

Production projects of China's pesticide industry in 2023

The Second Edition

November 2023

Researched & Prepared by:

Kcomber Inc.

Copyright by Kcomber Inc.

Any publication, distribution or copying of the content in this report is prohibited.

Contents

| | |
|---|-----------|
| Executive summary | 1 |
| Methodology | 2 |
| 1 Overview of China's on-going pesticide projects | 3 |
| 1.1 Project capacity and regional distribution | 3 |
| 1.2 Concerning active ingredients | 5 |
| 1.3 Construction progress | 7 |
| 1.4 Product type..... | 8 |
| 2 China's major pesticide projects | 11 |
| 2.1 Large-scale projects for major active ingredients | 11 |
| 2.2 Constructed projects for new capacity in 2023 | 11 |
| 2.3 Major projects for China's new pesticides and bio-pesticides | 12 |
| 3 Details of China's on-going pesticide projects by product type | 14 |
| 3.1 Projects involving pesticide technical only | 14 |
| 3.2 Projects involving intermediates only or pesticide technical & intermediates..... | 16 |
| 3.3 Projects involving pesticide formulations | 18 |

LIST OF TABLES

| |
|--|
| Table 1.1-1 Number and capacity of projects by region, as of Oct., 2023 |
| Table 1.1-2 Capacity of 92 projects by province/autonomous region/municipality/region, t/a |
| Table 1.2-1 Active ingredients involved in three or above projects, Q1–Q3 2023 |
| Table 1.2-2 Top 10 herbicide technicals in 92 pesticide projects by capacity, Q1–Q3 2023 |
| Table 1.2-3 Top 10 insecticide technicals in 92 pesticide projects by capacity, Q1–Q3 2023 |
| Table 1.2-4 Top 10 fungicide technicals in 92 pesticide projects by capacity, Q1–Q3 2023 |
| Table 1.3-1 Project progress of 92 pesticide projects in China, as of Oct., 2023 |
| Table 1.4-1 Capacity of 92 projects by product type, Q1–Q3 2023 |
| Table 3.1-1 31 Projects for pesticide technical only, Q1–Q3 2023 |
| Table 3.2-1 22 Projects for pesticide intermediates only, Q1–Q3 2023 |
| Table 3.2-2 24 Projects for pesticide technical and intermediates, Q1–Q3 2023 |
| Table 3.3-1 15 Pesticide projects concerning formulations, Q1–Q3 2023 |

Executive summary

In Jan.–Sept. 2023, a total of 92 pesticide projects pertaining to pesticide technical, formulations and intermediates were planned or constructed by China's pesticide enterprises to better adapt to their business scale and long-term development.

In terms of project capacity by regional distribution, most scale pesticide capacity investment projects are located in Northwest, North China, East China and Central China. Among the pesticide technicals involved in the 92 Chinese pesticide projects in planning or construction progress during Q1–Q3, chlorantraniliprole, glufosinate-P and thiamethoxam are the top 3 active ingredients in terms of project amount. As of Oct. 2023, 87% of the 92 ongoing pesticide projects in China's pesticide industry in the first three quarters are in the planning, EIA process or have received EI report approvals; meanwhile, only 13% were under construction, trial production or have completed construction.

In China's 92 new projects that are in the planning and construction stage, 24% of the new capacities are related to production of intermediates only, while 34% and 16% are of pesticide technical only and formulation only, respectively. Among these pesticide projects in China's pesticide industry during Q1–Q3 2023, 46 were involving intermediates only or pesticide technical & intermediates.

Methodology

The report is drafted by diverse methods as follows:

- 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.

- Internet

CCM contacted with players in the domestic agrochemical industry through B2B websites and software as well as obtained registration information on the internet.

- Data processing and presentation

The data collected and compiled are sourced from:

- CCM's database
- China Customs
- Published articles in periodicals, magazines, journals and third-party databases
- Statistics from governments and international institutes
- Telephone interviews with domestic producers, joint ventures, service suppliers and governments
- Third-party data providers
- Comments from industrial experts
- Professional databases from other sources
- Information from the internet

The data 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 the conclusions.

In this report, the USD/CNY exchange rate used is USD1.00=CNY7.1789 sourced from the People's Bank of China on 9 Oct., 2023.

1 Overview of China's on-going pesticide projects

Since late 2022, China's pesticide market witnessed weak consumption of technical stocks and downstream demand. During H1 2023, most pesticide varieties in China experienced continuous price downturn from those in 2022; as of Sept., with semi-annual reports released in succession, only a few companies had managed to achieve growths in operating results, while most of the industrial players raked in decreasing incomes; some even suffered losses in net profit. On the positive side, pesticide prices stabilised in H2 and began to tune up gradually. Under this circumstance, it is worth paying attention to the measures taken by Chinese pesticide enterprises to better adapt to the needs of business scale and long-term development.

According to public information from environmental impact assessment released on government websites and from company announcement, a total of 92 pesticide projects pertaining to pesticide technical, formulations and intermediates were in planning or construction stage during Jan.–Sept. 2023, which will be briefly introduced and analysed in this issue to observe and discuss the development of China's agrochemical industry.

1.1 Project capacity and regional distribution

In Q1–Q3 2023, there were 92 Chinese pesticide projects in planning or construction progress, with a combined new capacity of 2,055,004 t/a, up by 3% YoY. Among the 92 concerning projects in this issue, those projects involving pesticide technical in China are mainly located in the traditional pesticide production bases in North and East China, especially in Inner Mongolia Autonomous Region, Hebei Province and Shandong Province; those with large designed capacities for pesticide technical and the intermediates are in Gansu Province, Shandong Province and Shaanxi Province. Notably, a pesticide technical project with a designed production capacity of 200,000 t/a is sited overseas during the period.

East China (including Jiangsu Province, Shandong Province, Anhui Province, Jiangxi Province and Zhejiang Province) was the Top1 location with 36 projects of construction compared with the other places in China. Thereinto, 16 new projects in East China were designed to build capacities for pesticide technicals only. However, those production projects with higher scale of designed capacities were located in Gansu Province, Hebei Province and Ningxia Hui Autonomous Region, etc., targeting for the intermediates, as well as the pesticide technicals and intermediates.

Table 1.1-1 Number and capacity of projects by region, as of Oct., 2023

| No. | Location | Province/Autonomous region/Municipality/Region | Total new capacity, t/a | Number of project |
|--------------|---------------|--|-------------------------|-------------------|
| 1 | East China | Jiangsu Province, Shandong Province, Anhui Province, Jiangxi Province, Zhejiang Province | 301,442.00 | 36 |
| 2 | Northwest | Gansu Province, Ningxia Hui Autonomous Region, Shaanxi Province, Xinjiang Uyghur Autonomous Region | 700,800.00 | 26 |
| 3 | North China | Hebei Province, Inner Mongolia Autonomous Region | 445,704.00 | 15 |
| 4 | Central China | Hubei Province, Henan Province, Hunan Province | 353,858.00 | 8 |
| 5 | Northeast | Liaoning Province, Jilin Province | 21,200.00 | 4 |
| 6 | South China | Guangxi Zhuang Autonomous Region | 30,000.00 | 1 |
| 7 | Southwest | Chongqing Municipality | 2,000.00 | 1 |
| 8 | Overseas | Indonesia | 200,000.00 | 1 |
| Total | | | 2,055,004.00 | 92 |

Source: CCM

As of Oct., in Gansu Province, there are 20 projects in the planning and construction stage, with a combined new capacity of 433,400 t/a (=21.1% of the total capacities of the 92 concerning projects), 228,600 t/a of which contains pesticide intermediates only. Hebei Province has 8 projects with designed production capacities of 287,304 t/a (=14.0% of the total capacities of the 92 concerning projects), 210,000 t/a of which contains pesticide formulations only.

