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Pesticide Policies in China in 2023

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Executive summary

The General Office of MARA issued a notice calling for effectively strengthening the supervision and administration of pesticides nationwide on 22 Sept., 2023, in order to maintain normal production and orderly operation of pesticide businesses, guard against pesticide safety risks and satisfy pesticide demand in agricultural production. As of Nov., 2023, China has banned the use of 52 pesticides. Besides, there were 16 pesticides (rodenticides excluded) with restricted usage.

In 2023, a series of public announcements, circulars, and drafts for soliciting opinions were issued, involving pesticide registration, registration test, production/business license and pesticide labels and instructions. Moreover, on 1 March, the List of Key Controlled Emerging Contaminants (2023 Edition) came into effect, listing 14 types of emerging contaminants including 13 pesticides and relevant products; on 14 July, China issued the draft of Guiding Catalogue for Industrial Structure Adjustment (2023 edition) for public opinions; on 7 Sept., China issued the No. 9 National Standard Announcement of the People's Republic of China for 2023, with 13 standards involving pesticide products and relevant determination methods.

In addition, MARA approved the list of GM corn and soybean varieties for preliminary review and publicised the exposure draft of labelling administration measures for GMOs on 17 Oct., 2023. So far, 24 safety certificates for the production and application of GM corn, GM soybean and GM rice were granted since 2019.

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, association seminars as well as information from the Internet. A lot of work has gone into the compilation and analysis of the obtained information.

- 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 were sourced from:

- Published articles from Chinese periodicals, magazines, journals, and the third-party databases
- Government statistics & customs statistics
- Comments from industrial experts
- CCM's innovative database
- 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. The USD/CNY exchange rate used in this report was USD1.00=CNY7.1778 sourced from the People's Bank of China on 1 Nov., 2023.

1 China's Agricultural Production Measures

1.1 No.1 Central Document in 2023

On 13 Feb., 2023, the Xinhua News Agency was authorised to issue the No.1 central document in 2023, namely *the Opinions on Implementing the Plans of the CPC Central Committee and the State Council for Key Agricultural and Rural Work of Comprehensively Promoting Rural Revitalisation in 2023*. This is the 20th No.1 Central Document guiding on agriculture, rural areas and rural people since the 21st century. The No.1 central document in 2023 consisted of nine parts with 33 articles.

Theme: to ensure food security and tighten the grip on stable production and supply of agricultural products

The No.1 central document in 2023 proposes many specific initiatives to enhance the food production. In particular, compared to previous years,

- The document mentions the preparation and promotion of a food security law, placing new requirements like strict assessment of province (autonomous region or municipality)-level party committees and governments for their responsibilities on arable land protection and food security.
- To further consolidate the works on food security, it also proposes that financial focus will be placed on securing credit funds for food security and guiding credit guarantee business towards the agricultural and rural sectors.
- In terms of agricultural production measures, the following works shall be implemented, namely, three-year action for the development of the oil tea industry, carrying out three preventions on wheat-spray, implementation of corn yield improvement project, continuously raising the minimum purchase price of wheat and others.

State-level financial supports for agricultural investment

As to the protection of agriculture industry and the rural areas development, the document treats it as the priority for general public budget, implementing the responsibility of local governments for investment, while raising the proportion of subsidies from the central government to promote rural revitalisation to 60%+. Compared with 2022, the Document also emphasises that the financial support policy should improve the benefit linkage mechanism, driving farmers to increase their income.

Focusing on the implementation of One county and One industry with the ecological and green development

The document mentions to provide guidance for labour-intensive industries in China, heading towards the central and western regions and counties by gradient transfer, offering supports to the national high-tech zones and economic development zones, as well as the county industrial parks trusted by or jointly established with agricultural high-tech zones. In order to integrate smoothly with all factors regarding the urban areas and rural ones, measures shall be taken to improve the institutional mechanism and policy system for the development.

Innovations on science & technology, as well as the regulations

Compared with the previous No. 1 central documents, this document highlights the descriptions related to strengthening agricultural science and technology and equipment support, and promoting core technology research and development. Work plans to further accelerate agricultural research and development and promotion, carry out the role of commissioners in science and technology support onto certain industries, and implement a talent support programme for rural revitalisation are also highlighted.

Leading and promoting consumption and production in 2023

Due to the suppression of the public consumption by COVID-19 Pandemic, it tends to push the economic growth in 2023 by leading consumption and promoting production development. It also encourages in-depth development of various consumption assistances by continually promoting the creation of demonstration cities and demonstration zones of origin, and ensures that the scale of employment of the labour force out of poverty remains at 30 million+.

Attached is a list of No. 1 Central Documents from 2008 to 2023

Table 1.1-1 Themes of No. 1 Central Document, 2008–2023

Year	Major theme of the No. 1 Central Document
2023	Implementing key agricultural and rural work of comprehensively promoting rural revitalisation in 2023
2022	Implementing key agricultural and rural work of comprehensively promoting rural revitalisation in 2022
2021	Comprehensively promoting rural revitalisation and accelerating agricultural & rural modernisation
2020	Implementing key works related to agriculture, rural areas and rural people to ensure the realisation of a moderately prosperous society in all respects as scheduled
2019	Prioritising the development of agriculture and rural areas to address the issues relating to agriculture, rural areas and rural people
2018	Implementing the rural revitalisation strategy
2017	Deepening the advancement of supply side structural reform of agriculture, accelerating cultivation of new development force of rural agriculture
2016	Implementing the new ideas of development, accelerating the modernisation in agriculture, realising the well-off society in an all-around way
2015	Reform and innovation, accelerating agricultural modernisation and actively adapting to the new normal in economic development
2014	Increasing rural reforms and accelerating agricultural modernisation
2013	Speeding up modernisation in agriculture and strengthening rural growth
2012	Accelerating scientific and technological innovation to strengthen the supply of agricultural products
2011	Accelerating the development of water conservation
2010	Speeding up coordinated development between urban and rural areas and further cementing the foundations of agricultural and rural area development
2009	Achieving steady agricultural development and sustained income increases for farmers
2008	Fortifying the foundations of agriculture

Source: The Minister of the Ministry of Agriculture and Rural Affairs (MARA) and CCM

1.2 Key points of MARA's work deployment for rural revitalisation in 2023

On 21 Feb., 2023, the *Implementing Opinions on Implementing the Key Work Deployment of the CPC Central Committee and the State Council for Comprehensively Promoting Rural Revitalisation in 2023* (the *Implementing Opinions*) was issued by the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA), consisting of 8 parts and 38 articles. The document centred on solving the problems of "Agriculture, Farmer and Rural Areas", proposing to uphold the bottom line of food security and preventing large-scale relapse into poverty, as well as to facilitate the development, construction and governance of rural areas.

