

Forecasts on Pests and Diseases of Corn, Rice and Wheat in China

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1 Introduction

Based on comprehensive analysis of previous occurrence of pests and diseases, crop distribution, planting methods, climatic trend and other factors, it is predicted that the occurrence of major crop pests and diseases in China will be severe in 2020, heavier than that of 2019. Specifically, wheat scab, rice planthopper and rice leaf roller are very likely to occur heavily.

In 2019, overall occurrence of major crop pests and diseases in China was less serious than the average level in recent years. In 2019, occurrence area of major crop pests and diseases in China was 300 million ha. (4.3 billion mu). The first attack of *Spodoptera frugiperda* was recorded in corn growing areas in South China and Jiangnan Region, with no obvious damage discovered. Wheat scab occurred moderately, less severe than in 2018, in wheat planting areas along Middle and Lower Yangtze River, in Jianghuai Region and in the south of Huanghuai Region.

Thanks to crop protection efforts and services, major crop pests and diseases brought less damage in 2019. Crop protection work plays a key role in safeguarding growth of crops, directly affecting the crop quality and yield. Statistics show that crop protection work had saved much grain annually from 2009 to 2018.

In this report, CCM will provide the forecasts on the occurrence of pests and diseases in China in 2020 from the following aspects:

- ✓ Maize
- ✓ Rice
- ✓ Wheat
- ✓ 31 provinces and municipalities throughout China

2 Methodology

The report is drafted by diverse methods as follows:

- Desk research

The sources of desk research are various, including published magazines, journals, government websites and 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 visited government websites and 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
- 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.

3 Executive summary

It is predicted that the occurrence area of pests and diseases on maize in China will be XXX million ha. (XXX million mu) in 2020. Specifically, XXX million ha. (XXX million mu) will be affected by pests and XXX million ha. (XXX million mu) by diseases. Migratory pests will occur heavily, which brings a great threat to maize growth in China.

It is predicted that rice pests and diseases will occur heavily in China in 2020, with some XXX million ha. (XXX million mu) planting area to be affected, including XXX million ha. (XXX million mu) attacked by pests and XXX million ha. (XXX million mu) damaged by diseases.

It is predicted that wheat pests and diseases in China in 2020 will occur heavily overall, with an occurrence area of XXX million ha. (XXX million mu). Specifically, XXX million ha. (XXX million mu) will be affected by diseases and XXX million ha. (XXX million mu) by pests.

According to the forecasts, the three major pests in China in 2020 are mainly *Spodoptera frugiperda*, cotton bollworm as well as second- and third-generation armyworms. Specifically, it is expected that in 2020, the *Spodoptera frugiperda* will move North earlier, affecting larger area and causing larger damage. And it is expected that cotton bollworm and second- and third-generation armyworms will occur moderately in 2020.

4 What's in this report

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

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1 Forecasts on diseases and pests of three major crops in China in 2020

1.1 Forecasts on maize diseases and pests in China in 2020

It is predicted that the occurrence area of pests and diseases on maize in China will be XXX million ha. (XXX million mu) in 2020. Specifically, XXX million ha. (XXX million mu) will be affected by pests and XXX million ha. (XXX million mu) by diseases. Migratory pests will occur heavily, which brings a great threat to maize growth in China.

Forecasts on China's maize pests occurrence in 2020

- *Spodoptera frugiperda*

Spodoptera frugiperda will affect the maize areas of Southwest China, South China, Jiangnan Region, Middle and Lower Yangtze River, Jianghuai Region, Huanghuai Region, North China and Northwest China. More than XXX% of the maize growing areas will be involved. In every region before-mentioned, concentrated damage may happen. In addition, *Spodoptera frugiperda* is also likely to move into the Spring maize area in Northeast China. In southern provinces, the pest is expected to appear frequently and cause severe damage, affecting an area of more than XXX million ha. (XXX million mu).

- Corn borer

Corn borer will occur moderately overall, affecting an area of XXX million ha. (XXX million mu). Specifically, first-generation corn borer will affect XXX million ha. (XXX million mu) and occur moderately in most parts of Northeast China; second-generation corn borer will affect XXX million ha. (XXX million mu) and occur heavily in Northeast China and some parts of Southwest China; third-generation corn borer will affect XXX million ha. (XXX million mu) and occur heavily in some parts of Huanghuai Region.

- Armyworm

The second- and third-generation armyworm will occur moderately overall, affecting an area of XXX million ha. (XXX million mu). Concentrated damage is expected to take place in northern China and some parts of Southwest China.

- Cotton bollworm

Cotton bollworm will occur moderately overall, affecting an area of XXX million ha. (XXX million mu). Third- and fourth-generation cotton bollworm will occur heavily in Huang-Huai-Hai Region.