Table 1.1-2 Capacity of 92 projects by province/autonomous region/municipality/region, t/a

| No. | Province/Autonomous region/Municipality/Region | Pesticide intermediates | Pesticide technical | Pesticide technical & intermediates | Pesticide technical, formulations & intermediates | Pesticide formulations | Pesticide technical & formulations | Total |
|--------------|--|-------------------------|---------------------|-------------------------------------|---|------------------------|------------------------------------|---------------------|
| 1 | Gansu Province | 228,600 | 7,800 | 170,000 | 15,000 | / | 12,000 | 433,400 |
| 2 | Hebei Province | 600 | 35,500 | / | / | 210,000 | 41,204 | 287,304 |
| 3 | Henan Province | / | / | 2,200 | 252,000 | / | / | 254,200 |
| 4 | Ningxia Hui Autonomous Region | 228,000 | 6,000 | / | / | / | / | 234,000 |
| 5 | Overseas | / | 200,000 | / | / | / | / | 200,000 |
| 6 | Inner Mongolia Autonomous Region | 20,000 | 130,000 | 8,400 | / | / | / | 158,400 |
| 7 | Shandong Province | 5,000 | 32,300 | 83,200 | / | 2,700 | 14,180 | 137,380 |
| 8 | Hubei Province | 26,058 | 10,000 | 13,600 | / | / | 30,000 | 79,658 |
| 9 | Jiangsu Province | 25,100 | 4,000 | / | / | 34,150 | 6,900 | 70,150 |
| 10 | Zhejiang Province | 37,000 | 12,750 | / | / | / | / | 49,750 |
| 11 | Guangxi Zhuang Autonomous Region | 30,000 | / | / | / | / | / | 30,000 |
| 12 | Jiangxi Province | 2,612 | 19,000 | 2,750 | / | / | / | 24,362 |
| 13 | Hunan Province | / | 20,000 | / | / | / | / | 20,000 |
| 14 | Shaanxi Province | / | / | 20,000 | / | / | / | 20,000 |
| 15 | Anhui Province | 3,600 | 14,200 | 2,000 | / | / | / | 19,800 |
| 16 | Liaoning Province | / | 10,700 | 8,000 | / | / | / | 18,700 |
| 17 | Xinjiang Uyghur Autonomous Region | / | / | 13,400 | / | / | / | 13,400 |
| 18 | Henan Province | 2,500 | / | / | / | / | / | 2,500 |
| 19 | Chongqing Municipality | / | 2,000 | / | / | / | / | 2,000 |
| Total | | 609,070.00 | 504,250.00 | 323,550.00 | 267,000.00 | 246,850.00 | 104,284.00 | 2,055,004.00 |

Source: CCM

1.2 Concerning active ingredients

According to the 92 Chinese pesticide projects in planning or construction progress in Q1–Q3 2023, the top 3 pesticide technicals in terms of project amount are chlorantraniliprole (9), glufosinate-P (7) and thiamethoxam (6).

Table 1.2-1 Active ingredients involved in three or above projects, Q1–Q3 2023

| No. | Concerning products | Number of project | Ranking | Category |
|-----|----------------------|-------------------|---------|-------------|
| 1 | Chlorantraniliprole | 9 | 1 | Insecticide |
| 2 | Glufosinate-P | 7 | 2 | Herbicide |
| 3 | Thiamethoxam | 6 | 3 | Insecticide |
| 4 | Glufosinate-Ammonium | 5 | 4 | Herbicide |
| 5 | Prothioconazole | 5 | 4 | Fungicide |
| 6 | Chlorfenapyr | 5 | 4 | Insecticide |
| 7 | Pymetrozine | 4 | 5 | Insecticide |
| 8 | Lambda-Cyhalothrin | 4 | 5 | Insecticide |
| 9 | Clethodim | 4 | 5 | Herbicide |
| 10 | MCPA | 4 | 5 | Herbicide |
| 11 | Flonicamid | 4 | 5 | Insecticide |
| 12 | Pyraclostrobin | 3 | 6 | Fungicide |
| 13 | Quizalofop-P-ethyl | 3 | 6 | Herbicide |
| 14 | Azoxystrobin | 3 | 6 | Fungicide |

Source: CCM

By category, the top 10 active ingredients in terms of capacity are listed as follows.

Table 1.2-2 Top 10 herbicide technicals in 92 pesticide projects by capacity, Q1–Q3 2023

| No. | Concerning products | New capacity, t/a | Number of project |
|-----|----------------------|-------------------|-------------------|
| 1 | Glyphosate | 200,000 | 1 |
| 2 | Glufosinate-P | 123,000 | 6 |
| 3 | Clethodim | 49,300 | 4 |
| 4 | Glufosinate-Ammonium | 34,000 | 5 |
| 5 | 2,4-D | 20,000 | 1 |
| 6 | MCPA | 18,000 | 4 |
| 7 | Acetochlor | 8,000 | 1 |
| 8 | Tebuthiuron | 5,400 | 1 |
| 9 | Bentazone | 3,000 | 1 |
| 10 | Mesotrione | 3,000 | 1 |

Source: CCM

Table 1.2-3 Top 10 insecticide technicals in 92 pesticide projects by capacity, Q1–Q3 2023

| No. | Concerning products | New capacity, t/a | Number of project |
|-----|---------------------|-------------------|-------------------|
| 1 | Chlorantraniliprole | 34,000 | 9 |
| 2 | Thiamethoxam | 22,700 | 6 |
| 3 | Chlorfenapyr | 8,700 | 5 |
| 4 | Cyantraniliprole | 6,000 | 2 |
| 5 | Acetamiprid | 5,000 | 1 |
| 6 | Lambda-Cyhalothrin | 4,600 | 3 |
| 7 | Pymetrozine | 4,200 | 4 |
| 8 | Lufenuron | 2,600 | 2 |
| 9 | Emamectin benzoate | 2,200 | 2 |
| 10 | Fenpropathrin | 2,200 | 2 |

Source: CCM

Table 1.2-4 Top 10 fungicide technicals in 92 pesticide projects by capacity, Q1–Q3 2023

| No. | Concerning products | New capacity, t/a | Number of project |
|-----|---------------------|-------------------|-------------------|
| 1 | Mancozeb | 80,000 | 1 |
| 2 | Difenoconazole | 6,000 | 2 |
| 3 | Prothioconazole | 4,600 | 5 |
| 4 | Trifloxystrobin | 3,000 | 2 |
| 5 | Prochloraz | 3,000 | 2 |
| 6 | Pyraclostrobin | 2,400 | 3 |
| 7 | Picoxystrobin | 2,000 | 1 |
| 8 | Tebuconazole | 2,700 | 3 |
| 9 | Azoxystrobin | 1,600 | 3 |
| 10 | Dimethomorph | 1,500 | 1 |
| 11 | Boscalid | 1,500 | 1 |

Source: CCM

1.3 Construction progress

In Q1–Q3 2023, there are 92 ongoing pesticide projects in China's pesticide industry which can be broken down by progress. As of Oct. 2023, most of ongoing pesticide projects in China's pesticide industry (80, =87% of the total) have been planned, 68 of which was in EIA process or with EI report approved; the rest (12, =13% of the total) were under construction, in trial production or with construction completed and put into operation.