In the document, opinions concerning agricultural production, farmer's livelihood and rural investment include:

- Ensuring food security and agricultural production and supply capacity
- Intensifying technological and equipment supports for agriculture
- Spurring endogenous developing impetus of regions and people lifted out of poverty
- Proceeding with resource protection and environmental treatment to prompt green agriculture
- Increasing income-added channel for farmers and actively developing rural industries
- Improving rural infrastructure facilities and public service
- Deepening reforms in rural areas
- Strengthening guaranteeing measures for facilitating tasks of rural revitalisation

Due to the close connection between pesticide and food production, the release of the *Implementing Opinions* will favour the development of pesticide industry. Here are key takeaways pertaining to food and agricultural production policies:

- **Stabilise grain yield and improve soybean and oil crop production capacity**
  - The national grain yield should be maintained at above 650 million tonnes and grain area at above 118 million ha;
  - Arable area of wheat and southern double-harvest rice should be ensured, lands be exploited for ratooning rice plants, and arable areas in ecotone of agriculture and husbandry in the north and corn areas in the southwest be expanded;
  - Density-tolerance grain and oil crops, mainly soybean and corn, should be cultivated and promoted, and supporting precise fertiliser applying and intelligent irrigation technologies be developed, to raise per-unit production capacity.
- **Three deployment opinions**
  - Price stability of means of agricultural production;
  - Monitoring and alarm of meteorology and disaster;
  - Prevention and control of pests and diseases.
- **Develop modern facility agriculture**
  - Facility agriculture should be developed on top of energy conservation and low production cost;
  - Allowance should be granted for constructing facilities for concentrated sprout cultivation; governments should pilot renovation and upgrading of obsolete facilities intensively, step up developing intensive seedling cultivation centres for rice crops and vegetables and plant factories, and support cold, arid and gobi regions in the northwest to develop facility agriculture using non-arable land;
  - Construction of drying capacity in grain production areas should be propelled.

In order to achieve a bountiful harvest, the *Implementing Opinions* tipped the balance toward the constructions of farmland facilities and agricultural technologies, with relevant tasks and measures as follows:

- **To construct high-standard farmland:** the document has specified the implementing plan for constructing high-standard farmland and proposed to roll out relevant guiding documents in the future, mainly focusing on soil conditioning and field irrigation and drainage facilities, with an annual goal of building 3 million ha of new high-standard farmlands and transforming 2.33 million ha of current farmlands.
- **To protect arable land and manage planting purposes:** governments are urged to implement protection of 124.33 million ha of arable land and 103.07 million ha of permanent basic farmland, by breaking down the task and delegating to locals at full quantity with data entered into digital maps and databases, and to prompt an action plan for protective cultivation of black soil in Northeast China above 6 million ha; a technological system should be applied in protecting arable land and managing planting purposes, in addition to the law and policy systems, and big data technologies such as agricultural remote sensing should be used to plot a map covering the whole nation.
- **To deepen revitalisation of seed industry:** the cultivation of new varieties like high-yield and high-oil soybean, short-fertility-period oilseed rape, ratooning rice and salt-tolerant crops should be intensified, industrialisation of biological seed breeding be paced up, and application pilots for industrialisation of genetically modified (GM) corn and soybean further expanded.
- **To promote invention of advanced agricultural machinery:** governments should backstop enterprises to combine the invention and transformation of agricultural machinery, so as to satisfy demand for the machinery in soybean-corn mixed strip cropping and oilseed rape transplanting, and bolster the integrating application of Beidou intelligent monitoring end use and auxiliary driving systems.
- **To develop intelligent agriculture and digital villages:** local governments should continue to expand the application context and technological innovation of intelligent agriculture, identify a batch of information demonstration bases, keep on exploring pilots for building digital villages, etc.

2 Policies on Industry Management and Registration Administration of Pesticides

2.1 Notice calling for Supervision and Administration of Pesticides in China

On 22 Sept., 2023, the General Office of MARA issued a notice calling for effectively strengthening the supervision and administration of pesticides nationwide, in order to maintain normal production and orderly operation of pesticide businesses, guard against pesticide safety risks and satisfy pesticide demand in agricultural production. The document requires:

- Improving performance of duties in pesticide-related administrative examination and approval processes

- **Concerning preliminary review of pesticide registration**, focuses should be put on the authenticity, completeness, compliance and effectiveness of registration application materials, so as to avoid problems such as unsealed-up test samples, incomplete application materials, unqualified materials and inauthentic test data.
- **Concerning pesticide production permitting**, related industrial policies, and requirements on safety and environmental protection should be followed, and latest National Guiding Catalogue for Industrial Restructuring and the 14th Five-Year Plan for the Development of Pesticide Industry be consulted. Total number of pesticide manufacturers should be restricted, cross-region removal of pesticide plants be regulated, pesticide companies be led to grow stronger, and thus high-quality development of the pesticide industry could be promoted. Strict examination and approval should be implemented in the process, especially for the approval of products already with overcapacity; backward capacity should be eliminated step by step. Those zombie enterprises should be dealt with carefully and enterprises that manufacture and sell counterfeits be investigated and dealt with in accordance with the law. Moreover, pesticide industry distribution should be optimised, and new pesticide enterprises and new capacity be led to settle in chemical industrial parks.
- **Concerning pesticide business permitting**, with the past five-year market regulation results taken into consideration, business units that are not in conformity with licensing conditions and that have counterfeit and/or shoddy pesticides selling records should be forced out of the market.

- Strengthening pesticide market regulation

Agriculture and rural affairs departments at all levels should intensify supervision and inspection on pesticide manufacturers and pesticide business units (both physical and online), as issues like illegal production of pesticides and illegal business operation have been found in some places recently. Focuses should be put on checking whether the manufacturers and business operators (both physical and e-commerce) have complete licences, whether the pesticide products are qualified, whether the pesticide packaging and labels meet the related requirements, whether the purchase and sale accounts are full and accurate, whether prohibited, restricted and unregistered pesticides are sold illegally, etc.

- Intensifying supervision and inspection on pesticide registration trial units

MARA will carry out unannounced inspections on pesticide registration trial units in due course. If there are serious problems with trial units, or there exists inaction or local protection practices in territorial regulatory agencies, such cases will be dealt with in accordance with the law and the related parties be publicly named.

- Reinforcing efforts to guide the development of pesticide industry and provide related services

Planning and guidance on the development of pesticide industry should be reinforced. As the mid-stage review of the 14th Five-Year Plan for the Development of Pesticide Industry has been made, provincial governments should, based upon overall goals and key tasks set forth in the five-year plan, refine details in their implementation plans, properly arrange industrial layout, lead companies to grow bigger and stronger, and promote the implementation of this five-year plan in their jurisdictions. Production & sales message dispatching should be improved—staff should be specially-assigned by local governments to be responsible for dispatching such messages on a regular basis. Besides, pesticide production and supply should be guided based on crop pest & disease control needs, so as to avoid blind production, tight or interrupted supply, big price fluctuation, etc. Meanwhile, trainings for and guidance on pesticide manufacturers and business operators, as well as grass-root pesticide regulators should be beefed up. Local governments should keep abreast of difficulties encountered by such companies, and provide quality services of policy interpretation, information consultation and technical guidance.

- Beefing up prevention against pesticide safety risks

● **Concerning pesticide production:** Governments should make good use of production permitting approval and onsite inspection, check the implementation situation of production safety measures, and urge the enterprises to take their entity responsibility for safe production.
● **Concerning pesticide business operation:** Governments should strictly implement designated distribution operation and real-name purchase for pesticides with restricted application. Besides, pesticide purchase and sale records and traceability management should be enforced thoroughly. Business operators are urged to verify the legality of the sources of the pesticides they purchased.
● **Concerning pesticide application:** Governments should increase trainings on pesticide use in a scientific and safe manner. Pesticide safety interval should be observed, and out-of-scope pesticide use, overdose and above-the-limit application frequency be prevented. Pesticide safety risk monitoring should be strengthened to guard against accidents like human and animal poisoning, harms to crops caused by pesticides, and pesticide pollutions. Illegal use of highly-toxic pesticides on crops including vegetables, fruits and tea, as well as the use of export-only pesticides (paraquat, for instance) in domestic market should be cracked down on, so as to ensure safe agricultural production and the quality of agricultural products.

