May 2019
No.4 Total: 21

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Crop pests and diseases monitoring and forecasting in China

Early May 2019

Medium infestation of pests and diseases on wheat so far

Affected area reached 12.1 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 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.

Early May in 2019, 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 (*Rhizotonia cerealis*), aphid (*Sitobion avenae & Rhopalosiphum padi*), and Fusarium head blight (*Fusarium graminearum*) has reached 12.1 million hectares.

Content

Review of meteorological conditions

Field temperature in China is similar to previous years. In May 2019, the averaged field temperature of the plant areas in China reached 16.8 ℃, and higher 0.6 ℃ than previous years.

In May 2019, the average field precipitation in China reached 80.0 mm, increased by 15.1% than previous years. In western regions of Northeast China, North China, and central regions of South China, precipitation was higher than previous years. Field humility reached a suitable level for pests and diseases development.

Wheat yellow rust

In early May 2019, the occurrence of yellow rust reached 0.5 million hectares, with the disease mainly occurred in Northwest China, East China, and Central China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the yellow rust severely occurred in northern regions of Jiangsu and northern regions of Anhui; moderately occurred in eastern regions of Gansu, central and southern regions of Henan, southern regions of Hubei and southern regions of Anhui; slightly occurred in eastern regions of Sichuan, central regions of Shaanxi, southern regions of Shanxi, southern regions of Hebei and southern regions of Shandong.

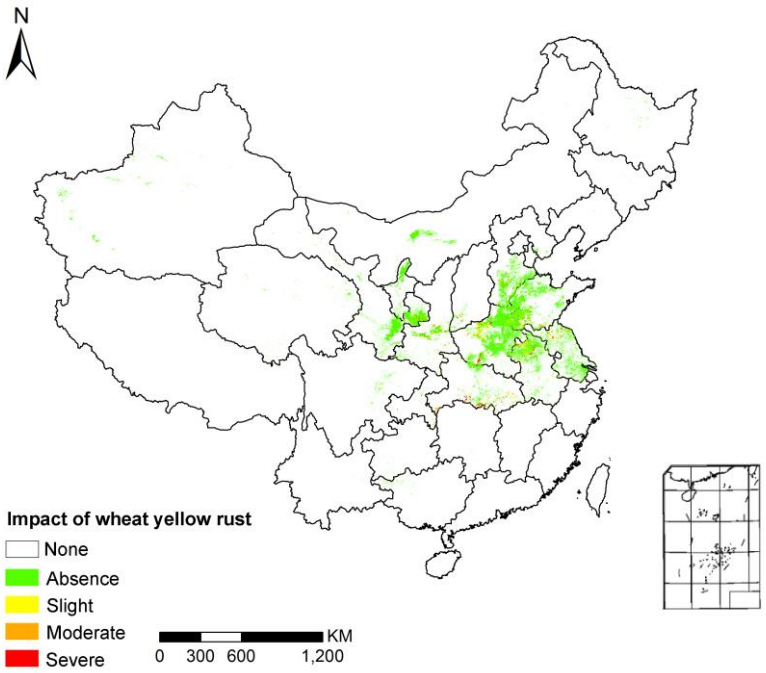

Figure 1 *Spatial distribution of wheat yellow rust in China (early May 2019)*

Table 1 *Statistics of wheat yellow rust in China (early May 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	85.3	0	0	0	85.3	0
North China	3503.3	28.7	26.7	20.6	3579.3	2
East China	8357.3	126	48.7	24	8556	2
South China	16.7	0	0	0	16.7	0
Central China	6552.7	98.7	40	18.6	6710	2
Northwest China	3293.3	26.7	34	22	3376	2
Southwest China	1794	10.7	14	10	1828.7	2
Total	**23602.6**	**290.8**	**163.4**	**95.2**	**24152**	**2**

Wheat sheath blight

In early May 2019, the occurrence of sheath blight reached 5.4 million hectares, with the disease mainly occurred in Northwest China, Central China, North China, and East China. The specific distributions and severities are shown in Figure 2 and Table 2.

Specifically, the sheath blight severely occurred in northern regions of Jiangsu, northern regions of Anhui, eastern regions of Gansu, central regions of Shaanxi and southwestern regions of Shandong; moderately occurred in eastern regions of Sichuan and southern regions of Henan; slightly occurred in northern regions of Shandong, northern regions of Henan and central regions of Anhui.