Table 1.3-1 Project progress of 92 pesticide projects in China, as of Oct., 2023

| No. | Status | Pesticide technical | Pesticide technical & intermediates | Pesticide intermediates | Pesticide technical & formulations | Pesticide formulations | Pesticide technical, formulations & intermediates | Total | |
|--------------|--------------|------------------------|-------------------------------------|-------------------------|------------------------------------|------------------------|---|-----------|----|
| 1 | Planned | Planning | 6 | 1 | 4 | / | / | 1 | 12 |
| | | In EIA process | 12 | 13 | 13 | 5 | 3 | / | 46 |
| | | EI report approved | 8 | 5 | 5 | 2 | 2 | / | 22 |
| 2 | Construction | Under construction | 1 | 3 | / | 1 | / | / | 5 |
| | | Trial production | 1 | 2 | / | / | / | / | 3 |
| | | Construction completed | 3 | / | / | / | / | 1 | 4 |
| Total | | 31 | 24 | 22 | 8 | 5 | 2 | 92 | |

Note: EIA refers to environmental impact assessment; EI report refers to environmental impact report.

Source: CCM

1.4 Product type

As of Oct., 2023, the 92 pesticide projects in the planning and construction stage reached a total new capacity of 2.06 million t/a, being designed to produce a single product type or product combination of pesticide technical, formulation and intermediates. Thereinto, 31 projects are related to production of pesticide technical only, 22 ones are of intermediates only, and only 5 are designed for formulation production only; while the rest are 37.0% for mixtures of these two or three types.

In terms of new capacity, projects of intermediate-only account for the most, hitting 609,070 t/a (=29.6% of the total), followed by those of pesticide technical-only and those of pesticide technical & intermediates, i.e. 504,250 t/a (=24.5% of the total) and 323,550 t/a (=15.7% of the total), respectively. Regarding formulation-only projects, though only 5 in amount, it totalled a capacity of 246,850 t/a (=12.0% of the total). Compared with Q1–Q3 2022, capacities for intermediate-only and pesticide technical & intermediate projects saw a decline of 48.0% YoY and 7.0% YoY separately, while those for technical-only and formulation-only projects jumped 128.7% YoY and 140.6% YoY, respectively. It is worth mentioning that only two projects were for technical, formulation & intermediates in 2023, with the capacity of 267,000 t/a, marking 346.5% YoY compared with the same period of last year.

Table 1.4-1 Capacity of 92 projects by product type, Q1–Q3 2023

| No. | Product type | Province/Autonomous region/Municipality/Region | Capacity, t/a | YoY change |
|----------------|-------------------------|--|---------------|------------|
| 1 | Pesticide intermediates | Gansu Province | 228,600.00 | / |
| | | Ningxia Hui Autonomous Region | 228,000.00 | |
| | | Zhejiang Province | 37,000.00 | |
| | | Guangxi Zhuang Autonomous Region | 30,000.00 | |
| | | Hubei Province | 26,058.00 | |
| | | Jiangsu Province | 25,100.00 | |
| | | Inner Mongolia Autonomous Region | 20,000.00 | |
| | | Shandong Province | 5,000.00 | |
| | | Anhui Province | 3,600.00 | |
| | | Jiangxi Province | 2,612.00 | |
| | | Henan Province | 2,500.00 | |
| Hebei Province | 600.00 | | | |
| | Sub-total | 609,070.00 | -48.0% | |
| 2 | Pesticide technical | Overseas | 200,000.00 | / |
| | | Inner Mongolia Autonomous Region | 130,000.00 | |
| | | Hebei Province | 35,500.00 | |
| | | Shandong Province | 32,300.00 | |
| | | Hunan Province | 20,000.00 | |

| No. | Product type | Province/Autonomous region/Municipality/Region | Capacity, t/a | YoY change |
|------------------|---|--|-------------------|------------|
| | | Jiangxi Province | 19,000.00 | |
| | | Anhui Province | 14,200.00 | |
| | | Zhejiang Province | 12,750.00 | |
| | | Liaoning Province | 10,700.00 | |
| | | Hubei Province | 10,000.00 | |
| | | Gansu Province | 7,800.00 | |
| | | Ningxia Hui Autonomous Region | 6,000.00 | |
| | | Jiangsu Province | 4,000.00 | |
| | | Chongqing Municipality | 2,000.00 | |
| | | Sub-total | 504,250.00 | |
| 3 | Pesticide technical & intermediates | Gansu Province | 170,000.00 | / |
| | | Shandong Province | 83,200.00 | |
| | | Shaanxi Province | 20,000.00 | |
| | | Hubei Province | 13,600.00 | |
| | | Xinjiang Uyghur Autonomous Region | 13,400.00 | |
| | | Inner Mongolia Autonomous Region | 8,400.00 | |
| | | Liaoning Province | 8,000.00 | |
| | | Jiangxi Province | 2,750.00 | |
| | | Henan Province | 2,200.00 | |
| | | Anhui Province | 2,000.00 | |
| Sub-total | 323,550.00 | -7.0% | | |
| 4 | Pesticide formulations | Hebei Province | 210,000.00 | / |
| | | Jiangsu Province | 34,150.00 | |
| | | Shandong Province | 2,700.00 | |
| | | Sub-total | 246,850.00 | |
| 5 | Pesticide technical, formulations & intermediates | Henan Province | 252,000.00 | / |
| | | Gansu Province | 15,000.00 | |
| | | Sub-total | 267,000.00 | |

| No. | Product type | Province/Autonomous region/Municipality/Region | Capacity, t/a | YoY change |
|--------------|------------------------------------|--|---------------------|--------------|
| 6 | Pesticide technical & formulations | Hebei Province | 41,204.00 | / |
| | | Hubei Province | 30,000.00 | |
| | | Shandong Province | 14,180.00 | |
| | | Gansu Province | 12,000.00 | |
| | | Jiangsu Province | 6,900.00 | |
| | | Sub-total | 104,284.00 | 52.6% |
| Total | | | 2,055,004.00 | 3.0% |

Source: CCM

2 China's major pesticide projects

2.1 Large-scale projects for major active ingredients

In the 92 Chinese pesticide projects planned or constructed during Q1–Q3 2023, active ingredients, such as mancozeb, clethodim, glyphosate and 2,4-D, were involved in projects with large production capacities. Notably, glufosinate-ammonium and glufosinate-P had enjoyed the same popularity as previous years, featuring both scale capacity and large project amount. As of Oct. 2023, concerning large-scale projects for the above-mentioned pesticide technicals are under planning or construction and yet to put into operation, with details of some major ones as below:

- **Mancozeb and Clethodim:** On 1 Aug., the recordation certificate of Inner Mongolia Miraculous Crop Science Co., Ltd.'s 30,000 t/a clethodim project and 80,000 t/a mancozeb project were publicised. With clethodim's investment totalling USD69.69 million (RMB500.29 million) and that of mancozeb was USD111.44 million (RMB800 million). Both projects will be constructed in the Bayin Aobao (Bayan Ovoo) Industrial Park, Alxa High-Tech Industrial Development Zone, Alxa League, Inner Mongolia Autonomous Region. Inner Mongolia Miraculous is a subsidiary of Lianyungang Liben Crop Science Co., Ltd.

- **Glyphosate:** On 28 Aug., Sichuan Hebang Biotechnology Co., Ltd. held an online signing ceremony with PT BERKAH KAWASAN MANYAR SEJAHTERA (BKMS) and PT AKR Corporindo Tbk (AKR). The three parties signed a letter of intent for an USD800 million (RMB5.74 billion)-worth investment program, which would construct a chemical production base in the Java Integrated Industrial & Ports Estate (JIPE), Surabaya, East Java, Indonesia; the base will be used for the production of sodium carbonate, ammonium chloride, glyphosate, etc. According to the plan, production capacity for glyphosate is designed at 200,000 t/a.

