August 2019
No.8 Total: 25

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Crop pests and diseases monitoring and forecasting in China

Mid August 2019

Medium infestation of pests and diseases on rice so far

Affected area reached 13.4 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 August in 2019, due to the higher temperature and higher precipitation than previous years, pest and disease are moderately occurred in rice regions of China. The total area affected by rice planthopper (*Nilaparvata lugens*), leaf roller (*Cnaphalocrocis medinalis*) and sheath blight (*Rhizoctonia solani Kühn*) has reached 13.4 million hectares.

Review of meteorological conditions

Content

Field temperature in southern China and central China are higher than previous years. In mid-August, the averaged field temperature of the plant areas in most China was 1-4℃ higher than the same period of previous years.

Field precipitation in middle and lower reaches of the Yangtze River are higher than previous years. According to the rainfall process in Northeast China, East China and South China in early-mid August, field humility reached a suitable level for pests and diseases development.

Rice planthopper

In the middle of August 2019, the occurrence of rice planthopper reached 5.6 million hectares, with the pest mainly occurred in Northeast China, Central China and East China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the rice planthopper severely occurred in Anhui, northern regions of Zhejiang, Hunan and Guangxi, moderately occurred in Heilongjiang, western regions of Zhejiang and southern regions of Hubei, while slightly occurred in Jiangsu, Jiangxi, southern regions of Hunan and central regions of Hubei.

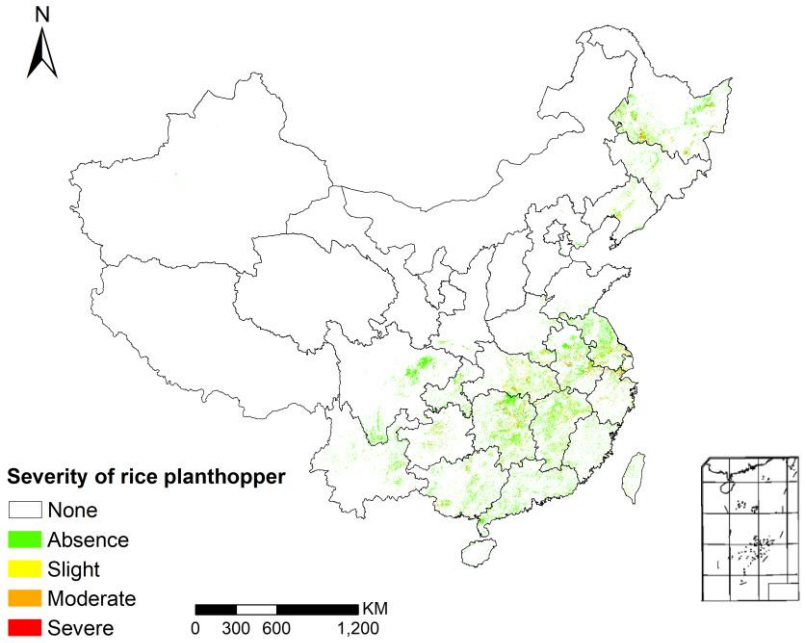

Figure 1 *Spatial distribution of rice planthopper in China (mid August 2019)*

Table 1 *Statistics of rice planthopper in China (mid August 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	3582.7	519.3	270	174	4546	21
North China	62.7	26	7.3	3.3	99.3	37
East China	7656	1100.7	566.7	363.3	9686.7	21
South China	3756	190.7	114.7	75.9	4137.3	9
Central China	5452	787.3	384	242.7	6866	21
Northwest China	213.3	33.3	9.3	4.8	260.7	18
Southwest China	3732.7	471.3	178.7	103.3	4486	17
Total	**24455.4**	**3128.6**	**1530.7**	**967.3**	**30082**	**19**

Rice leaf roller

In the middle of August 2019, the occurrence of rice leaf roller reached 4.4 million hectares, with the pest mainly occurred in Northeast China, Central China and East China. The specific distributions and severities are shown in Figure 2 and Table 2.

Specifically, the rice leaf roller severely occurred in southwestern regions of Heilongjiang, central regions of Anhui, northern regions of Zhejiang and northeastern regions of Hunan, moderately occurred in southeastern regions of Heilongjiang, central regions of Zhejiang and southern regions of Jiangsu, while slightly occurred in Jilin, Liaoning, Jiangxi and central regions of Guizhou.

