

Survey of Pesticide Industry in China

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1. Introduction

Survey of Pesticide Industry in China is CCM's sixth edition report on Chinese pesticide industry, which has been finished in Jan. 2018. This study explores the history and future of pesticide industry in China and is comprised of two major sections:

Historical market analysis—a full market commentary provides a comprehensive understanding of Chinese pesticide industry in 2004–H1 2017. The development information is presented in a broad range of ways, such as supply, key producers, demand, technology, price and consumption. In this report, CCM chose 18 pesticides for deep research and those pesticides are highly paid attention to in pesticide industry in 2016–2017 according to CCM's investigation.

Future market analysis —expertise analysis provides the most credible forecast on pesticides in the coming five years (2017-2021)

This report examines China's pesticide industry from the following aspects:

- ✓ Supply and demand of pesticides in China
- ✓ Analysis of 18 key pesticides from aspects of production, key producers, technology, price and consumption

Table Pesticides studied in this report

No.	Insecticide	Herbicide	Fungicide
1	Chlorpyrifos	Glyphosate	Mancozeb
2	Abamectin	Acetochlor	Carbendazim
3	Imidacloprid	Paraquat	Tebuconazole
4	Acephate	Dicamba	Difenoconazole
5	Thiamethoxam	Glufosinate-ammonium	Chlorothalonil
6	Lambda-cyhalothrin	2,4-D	Azoxystrobin

2. Approach for this report

➤ 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. A lot of work went into compiling and analyzing the information obtained. Where necessary, checks were made with Chinese suppliers regarding market information such as production, demand, use and competition.

➤ Telephone interviews

The interviewees include:

- Pesticide producers
- Agricultural experts
- Traders
- Local governments
- Researchers
- Farmers
- Associations

CCM carried out extensive telephone interviews with key producers of pesticide technical as well as some key formulations to grasp the actual supply situation. In order to understand the application situation of pesticides in China, CCM also contacted domestic traders, experts and farmers as well.

➤ Data processing and presentation

The data collected and compiled were sourced from:

- Published articles from Chinese periodicals, magazines, journals, third-party databases
- Government statistics & customs statistics
- Telephone interviews with Chinese producers, traders, governments and farmers
- Comments from industrial experts
- Professional database from other sources
- Information from the Internet

The data from various channels have been combined to make this report as precise and scientific as possible. Throughout the process, a series of internal discussions were held in order to analyze the data and draw conclusions.

3. Executive summary

- Overview of China's pesticides industry

With over 60 years' development, China has become the biggest production base of pesticides in the world. China's pesticide output had kept an uptrend in 2012-2016, with a CAGR of XXX%, reaching XXX million tonnes (calculated by 100% TC) in 2016. Meanwhile, its output value grew at a CAGR('12-'16) of about XX%, hitting USDXXX billion in 2016.

As one of the biggest agricultural countries in the world, China has maintained its crop area of over XXX million hectares in the past four years (XXX million hectares of them were for grain planting), strongly supporting for large domestic pesticide demand. China's total pesticide demand was around XXX tonnes (calculated by 100% TC) in 2016, attracting more and more companies to enter China's pesticide market.

However, there are many problems in China's pesticide industry, such as overcapacity, inefficient production technologies, capital shortage, few well-known brands, and serious environmental pollution.

The Chinese government is now actively strengthening the pesticide industry by releasing stricter policies for environmental protection, raising threshold, phasing out highly toxic and highly residual pesticides, etc.

- Pesticide supply

Currently, China can produce XXX kinds of pesticide technical, and over XXX kinds have actual productive capacity, which are usually generic products. Traditional pesticides like glyphosate and chlorpyrifos usually account for the largest proportion of China's pesticide products. Simple production technologies, mature production processes, stable market demand and sufficient raw material supply as well as easier registration approval are major reasons for such a large proportion of traditional pesticides in China. However, most traditional pesticide varieties face overcapacity currently.

The share of herbicide output in China firstly exceeded XXX% in 2013, and then decreased to XXX% in 2016; the share of insecticide output decreased from XXX% in 2013 to XXX% in 2016; the share of fungicide output decreased from XXX% in 2013 to XXX% in 2016,

China has been gradually endeavoring to heighten R&D capability of innovative pesticide creation. Up to now, about 30 new AI(s) have been developed. However, few of them have realized commercial production due to factors like capital shortage.