- **2,4-D:** On 28 Dec., 2022, the Environment Impact (EI) Report of Gansu Xinhengmao Technology Co., Ltd.'s chlorophenol production base project (phase I) were publicised. The project, with an investment of USD55.72 million (RMB400 million) and a plant area totalling about 11.47 ha, has two phases of construction, including the production lines for 20,000 t/a 2,4-D TC and 40,000 t/a chlorophenol (phase I), 2,000 t/a prochloraz TC and 10,000 t/a chloroacetic acid (phase I) and others. As of Sept. 2023, the construction of this project was announced to be completed.

- **Glufosinate-ammonium:** In Aug., the environmental impact (EI) report of Hebei Nongbiwei Biotechnology Co., Ltd. (Hebei Nongbiwei)'s large-scale green pesticide technical and by-product project was published. The company has planned to invest USD509.52 million (RMB3.63 billion) to construct the project in the eastern part of Cangzhou Lingang Economic and Technological Development Zone, Cangzhou City, Hebei Province. Once completed, the company will own technical production capacity of 10,000 t/a glufosinate-ammonium, 6,300 t/a clethodim (including TK), 5,400 t/a tebutiuron, 3,000 t/a mesotrione, 2,400 t/a niclosamide, 1,800 t/a imazapyr, 2,000 t/a nicosulfuron, 1,200 t/a fenclorim, 1,000 t/a quizalofop-p-ethyl, and also capacities for some by-products like salts, hydrochloric acid and methanol. Hebei Nongbiwei was established in Dec. 2021., and its business scope covers the manufacture of chemical pesticides.

- **Glufosinate-P:** On 1 Aug., Baicao Yuan Biology Co., Ltd. chaired a signing ceremony for an investment agreement on "Series High-efficiency and Environment-friendly Pesticide Construction Project". With a total investment of USD699.13 million (RMB5.02 billion) and an area of 73.33 ha, the project was to leverage the standardised plants in Yima City Industrial Cluster and auxiliary PPP (Public-Private Partnerships) projects, undergoing a two-phased construction for 86,000 t/a methyldiethoxyphosphine and other intermediates, 76,000 t/a glufosinate-P technical and other technical products, and 90,000 t/a glufosinate-P formulations and other formulations.

2.2 Constructed projects for new capacity in 2023

Among 92 projects of pesticide in China, 12 projects held by the Chinese pesticide enterprises of different sizes were in the construction stage (under construction, trial production and construction completed). Thereinto, seven projects are expected to add new capacity in China in 2023. Specifically, four production projects run by four enterprises were put into operation, adding a total capacity of 12,200 t/a in 2023; while three held by three enterprises were under trial run, adding 26,200 t/a in 2023.

Under trial run (totalling 26,200 t/a)

- Two technical & intermediate projects for trial production:
 - On 28 April, Hebi Baoruide Chemical Co., Ltd.'s 2,200 t/a chemicals reconstruction project approved on 30 June, 2022 was under trial run, but yet to pass the acceptance of environmental protection for completion of construction project. The project was aimed to remove the fluorosulfide diphenyl ether production lines in the second workshop and build lines for 1,200 t/a ethylene oxide and 1,000 t/a tebuconazole TC.
 - On 7 June, Shandong Cynda Chemical Co., Ltd. announced that its wholly-owned subsidiary, Liaoning Cynda Chemical Co., Ltd. had completed the construction of main body, equipment installation and testing of the 1,000 t/a imazapyr TC and 3,000 t/a pesticide intermediate project, and put the lines into trial production.
- One technical-only project for trial production: In July, Lier Chemical Co., Ltd. announced its subsidiary Hunan Lier Biotech Co., Ltd.'s 20,000 t/a Enzymatic Method Glufosinate-P Project in Hunan was under trial run.

In operation stage (totalling 12,200 t/a)

- One technical, formulation & intermediates project entered partial production: On 14 August, a "15,000 t/a Pesticide Technical, Formulation and Intermediate Construction project" of Zhejiang Wynca Chemical Group Co., Ltd.'s second-tier subsidiary Gansu West Xinyu Chemical Co., Ltd. has been put into inspection acceptance, including production lines for 1,700 t/a 2,4-dichloro-5-nitrophenyl isopropyl ether, 1,200 t/a nicosulfuron TC, 1,000 t/a bentazone TC, 1,000 t/a quizalofop-P-ethyl TC, 600 t/a fluroxypyr-meptyl TC, 500 t/a quizalofop-P-tefuryl TC and 300 t/a penoxsulam TC, totalling 6,300 t/a.
- Three technical only projects entered production:
 - Qilu Synva Pharmaceutical Co., Ltd.'s 2,000 t/a emamectin benzoate TC capacity expansion and upgrading project was announced to put into production in June.
 - On 24 July, 2023, Yongnong BioSciences Co., Ltd. publicised the draft for partial acceptance of its 8,000 t/a high-efficiency pesticide TC technology renovation project, including production lines for 100 t/a azoxystrobin TC, 200 t/a pyraclostrobin TC, 200 t/a epoxiconazole TC, 200 t/a thiamethoxam TC, 1,200 t/a bifentazate TC and 1,402 t/a co-produced sodium sulfate, totalling 1,900 t/a. The above constructed part has entered stable trial production in May 2023 and met the conditions of acceptance for completion of construction project.
 - In May 2023, Chongqing Huage Biochemical Co., Ltd., a wholly-owned subsidiary of Nanjing Red Sun Co., Ltd. (Nanjing Red Sun), had the 2,000 t/a chlorantraniliprole product chain entering trial production. On 8 Aug., Nanjing Red Sun disclosed the project had entered smooth production in Wanzhou Base of Chongqing Municipality.

-Updates on constructed project in 2022

In Feb., 2023, Anhui Ningyitai Science & Technology Co., Ltd.'s 15,500 t/a new pesticide technicals and related products project, which has put into trial production in Nov. 2022, applied for a commissioning time extension of 3 months. The reason is that the environmental protection facilities are too low to handle the load, and do not reach the sustained and stable normal operating conditions. The first batch of Phase I construction included production plants and supporting workshops for 3,000 t/a lufenuron TC, 1,000 t/a flumioxazin TC, etc.

2.3 Major projects for China's new pesticides and bio-pesticides

Among the 92 planned or construction projects in Q1–Q3 2023, 5 were designed for China's new pesticides and/or bio-pesticides, handled by 4 pesticide enterprises, namely Jiangshan (Yichang) Crop Technology Co., Ltd. (1), Zhejiang Udragon Pesticides and Chemicals Co., Ltd. (1), Weifang Nuchlor Chemical Co., Ltd. (1) and Shandong Lukang Biological Pesticides Co., Ltd. (2),

-Benmicao-zuo (JS-T205)

To be specified, the new green herbicide TC and formulation project of Jiangshan (Yichang) Crop Technology Co., Ltd., wholly-owned subsidiary of Nantong Jiangshan Agrochemical & Chemicals Co., Ltd. (Nantong Jiangshan) will construct 500 t/a JS-T205 and formulation production lines and ancillary installations, with an investment of USD110.74 million (RMB794.99 million). Nantong Jiangshan's new product JS-T205 is a new highly effective green non-selective herbicide.