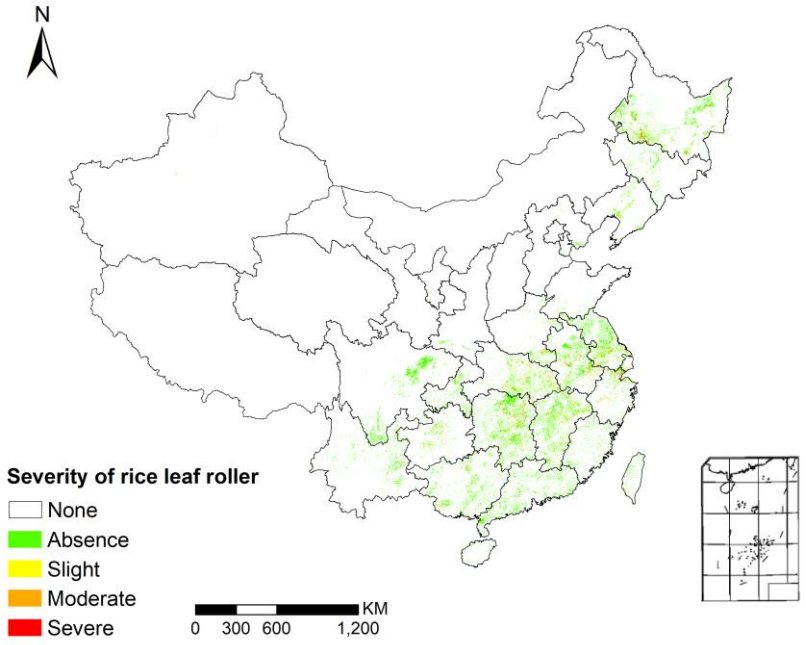

Figure 2 *Spatial distribution of rice leaf roller in China (mid August 2019)*

Table 2 *Statistics of rice leaf roller in China (mid August 2019).*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	3790.7	406.7	212	136.6	4546	17
North China	70.7	20	6	2.6	99.3	29
East China	8099.3	862	442	283.4	9686.7	16
South China	3840	148.7	89.3	59.3	4137.3	7
Central China	5764.7	612.7	299.3	189.3	6866	16
Northwest China	223.3	26	7.3	4.1	260.7	14
Southwest China	3898	367.3	140	80.7	4486	13
Total	**25686.7**	**2443.4**	**1195.9**	**756**	**30082**	**15**

Rice sheath blight

In the middle of August 2019, the occurrence of rice sheath blight reached 3.4 million hectares, mainly occurred in Northeast China and East China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the rice sheath blight severely occurred in southwestern regions of Heilongjiang, central regions of Anhui, Zhejiang and northern regions of Hunan, moderately occurred in Fujian, southern regions of Hubei, northeastern regions of Heilongjiang and northern regions of Anhui, while slightly occurred in Jiangsu, northern regions of Jiangxi, central regions of Guizhou and northern regions of Yunnan.

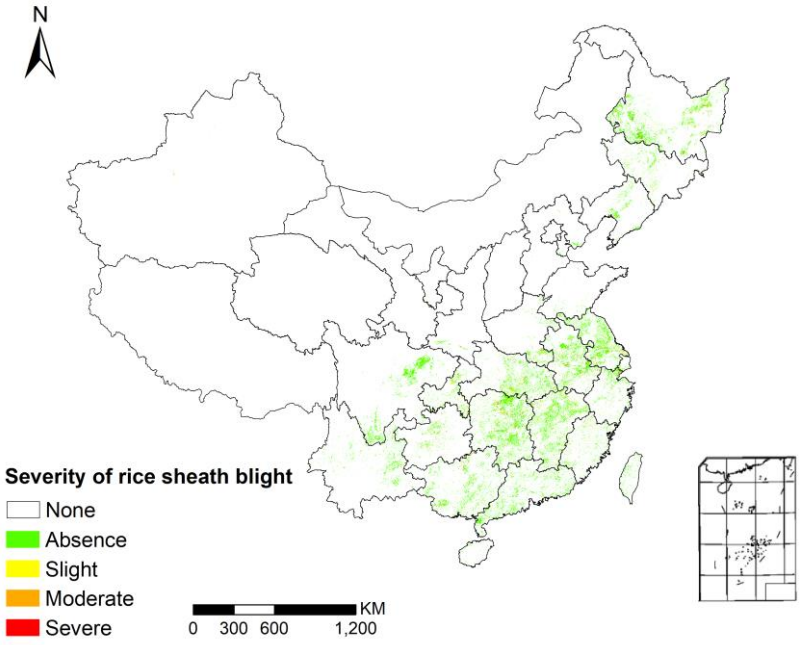

Figure 3 *Spatial distribution of rice sheath blight in China (mid August 2019)*

Table 3 *Statistics of rice sheath blight in China (mid August 2019).*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	3974	308	160	104	4546	13
North China	76.7	16	4.7	1.9	99.3	23
East China	8458	668	343.3	217.4	9686.7	13
South China	3864	136.7	83.3	53.3	4137.3	7
Central China	6014.7	476	228.7	146.6	6866	12
Northwest China	236.7	16.7	5.3	2	260.7	9
Southwest China	4028	287.3	107.3	63.4	4486	10
Total	**26652.1**	**1908.7**	**932.6**	**588.6**	**30082**	**11**

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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.

Supported by the Strategic Priority Research Program of the Chinese Academy of Sciences (XDA19080304), National Key R&D Program of China (2017YFE0122400, 2016YFB0501501), National Natural Science Foundation of China (61661136004/ST/N006712/1, 41801338, 41871339), Science and Technology Service program of Chinese Academy of Sciences (KFJ-STS-ZDTP-054).

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