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Crop pests and diseases monitoring and forecasting in China
2018

Severe infestation of pests and diseases on wheat in 2018

Affected area reached 18.5 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 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 higher temperature and precipitation with previous years, pest and disease are severely occurred in winter wheat regions of China. The total area affected by wheat yellow rust (*Puccinia striiformis*), sheath blight (*Rhizotonia cerealis*) and aphids (*Sitobion avenae* & *Rhopalosiphum padi*) might reach 18.5 million hectares.

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Review of meteorological conditions

Field temperature in Southern and Western China are warmer than previous years. The predicted annual average temperature in China might reach 14.5°C in 2018, which is 0.6°C higher than previous years, and in part of the northern area, 1-4°C higher than long-term average field temperature. Meteorological conditions in these areas were conducive to the overwintering of wheat pests and diseases.

Field humidity in Southern and Western China are suitable for pests and diseases development. Affected by winter snowfall in Southern China in January and February, field humidity increased and reached a suitable level for pests and diseases development.

Wheat yellow rust

In 2018, the occurrence of yellow rust might reach 2.5 million hectares, with the disease mainly occur in North China, East China, and Northwest China. The specific

distributions and severities are shown in Figure 1 and Table 1.

Specifically, the yellow rust might occur in Ningxia, Gansu, Hebei, Shandong, Anhui, and Jiangsu.

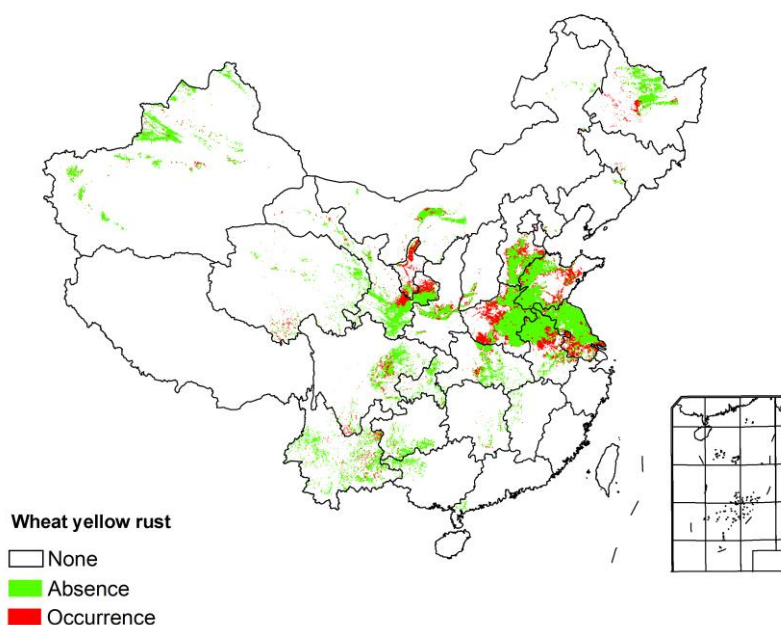


Figure 1 Spatial distribution of wheat yellow rust in China (2018)

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

Region	Area / Ten thousand hectare			
	Absence	Occurrence	Total area	Occurrence ratio/%
Northeast China	9.2	1.1	10.3	11
North China	319.8	36.0	355.8	10
East China	763.8	90.0	853.8	11
South China	1.6	0	1.6	0
Central China	588.4	77.1	665.5	12
Northwest China	296.8	36.1	332.9	11
Southwest China	174.4	12.5	186.9	7
Total	2154.0	252.8	2406.8	11

Wheat sheath blight

In 2018, the occurrence of sheath blight might reach 7.2 million hectares, with the disease mainly occur in Central China, North China, and East China. The specific

distributions and severities are shown in Figure 2 and Table 2.

Specifically, the sheath blight might occur in Gansu, Hebei, Henan, Shandong, Jiangsu, and Anhui.