-Thiotraniliprole

On 25 June, 2023, Zhejiang Udragon Pesticides and Chemicals Co., Ltd. released the environmental impact (EI) assessment of its subsidiary Zhejiang Udragon Bioscience Co., Ltd. (Zhejiang Udragon)'s 2,050 t/a

pesticide TC technological renovation project for public comments. Invested with USD62.68 million (RMB450 million), the project aims to form capacities for pesticide technicals including 600 t/a prothioconazole, 50 t/a ipconazole, 200 t/a metconazole, 200 t/a cyproconazole, 200 t/a tiorantraniliprole, 200 t/a zoxamide, 50 t/a famoxadone, 50 t/a spirotetramat, 200 t/a MPPZ, 50 t/a benziotiazolinone, 250 t/a fludioxonil and by-products. Thiofantriliprole, featuring the same mechanism as that of chlorantraniliprole, is a bisamide insecticide jointly developed by Zhejiang Udragon and Qingdao University of Science and Technology and first registered in 2021.

-Fluchloraminopyr

In late Aug., the Binhai Branch of the Bureau of Ecology and Environment of Weifang City approved the environmental impact report of Weifang Nuchlor Chemical Co., Ltd. (Weifang Nuchlor)'s 2,000 t/a fluroxypyr technological transformation project. Relying on the infrastructure and equipment of the existing 2,000 t/a fluroxypyr project, the company has planned to add new equipment and production capacity of 1,300 t/a fluchloraminopyr TC and at the same time maintain 2,000 t/a fluroxypyr capacity via improving production process. Total investment for the project is USD15.78 million (RMB113.29 million). Fluchloraminopyr is a new-generation synthetic hormone herbicide independently developed by Qingdao KingAgroot Resistant Weed Management Co., Ltd. and approved common name by ISO in June 2022.

-Bio-pesticides

Meanwhile, Shandong Lukang Biological Pesticides Co., Ltd. (Shandong Lukang), a wholly-owned subsidiary of Shandong Lukang Pharmaceutical Co., Ltd. (Lukang Pharma), has two bio-pesticides projects representing 15,017 t/a capacity of pesticide technical & formulations in aggregate.

- On 13 March, 2023, the Zoucheng Municipal Government publicised the environmental impact (EI) report of the bio-pesticide production base construction project of Shandong Lukang with investment of USD78.28 million (RMB561.95 million). The project includes building capacities for 1,580 t/a pesticide technicals (1,000 t/a kasugamycin, 200 t/a polyoxin, 200 t/a *Bacillus thuringiensis*, 100 t/a aconetin, 50 t/a spinosad and 30 t/a gibberellic acid A3) and 12,600 t/a pesticide formulations (3,000 t/a *Bacillus thuringiensis* 8,000 IU/μL SC, 1,000 t/a *Bacillus subtilis* 100 billion spores/g WP, 850 t/a polyoxin 10% SG, 800 t/a kasugamycin 6% AS, 500 t/a phycion 0.8% SC, 500 t/a polyoxin 5% AS, 300 t/a spinosad 10% SC, 150 t/a trifloxystrobin-tebuconazole 75% WG and etc.). Thereinto, *Bacillus thuringiensis* and spinosad are both bio insecticides.
- On 5 May, 2023, the EI report of Shandong Lukang's pesticide formulation upgrading project with an investment of USD9.59 million (RMB68.86 million) was approved. The project includes capacity construction for 1,505 t/a *Bacillus thuringiensis* SC, 215 t/a *Bacillus thuringiensis* DP, 300 t/a lambda-cyhalothrin, 300 t/a petroleum oil and 380 t/a emamectin benzoate-beta-cypermethrin.

3 Details of China's on-going pesticide projects by product type

3.1 Projects involving pesticide technical only

In Q1–Q3 2023, Chinese pesticide enterprises had continued to cultivate high-quality projects in their sectors and beefed up capacity development for products in short supply. In this connection, multiple thousand-tonne projects were invested and constructed in a row, including 31 technical-only projects, which accounted for 33.7% of the total 92 projects in the period, with following regional distribution:

- 16 in East China;
- 6 in North China, of which the construction scale larger than technical projects in other regions;
- 4 in Northwestern China;
- 2 in Central China;
- 3 in Northeastern China, the Southwestern China and overseas, respectively.

Table 3.1-1 31 Projects for pesticide technical only, Q1–Q3 2023

| No. | Enterprise name | Project name | Concerning products | New capacity, t/a | Total capacity, t/a | Status |
|-----|--|---|----------------------|-------------------|---------------------|----------------|
| 1 | Sichuan Hebang Biotechnology Co., Ltd. | Chemical Production Base Construction Project in Surabaya, East Java, Surabaya | Glyphosate | 200,000 | 200,000 | Planning |
| 2 | Inner Mongolia Miraculous Crop Science Co., Ltd. | 80,000 t/a Mancozeb Project | Mancozeb | 80,000 | 80,000 | Planning |
| 3 | | 30,000 t/a Clethodim Project | Clethodim | 30,000 | 30,000 | Planning |
| 4 | Shandong Cynda Chemical Co., Ltd. | 5,000 t/a Clethodim Technical Project | Clethodim | 5,000 | 5,000 | Planning |
| 5 | Gansu Xinlianrun Biotechnology Co., Ltd. | 1,200 t/a Pesticide Technical Production Line Construction Project | Tebuthiuron | 1,000 | 1,200 | Planning |
| | | | Florasulam | 200 | | |
| 6 | Changqing (Hubei) Bio-tech Co., Ltd. | 1,000 t/a Chlorantraniliprole Project | Chlorantraniliprole | 1,000 | 1,000 | Planning |
| 7 | Hebei Nongbiwei Biotechnology Co., Ltd. | 33,100 t/a Green Pesticide Technical and By-product Project | Glufosinate-Ammonium | 10,000 | 33,100 | In EIA process |
| | | | Clethodim | 6,300 | | |
| | | | Tebuthiuron | 5,400 | | |
| | | | Mesotrione | 3,000 | | |
| | | | Nicosulfuron | 2,000 | | |
| | | | Imazapyr | 1,800 | | |
| | | | Fenclorim | 1,200 | | |
| | | | Quizalofop-P-Ethyl | 1,000 | | |
| 8 | Shandong Eshung Industrial Co., Ltd. | 35,000 t/a Glufosinate-Ammonium Reconstruction and Expansion and 10,000 t/a Insecticide Series Product Construction Project | Glufosinate-Ammonium | 14,000 | 45,000 | In EIA process |
| | | | Chlorantraniliprole | 5,000 | | |
| | | | Cyantraniliprole | 5,000 | | |
| 9 | Jiangxi Oushi Chemical Co., Ltd. | 2,000 t/a Lufenuron and 1,000 t/a Dinotefuran Construction Project and 2,000 t/a Picoxystrobin and 10,000 t/a Thiamethoxam Construction Project | Picoxystrobin | 2,000 | 15,000 | In EIA process |
| | | | Thiamethoxam | 10,000 | | |
| | | | Lufenuron | 2,000 | | |
| | | | Dinotefuran | 1,000 | | |
| 10 | Anhui Red Sun Biochemical Co., Ltd. | 10,000 t/a (2S)-2-amino-4-[hydroxy(methyl)phosphoryl]butanoic Acid | Glufosinate-p | 10,000 | 10,000 | In EIA process |
| 11 | Huaibei Longxi Biotechnology Co., Ltd. | 3,000 t/a Fine Chemical Product Project | Fludioxonil | 1,000 | 3,000 | In EIA process |
| | | | Fonicamid | 1,000 | | |
| | | | Indoxacarb | 1,000 | | |
| 12 | Ningxia Gerui Fine Chemical Co., Ltd. | 6,000 t/a Brand New Green Continuous Process MCPA-isooctyl Project | MCPA-Isocetyl | 6,000 | 6,000 | In EIA process |
| 13 | CAC Nantong Chemical Co., Ltd. | 5,000 t/a Azoxystrobin Technical and By-product Technological Renovation Project | Azoxystrobin | 0 | 5,000 | In EIA process |
| 14 | Gansu Beida | 4,600 t/a Pesticide Technical | Difenoconazole | 4,000 | 4,600 | In EIA |

