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## Crop pests and diseases monitoring and forecasting in China

Mid May 2019

**Medium infestation of pests and diseases on wheat so far**  
Affected area reached 13.5 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.

Mid May in 2019, due to the higher 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 13.5 million hectares.

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### 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 19.7 °C , and higher 1.1 °C than previous years.

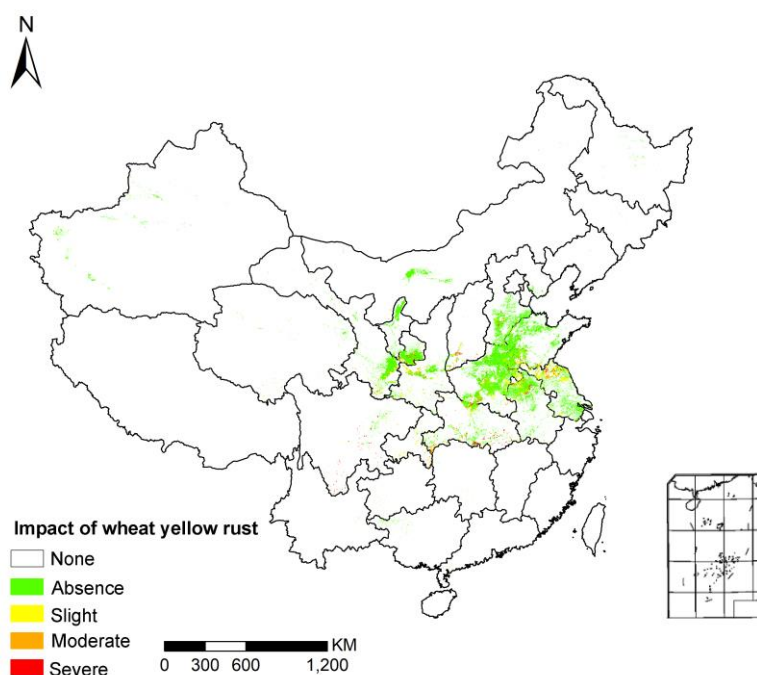
Field precipitation in South China are higher than previous years. Field humidity reached a suitable level for pests and diseases development.

## Wheat yellow rust

In mid May 2019, the occurrence of yellow rust reached 0.7 million hectares, with the disease mainly occurred in Northwest China, Southwest China, and Central China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the yellow rust severely

occurred in the northern regions of Anhui and the southern regions of Gansu; moderately occurred in the southern regions of Shanxi, the southern regions of Hebei, the western regions of Shandong, Chongqing and Sichuan; slightly occurred in the northern regions of Jiangsu and the southern regions of Shaanxi.



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

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

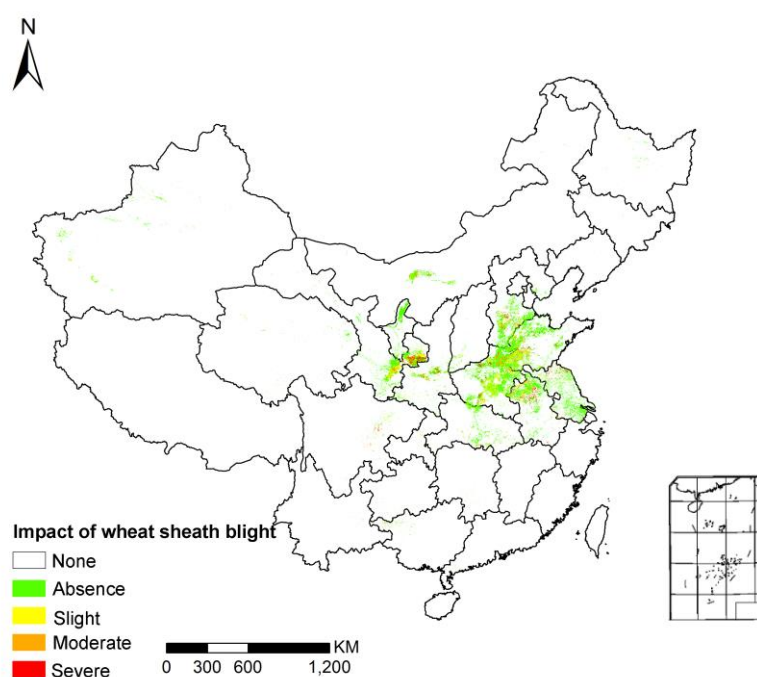
Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
<b>Northeast China</b>	85.3	0	0	0	85.3	0
<b>North China</b>	3497.3	30	30	22	3579.3	2
<b>East China</b>	8313.3	152.7	58	32	8556	3
<b>South China</b>	16.7	0	0	0	16.7	0
<b>Central China</b>	6522	123.3	42	22.7	6710	3
<b>Northwest China</b>	3279.3	32.7	37.3	26.7	3376	3
<b>Southwest China</b>	1778.7	14.7	20.7	14.6	1828.7	3
<b>Total</b>	<b>23492.6</b>	<b>353.4</b>	<b>188</b>	<b>118</b>	<b>24152</b>	<b>3</b>

