro-economic environment and changes in market supply-demand relations, the market competition of the company's main products intensified. As a result, the products' selling prices presented various degrees of decreases; the average selling prices of main products in H1 2023 declined sharply over that in H1 2022; gross profit margin of main business segments in this reporting period dipped steeply. Besides, the shipment of some products' export orders was delayed. Therefore, the company estimated that financial results for H1 2023 would deliver losses.

Table 3.3.4-1 Total assets, revenue and profit of Shandong Sino-Agri United Biotechnology Co., Ltd., 2018–2022

Time	Year-end total assets, USD	Revenue, USD	Net profit, USD
2018	270,883,546	213,833,910	36,880,795
2019	274,103,170	198,585,188	21,378,025
2020	332,037,642	226,342,436	14,942,281
2021	498,416,763	251,500,830	15,258,829
2022	528,097,957	288,691,360	10,920,661

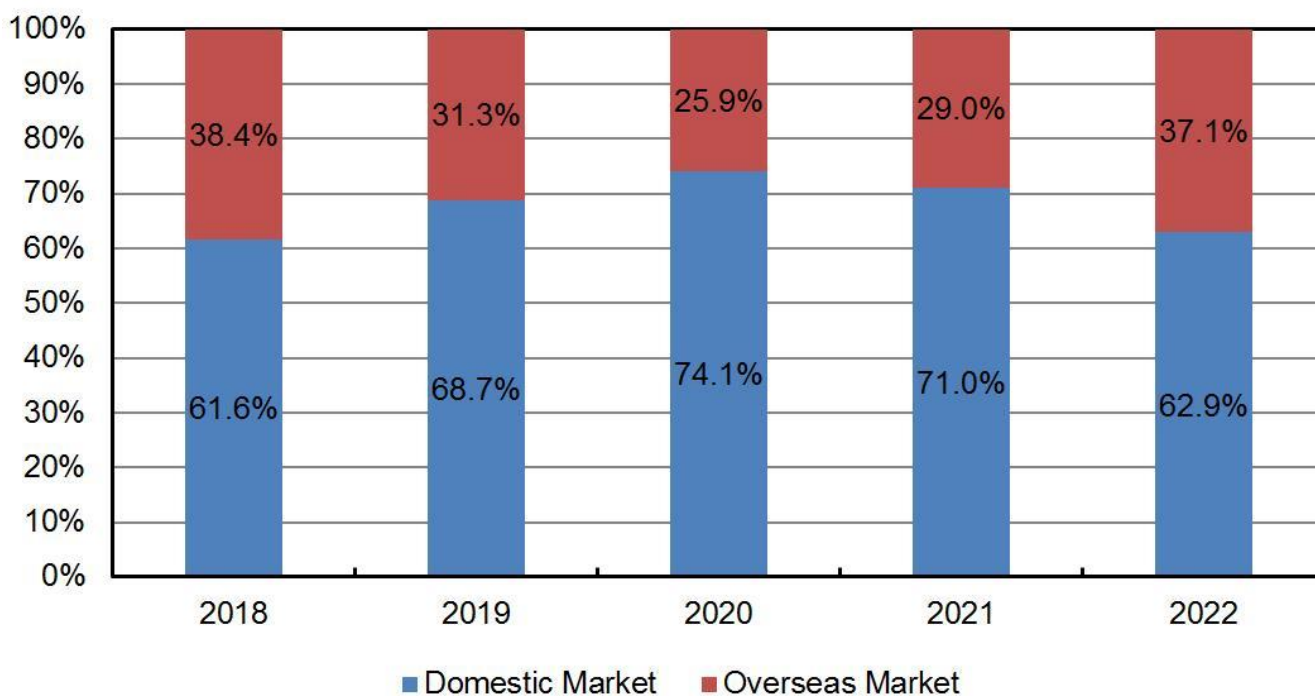
Source: Sino-Agri United

### 3.3.5 Marketing and sales mode

In 2020, considering the COVID-19 pandemic, Sino-Agri United further developed domestic market. As a result, more than 70% of revenue came from domestic market in 2020–2021, and the share in 2022 declined to 62.9%.

In 2022, the company's sales in overseas markets marked substantial growth, up by 52.0% YoY; its overseas sales were made in 32 countries/regions around the world.

Figure 3.3.5-1 Revenue structure of Shandong Sino-Agri United Biotechnology Co., Ltd. by region, 2018–2022



Source: Sino-Agri United



### 3.3.6 Commercial activity

On 30 June, 2015, China Co-op Group Co., Ltd., China National Agricultural Means of Production Group Corporation, China National Agricultural Means of Production Group Corporation Shanghai Branch, Sino-Agri Leading Biosciences Co., Ltd. and Shandong Sino-Agri United Biotechnology Co., Ltd. signed an agreement to avoid competition between each other and their subsidiaries.

In Jan. 2016, the research program of "Synthesis and Application of Tetrafluorophenoxy Nicotinine Compounds" undertaken by the company was successfully accepted by the government. It is a state program of science and technology development.

In 2017, the construction of workshop and production line of pesticide formulations with the capacity of 5,000 t/a was finished and trial production was carried out.

In Oct. 2019, Weifang Union's project of dicamba TC (2,000 t/a) and florasulam TC (200 t/a) obtained completion acceptance.

In May 2020, Sino-Agri United completed pre-listing tutoring and released the prospectus for IPO, but it had not been approved by China Securities Regulatory Commission.

In 2021, Sino-Agri United's 1,000 t/a prosulfocarb TC project was put into production as scheduled. In March 2021, the environmental impact (EI) report of the expansion project for pyridaben formulation (10,000 t/a) was approved by the Tai'an Ecological Environment Bureau. On 13 Nov., 2021, the project passed the self-conducted acceptance inspection.