| No. | Enterprise name | Project name | Concerning products | New capacity, t/a | Total capacity, t/a | Status |
|-----|---|---|---------------------------------------|-------------------|---------------------|--------------------|
| | Biotechnology Co., Ltd. | Production Line Construction Project | Zoxamide | 600 | | process |
| 15 | Zhejiang Avilive Chemical Co., Ltd. | 500 t/a Aminopyralid, 700 t/a Clopyralid, 1,000 t/a Picloram and 500 t/a Chlorantraniliprole Production Line Construction Project | Aminopyralid | 500 | 2,700 | In EIA process |
| | | | Clopyralid | 700 | | |
| | | | Picloram | 1,000 | | |
| | | | Chlorantraniliprole | 500 | | |
| 16 | Zhejiang Udragon Chemical Co., Ltd. | 2,050 t/a Chemical Pesticide Technical Renovation Project | Prothioconazole | 600 | 2,050 | In EIA process |
| | | | Fludioxonil | 250 | | |
| | | | Metconazole | 200 | | |
| | | | Cyproconazole | 200 | | |
| | | | Zoxamide | 200 | | |
| | | | Ipconazole | 50 | | |
| | | | Famoxadone | 50 | | |
| | | | Spirobudiclofen | 50 | | |
| | | | Benzisothiazolinone | 50 | | |
| | | | MPPZ | 200 | | |
| | | | Thiorantraniliprole | 200 | | |
| 17 | Anhui Jiuyi Agriculture Co., Ltd. | 1,200 t/a Intellectual Synthetic Pesticide Technical Technological Renovation Project | Pyroxasulfone | 600 | 1,200 | In EIA process |
| | | | Tembotrione | 600 | | |
| 18 | Jiangxi Huihe Chemical Co., Ltd. | 4,000 t/a Prochloraz Automation Transformation Project (Phase I) | Prochloraz | 1,000 | 1,000 | In EIA process |
| 19 | Inner Mongolia Miraculous Crop Science Co., Ltd. | 20,000 t/a Chlorantraniliprole Project (Phase I) | Chlorantraniliprole | 20,000 | 20,000 | EI report approved |
| 20 | Weifang Nuchlor Chemical Co., Ltd. | 2,000 t/a Fluroxypyr Technological Renovation Project | Fluchloraminopyr | 1,300 | 3,300 | EI report approved |
| | | | Fluroxypyr | 0 | | |
| 21 | Shenyang Liansheng Chemical Industry Co., Ltd. | Agro-herbicide Acetochlor Technical (Methylene Method), Butachlor Technical (Methylene Method) and Tebuconazole Technical Project | Tebuconazole | 700 | 10,700 | EI report approved |
| | | | Acetochlor | 8,000 | | |
| | | | Butachlor | 2,000 | | |
| 22 | Jiangxi Lianbai Technology Co., Ltd. | 1,500 t/a Azoxystrobin and 1,500 t/a Chlorfenapyr Technology Renovation Project | Azoxystrobin | 1,500 | 3,000 | EI report approved |
| | | | Chlorfenapyr | 1,500 | | |
| 23 | Jiangsu Chunjiang Runtian Agrochemical Co., Ltd. | Part Lambda-cyhalothrin Product Technological Transformation Co., Ltd. | Lambda-Cyhalothrin | 2,600 | 3,000 | EI report approved |
| | | | Fenvalerate | 400 | | |
| 24 | Hebei Derui Chemical Co., Ltd. | 3,000 t/a Thiamethoxam Technology Renovation Project | Thiamethoxam | 2,000 | 2,000 | EI report approved |
| 25 | Lanzhou Xinlongtai Biotechnology Co., Ltd. | 6,000 t/a Pymetrozine and By-product Construction Project (Phase II) | Pymetrozine | 2,000 | 6,000 | EI report approved |
| 26 | Hebei Veyong Bio-Chemical Co., Ltd. | Emamectin Benzoate, Pymetrozine and Other Pesticide Products and Sewage Plant Technological Transformation Project | Emamectin benzoate | 200 | 400 | EI report approved |
| | | | Pymetrozine | 200 | | |
| | | | Glufosinate-Ammonium | 0 | | |
| 27 | Jingzhou Sancaitang Chemical Technology Co., Ltd. | 10,000 t/a Biochemical Method Glufosinate-P Project | Glufosinate-P | 10,000 | 10,000 | Under construction |
| 28 | Qilu Pharmaceutical Co., Ltd. | 2,000 t/a Emamectin Benzoate Transformation and Upgrading Project | Emamectin Benzoate | 2,000 | 2,000 | Production |
| 29 | Yongnong BioSciences Co., Ltd. | 8,000 t/a High-efficiency Pesticide Technical Technological Renovation Project | Glufosinate-P | 3,000 | 8,000 | Partial Production |
| | | | Chlorfenapyr | 2,500 | | |
| | | | Bifenazate | 1,200 | | |
| | | | Prochloraz-Manganese chloride complex | 500 | | |
| | | | Thiamethoxam | 200 | | |
| | | | Pyraclostrobin | 200 | | |
| | | | Epoxiconazole | 200 | | |
| | | | Azoxystrobin | 100 | | |
| | | | Dicamba | 100 | | |

| No. | Enterprise name | Project name | Concerning products | New capacity, t/a | Total capacity, t/a | Status |
|-----|---------------------------------------|--|---------------------|-------------------|---------------------|------------------|
| 30 | Hunan Lier Biotech Co., Ltd. | Hunan Jinshi 20,000 t/a Enzymatic Method Glufosinate-P Project | Glufosinate-P | 20,000 | 20,000 | Trial production |
| 31 | Chongqing Huage Biochemical Co., Ltd. | 2,000 t/a Chlorantraniliprole Project | Chlorantraniliprole | 2,000 | 2,000 | Production |

Note: EIA refers to environmental impact assessment; EI report refers to environmental impact report; New capacities for projects in Phase II are based on those constructed in Phase II, others are based on total new capacities.

Source: CCM

3.2 Projects involving intermediates only or pesticide technical & intermediates

In China, agrochemical enterprises are urgently intensifying industrial layout for key supporting intermediates, attempting to further enhance the industrial chain integration for the company's pivotal products. Among the 92 planned or constructed pesticide projects during Q1–Q3, a total of 46 projects with a capacity of 932,620 t/a were designed for intermediates only (22,=609,070 t/a) or a combination of pesticide & intermediates (24,=323,550 t/a). Thereinto, 660,000 t/a (=70.8%) is located in the Northwestern China.