The registrations of traditional formulations, EC and WP, still keep dominant, but its share in

terms of number of registrations kept decreasing. Along with the adjustment of formulation production and consumption, the proportion of environmentally friendly formulations such as WG, SC and EW is gradually increasing.

- **Pesticide producer**

China's pesticide production is mainly concentrated in East China including Jiangsu, Shandong, Henan and Zhejiang provinces, in terms of both the number of producers and tonnage, with the subtotal output contributing nearly XXX% to the national total pesticide output. Thereinto, Shandong and Jiangsu provinces are the most important regions for China's pesticide production.

In China, the total number of pesticide producers was estimated to be over XXX as of 2016, with only about XXX producers possessing the Three Certificates. In addition, only a few of them have developed their own technologies with self-dominated intellectual property rights. The total fund for new product research of the whole pesticide industry in China is no more than USDXXX billion annually, much less than that of even a single multinational player, such as Bayer CropScience, whose annual expenditure on innovation reaches about USDXXX billion.

- **Pesticide demand**

China is one of the largest pesticide consumption countries in the world, whose pesticide demand was estimated to be around XXX tonnes (calculated by 100% TC) in 2016, including XXX tonnes of herbicides, XXX tonnes of insecticides, XXX tonnes of fungicides and XXX tonnes of other pesticides.

China's pesticide consumption structure has changed slightly in recent years due to adjustment in planting structure, farmers' pesticide application habit, labor structure change, etc. For instance, China's insecticide consumption on cotton has reduced obviously since 1998 due to China's increasing promotion for cultivation of GM cotton with BT Gene.

- **Pesticide import and export**

China exports pesticides to over 160 countries and regions all over the world. According to the General Administration of Customs of China, the export volume of pesticides increased to XXX million tonnes in 2016, and herbicides kept the dominant role with the share of XXX% in terms of tonne.

China's import of pesticides showed a downtrend, with the volume being XXX tonnes in 2015 and XXX tonnes in 2016 respectively.

- Outlook for China's pesticide industry

As the key target of Chinese pesticide industry in the next few years, the 13th Five-Year (2016–2020) Development Plan for Pesticide Industry, one of the subsidiary policies under the 13th Five-Year Development Plan for Petroleum and Chemical Industry, mentions a series of goals as follows:

- The number of pesticide companies will decline by XXX%;
- Sales value of the top 20 pesticide companies shall account for XXX% of the total in China by 2020;
- XXX% of the pesticide technical companies shall be relocated to pesticide industrial parks;
- The number of innovative pesticides shall exceed XXX; R&D investment shall account for over XXX% of enterprises' annual revenue; total R&D investment shall account for over XXX% of enterprises' annual revenue in the whole pesticide industry;
- Till 2020, "three wastes" emissions should be reduced by XXX%, the yield shall increase by XXX%, utilization of by-product shall increase by XXX%, and pesticide waste disposal rate should reach XXX%.

Other goals involve bio-pesticides, technology innovation, etc.

4. What's in this report?

Note: Key data/information in this sample page is hidden, while in the report it is not

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3 Market analysis of major insecticides in China

3.3 Abamectin

- Registration

Table 3.3-1 Registrations of abamectin in China, as of 1 Nov., 2017

Specification		Number of registration	Number of company
Single formulations	EC	XXXX	XXXX
	EW	XXXX	XXXX
	ME	XXXX	XXXX
	GR	XXXX	XXXX
	WP	XXXX	XXXX
	SC	XXXX	XXXX
	CS	XXXX	XXXX
	Others	XXXX	XXXX
Mixed formulations	EC	XXXX	XXXX
	SC	XXXX	XXXX
	WP	XXXX	XXXX
	ME	XXXX	XXXX
	EW	XXXX	XXXX
	GR	XXXX	XXXX
	WG	XXXX	XXXX
	Others	XXXX	XXXX
Technical		XXXX	XXXX
Total		XXXX	XXXX

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

- Production

China has become the largest abamectin supplier in the world since 2003, with the capacity and output of abamectin technical reaching XXX t/a and XXX tonnes respectively in 2016.

