October 2018
No.14 Total: 14

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Crop pests and diseases monitoring and forecasting in China

Minor infestation of pests and diseases on rice in 2018

Affected area reached 18.2million 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.

In 2018, due to the lower 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*) reaches 18.2 million hectares.

Content

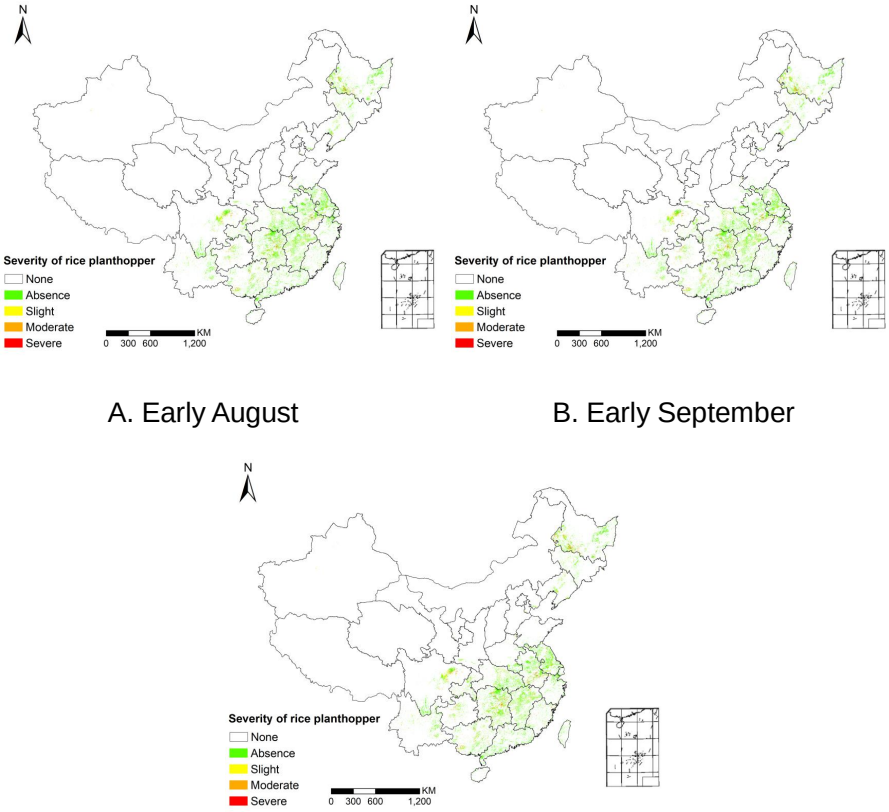
Review of meteorological conditions

Field temperature are lower than previous years. From August to mid September, minimum of the averaged field temperature in rice regions of China reached 16.0℃, which is 2.7℃ lower than previous years.

Field precipitation from August to mid September are higher than previous years. Affected by the typhoon and raining process in North China, East China, and Southwest China, field humility reached a suitable level for pests and diseases development.

Rice planthopper

In 2018, the occurrence of rice planthopper reached 5.8 million hectares. The pest first appeared in part of Southwest, central and East China in early August. The full incidence period was in September, while pest severely occurred in Southwest, central and East China, and moderately occurred in Northeast and South China. The specific distributions and severities are shown in Figure 1 and Table 1.



A. Early August B. Early September

C. Mid September

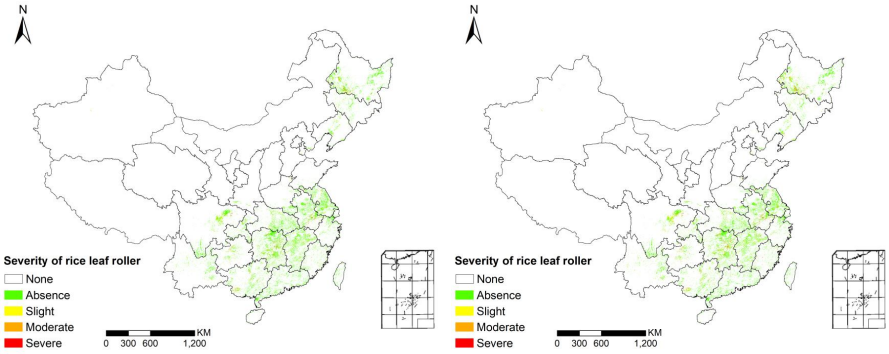
Figure 1 *Spatial distribution of rice planthopper in China (2018)*