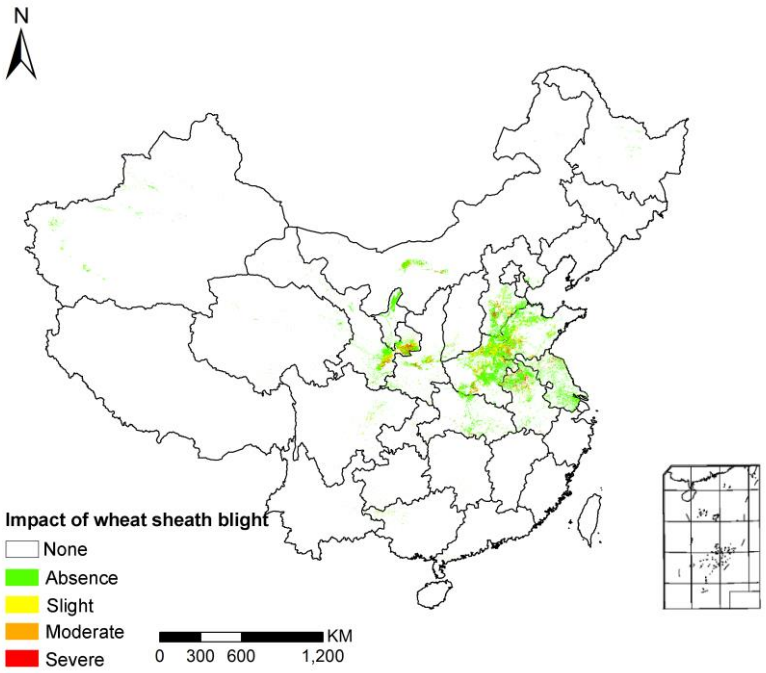

Figure 2 *Spatial distribution of wheat sheath blight in China (early May 2019)*

Table 2 *Statistics of wheat sheath blight in China (early May 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	79.3	2.7	2	1.3	85.3	7
North China	2817.3	381.3	228.7	152	3579.3	21
East China	6578	1321.3	427.3	229.4	8556	23
South China	12.7	2	1.3	0.7	16.7	24
Central China	5158	1068.7	319.3	164	6710	23
Northwest China	2578.7	398.7	239.3	159.3	3376	24
Southwest China	1485.3	172	102.7	68.7	1828.7	19
Total	**18709.3**	**3346.7**	**1320.6**	**775.4**	**24152**	**23**

Wheat aphid

In early May 2019, the occurrence of aphid reached 5.9 million hectares, mainly occurred in East China, North China, Central China and Northwest China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the aphid severely occurred in southern regions of Henan, northern regions of Anhui and northern regions of Jiangsu; moderately occurred in eastern regions of Gansu, northern regions of Henan, southern regions of Shandong, eastern regions of Sichuan and central regions of Shaanxi; slightly occurred in southern regions of Henan, northern regions of Shandong and central regions of Anhui.

