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## Crop pests and diseases monitoring and forecasting in China

Mid-late September 2019

### Medium infestation of pests and diseases on maize so far

Affected area reached 6.2 million ha in China

#### Overview

Integrated with multi-source Earth Observation data, e.g. meteorological data, field data, and remote sensing data (such as GF series and HJ series in China, MODIS and Landsat series in US, Sentinel series in EU), and self-developed models and algorithms for crop pest and disease monitoring and forecasting, AIR (RADI) constructed the 'Crop pests and diseases monitoring and forecasting system', which could regularly release thematical maps and reports on main crop pests and diseases in whole China.

Mid-late September in 2019, due to the higher temperature and higher precipitation than previous years, pest and disease are moderately occurred in maize regions of China. The total area affected by maize armyworm (*Mythimna separata*), maize fall armyworm (*Spodoptera frugiperda*) and maize northern leaf blight (*Setosphaeria turcica*) has reached 6.2 million hectares.

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In mid-late September 2019, the averaged field temperature of the most planting areas in China was equal or higher 1-2°C than the same period of previous years.

Field precipitation in Southwest China, Northeast China and North China are higher than previous years. According to the rainfall process in Northeast China, Southwest China, northern and western regions of North China and eastern regions of China, field humidity reached a suitable level for pests and diseases development.

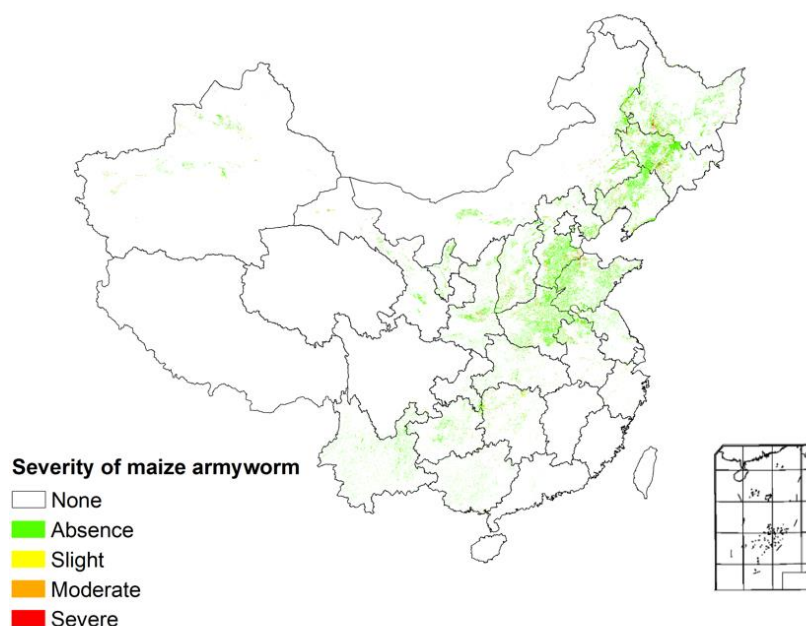
#### Review of meteorological conditions

## Maize armyworm

In mid-late September 2019, the occurrence of maize armyworm reached 3.2 million hectares, with the pest mainly occurred in Northeast China, Northwest China and North China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the maize armyworm severely

occurred in Heilongjiang, central Jilin, east Inner Mongolia, north Shandong, central Shaanxi and east Hebei, moderately occurred in north Jilin, southwest Liaoning, north Henan, north Jiangxi, south Shanxi and north Hunan, while slightly occurred in central Liaoning, south Hebei, central Henan and east Shandong.



*Figure 1 Spatial distribution of maize armyworm in China (mid-late September 2019)*

*Table 1 Statistics of maize armyworm in China (mid-late September 2019)*

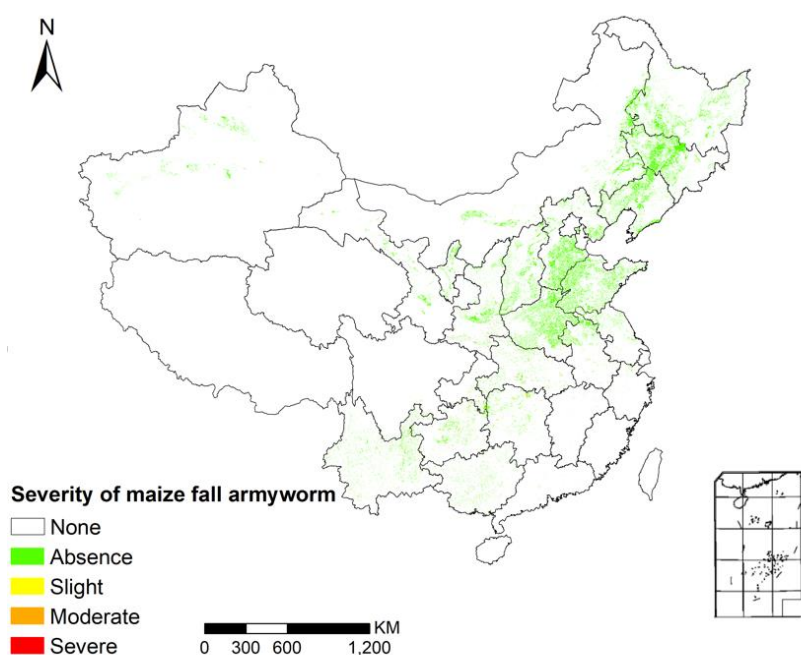
Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	9948	415.4	444	325.3	11132.7	11
North China	4558	232.7	181.3	127.3	5099.3	11
East China	4234	198	118.6	78.7	4629.3	9
South China	570.8	19.3	11.3	7.3	608.7	6
Central China	3928	274.6	82.7	42.7	4328	9
Northwest China	3007.4	140	127.3	91.3	3366	11
Southwest China	2472.8	167.3	57.3	31.3	2728.7	9
<b>Total</b>	<b>28719</b>	<b>1447.3</b>	<b>1022.5</b>	<b>703.9</b>	<b>31892.7</b>	<b>10</b>