2.2 Measures and announcements for pesticide administration

On 29 Dec., 2022, MARA convened a video meeting on the work of national pesticide administration, pointing out the achievements made in ensuring grain production security, agro-product quality and safety and ecological environment safety in 2022. Meanwhile, attendees (heads of agriculture and rural affair departments at all levels) discussed the work deployment of ensuring the supply and regulation of pesticide production in 2023, which encompassed two parts: the first was to intensify guiding services in pesticide industry, to ensure stable agricultural production and market price, and the second was to optimise the service of pesticide administrative examination and approval and the rules of registration review.

In recent years, relevant authorities of agriculture and environmental protection have formulated various standards and regulations, released circulars or announcements and proposed new policies and requirements on pesticide registration, which pose significant influence on the development and competition of pesticide industry in China. In H1 2023, the General Office of MARA had released revised drafts for soliciting opinions on pesticide administration in a row, as in the following table.

Table 2.2-1 List of revised drafts of pesticide administration policies in H1 2023

No.	Date of publish	Name of revised draft	Intention/major change	Extract from the draft
1	20 June, 2023	*Measures for the Administration of Pesticide Business Licensing*	The draft of revision was intended to enhance the administration in the section of pesticide operation and regulate pesticide business behaviours; the draft consisted of 7 chapters and 43 entries compared with 6 chapters and 31 entries in previous edition, and most of the revised articles thereof were about entry qualification and requirements for pesticide operators.	**Article IV** Business licenses for the operation of pesticide import & export and restricted pesticides shall be reviewed and granted by departments of agriculture and rural affairs of provincial governments.
				Article VIII The responsible person (legal representative) or professional technical personnel of pesticide operators shall meet the corresponding qualifications.
				Article XXIX If third-party platform operators fail to fulfil the obligation of reviewing the qualification of pesticide operators on their platforms, and thereby resulting in damage to consumer rights and interests, they shall bear the responsibilities in accordance with law.
				Article XXXIII (Situation Four) Unless pesticide production enterprises entrust pesticide export trade companies to directly export the products, other situations of selling export-only pesticides in China shall be handled as operating fake pesticides.

No.	Date of publish	Name of revised draft	Intention/major change	Extract from the draft
2	16 June, 2023	*Measures for the Administration of Pesticide Registration Test*	The revised draft aimed to intensify administration of pesticide registration test to ensure the authenticity and reliability of test data, and required to refine the process meanwhile simplify the steps of registration test; it had changed the content into 5 chapters and 37 entries from 6 chapters and 31 entries, the biggest amendment since 2017.	**Article XIII** The application materials for the certification of pesticide registration test units shall not be retained for less than ten years.
				Article XVII The applicants of pesticide registration shall be responsible for the authenticity and consistency of testing samples.
3	14 June, 2023	*Measures for the Administration of Pesticide Labels and Instructions*	To ensure safety and effectiveness of pesticide use, the draft amendment broadened the scope for the use of pesticide labels and instructions, i.e. pesticide products stored, transported, sold or used in China shall have labels printed or affixed on the surface of the packaging, which was originally stipulated on pesticide products operated or used in the country; in Article 9, the amendment added 2 regulations on top of the original 7 items.	**Article V** Pesticide labels and instructions shall be reviewed and approved upon registration approval by MARA.
				Article IX Technical material/concentrate products shall be annotated with "This product is raw material for pesticide formulation processing and shall not be used on crops or any other sites".
				Article IX (Part 4) Herbicides for GM crops shall be labelled with the application crops and transformants; those for gene editing crops with herbicide resistance shall be marked with the variety name of the crops; Article IX (Part 5) Herbicides that require specific additives for use shall be labelled with relevant information.
				Article XXIV Pesticides stored, transported or sold shall be labelled with traceable electronic information codes on their packaging.
				Article XXXI A single producer shall only use one brand logo or trademark.
4	18 May, 2023	*Measures for the Administration of Pesticide Production Licensing*	The draft amendment aimed to regulate production behaviour, underpin production administration and ensure product quality of pesticides.	**Article XXIII** The agreement between entrusted processing parties shall be filled on the national unified pesticide information management platform by the entrusting party, and the information shall be publicly available and searchable.
				Article XXV The entrusting party may not directly sell the products commissioned for production to third parties.
				Article XXVI Pesticide registrations shall not be rent or lent in the name of entrusting production or subpackaging.
5	11 May, 2023	*Measures for the Administration of Pesticide Registration*	The draft of revision regulated every process of pesticide administration in detail, which was conducive to improving the quality and safety as well as the level of pesticide use and management.	**Article VII** Pesticide technical production enterprises who apply for pesticide technical registrations shall provide technical production license (ingenious pesticide excluded); Pesticide production enterprises who apply for formulation registrations shall have obtained registrations for corresponding technical material/concentrate.
				Article XX When producers apply for the registration of the same pesticide technical, same formulation or similar formulation, the reference product shall have been registered when the registration test is filed.

No.	Date of publish	Name of revised draft	Intention/major change	Extract from the draft
				Article XXXVII If the pesticide registrants change their name, they shall submit relevant proof materials and apply to MARA for changing pesticide registrations.
				Article XXXXI (Part 2) Producers without a pesticide production license shall not be allowed to renew registration; **Article XXXXI (Part 3)** If the scope of production license cannot match the pesticide registration, the registration renewal shall be suspended; if the corresponding production license scope cannot be obtained within five years, registration shall not be extended.

Source: CCM

-Announcements on pesticide identification and administration in recent years

● On 25 April, 2023, the General Office of MARA publicised the *Opinions on Incorporating Fertilisers Labelled with "DCPTA" into the Administration Scope of Pesticides*, identifying 2-(3,4-dichlorophenoxy) triethylamine (DCPTA) as a plant growth regulator and that it shall be managed in accordance with pesticides.

● On 13 Jan., 2023, the General Office of MARA identified 4-trifluoromethylnicotinamide, an insecticide compound patent product, as the metabolite of flonicamid, and that it shall be managed as pesticides in accordance with the *Regulations of Pesticide Management*. Notably, 4-trifluoromethylnicotinamide has yet been registered as pesticide in China. Hence, any addition of 4-trifluoromethylnicotinamide for production and sale shall be considered a violation of the *Regulations of Pesticide Management* and be regulated by law.

● On 11 Oct., 2022, in order to avoid causing crop damage or affecting the quality of agricultural products, MARA generally disagreed with pesticide registrations of plant growth regulators mixed with insecticides, fungicides or herbicides.

● On 5 Sept., 2022, the General Office of MARA pointed out that cleaning products like laundry detergents, hand sanitisers and pipeline dredging agents and disinfection products labelled with "sterilisation" and "mite killing" effects were not within the scope of pesticides and should not be subject to pesticide management.

● On 23 Sept., 2021, the General Office of MARA determined that if the label and instruction of the product had marked anti-mosquito and mosquito repellent functions, the product, whether containing chemical ingredients or plant-derived components, was subject to the scope of pesticides and should be managed as pesticides, and the pesticide registration number and pesticide production approval certificate number must be indicated on the label.

3 Policies on Banned and Restricted Pesticides

3.1 List of Pesticides Banned and Restricted (as of Nov. 2023)

It points out in No. 1 Central Document of 2023 that China shall promote the ecological and green development of agricultural industry. The use of fertiliser and pesticide should be reduced with the efficacy thereof increased. According to the *Law on Quality and Safety of Agricultural Products*, the use of pesticide shall be subject to the using scope and safety interval specified on the labels, and may not be applied beyond the provided scope; hyper-toxic and high-toxicity pesticides may not be used in the control of public health insects, the production of vegetables, fruits, tea leaves, fungi and Chinese herbs, and the pest and disease control of aquatic plants.

