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Crop pests and diseases monitoring and forecasting in China

Mid May 2018

Medium infestation of pests and diseases on wheat so far

Affected area reached 15.2 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 May in 2018, due to the lower temperature and higher precipitation than previous years, pest and disease are moderately occurred in winter wheat regions of China. The total area affected by wheat yellow rust (*Puccinia striiformis*), sheath blight (*Rhizo-tonia cerealis*) and aphids (*Sitobion avenae & Rhopalosiphum padi*) has reached 15.2 million hectares.

Content

Review of meteorological conditions

Field temperature in Southern and Northern China are lower than previous years. In mid-May 2018, maximum of the averaged field temperature of the plant areas in China reached 23.2℃, and in part of the northern area reached 18.4℃.

Field precipitation in Southwest China and Northern China are higher than previous years. According to the rainfall process in North China and Central China in mid-May, field humility reached a suitable level for pests and diseases development.

Wheat yellow rust

In mid May 2018, the occurrence of yellow rust reached 1 million hectares, with the disease mainly occurred in Central China and East China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the yellow rust moderately occurred in southern Henan, southern Shaanxi, northern Anhui, and southern Hunan, while slightly occurred in southern Shandong and central Jiangsu.

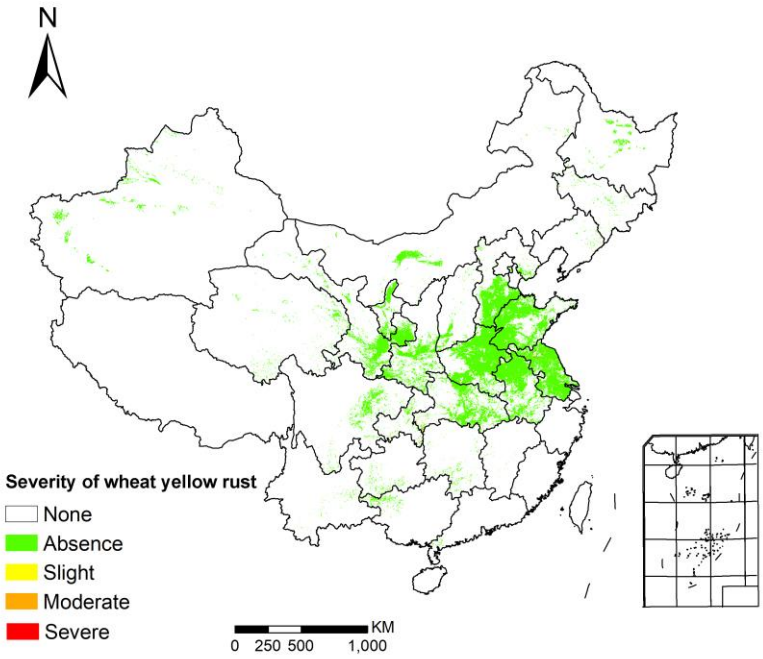

Figure 1 *Spatial distribution of wheat yellow rust in China (mid May 2018)*

Table 1 *Statistics of wheat yellow rust in China (mid May 2018)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	84.0	1.3	0.0	0.0	85.3	2
North China	3450.0	91.1	25.5	12.7	3579.3	4
East China	8172.8	128.6	148.1	106.5	8556.0	4
South China	16.7	0.0	0.0	0.0	16.7	0
Central China	6410.4	150.1	90.5	59.0	6710.0	4
Northwest China	3221.9	103.2	33.5	17.4	3376.0	5
Southwest China	1750.3	40.2	23.5	14.7	1828.7	4
Total	**23106.1**	**514.5**	**321.1**	**210.3**	**24152.0**	**4**

Wheat sheath blight

In mid May 2018, the occurrence of sheath blight reached 6.6 million hectares, with the disease mainly occurred in East China and Central China. The specific distributions and severities are shown in Figure 2 and Table 2.

Specifically, the sheath blight severely occurred in Anhui, Jiangsu, and Shandong; moderately occurred in Sichuan, Shaanxi and Hubei; while slightly occurred in Gansu, Hebei and Henan.