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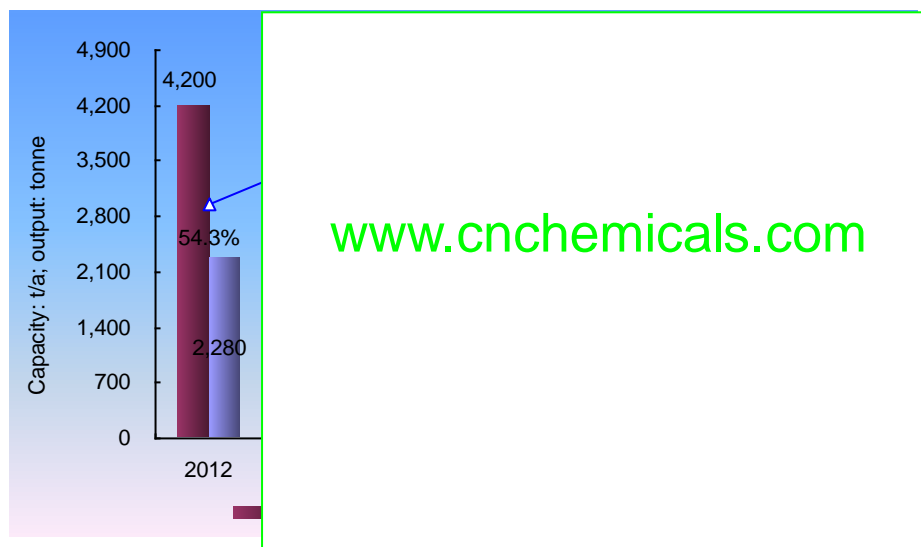
Qilu Pharmaceutical is the largest abamectin technical producer in China with a total capacity

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of XXX t/a in 2016. Two of its subsidiaries, namely Qilu King-Phar Pharmaceutical Co., Ltd. (Qilu King-Phar) and Qilu (Inner Mongolia) Pharmaceutical Co., Ltd. (Inner Mongolia Qilu), produce abamectin technical.

Figure 3.3-1 Capacity and output of abamectin technical in China, 2012–H1 2017



Source: CCM

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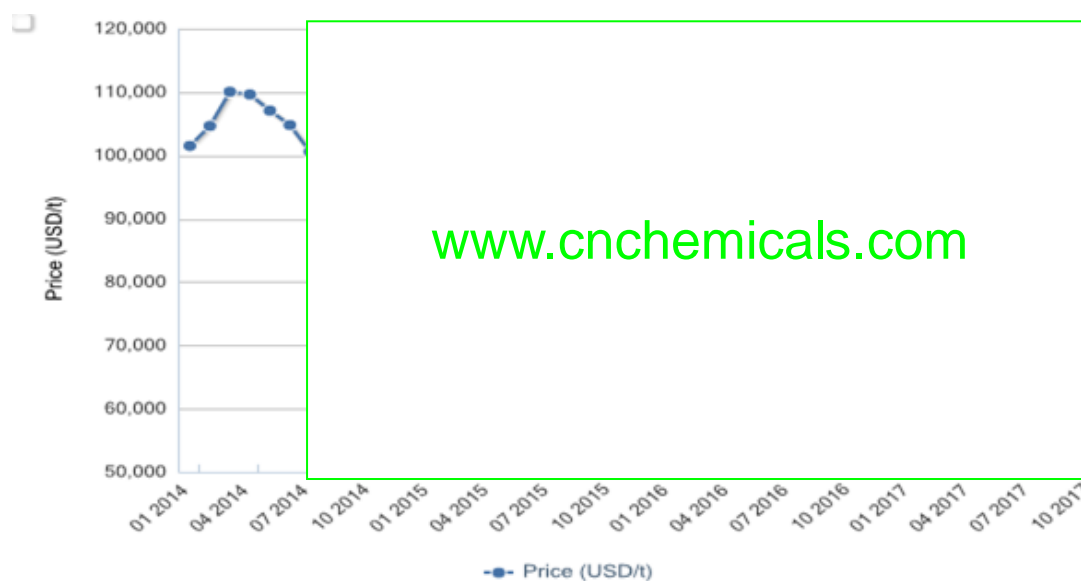
Table 3.3-3 Capacity and output of major abamectin technical producers in China, 2016-H1 2017