As present, China has banned the use of 52 pesticides mainly for the reasons like carcinogenic, teratogenic characteristics, high toxicity, long residual effect & high residue, unacceptable environmental risk and groundwater pollution. Besides, there are 16 pesticides (rodenticides excluded) with restricted usage. Attention should be paid to these banned pesticides:

- 2, 4-Dutylate (banned from 29 Jan., 2023)
- Phorate, isofenphos methyl, isocarbophos and ethoprophos (no registration for formulations, restricted the usage in fruits, vegetables and other crops from 16 March, 2022, will be banned from 1 Sept., 2024)
- Methyl bromide (restricted for quarantine fumigation treatment)

What's more, on 7 Sept., 2023, MARA planned to cancel the full registrations for formulations of omethoate, carbofuran, methomyl and aldicarb since 1 Dec., 2023. These four active ingredients will be banned from sale and use in China since 1 Dec., 2025, yet retaining the export-only registration for technicals.

Attached are lists of pesticides banned and restricted (as of Nov. 2023).

Table 3.1-1 List of 52 banned pesticides in China, as of Nov., 2023

No.	Name of banned pesticide
1	Hexachlorocyclohexane (HCH)
2	Dichlorodiphenyltrichloroethane (DDT)
3	Toxaphene
4	Dibromochloropropane
5	Chlordimeform
6	1,2-Dibromoethane (EDB)
7	Nitrofen
8	Aldrin
9	Dieldrin
10	Mercury Compounds
11	Arsena
12	Acetate
13	Bis-A-Tda
14	Fluoroacetamide

15	Gliftor
16	Tetramine
17	Sodium Fluoroacetate
18	Silatrane
19	Methamidophos
20	Parathion
21	Parathion-methyl
22	Monocrotophos
23	Phosphamidon
24	Fenamiphos
25	Fonofos
26	Phosfolan-Methyl
27	Calcium Phosphide
28	Magnesium Phosphide
29	Zinc Phosphide
30	Cadusafos
31	Coumaphos
32	Sulfotep
33	Terbufos
34	Chlorsulfuron
35	Ethametsulfuron-methyl
36	Metsulfuron-methyl
37	Asomate
38	Urbacide
39	Dicofol
40	Lindane
41	Endosulfan
42	Sulfluramid
43	Methidathion

44	Paraquat
45	Mirex
46	Chlordane
47	2,4-D butylate
48	Phorate
49	Isofenphos methyl
50	Isocarbophos
51	Ethoprophos
52	Methyl Bromide*

Note: Methyl bromide was restricted for quarantine fumigation treatment only.
Source: MARA

Table 3.1-2 List of 16 restricted pesticides in China, as of Nov., 2023

No.	Name of restricted pesticide
1	Omethoate
2	Methomyl
3	Aldicarb
4	Carbofuran
5	Demeton
6	Phosfolan
7	Isazofos
8	Acephate
9	Carbosulfan
10	Dimethoate
11	Chlorpyrifos
12	Triazophos
13	Daminozide
14	Fenvalerate
15	Fipronil
16	Flubendiamide

Source: MARA

3.2 Guiding Catalogue for Pesticide Industrial Structure Adjustment (draft of revision)

The Guiding Catalogue for Industrial Structure Adjustment is an important basis for guiding the direction of China's social investment, investment projects managed by the government, and formulating and implementing policies on finance and taxation, credit, land, import and export. The current version of the Guiding Catalogue for Industrial Structure Adjustment was issued in 2019. On 14 July, 2023, China's National Development and Reform Commission released the draft of Guiding Catalogue for Industrial Structure Adjustment (2023 edition) for public comments, consisting of 1,002 entries, of which 348 are for encouragement, 231 for restriction and 423 for elimination. As for the revision, there is a reduction of 476 entries compared to the 2019 edition. Some detailed information on pesticides is as follows:

Category I (Encouragement)

- **Green-agriculture:**
  - ○ demonstration farmland for the application of bio-degradable mulch film, high-intensity and easy-recycled mulch film;
  - ○ product development: high-quality, safe and environmentally friendly agricultural ingredients (like feed, feed additives, fertilisers, pesticides, and veterinary drugs) and food additives used in the production of green food;
  - ○ technology development: environmental monitoring of agricultural products and their production areas; harmless and value-based treatment of organic waste and industrialisation of organic fertiliser.
- **Pesticide:** development and production of high-efficiency, safe and environment-friendly new pesticide varieties, formulations, specialised intermediates and auxiliary agents; production of chiral and stereoscopic pesticides by directed synthesis; development and production of new bio-pesticide products and technology.
- **Circular utilisation of wastes:** circular use of crop straw, livestock excrement, pesticide packages, etc.; technical equipment of biomass energy for power generation, heat addition, gas manufacturing and biogas production.

Category II (Restriction): production installations for 30 kinds of pesticide TCs with high toxicity, high residues or large impacts to the environment/quality safety of agro-products and production plants for 28 products have been categorised as restricted.

Category III (Elimination)

- **Backward process and equipment:**
  - ○ packaging or filling process and devices for small-package (not exceeding 1 kg) pesticides, pesticide DP production using Raymond Mill, and PCP (-Na) production installation using hexachlorobenzene as raw material;
  - ○ Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs, those used as raw material for downstream chemicals excluded) for refrigeration, foaming, cleaning and other controlled use, 1,1,1-trichloroethane (or methyl chloroform) for cleaning use; products that mainly produce carbon tetrachloride (CTC) or using CTC as a processing adjuvant, production process for fluoropolymer using perfluorooctanoic acid (PFOA) as auxiliary agent, coating containing DDT; unenclosed production installation for producing dicofol using DDT as raw material (to be phased out according to the Master Plan for International Conventions).
- **Backward products:** including 43 high-toxicity pesticides and 30 kinds of products to be phased out according to the *Master Plan for International Conventions*, with their special uses classified as restricted.

Table 3.2-1 List of pesticides in the restriction category, 2023

No.	Product name
1	Omethoate
2	Terbufos
3	Methidathion
4	Methyl Bromide
5	Methomyl

No.	Product name
6	Aldicarb
7	Carbofuran
8	Diphacinone-sodium
9	Diphacinone
10	Warfarin
11	Coumatetralyl
12	Bromadiolone
13	Brodifacoum
14	Botulinum toxin
15	Bisultap
16	Aluminum phosphide
17	Organochlorine insecticides
18	Organotin insecticides
19	Dithiocarbamate fungicides
20	Sodium nitrophenolate, potassium nitrophenolate
21	Metsulfuron-Methyl
22	Demeton
23	Dimethoate
24	Fipronil
25	Carbosulfan
26	Flubendiamide
27	Fenvalerate
28	Acephate
29	Carbendazim
30	Daminozide
31	Glyphosate
32	Chlorpyrifos
33	Triazophos

No.	Product name
34	Paraquat
35	Chlorothalonil
36	Abamectin
37	Imidacloprid
38	Acetochlor
39	Chloropicrin
40	Alachlor
41	2,4-D
42	Acetamiprid
43	Thiamethoxam
44	Atrazine
45	Butachlor
46	2-Methyl-4-chlorophenoxyacetic acid (MCPA)
47	Ametryn
48	Dicamba
49	Diquat
50	Glufosinate-Ammonium
51	Clethodim
52	Mancozeb
53	Trichlorfon
54	Triadimenol
55	Propiconazole
56	Iprodione
57	Paclobutrazol
58	Lime sulfur