## Wheat sheath blight

In early May 2019, the occurrence of sheath blight reached 6.0 million hectares, with the disease mainly occurred in Central China and Southwest China. The specific distributions and severities are shown in Figure 2 and Table 2.

Specifically, the sheath blight severely

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



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

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

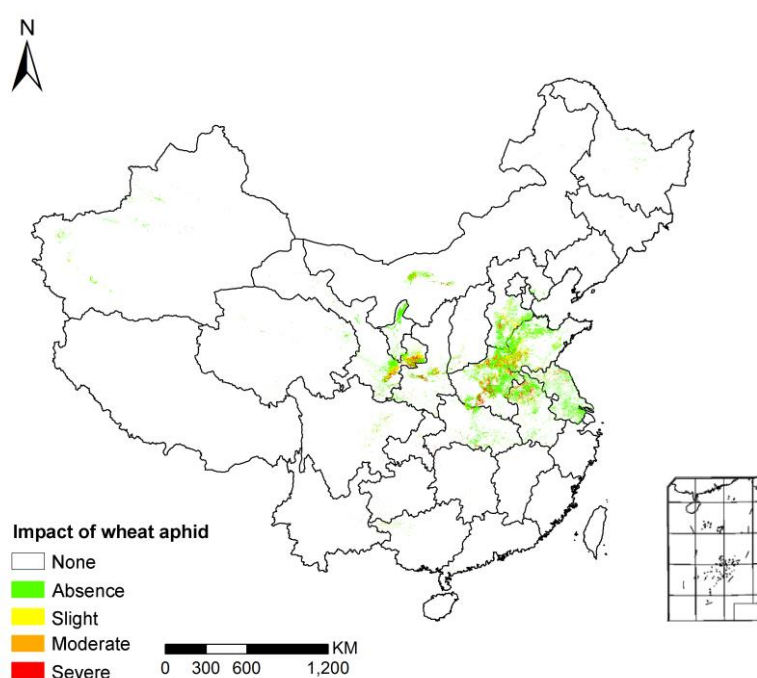
Region	Area / Thousand hectare					Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe			
Northeast China	76	4.7	2.6	2	85.3	11	
North China	2786	396	240	157.3	3579.3	22	
East China	6366.7	1451.3	479.3	258.7	8556	26	
South China	12.7	2	1.3	0.7	16.7	24	
Central China	4980.7	1184.7	359.3	185.3	6710	26	
Northwest China	2493.3	442.7	266.7	173.3	3376	26	
Southwest China	1390	220	132	86.7	1828.7	24	
<b>Total</b>	<b>18105.4</b>	<b>3701.4</b>	<b>1481.2</b>	<b>864</b>	<b>24152</b>	<b>25</b>	

## Wheat aphid

In early May 2019, the occurrence of aphid reached 6.5 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 the southern regions of Henan, the northern regions of Anhui and the northern regions of

Jiangsu; moderately occurred in the eastern regions of Gansu, the northern regions of Henan, the western regions of Shandong, the eastern regions of Sichuan and the central regions of Shaanxi; slightly occurred in the southern regions of Hebei and the northern regions of Shandong.