Table 3.2-1 22 Projects for pesticide intermediates only, Q1–Q3 2023

| No. | Name of Enterprise | Project name | New capacity | Status | Category of concerning TC products |
|-----|--|---|--------------|----------------|--------------------------------------|
| 1 | Gansu Xinlianrun Biotechnology Co., Ltd. | 114,800 t/a Pesticide and Pharmaceutical Intermediate Production Line Construction Project | 114,800 | Planning | Fungicide |
| 2 | Inner Mongolia Daoke Chemical Co., Ltd. | 20,000 t/a Novel Low-toxicity and High-efficiency Pesticide Intermediate Project | 20,000 | Planning | Herbicide and insecticide |
| 3 | Hebei Shuangji Chemical Co., Ltd. | 600 t/a 2-Chloro-4-methanesulfonyl-3-[(2,2,2-trifluoroethoxy)methyl]benzoic Acid Project | 600 | Planning | Herbicide |
| 4 | Hubei Fengshan New Material Technology Co., Ltd. | 24,500 t/a 4-Chlorotoluene and Other Fine Chemical Product Construction Project | 24,500 | Planning IPO | Herbicide |
| 5 | Ningxia Xinrun Chuantai Material Co., Ltd. | 120,000 t/a Dimethyl sulfate Project | 120,000 | In EIA process | Herbicide, insecticide and fungicide |
| 6 | Ningxia Beilite Biotechnology Co., Ltd. | 102,000 t/a Cyanamide Downstream Guanidyl Product Construction Project | 102,000 | In EIA process | Insecticide |
| 7 | Lanzhou Senyang Longtai Chemical Co., Ltd. | 70,000 t/a Pesticide Intermediate and By-product Construction Project | 70,000 | In EIA process | Insecticide |
| 8 | Gansu Yongrun Tianze Technology Co., Ltd. | 39,800 t/a Pharmaceutical and Pesticide Intermediate Project | 39,800 | In EIA process | Fungicide and insecticide |
| 9 | Hubei Shengkang Chemical Co., Ltd. | 25,458 t/a Special New Material Construction Project (Phase I Program for 3,5-Dimethylbenzoic Acid and 2-Amino-5-chloro-3-methylbenzoic Acid) | 25,458 | In EIA process | Insecticide |
| 10 | Wuwei Jieda Technology Co., Ltd. | 8,000 t/a CCMP Technological Renovation Project | 0 | In EIA process | Insecticide |
| 11 | Shandong Kunda Biotechnology Co., Ltd. | 5,000 t/a 2,3-Dichloropyridine Expansion Project | 5,000 | In EIA process | Insecticide |
| 12 | Gansu Youxing Chemical Co., Ltd. | 4,000 t/a Methylthioacetaldoxime Project | 4,000 | In EIA process | Insecticide |
| 13 | Anhui Hengke Chemical Co., Ltd. | 2,000 t/a 3-BroMo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxylic Acid, 600 t/a Methyl 2-Amino-3-methylbenzoate and 500 t/a Bardoxolone | 3,600 | In EIA process | Insecticide |

| No. | Name of Enterprise | Project name | New capacity | Status | Category of concerning TC products |
|-----|---|---|--------------|--------------------|------------------------------------|
| | | Technological Renovation Project | | | |
| 14 | Inner Mongolia Yongtai Chemical Co., Ltd. | 2,000 t/a DFPA Technological Renovation Project | 0 | In EIA process | Herbicide |
| 15 | Jiangxi Tianyu Chemical Co., Ltd. | 200 t/a Cyclopropanecarboxaldehyde and Other Dedicated Intermediate Project | 1,900 | In EIA process | Insecticide |
| 16 | Hubei Zhongxun Thinkgreen Technology Co., Ltd. | 600 t/a 3,4-Difluorobenzonitrile Production Project | 600 | In EIA process | Herbicide |
| 17 | Jiangsu Lianhe Chemical Technology Co., Ltd. | 600 t/a NE128 (Chloropramic Acid) Technological Renovation Construction Project | 600 | In EIA process | Others |
| 18 | Zhejiang Heyusheng Chemical Co., Ltd. | High-end Special Chemical Intelligent Manufacturing Construction Project | 37,000 | EI report approved | Fungicide |
| 19 | Guangxi Liwei New Material Technology Co., Ltd. | 30,000 t/a High-efficiency and Low-toxicity Pesticide and Pesticide and Pharmaceutical Intermediate Project (Phase I) | 30,000 | EI report approved | Insecticide |
| 20 | Ningxia Nongjia New Material Technology Co., Ltd. | 6,000 t/a Ethyl N-cyanoethanimideate Construction Project | 6,000 | EI report approved | Insecticide |
| 21 | Jilin Pingji Industry and Trade Co., Ltd. | 2,500 t/a Pesticide Intermediate Project (Phase I) | 2,500 | EI report approved | Herbicide |
| 22 | Jiangxi Huidong Pharmaceutical Technology Co., Ltd. | High-efficiency, Safe and Environmental-friendly Pharmaceutical and Pesticide Intermediate Project | 712 | EI report approved | Insecticide and fungicide |

Note: EIA refers to environmental impact assessment; EI report refers to environmental impact report; New capacities for projects in Phase II are based on those constructed in Phase II, others are based on total new capacities.

Source: CCM

Table 3.2-2 24 Projects for pesticide technical and intermediates, Q1–Q3 2023

| No. | Name of Enterprise | Project name | New capacity | Status | Category of concerning products |
|-----|--|--|--------------|----------------|---------------------------------|
| 1 | Borui Tiansheng (Xinjiang) Biotechnology Co., Ltd. | Pesticide and Intermediate Project | 13,400 | Planning | Insecticide and herbicide |
| 2 | Shaanxi Nuozheng Biotechnology Co., Ltd. | 20,000 t/a Pesticide Technical and Intermediate Production Line Construction Project | 20,000 | In EIA process | Insecticide and fungicide |
| 3 | Gansu Pingwen Chemical Co., Ltd. | 10,300 t/a Pesticide Technical and 9,000 t/a Intermediate Project | 19,300 | In EIA process | Fungicide and Herbicide |
| 4 | Weifang Maoyuan Biotechnology Co., Ltd. | 6,000 t/a Thiamethoxam and 10,000 t/a CCMT Project | 16,000 | In EIA process | Insecticide |
| 5 | Gansu Jinse Runsheng Chemical Co., Ltd. | 15,200 t/a Pesticide Technical and Intermediate Project | 15,200 | In EIA process | Insecticide |
| 6 | Shandong United Pesticide Industry Co., Ltd. | 10,000 t/a CCMP and 5,000 t/a Acetamiprid Technical Construction Project | 18,000 | In EIA process | Insecticide |
| 7 | Qingdao Hengning Biotechnology Co., Ltd. | Green and High-efficiency Agricultural Technical Material and Intermediate Project | 49,200 | In EIA process | Fungicide |
| 8 | Gansu Wei'ersheng Pharmaceutical Co., Ltd. | 8,000 t/a Pesticide Technical, Pesticide Intermediate and Pharmaceutical Intermediate Production Project (Phase I) | 8,000 | In EIA process | Insecticide |