Note: No. 1–No. 30 are pesticide TCs with high toxicity and high residues.
Source: National Development and Reform Commission of the People's Republic of China

Table 3.2-2 List of backward products in the elimination category, 2023

No.	Product name
1	Hexachlorocyclohexane (HCH)
2	1,2-Dibromoethane (EDB)
3	Daminozide
4	Bis-A-Tda
5	Nitrofen
6	Chlordimeform
7	Tetramine
8	Fluoroacetamide
9	Sodium fluoroacetate
10	Dibromochloropane
11	Sulfotep
12	Phosphamidon
13	Gliftor
14	Silatrane
15	Methamidophos
16	Parathion
17	Parathion-Methyl
18	Monocrotophos
19	Phosfolan
20	Asomate
21	Urbacide and arsenic compounds
22	Mercury compounds
23	Plumbum compounds
24	Glyphosate AS (Content: below 30%)
25	Phosfolan-Methyl
26	Calcium phosphide
27	Zinc phosphide

No.	Product name
28	Fenamiphos
29	Fonofos
30	Magnesium phosphide
31	Cadusafos
32	Coumaphos
33	Sulfotep
34	Terbufos
35	Phorate
36	2,4-D butylate
37	Isofenphos-Methyl
38	Isocarbophos
39	Ethoprophos
40	Nonylphenol
41	Dicofol
42	Chlorsulfuron
43	Ethametsulfuron
44	Chlordane
45	Heptachlor
46	Methyl bromide
47	Dichlorodiphenyltrichloroethane (DDT)
48	Hexachlorobenzene
49	Mirex
50	Lindane
51	Camphechlor
52	Aldrin
53	Dieldrin
54	Endrin
55	Endosulfan

No.	Product name
56	Sulfluramid
57	Chlordecone
58	α-Hexachlorocyclohexane
59	β-Hexachlorocyclohexane
60	Hexachlorobutadiene
61	Polychlorinated biphenyls (PCBs)
62	Pentachlorobenzene
63	Hexabromobiphenyl
64	Tetrabromodiphenyl ether, pentabromodiphenyl ether
65	Hexabromodiphenyl ether, heptabromodiphenyl ether
66	Hexabromocyclododecane
67	Perfluorooctane sulfonate and its salts, perfluorooctanesulfonyl fluoride
68	Perfluorohexane-1-sulphonic acid (PFHxS) and its salts and relevant compounds
69	Perfluorooctanoic acid (PFOA) and its salts and relevant compounds
70	Decabromodiphenyl oxide
71	Chloroalkanes C10-13
72	Pentachlorophenol and its salts and esters
73	Polychlorinated naphthalenes

Note: 1. No. 1–No. 43 are high-toxicity pesticides and related products, in which No. 40 is used as a pesticide adjuvant. 2. No. 44–No. 73 are eliminating products required by the Master Plan for International Convention.
Source: National Development and Reform Commission of the People's Republic of China

4 National Standard for Pesticides

4.1 Determination Methods and Production Criteria for Pesticides

On 7 Sept., 2023, the State Administration for Market Regulation and Standardisation Administration of China issued the *No. 9 National Standard Announcement of the People's Republic of China for 2023*. The document consisted of 583 recommended national standards, including 5 for pesticide determination methods and 8 for pesticide products.

Table 4.1-1 List of China's determination methods for pesticides announced in 2023

No.	Standard Code	Name of Norm	Date of Implementation	Former/Existing Standard Code
1	GB/T 14825-2023	Determination method of suspensibility for pesticides	1 April, 2024	GB/T 14825-2006
2	GB/T 1601-2023	Determination method of pH value for pesticides	1 April, 2024	GB/T 1601-1993
3	GB/T 43167-2023	Standard waters for pesticides testing	1 April, 2024	N/A
4	GB/T 43174-2023	Testing method of adhesion to treated seeds with pesticides	1 April, 2024	N/A
5	GB/T 43179-2023	Determination of material insoluble in N,N-dimethylformamide for pesticides	1 April, 2024	N/A

Source: State Administration for Market Regulation, Standardisation Administration of China

Table 4.1-2 List of China's recommended national standards for pesticides announced in 2023

No.	Standard Code	Name of Norm/Pesticide	Formulation Type	Date of Implementation	Former/ Existing Standard Code
1	GB/T 22614-2023	Clethodim	TC	1 April, 2024	GB/T 22614-2008 & GB/T 22615-2008
			TK		
			EC		
2	GB/T 22621-2023	Propamocarb	TC	1 April, 2024	GB/T 22621-2008 & GB/T 22622-2008
			SL		
		Propamocarb Hydrochloride	TC		
3	GB/T 43172-2023	Glufosinate-P	TC	1 April, 2024	N/A
			TK		
		Glufosinate-P-Ammonium	TC		
			SL		
		Glufosinate-P-Sodium	SL		
4	GB/T 43175-2023	Prothioconazole	TC	1 April, 2024	N/A
5	GB/T 43177-2023	Chlorantraniliprole	TC	1 April, 2024	N/A

No.	Standard Code	Name of Norm/Pesticide	Formulation Type	Date of Implementation	Former/ Existing Standard Code
6	GB/T 43176-2023	Chlorantraniliprole	SC	1 April, 2024	N/A
7	GB/T 43178-2023	Metaflumizone	TC	1 April, 2024	N/A
8	GB/T 43180-2023	Metaflumizone	SC	1 April, 2024	N/A

Source: State Administration for Market Regulation, Standardisation Administration of China

5 Environmental Protection Policies

5.1 List of Key Controlled Emerging Contaminants (2023 Edition)

Taking effect on 1 March, 2023, the *List of Key Controlled Emerging Contaminants* (2023 Edition) was jointly published by the China's Ministry of Ecology and Environment and other five departments on 30 Dec., 2022, with 14 types of emerging contaminants (ECs) including 13 pesticides and relevant products on the list. The document was formulated according to the *Action Plans of the Control of Emerging Contaminants* (the *Action Plans*) released by the General Office of the State Council on 25 May, 2022, the latter of which targeted to fulfil the reassessment of a batch of high-toxicity and high-risk pesticide varieties by 2025. Meanwhile, the *Action Plans* also encouraged to develop high-efficiency and low-risk pesticides and steadily prompt the elimination and replacement of high-toxicity and high-risk pesticides. As of 17 May, 2023, 31 provinces, autonomous regions, municipalities and Xinjiang Production and Construction Corps had issued the *Action Plans*.

ECs refer to newly found or concerned contaminants that are hazardous to ecological environment or human body, yet not incorporated into management or the existing management measures of which are insufficient to effectively control the hazards, including persistent organic pollutants (POPs), endocrine disrupters, antibiotics, microplastics, etc. On the list of key controlled ECs, 11 eliminated pesticides and relevant products (like dicofol, benzenemethanol, chlordane, mirex, hexachlorobenzene) were classified as POPs, with adopted measures as follows:

- Banned from production, processing, use, import and export;
- If the eliminated ECs that have been prohibited from use, declared disuse by the owner, taken over by relevant authorities by law and in need to be destroyed are classified as hazardous wastes in accordance with the national hazardous waste catalogue or hazardous waste identification standards, environmental management shall be implemented according to hazardous wastes;
- Those that have been included in the soil pollution risk control standards shall be strictly implemented the soil pollution risk control standards, with relevant soil environmental risks identified and controlled.