On 6 April, 2021, Sino-Agri United got listed on the main board of Shenzhen Stock Exchange. 27.40 million shares were issued for the company's initial public offering to raise USD90.11 million (RMB591 million), which was proposed to invest in Sino-Agri United's 3,300 t/a insecticide TC project, 10,000 t/a 2-chloro-5-chloromethylpyridine and 5,000 t/a acetamiprid TC project.

In April 2021, it was revealed that Weifang Union decided to carry out the 2,000 t/a dicamba TC technological renovation project involving optimisation and renovation of dicamba TC production device, in order to address issues of production and environmental protection. The project construction commenced on 8 Oct., 2022 and was completed on 26 Oct., 2022.

In H1 2022, Shandong Union completed the acceptance of the pymetrozine project and put the chlorfenapyr project into trial production, while the company's 10,000 t/a 2-chloro-5-chloromethylpyridine and 5,000 t/a acetamiprid TC project were under construction; Weifang Union's propyzamide project entered the equipment installation stage.

On 8 Nov., 2022, the equipment commissioning of Weifang Union's 2,000 t/a dicamba TC technological renovation project started. In March 2023, it was announced this project passed acceptance inspection.

### 3.3.7 Financial analysis

Table 3.3.7-1 Important financial ratio of Shandong Sino-Agri United Biotechnology Co., Ltd., 2018–2022

Item	2022	2021	2020	2019	2018
Return on equity (ROE)	4.4%	7.5%	10.8%	17.2%	39.7%
Return on total assets (ROA)	2.2%	3.6%	4.9%	8.0%	14.3%
Pre-tax profit margins	3.7%	6.7%	7.6%	11.9%	19.6%
Turnover of total assets	0.6	0.6	0.7	0.7	0.8

Item	2022	2021	2020	2019	2018
Turnover of accounts receivable	6.7	8.0	10.6	15.5	24.5
Liabilities/assets ratio	52.5%	49.5%	56.7%	52.2%	55.3%
Current ratio	1.1	1.2	0.9	1.0	0.9
Quick ratio	0.7	0.9	0.7	0.6	0.6

Source: Sino-Agri United & CCM

### 3.3.8 SWOT analysis

#### Strength

##### - Technology strength

Sino-Agri United has obtained 53 invention patents in China and has successfully developed and marketed the pesticide product fluopimomide, which has independent intellectual property rights. Through years of scientific and technological research, the company successfully developed a new compound—trifluenfurionate, which has been patented in the US, the UK, France, Germany, Spain, Portugal and Australia.

##### - Marketing advantages

Sino-Agri United has built a marketing network that covers more than 30 areas in China, along with a sound after-sales service system. As for the overseas market, the company exports products to more than 32 countries and regions.

#### Weakness

The company is mainly engaged in the insecticide and fungicide business. It is a new entrant to the dicamba market.

#### Opportunity

Sino-Agri United got listed on the Main Board of Shenzhen Stock Exchange in April 2021, which further enhanced the company's financing capability.

#### Threat

The competition in the pesticide industry is rising and there are risks in raw material price and exchange rate fluctuation.

Besides, neonicotinoid insecticides, major product series of Sino-Agri United, are banned in some countries due to the harm to honeybees, which affects the company's profitability.

## **4 Investment opportunities and suggestions**

### **- Opportunity**

Currently, there is sufficient capacity for dicamba technical in China, and its demand is likely to grow as dicamba-tolerant soybeans are being promoted in countries such as Brazil and China, which means the product has good market prospects.

Being developed in the 1960s, dicamba has become one of the hottest herbicides since 2009, which is mainly attributed to the development and promotion of dicamba-tolerant crops globally. Besides, weeds' serious resistance to certain herbicides arising from long-term use of a single product also brings more attention to dicamba. What's more, dicamba products will be better accepted by farmers as drifting is reduced.

From the supply side, high technological thresholds and limited supply of raw materials are still barriers to the expansion of dicamba production. Therefore, established producers can take this opportunity to pursue high profits from the dicamba business.

### **- Suggestion**

Chinese dicamba companies is suggested to supply not only dicamba technical but also formulations, and develop themselves into high-end dicamba suppliers.

The mixing of dicamba and glyphosate will become a trend in the development of dicamba formulations. Diverse combinations with different pesticides will also extend dicamba's lifespan.

Meanwhile, the development of dicamba formulations should be carried out in compliance with the requirements of GM crop cultivation. In addition, it is important for companies to develop formulation products with independent intellectual property rights and establish independent brands.

Furthermore, domestic companies need to focus on both domestic and overseas markets to cope with the changeable and complicated international economic situation.

### **- Risk**

There is a risk that the global promotion and cultivation of dicamba-tolerant crops may not be as effective as expected, and the effect of dicamba and glyphosate mixtures may be unsatisfactory.

The global economic environment like tariff fluctuations will also affect dicamba business to a certain extent.

In China, leading Chinese dicamba manufacturers like Jiangsu Yangnong and Jiangsu Changqing have boasted great production capacity against the backdrop of increasing concentration in China's pesticide industry. Newcomers will be challenged with hands of changes to capture market share.

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17<sup>th</sup> Floor, Huihua Commercial & Trade Building, No. 80 Xianlie Zhong Road Guangzhou,  
510070, P.R.China

Website: <http://www.cnchemicals.com>

Tel: +86-20-37616606

Fax: +86-20-37616968

Email: [econtact@cnchemicals.com](mailto:econtact@cnchemicals.com)