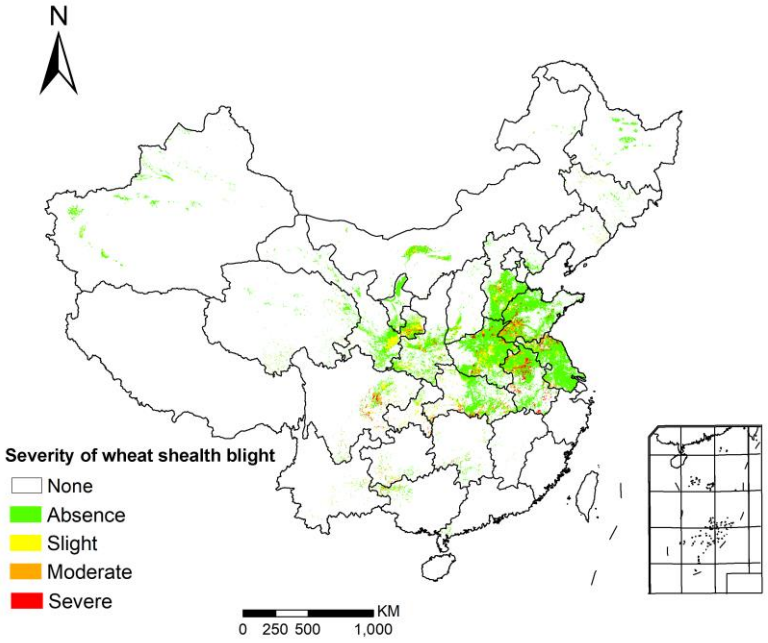

Figure 2 *Spatial distribution of wheat sheath blight in China (mid May 2018)*

Table 2 *Statistics of wheat sheath blight in China (mid May 2018)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	75.3	6.7	2.0	1.3	85.3	12
North China	2700.7	618.0	174.7	86.0	3579.3	25
East China	6158.6	803.3	916.7	677.3	8556.0	28
South China	12.0	2.7	1.3	0.7	16.7	28
Central China	4825.3	948.0	562.0	374.7	6710.0	28
Northwest China	2405.4	647.3	210.6	112.7	3376.0	29
Southwest China	1348.7	241.3	144.7	94.0	1828.7	26
Total	**17526.0**	**3267.3**	**2012.0**	**1346.7**	**24152.0**	**27**

Wheat aphid

In mid May 2018, the occurrence of aphid reached 7.6 million hectares, mainly occurred in East China and Northwest China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the aphid severely occurred in Jiangsu, Anhui, Shandong and Henan; moderately occurred in Sichuan and Shaanxi; while slightly occurred in Hebei, Gansu and Inner Mongolia.

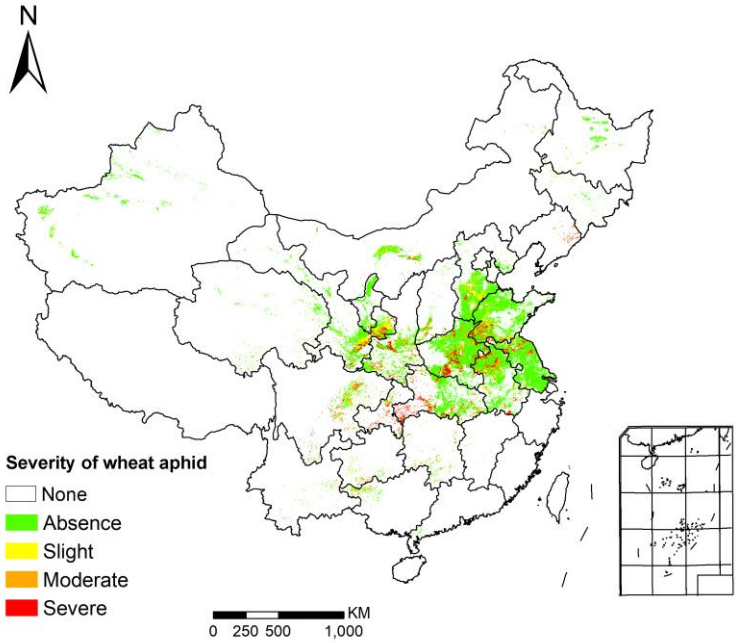

Figure 3 *Spatial distribution of wheat aphid in China (mid May 2018)*

Table 3 *Statistics of wheat aphid in China (mid May 2018)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	76.6	6.0	2.0	0.7	85.3	10
North China	2516.7	649.3	260.0	153.3	3579.3	30
East China	5786.0	1328.7	859.3	582.0	8556.0	32
South China	10.7	4	1.3	0.7	16.7	36
Central China	4539.3	664.7	861.4	644.6	6710.0	32
Northwest China	2268.0	511.3	354.0	242.7	3376.0	33
Southwest China	1348.0	156.7	186.0	138.0	1828.7	26
Total	**16545.3**	**3320.7**	**2524.0**	**1762.0**	**24152.0**	**31**

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