In addition, nonylphenol and phenol,4-nonyl-,branched were prohibited from use as adjuvants for pesticide production according to the existing management regulations in China. Given the products were mainly used to produce the surfactant polyethylene glycol trimethylnonyl ether and only a few used as pesticide adjuvants in China, the prohibition will have little influence on pesticide production.

Table 5.1-1 Pesticides and relevant products on the list of key controlled emerging contaminants (2023 edition)

No.	Name of Emerging Contaminant
1	Dicofol
2	Benzenemethanol
3	Nonylphenol
4	Phenol,4-nonyl-,branched
5	Chlordane
6	Mirex
7	Hexachlorobenzene
8	DDT
9	Lindane
10	Endosulfan technical
11	α-Endosulfan
12	β-Endosulfan
13	Endosulfan sulfate

Note: α-Endosulfan, β-Endosulfan and endosulfan sulfate were referred to as the isomers of endosulfan technical.
Source: The Ministry of Ecology and Environment of People's Republic of China

6 Others

6.1 China's Industrialisation of Agricultural Genetically Modified Organism for Corn, Rice and Soybean

In recent years, Chinese government has issued multiple rules and regulations to facilitate the industrialisation and commercialisation of agricultural genetically modified organisms (GMOs), especially for GM corn, GM soybean and GM rice. In order to ensure food security, Chinese GM herbicide-tolerant crops (mainly corn and soybean) are worth of wide cultivation and promotion, which will not only drive the development of China's seed industry, but also boost the demand for herbicides for GM herbicide-tolerant crops. According to the *Requirements of Registration Materials for Target Herbicides for Genetically Modified Herbicide-tolerant Crops* issued by MARA on 14 June, 2022, only single formulations of glyphosate, glufosinate-ammonium and etc. were permitted for test record of herbicides for Chinese GM herbicide-tolerant crops.

So far, 24 safety certificates for the production and application of GM corn, GM soybean and GM rice were granted since 2019. Moreover, as per China's administrative system, new GM crop varieties shall pass the variety review in order to enter the market as well. On 17 Oct., 2023, MARA published the first-ever list for GM varieties, which has passed preliminary review and is open for public comment for 30 days, or until 15 Nov., 2023. Thereinto,

- 37 varieties are for GM corn, of which 23 boast herbicide-tolerant trait, including 20 tolerant to glyphosate only and 3 tolerant to both glyphosate and glufosinate-ammonium;
- 14 varieties are for GM soybean, all herbicide-tolerant, including 9 glyphosate-tolerant only and 5 enjoy tolerance to both glyphosate and glufosinate-ammonium;
- None of the approved varieties are for rice.

On the same day, MARA publicised the draft of *Decision of Administrative Measures for the Labelling of Agricultural Genetically Modified Organisms*, which made further clarification on labelling administration of GM products with multiple revisions such as:

- adding the prescription "the labelling of genetically modified seed shall abide by the *Seed Law* among other laws, administrative rules and department regulations" in the first item of Article six;
- amending the annotation as "Catalogue of Agricultural Genetically Modified Organisms for Labelling Administration", which listed 6 types of and 18 agricultural products (rice excluded) and stipulated that "if the above-mentioned products contain exceeding 3% of genetically modified component in one single crop, they shall be labelled with GM food identification".

Since 2021, MARA has rolled out industrialisation pilots for herbicide-tolerant GM soybean and pest-resistant and herbicide-tolerant GM corn with safety certificates for production and application, so as to combat with *Spodoptera frugiperda* and weeds faced in agricultural production. The development progress of the pilot work is as below:

- In 2021, China launched the pilot work of industrialisation of GM corn and soybean in scientific research test fields;
- In 2022, the work was extended to farm fields in Inner Mongolia Autonomous Region and Yunnan Province;
- On 21 Feb., 2023, China's National Agro-Tech Extension and Service Centre released the *Notice of Applying for National Unified Experiment for Genetically Modified Corn and Soybean Strains*, which announced to set up unified experiment for GM corn and soybean breeds in 2023; 5 ecological zones were set up for corn and soybean each, mainly concentrated in Northeast and North China, Huang-Huai-Hai Region, corn and soybean growing areas in Southwest China, of which the experimental fields for corn covered a land around 266,667 ha;
- In 2023, the pilot scope continued to be extended to 20 counties in five provinces and regions, namely Hebei, Inner Mongolia, Jilin, Sichuan and Yunnan, and seed production was arranged in Gansu.

From the pilots, the GM corn and soybean have outstanding pest-resistant and herbicide-tolerant traits, and can achieve more than 90% prevention and control of lepidopteran pests and more than 95% weed control; GM corn and soybean can increase yield by 5.6%–11.6%.

-Safety Certificates for the Production and Application of Genetically Modified Corn, Rice and Soybean

As of 28 April, 2023, the number of China's approved and valid safety certificates for the production of agricultural genetically modified (GM) main crops (corns and soybeans and rices) hit 24, applied to various regions in China, including 16 for corn, 6 for soybean and 2 for rice. Notably, "ND207" for GM corn variety and "Zhonghuang 6106" for GM soybean one were issued with two safety certificates for the application in North China or Huang-Huai-Hai Region, respectively, and "Ruifeng 125" for GM corn was issued with three for the application in North China, Huang-Huai-Hai Region and Northwest China.

Attached are the lists of safety certificates for the production and application of GM corn, rice and soybean granted in 2019–Nov. 2023.

Table 6.1-1 Approved safety certificates for the production and application of GM Corn and GM Soybean, as of Nov. 2023

No.	Applicant	Project	Validity	Region
1	Beijing Dabeinong Biotechnology Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant soybean DBN8002 transformed with mvip3Aa and pat genes	From 21 April 2023 to 20 April 2028	Huang-Huai-Hai Region

Source: Department of Science, Technology and Education of MARA

Table 6.1-2 Approved safety certificates for the production and application of GM Corn and GM Soybean in 2022

No.	Apllicant	Project	Validity	Region
1	Hangzhou Ruifeng Bioscience Co., Ltd.	Safety certificate for production and application of herbicide-resistant corn nCX-1 transformed with CdP450 and cp4epsps genes	From 22 April 2022 to 21 April 2027	South China
2	China National Seed Group Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant corn Bt11 GA21 polymerized with cry1Ab, pat and mepsps genes	From 22 April 2022 to 21 April 2027	North China
3	China National Seed Group Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant corn Bt11×MIR162×GA21 polymerized with cry1Ab, pat, vip3Aa20 and mepsps	From 22 April 2022 to 21 April 2027	South and southwest China
4	China National Seed Group Co., Ltd.	Safety certificate for production and application of herbicide-resistant corn GA21 transformed with mepsps genes	From 22 April 2022 to 21 April 2027	North China
5	Yuan Longping High-Tech Agriculture Co., Ltd., Chinese Academy of Agricultural Science	Safety certificate for production and application of pest- and herbicide-resistant soybean BFL4-2 transformed with cry1Ab, cry1F and cp4epsps genes	From 5 Jan. 2023 to 4 Jan. 2028	North China
6	China National Tree Seed Group Co., Ltd., China Agricultural University	Safety certificate for production and application of herbicide-resistant corn CC-2 transformed with maroACC genes	From 5 Jan. 2023 to 4 Jan. 2028	North China
7	Hangzhou Ruifeng Bioscience Co., Ltd.	Safety certificate for production and application of pest-resistant corn CAL16 transformed with cry1Ab/vip3Da genes	From 5 Jan. 2023 to 4 Jan. 2028	South China

Source: Department of Science, Technology and Education of MARA

Table 6.1-3 Approved safety certificates for the production and application of GM Corn, GM Rice and GM Soybean in 2021