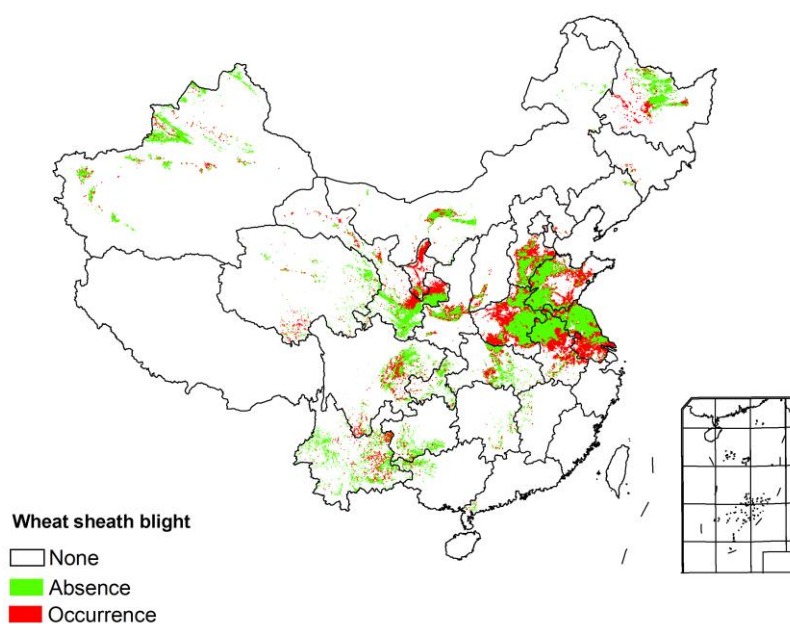


Figure 2 Spatial distribution of wheat sheath blight in China (2018)

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

Region	Area / Ten thousand hectare			
	Absence	Occurrence	Total area	Occurrence ratio/%
Northeast China	7.8	2.5	10.3	24
North China	248.9	106.9	355.8	30
East China	609.3	244.5	853.8	29
South China	1.4	0.2	1.6	13
Central China	438.9	226.6	665.5	34
Northwest China	233.2	99.7	332.9	30
Southwest China	151.1	35.8	186.9	19
Total	1690.6	716.2	2406.8	30

Wheat aphid

In 2018, the occurrence of aphid might reach 8.8 million hectares, mainly occur in North China, North China and Central China. The specific distributions and severities are

shown in Figure 3 and Table 3.

Specifically, the aphid might occur in Gansu, Hebei, Henan, Shandong, Anhui, Jiangsu, and Heilongjiang.

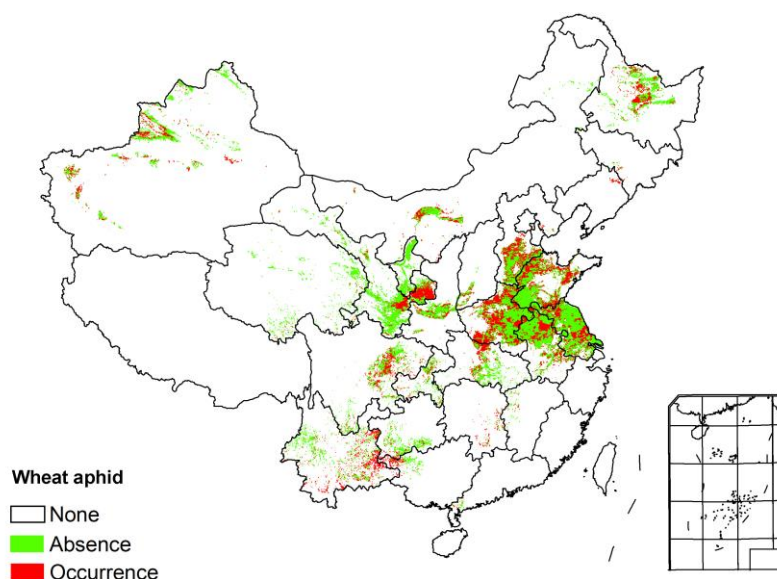


Figure 3 Spatial distribution of wheat aphid in China (2018)

Table 3 Statistics of wheat aphid in China (2018)

Region	Area / Ten thousand hectare			
	Absence	Occurrence	Total area	Occurrence ratio/%
Northeast China	6.8	3.5	10.3	34
North China	230.2	125.6	355.8	35
East China	543.3	310.5	853.8	36
South China	1.1	0.5	1.6	31
Central China	399.0	266.5	665.5	40
Northwest China	226.5	106.4	332.9	32
Southwest China	115.3	71.6	186.9	38
Total	1522.2	884.6	2406.8	37

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Chinese

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

<http://www.rscropmap.com/>

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Disclaimer

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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