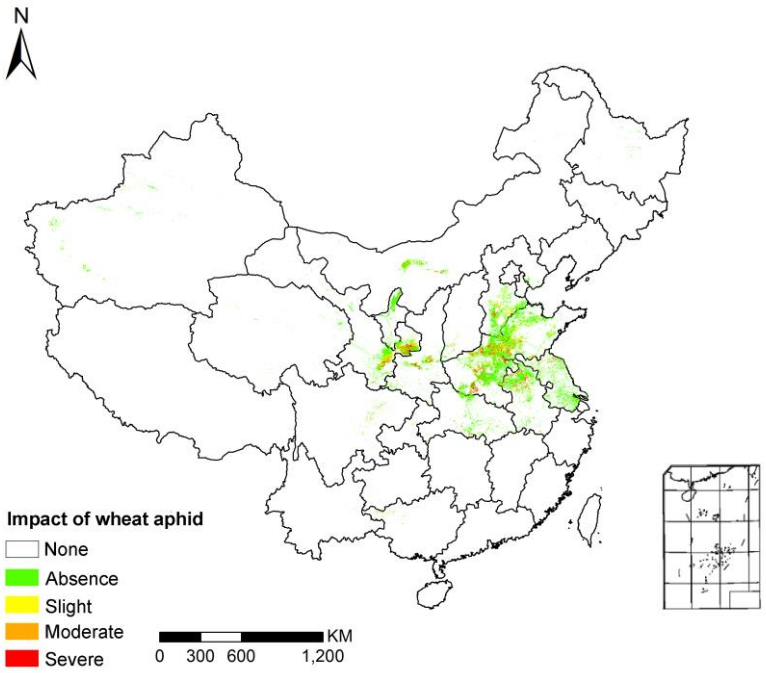

Figure 3 *Spatial distribution of wheat aphid in China (early May 2019)*

Table 3 *Statistics of wheat aphid in China (early May 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	79.3	2.7	2	1.3	85.3	7
North China	2760	474.7	213.3	131.3	3579.3	23
East China	6425.3	1366.7	488.7	275.3	8556	25
South China	12.7	2	1.3	0.7	16.7	24
Central China	5041.3	510.7	662	496	6710	25
Northwest China	2522	394	272.7	187.3	3376	25
Southwest China	1461.3	115.4	144	108	1828.7	20
Total	**18301.9**	**2866.2**	**1784**	**1199.9**	**24152**	**24**

Wheat Fusarium head blight

In early May 2019, the occurrence of Fusarium head blight reached 0.3 million hectares, mainly occurred in East China and Central China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the Fusarium head blight severely occurred in southern regions of Jiangsu; moderately occurred in southern regions of Henan, southern regions of Hubei and central regions of Anhui; slightly occurred in southern regions of Shaanxi, southern regions of Shanxi, northern regions of Henan, southern regions of Shandong and southern regions of Hebei.

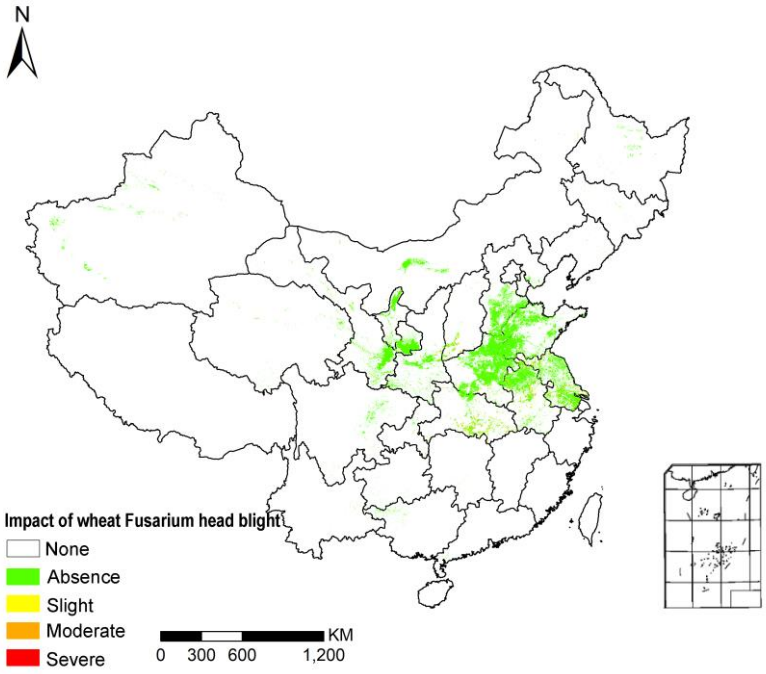

Figure 3 *Spatial distribution of wheat Fusarium head blight in China (early May 2019)*

Table 3 *Statistics of wheat Fusarium head blight in China (early May 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	85.3	0	0	0	85.3	0
North China	3557.3	12.7	6.7	2.6	3579.3	1
East China	8395.3	94.7	44.7	21.3	8556	2
South China	16.7	0	0	0	16.7	0
Central China	6601.3	68.7	33.3	6.7	6710	2
Northwest China	3350.7	16	6.7	2.6	3376	1
Southwest China	1828.7	0	0	0	1828.7	0
Total	**23835.3**	**192.1**	**91.4**	**33.2**	**24152**	**1**

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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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