No.	Producer	Status, H1 2017	Capacity, t/a		Output 2016, tonne
			H1 2017	2016	
1	Qilu Pharmaceutical Co., Ltd.	Active	XXX	XXX	XXX
2	XXXXXX.	Active	XXX	XXX	XXX
3	XXXXXX.	Active	XXX	XXX	XXX
...	XXXXXX.	Active	XXX	XXX	XXX
...	XXXXXX.	Active	XXX	XXX	XXX
...	XXXXXX.	Active	XXX	XXX	XXX
...	XXXXXX.	Active	XXX	XXX	XXX
Others			XXX	XXX	XXX
Total			XXX	XXX	XXX

Source: CCM

- Price

Figure 3.3-4 Monthly ex-works price of 95% abamectin technical in China, Jan. 2014 – Oct. 2017



Source: CCM

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- Consumption

Table 3.3-5 Output, export, import and apparent consumption of abamectin in China, 2012-2016, tonne

Year	TC output	Export				Apparent consumption (converted to 95% TC)
		TC	18g/L EC	20g/L EC	Total (converted to 95% TC)	
2012	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2013	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2014	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2015	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
2016	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

Note: Apparent consumption=output+import-export

Source: China Customs & CCM

- **Share by crop**

Figure 3.3-5 Consumption of abamectin in China by crop, 2016



Source: CCM

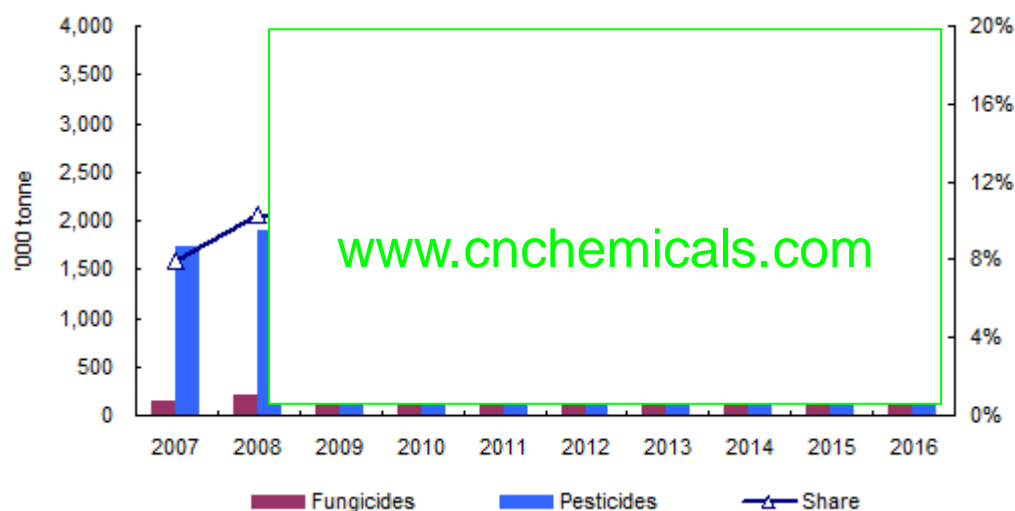
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5.1 Overview of Chinese fungicide industry

- **Output**

China, the largest production base and exporter of pesticides in the world, has produced XXX million tonnes of pesticide technical (calculated by 100% technical) in 2016 according to the National Bureau of Statistics of China, including XXX tonnes of fungicides. Most fungicides produced in China are generic products, and the whole Chinese fungicide industry is confronting some problems, like the plight of overcapacity, irrational competition, weak brand recognition and low added value of products.

Figure 5.1-1 Output and share of fungicides in China's pesticide industry, 2007–2016



Source: China Crop Protection Industry Yearbook

- Major products

Compared with insecticides and herbicides, varieties of fungicides produced in China are limited. Traditional fungicides like mancozeb and carbendazim are key species. With farmers' growing preference to planting cash crops, such as vegetables, flowers, and fruits, fungicides' output and species will be more and more in the next five years.

Table 5.1-1 Classification and major products of fungicides in China

Category	Key product
Inorganic fungicides	Sulfur, copper sulfate, cuprous oxide, lime-sulfur
Organic sulfur fungicides	Mancozeb, thiram, zineb, ziram, propineb
Organophosphorus fungicides	Isoprothiolane, iprobenfos, phosethyl-Al
Substituted benzene fungicides	XXXX
Benzimidazole fungicides	XXXX
Triazole fungicides	XXXX
Other azole fungicides	XXXX
Antibacterial fungicides	XXXX
Others	XXXX

Source: CCM

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