| No. | Name of Enterprise | Project name | New capacity | Status | Category of concerning products |
|-----|---|--|--------------|--------------------|---------------------------------|
| 9 | Gansu Jinghong Intelligent Manufacturing New Technology Co., Ltd. | 2,000 t/a Prothioconazole and 4,000 t/a 2-Chloro-1-(1-chlorocyclopropyl)ethanone Production Line Construction Project | 6,000 | In EIA process | Fungicide |
| 10 | Fuxin Tianli Fine Chemical Co., Ltd. | 4,000 t/a Pesticide and Pharmaceutical Intermediate Fine Chemical Project | 4,000 | In EIA process | Fungicide and Herbicide |
| 11 | Jiangxi Meijing Technology Co., Ltd. | 2,750 t/a Intermediate Project for 600 t/a Lipoic Acid, 500 t/a Flumioxazin and Others | 2,750 | In EIA process | Herbicide |
| 12 | Lanzhou Yinxue Chemical Co., Ltd. | 2,000 t/a Pesticide Technical and Intermediate Project Change | 1,300 | In EIA process | Insecticide and fungicide |
| 13 | Inner Mongolia Yongtai Chemical Co., Ltd. | 200 t/a 1,2-Difluorobenzene, 500 t/a Prothioconazole Technical and 500 t/a Chlorantraniliprole Technical Project | 1,200 | In EIA process | Insecticide and fungicide |
| 14 | Jiangsu Jiannong Plant Protection Co., Ltd. | 6,750 t/a Environmental Protection and Safety Rectification and Transformation Project | 0 | In EIA process | Fungicide |
| 15 | Gansu Binong Technology Co., Ltd. | 22,000 t/a Pesticide and Intermediate Project | 22,000 | EI report approved | Herbicide |
| 16 | Hubei Jinghesheng Biotechnology Co., Ltd. | 13,600 t/a Pesticide Technical and Intermediate Project | 13,600 | EI report approved | Insecticide |
| 17 | Gansu Zhongmaotou Chemical Co., Ltd. | 12,000 t/a Fine Chemical and Pesticide Technical Project (Phase I&II) | 12,000 | EI report approved | Insecticide |
| 18 | Gansu Hanlong Chemical Co., Ltd. | Pesticide Intermediate and Technical Production Line (Phase II) | 10,000 | EI report approved | Insecticide and fungicide |
| 19 | Lanzhou Zhaofeng Chemical Technology Co., Ltd. | 500 t/a Tralopyril and 400 t/a 2-Chloroacrylonitrile Project (Phase II Program 1,200 t/a Chlorfenapyr and Supporting Intermediate) | 2,700 | EI report approved | Insecticide |
| 20 | Gansu Xinhengmao Technology Co., Ltd. | Chlorophenol Production Base Project (Phase I) | 73,500 | Under construction | Herbicide and fungicide |
| 21 | Inner Mongolia Laike Crop Protection Co., Ltd. | 7,200 t/a Fine Chemical Product Construction Project | 7,200 | Under construction | Insecticide |
| 22 | Anhui Huilong RMF Bioengineering Co., Ltd. | 2,000 t/a Chlorantraniliprole Technical and Intermediate Project | 2,000 | Under construction | Insecticide |
| 23 | Liaoning Cynda Agricultural Science Co., Ltd. | 1,000 t/a Imazapyr and 3,000 t/a Pesticide Intermediate Project | 4,000 | Trial production | Herbicide |
| 24 | Hebi Baoruide Chemical Co., Ltd. | 2,200 t/a Chemical Reconstruction Project | 2,200 | Trial production | Fungicide |

Note: EIA refers to environmental impact assessment; EI report refers to environmental impact report; New capacities for projects in Phase II are based on those constructed in Phase II, others are based on total new capacities.

Source: CCM

3.3 Projects involving pesticide formulations

In Q1–Q3 2023, there were 15 projects involving pesticide formulations among the 92 pesticide projects planned or in construction progress, in relation to construction of 618,134 t/a capacities of pesticide technical, formulations and intermediates.

Table 3.3-1 15 Pesticide projects concerning formulations, Q1–Q3 2023

| No. | Name of Enterprise | Project name | New capacity | Status | Type |
|-----|--|--|--------------|--------------------|---|
| 1 | Baicao Yuan Biology Co., Ltd. | High-efficiency Environment-friendly Pesticide Construction Project | 252,000 | Planning | Pesticide technical, formulations & intermediates |
| 2 | Hebei Shanli Technology and Chemical Co., Ltd. | 210,000 t/a Green Agrochemical Project | 210,000 | In EIA process | Formulations |
| 3 | Jiangsu Changqing Agrochemical (Nantong) Co., Ltd. | 16,000 t/a Pesticide Formulation Project | 16,000 | In EIA process | Formulations |
| 4 | Shandong Lukang Biological Pesticides Co., Ltd. | Bio-pesticide Base Construction Project | 14,180 | In EIA process | Pesticide technical & formulations |
| 5 | Gansu Qinye Chemical Co., Ltd. | 12,000 t/a Fine Chemical Production Line Reconstruction Project (Phase I) | 12,000 | In EIA process | Pesticide technical & formulations |
| 6 | Hebei Nongxin Biotechnology Co., Ltd. | 7,700 t/a Lambda-cyhalothrin Formulation and 2,000 t/a Lambda-cyhalothrin Technical Production Base Construction Project | 9,700 | In EIA process | Pesticide technical & formulations |
| 7 | MAX (Rudong) Chemicals Co., Ltd. | 9,200 t/a High-efficiency and Environmental-friendly Pesticide Formulation Processing and Renovation Project | 6,150 | In EIA process | Formulations |
| 8 | Jiangsu Chunjiang Runtian Agrochemical Co., Ltd. | Glufosinate-ammonium Expansion and Technological Transformation Project | 6,000 | In EIA process | Pesticide technical & formulations |
| 9 | Jiangsu Jiannong Plant Protection Co., Ltd. | 500 t/a Fluazaindoline Technical Technological Renovation Project | 900 | In EIA process | Pesticide technical & formulations |
| 10 | Jiangsu Corechem Co., Ltd. | 12,000 t/a Pesticide Formulation Technological Renovation Project | 12,000 | EI report approved | Formulations |
| 11 | Shandong Lukang Biological Pesticides Co., Ltd. | Pesticide Formulation Expanding and Upgrading Project | 2,700 | EI report approved | Formulations |
| 12 | Gansu West Xinyu Chemical Co., Ltd. | 15,000 t/a Pesticide Technical, Formulation and Intermediate Construction Project | 15,000 | Production | Pesticide technical, formulations & intermediates |
| 13 | Jiangshan (Yichang) Crop Technology Co., Ltd. | Novel Innovative Green Herbicide Technical and Formulation Project | 30,000 | Under construction | Pesticide technical & formulations |
| 14 | Hebei Lansen Biotechnology Co., Ltd. | 25,005 t/a High-efficiency and Low-toxicity Pesticide Expansion Project | 20,504 | EI report approved | Pesticide technical & formulations |
| 15 | Hebei Veyong Bio-Chemical Co., Ltd. | 1,000 t/a Glufosinate-Ammonium Technological Renovation and 10,000 t/a Glufosinate-P Construction Project (Phase I) | 11,000 | EI report approved | Pesticide technical & formulations |

Note: EIA refers to environmental impact assessment; EI report refers to environmental impact report; New capacities for projects in Phase II are based on those constructed in Phase II, others are based on total new capacities.
Source: CCM

Kcomber's legal disclaimers

1. Kcomber guarantees that the information in the report is accurate and reliable to the best of its knowledge and experience. Kcomber defines the report as a consulting product providing information and does not guarantee its information is completely in accordance with the fact. Kcomber shall not have any obligations to assume any possible damage or consequences caused by subscribers' any corporate decisions based upon subscribers' own understanding and utilization of the report.

2. The complete copyright of the report is and will be held by Kcomber. Subscribers shall not acquire, or be deemed to acquire the copyright of the report.

3. The report provided by Kcomber shall be only used as source of subscriber's internal business decisions and shall not be used for any other purposes without Kcomber's prior written consent, unless stated and approved in license contract signed by both parties. Subscribers shall not distribute, resell and disclose the whole report or any part of the report to third parties and shall not publish any article or report by largely or directly copying or citing the information or data based on Kcomber's report without the prior written consent of Kcomber.

4. "Single User License" means that there shall be only ONE person to receive access and utilize the report. Subscriber can present the content of the report that marked the source from Kcomber to their internal colleagues for their internal communication and utilization, but cannot share the whole report to other individuals. Any citation, distribution, reselling and disclosure of the report as well as its partial content to any third party are prohibited, including but not limited to their parent companies or subsidiaries.

5. "Corporate License" means that subscriber shall not cite, distribute, resell the report or disclose information of the report to any third party without Kcomber's prior written consent, except subscribers' affiliates controlled with ownership of more than 50% of shares.

17th 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