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

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

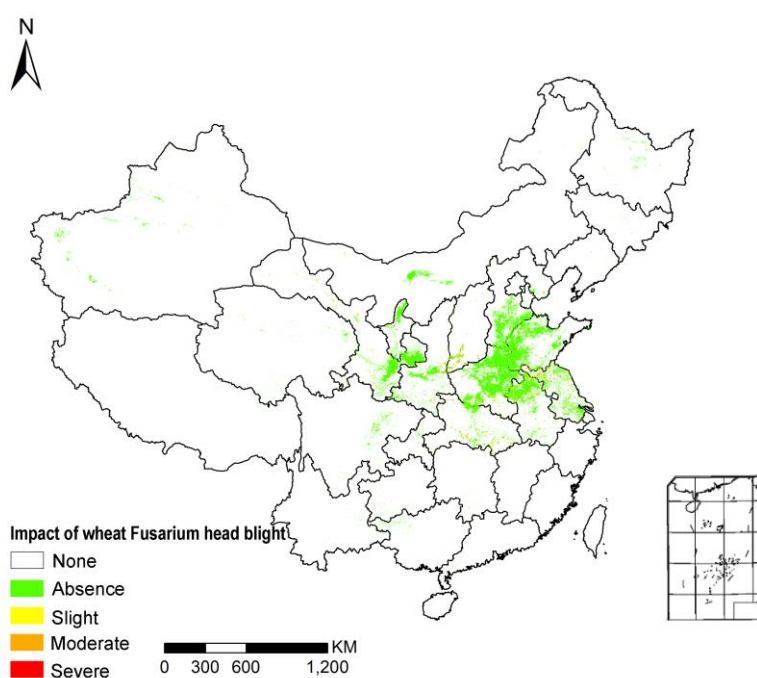
Region	Area / Thousand hectare					Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe			
<b>Northeast China</b>	77.3	4	2	2	85.3	9	
<b>North China</b>	2674.7	523.3	236	145.3	3579.3	25	
<b>East China</b>	6202	1508	540.7	305.3	8556	28	
<b>South China</b>	12	2.7	1.3	0.7	16.7	28	
<b>Central China</b>	4859.3	566.7	734.7	549.3	6710	28	
<b>Northwest China</b>	2431.3	436	301.3	207.4	3376	28	
<b>Southwest China</b>	1419.3	127.4	161.3	120.7	1828.7	22	
<b>Total</b>	<b>17675.9</b>	<b>3168.1</b>	<b>1977.3</b>	<b>1330.7</b>	<b>24152</b>	<b>27</b>	

## 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 4 and Table 4.

Specifically, the Fusarium head blight severely occurred in the southern regions of

Jiangsu; moderately occurred in the southern regions of Henan, the central regions of Hubei and the southern regions of Anhui; slightly occurred in the southern regions of Shaanxi, the central regions of Henan, the western regions of Shandong and the southern regions of Hebei.



**Figure 4** Spatial distribution of wheat Fusarium head blight in China (mid May 2019)

**Table 4** Statistics of wheat Fusarium head blight in China (mid May 2019)

Region	Area / Thousand hectare					Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe			
Northeast China	85.3	0	0	0	85.3	0	
North China	3546.6	12.7	12	8	3579.3	1	
East China	8387.3	73.3	56.7	38.7	8556	2	
South China	16.7	0	0	0	16.7	0	
Central China	6592	54.7	35.3	28	6710	2	
Northwest China	3348.7	11.3	8	8	3376	1	
Southwest China	1828.7	0	0	0	1828.7	0	
<b>Total</b>	<b>23805.3</b>	<b>152</b>	<b>112</b>	<b>82.7</b>	<b>24152</b>	<b>1</b>	

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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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