## Maize fall armyworm

In mid-late September 2019, the occurrence of maize fall armyworm reached 1.2 million hectares, with the disease mainly occurred in Southwest China and South China. The specific distributions and severities are shown in Figure 2 and Table 2.

Specifically, the maize fall armyworm

severely occurred in Guangxi, Yunnan, central Guizhou and west Hunan, moderately occurred in north Guizhou, Hubei, east Chongqing, south Shaanxi and northwest Anhui, while slightly occurred in, Hunan, central Henan and south Hebei.



*Figure 2 Spatial distribution of maize fall armyworm in China (mid-late September 2019)*

*Table 2 Statistics of maize fall armyworm in China (mid-late September 2019)*

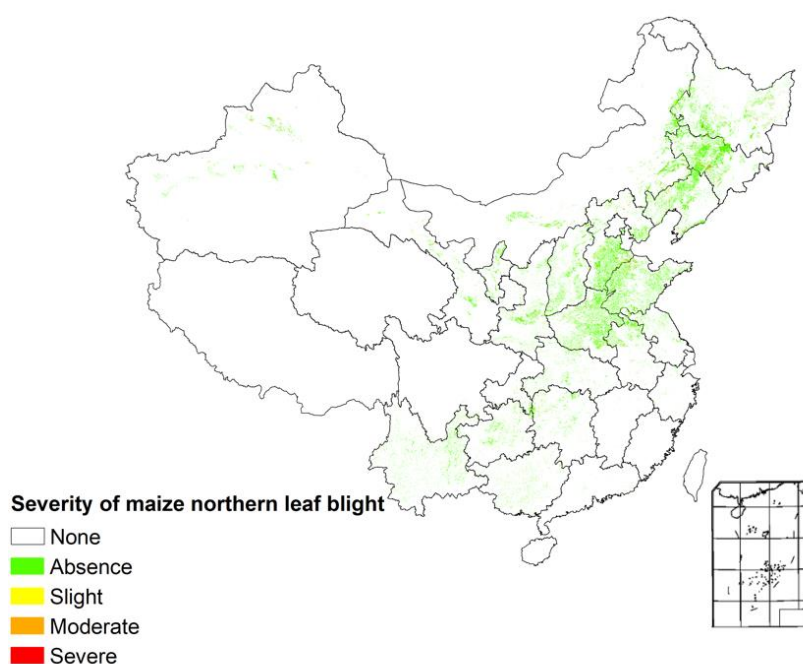
Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	11132.7	0	0	0	11132.7	0
North China	5078.6	12.7	6.7	1.3	5099.3	0
East China	4335.3	122	101.3	70.7	4629.3	6
South China	513.4	38.7	27.3	29.3	608.7	16
Central China	4028	112	98.7	89.3	4328	7
Northwest China	3298.6	28	18.7	20.7	3366	2
Southwest China	2351.4	124	124	129.3	2728.7	14
<b>Total</b>	<b>30738</b>	<b>437.4</b>	<b>376.7</b>	<b>340.6</b>	<b>31892.7</b>	<b>4</b>

## Maize northern leaf blight

In mid-late September 2019, the occurrence of maize northern leaf blight reached 1.8 million hectares, with the disease mainly occurred in Northeast China and North China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the maize northern leaf blight severely occurred in Heilongjiang, south Jilin,

central Liaoning, north Shandong, central Shaanxi and east Hebei, moderately occurred in north Jilin, west Liaoning, east Inner Mongolia, west Hebei and north Anhui, while slightly occurred in central Hebei, north Shanxi, southwest Henan, central Guizhou and northwest Hunan.



*Figure 3 Spatial distribution of maize northern leaf blight in China (mid-late September 2019)*

*Table 3 Statistics of maize northern leaf blight in China (mid-late September 2019)*

Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
<b>Northeast China</b>	10474	227.4	249.3	182	11132.7	6
<b>North China</b>	4790.6	132.7	103.3	72.7	5099.3	6
<b>East China</b>	4397.3	115.3	70	46.7	4629.3	5
<b>South China</b>	584.7	12	7.3	4.7	608.7	4
<b>Central China</b>	4106.7	153.3	45.3	22.7	4328	5
<b>Northwest China</b>	3162	79.3	72.7	52	3366	6
<b>Southwest China</b>	2584.7	94.7	32	17.3	2728.7	5
<b>Total</b>	<b>30100</b>	<b>814.7</b>	<b>579.9</b>	<b>398.1</b>	<b>31892.7</b>	<b>6</b>

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The crop pests and diseases monitoring and forecasting system are available under:

<http://www.rscropmap.com/>

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Mission statements: As the science and knowledge service, the Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory is to support independent evidence for crop monitoring.

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