Table 1 *Statistics of rice planthopper in China (2018)*

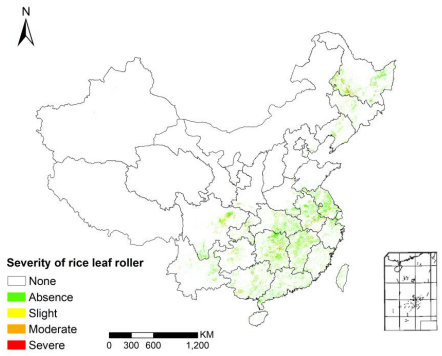
Region	Area / Thousand hectare			
	Early August	Early September	Mid September	Total area
Northeast China	862.7	1012.0	1059.3	4546.0
North China	28.7	33.3	36.0	99.3
East China	1289.3	1494.6	1563.3	9686.7
South China	441.3	510.7	536.1	4137.3
Central China	1282.7	1496.0	1566.7	6866.0
Northwest China	19.4	22.7	24.7	260.7
Southwest China	794.7	927.3	972.0	4486.0
Total	**4718.8**	**5496.6**	**5758.1**	**30082.0**

Rice leaf roller

In 2018, the occurrence of rice leaf roller reached 5.1 million hectares. The pest first appeared in part of Southwest, Northeast and East China, and developed rapidly during early to mid September. The pest occurred severely in Southwest and central China, and slightly to moderately occurred in Northeast and East China. The specific distributions and severities are shown in Figure 2 and Table 2.



A. Early August B. Early September



C. Mid September

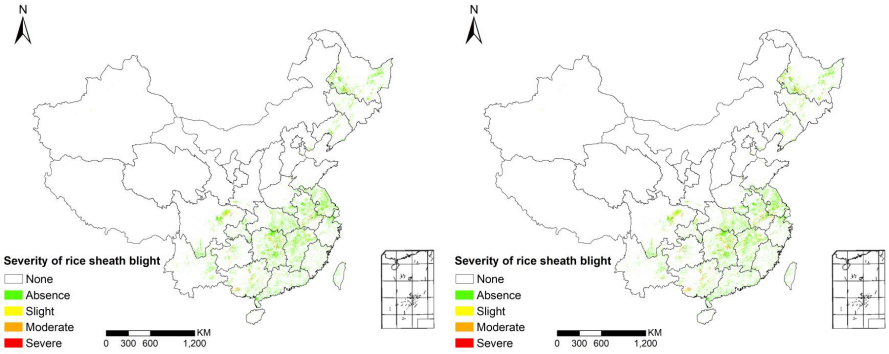
Figure 2 *Spatial distribution of rice leaf roller in China (2018)*

Table 2 *Statistics of rice leaf roller in China (2018)*

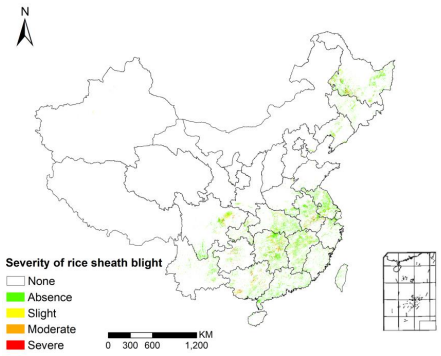
Region	Area / Thousand hectare			
	Early August	Early September	Mid September	Total area
Northeast China	638	874	932.7	4546.0
North China	20.6	28.7	31.3	99.3
East China	938	1293.4	1376.6	9686.7
South China	320.7	441.4	472	4137.3
Central China	944.7	1295.3	1378.7	6866.0
Northwest China	14	20	22	260.7
Southwest China	581.3	802.6	852	4486.0
Total	**3457.3**	**4755.4**	**5065.3**	**30082.0**

Rice sheath blight

In 2018, the occurrence of rice sheath blight reached 7.3 million hectares. The disease first appeared in east region of Southwest China, central and East China in early August. And mainly occurred in South, central and East China during early to mid September. The disease occurred slightly in west region of South China and North China. The specific distributions and severities are shown in Figure 3 and Table 3.



A. Early August B. Early September



C. Mid September

Figure 3 *Spatial distribution of rice sheath blight in China (2018)*

Table 3 *Statistics of rice sheath blight in China (2018)*

Region	Area / Thousand hectare			
	Early August	Early September	Mid September	Total area
Northeast China	792.7	1126	1213.4	4546.0
North China	30	40.6	44.1	99.3
East China	1442.6	1960.6	2084.6	9686.7
South China	654.1	877.4	922	4137.3
Central China	1228.7	1720.7	1842	6866.0
Northwest China	25.3	32	34.7	260.7
Southwest China	757.4	1062.7	1138	4486.0
Total	**4930.8**	**6820.0**	**7278.8**	**30082.0**

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The geographic borders are purely a graphical representation and are only intended to be indicative. The boundaries do not necessary reflect the official position.

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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Supported by the Strategic Priority Research Program of the Chinese Academy of Sciences (XDA19080304), National Key R&D Program of China (2016YFB0501501), National Natural Science Foundation of China (61661136004) and the STFC Newton Agritech Programme (ST/N006712/1).

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