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Forecasts on China's maize diseases occurrence in 2020

- Northern leaf blight

Northern leaf blight will occur moderately in Northeast China, North China, Southwest China and most parts of Northwest China. And the disease will occur heavily in some parts. It will affect an area of XXX million ha. (XXX million mu).

- Southern leaf blight

Southern leaf blight will occur moderately in Southwest China and some parts of Huang-Huai-Hai Region, affecting an area of XXX million ha. (XXX million mu).

- Southern corn rust

Southern corn rust will occur moderately overall. The disease may occur heavily in some parts of Huanghuai Region. Occurrence area will be XXX million ha. (XXX million mu).

- Other diseases

Some other diseases will also cause certain damage in China, including brown spot, Curvularia leaf spot, gall smut, head smut, maize rough dwarf, top rot, ear rot, gray leaf spot and maize dwarf nematode disease.

Table 1.1-1 Forecasts on occurrence area of corn pests in China, 2016–2020

No.	Pest	Occurrence area, million ha.				
		2016	2017	2018	2019	2020
1	XXX	XXX	XXX	XXX	XXX	XXX
1.1	XXX	XXX	XXX	XXX	XXX	XXX
1.2	XXX	XXX	XXX	XXX	XXX	XXX
1.3	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX
6	XXX	XXX	XXX	XXX	XXX	XXX
7	XXX	XXX	XXX	XXX	XXX	XXX
8	XXX	XXX	XXX	XXX	XXX	XXX
9	XXX	XXX	XXX	XXX	XXX	XXX
10	XXX	XXX	XXX	XXX	XXX	XXX
11	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX

Source: NATESC

Table 1.1-2 Forecasts on occurrence area of corn diseases in China, 2016–2020

No.	Disease	Occurrence area, million ha.				
		2016	2017	2018	2019	2020
1	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX
6	XXX	XXX	XXX	XXX	XXX	XXX
7	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX

Source: NATESC

1.2 Forecasts on rice diseases and pests in China in 2020

It is predicted that rice pests and diseases will occur heavily in China in 2020, with an occurrence area of XXX million ha. (XXX million mu), including XXX million ha. (XXX million mu) affected by pests and XXX million ha. (XXX million mu) by diseases.

Forecasts on China's rice pests occurrence in 2020

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Forecasts on China's rice diseases occurrence in 2020

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Table 1.2-1 Forecasts on occurrence area of rice pests in China, 2016–2020

No.	Pest	Occurrence area, million ha.				
		2016	2017	2018	2019	2020
1	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX

Source: National Agricultural Technology Extension and Service Center (NATESC)

Table 1.2-2 Forecasts on occurrence area of rice diseases in China, 2016–2020

No.	Disease	Occurrence area, million ha.				
		2016	2017	2018	2019	2020
1	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX

Source: NATESC

1.3 Forecasts on wheat diseases and pests in China in 2020

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Table 1.3-1 Forecasts on occurrence area of wheat pests in China, 2016–2020

No.	Pest	Occurrence area, million ha.				
		2016	2017	2018	2019	2020
1	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX

Source: NATESC

Table 1.3-2 Forecasts on occurrence area of wheat diseases in China, 2016–2020

No.	Disease	Occurrence area, million ha.				
		2016	2017	2018	2019	2020
1	XXX	XXX	XXX	XXX	XXX	XXX
2	XXX	XXX	XXX	XXX	XXX	XXX
3	XXX	XXX	XXX	XXX	XXX	XXX
4	XXX	XXX	XXX	XXX	XXX	XXX
5	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX

Source: NATESC

2 Forecasts on three major pests in China in 2020

2.1 Forecasts on *Spodoptera frugiperda*, cotton bollworm, armyworm in China in 2020

According to the forecasts, the three major pests in China in 2020 are mainly *Spodoptera frugiperda*, cotton bollworm as well as second- and third-generation armyworms. Specifically, it is expected that in 2020, the *Spodoptera frugiperda* will move North earlier, affecting larger area and causing larger damage. And it is expected that cotton bollworm and second- and third-generation armyworms will occur moderately in 2020.

Forecasts on *Spodoptera frugiperda* in China in 2020

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Forecasts on cotton bollworm in China in 2020

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Forecasts on armyworm in China in 2020

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3 Forecasts on maize, rice and wheat diseases and pests in China in 2020

3.1 Forecasts on maize, rice and wheat diseases and pests in Northeast China in 2020

Forecast on diseases and pests occurrence on maize in Northeast China in 2020

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Forecast on diseases and pests occurrence on rice in Northeast China in 2020

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Forecast on diseases and pests occurrence on wheat in Northeast China in 2020

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