No.	Applicant	Project	Validity	Region
1	Hangzhou Ruifeng Bioscience Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant corn "Ruifeng 125" transformed with cry1Ab/cry2Aj and g10evo-epsps genes	From 10 Feb. 2021 to 9 Feb. 2026	Huang-Huai-Hai Region
2	Hangzhou Ruifeng Bioscience Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant corn "Ruifeng 125" transformed with cry1Ab/cry2Aj and g10evo-epsps genes	From 10 Feb. 2021 to 9 Feb. 2026	Northwest China
3	Chinese Academy of Agricultural Science	Safety certificate for production and application of herbicide-resistant soybean "Zhonghuang 6106" transformed with g2-epsps and pat genes	From 10 Feb. 2021 to 9 Feb. 2026	North China
4	Huazhong Agricultural University	Safety certificate for production and application of pest-resistant rice "Bt Shanyou 63" transformed with cry1Ab/cry1Ac genes	From 10 Feb. 2021 to 9 Feb. 2026	Hubei Province
5	Huazhong Agricultural University	Safety certificate for production and application of pest-resistant rice "Huahui No.1" transformed with cry1Ab/cry1Ac genes	From 10 Feb. 2021 to 9 Feb. 2026	Hubei Province
6	China National Tree Seed Group Co., Ltd., China Agricultural University	Safety certificate for production and application of pest-resistant corn "ND207" transformed with mcry1Ab and mcry2Ab genes (with the GMO originally named 2A-7)	From 17 Dec. 2021 to 16 Dec. 2026	North China
7	China National Tree Seed Group Co., Ltd., China Agricultural University	Safety certificate for production and application of pest-resistant corn "ND207" transformed with mcry1Ab and mcry2Ab genes (with the GMO originally named 2A-7)	From 17 Dec. 2021 to 16 Dec. 2026	Huang-Huai-Hai Region
8	Hangzhou Ruifeng Bioscience Co., Ltd.	Safety certificate for production and application of pest-resistant corn "Zhedaruifeng 8" transformed with cry1Ab and cry2Ab genes (with the GMO originally named GAB-3)	From 17 Dec. 2021 to 16 Dec. 2026	South China
9	Beijing Dabeinong Biotechnology Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant corn "DBN3601T" transformed with cry1Ab, epsps, vip3Aa19 and pat genes (with the GMO originally named DBN9936×DBN9501)	From 17 Dec. 2021 to 16 Dec. 2026	Southwest China

Note: 1. Corn variety "ND207" was issued with two safety certificates, applying to North China and Huang-Huai-Hai Region, respectively. 2. Soybean variety "Zhonghuang 6106" was approved with a new safety certificate applied in North China in 2021, another safety certificate of which was approved to be applied in Huang-Huai-Hai Region in 2020. 3. Corn variety "Ruifeng 125" was issued with two new safety certificates applied in Huang-Huai-Hai Region and Northwest China in 2021, another safety certificate of which was approved to be applied in North China in 2019. 4. GMO referred to as Agricultural Genetically Modified Organism.
Source: Department of Science, Technology and Education of MARA

Table 6.1-4 Approved safety certificates for the production and application of GM Corn and GM Soybean in 2020

No.	Applicant	Project	Validity	Region
1	Beijing Dabeinong Biotechnology Co., Ltd.	Safety certificate for production and application of herbicide-resistant corn "DBN9858" transformed with epsps and pat genes	From 11 June. 2020 to 11 June 2025	North China
2	Chinese Academy of Agricultural Science	Safety certificate for production and application of herbicide-resistant soybean "Zhonghuang 6106" transformed with g2-epsps and pat genes	From 11 June. 2020 to 11 June 2025	Huang-Huai-Hai Region
3	Beijing Dabeinong Biotechnology Co., Ltd.	Safety certificate for production and application of herbicide-resistant corn "DBN9501" transformed with vip3Aa19 and pat genes	From 29 Dec. 2020 to 28 Dec. 2025	North China
4	Beijing Dabeinong Biotechnology Co., Ltd.	Safety certificate for production and application of herbicide-resistant soybean "DBN9004" transformed with epsps and pat genes	From 29 Dec. 2020 to 28 Dec. 2025	North China

Source: Department of Science, Technology and Education of MARA

Table 6.1-5 Approved safety certificates for the production and application of GM Corn and GM Soybean in 2019

No.	Applicant	Project	Validity	Region
1	Beijing Dabeinong Biotechnology Co., Ltd.	Safety certificate for production and application of pest- and herbicide-resistant corn "DBN9936" transformed with cry1Ab and epsps genes	From 2 Dec. 2019 to 2 Dec. 2024	North China
2	Hangzhou Ruifeng Bioscience Co., Ltd., Zhejiang University	Safety certificate for production and application of pest- and herbicide-resistant corn "Ruifeng 125" transformed with cry1Ab/cry2Aj and g10evo-epsps genes (with the GMO originally named Shuangkang 12-5)	From 2 Dec. 2019 to 2 Dec. 2024	North China
3	Shanghai Jiao Tong University	Safety certificate for production and application of pest- and herbicide-resistant soybean "SHZD3201" transformed with cry1Ab/cry2Aj and g10evo-epsps genes (with the GMO originally named SHZD32-01)	From 2 Dec. 2019 to 2 Dec. 2024	South China

Note: GMO referred to as Agricultural Genetically Modified Organism.
Source: Department of Science, Technology and Education of MARA

6.2 Hubei Provincial Pesticide Industry Development Plan for 2022–2025

Targeting to lower the number of China's pesticide enterprises to less than 1,600 by 2025 from 1,705 in 2020, and to cultivate 10 pesticide enterprises with annual output value above USD696.59 million (RMB5 billion), 50 above USD139.32 million (RMB1 billion) and 100 above USD69.66 million (RMB500 million) by 2025, MARA and other seven government departments issued the *14th Five-Year Plan for the National Pesticide Industrial Development* on 29 Jan., 2022.

In late 2022, leading chemical provinces in China, including Shandong, Jiangsu, etc, released their chemical industry plans for 2023, which will give more prominence to the development of industrial integration and refinement, as well as energy saving and emission reduction, new energy and materials, high-end fine chemicals and integrated refining and chemical projects. In 2023, Heilongjiang, Jilin and Hubei provinces are also further planning their chemical or pesticide industries. Thereinto, Heilongjiang Province will focus on diversifying petrochemical raw materials, coordinating the use of Daqing resources and Russian Far East resources, improving resource utilisation and achieving multi-level supply; Jilin Province will promote the transformation of petrochemical industry, accelerating the upgrading of provincial oil refining and chemical industry, and the extension of the fine chemical industry around the olefin industry chain to downstream new materials; as for Hubei Province, it sets as the goals that development of its pesticide industry should be more centralised, pesticide operation more standardised, pesticides better used and pesticide management done in a more scientific manner.

To be specific, the Hubei Provincial Department of Agriculture and Rural Affairs released the *Hubei Provincial Pesticide Industry Development Programme 2022–2025* on 9 Feb., 2023. The Programme proposes that by 2025, the number of pesticide-producing enterprises within the province should be expanded to around 60 with an industrial park entry rate of about 80%, pesticide utilisation rate reach more than 43%, and the rate of biopesticide universalisation surpass 20%. During 2022–2025, pesticide industry in Hubei Province should strive for four transformations:

- Orientation of pesticide production should be transformed from quantity to quality and efficiency. More emphases should be put on the transformation and upgrading of enterprises and competitiveness enhancement.
- The focus of pesticide business should switch from product marketing to technical services providing. Enterprises should pay more attention to standardising operation processes and making these processes more scientific.
- In pesticide application, priority should be given to efficiency and safety, instead of just effectiveness, with more emphases put on large-scale and green prevention and control.
- Pesticide management should be extended from administrative approval to full-process management, paying due attention to supervision and services in and after the process.

Regarding the promotion of pesticide R&D and innovation, the government encourages creation of new green pesticides, based upon green & high-efficiency pesticides derived from natural products, green & clean production processes, etc. It proposes that by 2025, at least five newly-created pesticides will be achieved in this period, and the R&D investment of the whole pesticide industry will account for more than 3% of the sales revenue.

Table 6.2-1 Key indicators for pesticide development in Hubei Province during 2022–2025

No.	Indicator		2021	2025	Note
1	Number of pesticide–producing enterprises		48	60	Guidance target
2	Output of pesticides (actual volume), '000 tonne		238	>280	Anticipated target
3	Pesticide business revenue from enterprise above designated size, RMB million		15,000	>23,000	Anticipated target
4	Number of pesticide service stores		15,600	<16,000	Anticipated target
5	Number of standardised pesticide service stores		100	500	Guidance target
6	Pesticide consumption (actual volume), '000 tonne	Total	90.5	<89	Anticipated target
		In crop production	41.6	<41	Guidance target
		In other fields	48.9	<48	Anticipated target

Source: Hubei Provincial Department of Agriculture and Rural Affairs

Table 6.2-2 Development direction for pesticide products proposed in Hubei's Programme during 2022–2025

No.	Development direction	Product
1	Priority given to	Biopesticides: Microbial pesticides such as Bacillus thuringiensis, Bacillus spp., Beauverias spp., Metarhizium spp., Trichoderma spp., nuclear polyhedrosis viruses (NPV), Periplaneta fuliginosa densovirus (PfDNV), etc., biopesticides such as sex attractants, plant resistance inducers, S-(+)-methoprene, ivermectin, etc., botanical pesticide such as matrine, azadirachtin, cnidiadin, TDS, etc.
		Chemical pesticides: Focuses are to be put on addressing the lack of pesticides targeting and alternatives to resistance developed by major pests and diseases, such as wheat head blight, rice stem borers, rice planthoppers, corn fall armyworms, diamondback moths, thrips, Bemisia tabaci, etc., and on accelerating the development of fourth-generation nicotinoid insecticides, diamide insecticides, high-efficiency and low-risk fungicides and herbicides (such as pyraclonil).
2	Moderate control	Insecticides: clothianidin, thiamethoxam, triazophos, imidacloprid, flubendiamide, fenvalerate, acetamiprid, bisultap, etc.
		Fungicides: carbendazim, chlorothalonil, thiram, ziram, triadimenol, propiconazole, mancozeb, lime sulfur, iprodione, tebuconazole, etc.
		Herbicides: glufosinate-ammonium, acetochlor, atrazine, butachlor, ametryn, dicamba, alachlor, cyhalofop-butyl, clethodim, etc.
		Plant growth regulators: paclobutrazol, sodium nitrophenolate, daminozide, etc.
		Rodenticide: diphacinone-sodium, diphacinone, warfarin, coumatetralyl, bromadiolone, etc.
3	Phase-out	Phorate, isofenphos-methyl, ethoprophos, isocarbophos, aldicarb, carbofuran, methomyl, omethoate; nonylphenol will be prohibited to be used as a pesticide adjuvant.

Source: Hubei Provincial Department of Agriculture and Rural Affairs

6.3 Draft Measures for Chemical Park Management in Jiangsu Province

On 28 Dec., 2021, the Ministry of Industry and Information Technology and other five ministries jointly issued the *Measures for the Construction Standards and Recognition and Management of Chemical Parks* (Trial), and carried out a re-examination of chemical parks. Prior to that, Jiangsu Province and other 16 provinces had published lists of recognised chemical parks, of which 10 have now completed their reassessment. At present, the work of identifying chemical parks has basically been completed. As of the end of Aug., 2023, a total of 29 provinces (including Xinjiang Production and Construction Corps) have announced 586 chemical parks (including those in the rectification period) that had passed the identification process. Through the

accreditation, more than 200 chemical parks that did not meet the requirements have had their chemical positioning cancelled and the fragmented layout of chemical parks has been curbed; the overall quality of chemical parks has been significantly improved.

On 28 Aug., 2023, Jiangsu Province's *Measures for Chemical Park Management in Jiangsu Province* (Exposure Draft, "the Measures" for short) was released at the official website of the Industry and Information Technology Department of Jiangsu Province, to solicit opinions and suggestions from parties of interest. The Measures is mainly aimed at regulating the management of chemical parks, optimising industrial layout, driving industrial transformation and upgrading, improving quality and efficiency, and pursuing safe, high-quality and green development.

The Measures has 12 chapters and 68 articles, with main contents as below:

- Chapter one with six articles gives legal ground, scope of application, management ownership and definitions of related terms.
- Chapter two with seven articles is themed on planning and layout, which outlines requirements on the construction of chemical parks and park planning.
- Chapter three with nine articles puts forward obligatory targets in aspects including infrastructure, management, safety, environmental protection. Chapter four with four articles concerning setting up such parks proposes five criteria for accrediting new chemical parks, and clarifies main content for feasibility study report on and application processes for setting up new chemical parks.
- Chapter five to eleven specify rules concerning management on park expansion, modification to park boundaries, accreditation, withdrawal, project acceptance, and routine supervision, as well as digitalisation-based management.
- Chapter twelve with three supplementary articles clearly defines how and when the Measures will be implemented.

As regards the management on acceptance of chemical projects into chemical parks:

- The Measures requires setting up a system to evaluate whether a project could enter a park. Parks should formulate industry development guidelines and catalogues of hazardous chemicals that are banned, restricted or controlled, which are adapted to regional characteristics and local realities, and are in accordance with industrial development planning of the parks.
- The Measures requires paying attentions to projects that are encouraged to develop and those are prohibited. In principle, chemical enterprises and chemical projects should be located in chemical parks. And such projects should strictly abide by related laws and regulations, as well as follow national industrial policies. Projects involve advanced technologies, high input-output benefits, low energy consumption, small pollutant discharge or low safety risks are encouraged to construct. New projects for hypertoxic chemicals listed in the *Catalogue of Hazardous Chemicals*, or chemicals in the *List of Priority Chemicals for Regulation* should not be allowed; but exceptions will be made to the projects that are needed for the development of strategic emerging industries encouraged at provincial level or at national level, and to the projects that would supplement or extend the industrial chains the parks mainly focus, or that are for the purpose of comprehensive utilisation of wastes from existing projects.
- Concerning new projects and projects for transformation or expansion, the Measures makes it clear that construction application and approval procedures should be gone through in accordance with laws and regulations. For projects involve controlled chemicals, formalities for special permits for construction and production should also be gone through. Besides, chemical enterprises under key monitoring efforts (these enterprises still located outside accredited chemical parks) can launch such chemical projects to optimise product portfolio or improve production techniques, as long as they do not require supply of new land and do not plan new capacity for hazardous chemicals. In principle, such projects could not cause increases in the volume of main pollutants to be discharged; once increases are inevitable, decisions should be made at governments at city level on the basis of each and every case, and balance at county level should be maintained through regional adjustments. Moreover, chemical enterprises under key monitoring efforts located in provincial-level development zones can launch chemical projects of such natures.

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