

Aerospace Information Research Institute, Chinese Academy of Sciences
Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
Key laboratory of Digital Earth Science, Chinese Academy of Sciences
Sino-UK Crop Pest and Disease Forecasting & Management Joint Laboratory
Key Lab of Aviation Plant Protection, Ministry of Agriculture and Rural Affairs, P.R. China

Crop pests and diseases monitoring and forecasting in China

Early April 2018

Minor infestation of pests and diseases on wheat so far

Affected area reached 6.0 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.

Early April in 2018, due to the similar or lower temperature and similar precipitation with previous years, pest and disease are lightly 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*) has reached 6 million hectares.

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Review of meteorological conditions

Field temperature in Southern and Western China are equal with previous years. In March 2018, maximum of the averaged field temperature of the plant areas in China reached 7°C, and in part of the southern area, reached 11.5°C. Meteorological conditions in these areas were conducive to the overwintering of pests and diseases.

Field precipitation in Central China and East China are equal with previous years. According to the rainfall process in East China in March, field humidity increased and reached a suitable level for pests and diseases development.

Wheat yellow rust

In early April 2018, the occurrence of yellow rust reached 0.2 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 severely occurred in Sichuan and Hubei, moderately occurred in Shannxi and Gansu, slightly occurred in Henan.

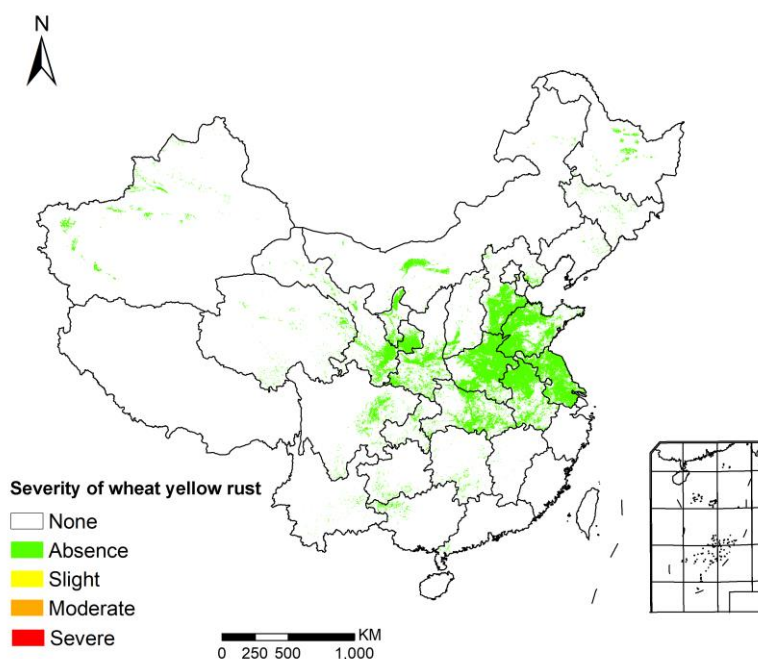


Figure 1 Spatial distribution of wheat yellow rust in China (early April 2018)

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

Region	Area / Thousand hectare					Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe			
Northeast China	85.3	0	0	0	85.3	0	
North China	3554.0	18.7	4.6	2.0	3579.3	1	
East China	8478.0	50.0	18.0	10.0	8556.0	1	
South China	16.7	0	0	0	16.7	0	
Central China	6650.0	29.3	18.7	12.0	6710.0	1	
Northwest China	3344.7	20.0	7.3	4.0	3376.0	1	
Southwest China	1813.3	4.7	6.0	4.7	1828.7	1	
Total	23942	122.7	54.6	32.7	24152	1	

Wheat sheath blight

In early April 2018, the occurrence of sheath blight reached 4.2 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 Hubei; moderately occurred in Sichuan, Shanxi, and Henan; while slightly occurred in Gansu, Shannxi, and Liaoning.

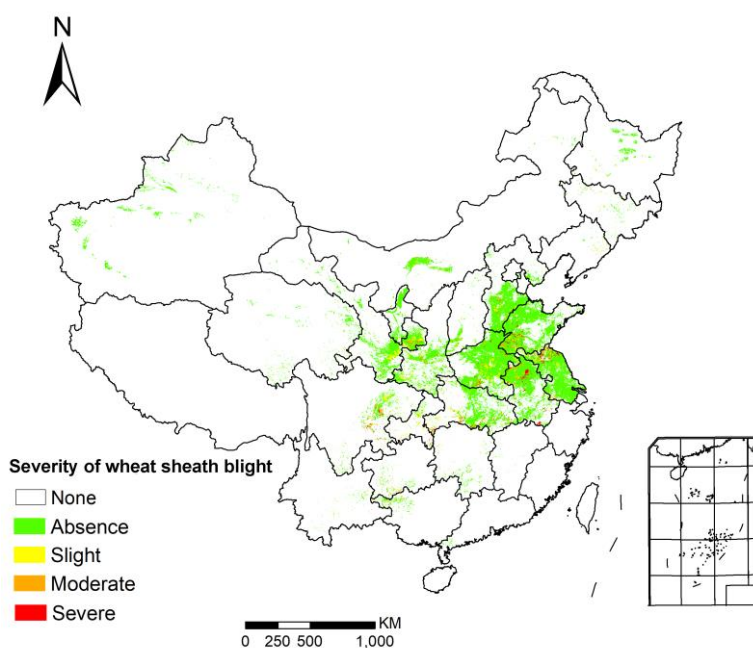


Figure 2 Spatial distribution of wheat sheath blight in China (early April 2018)

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

Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	79.3	4.0	1.3	0.7	85.3	7
North China	3038.0	380.6	108.7	52.0	3579.3	15
East China	7013.4	521.2	590.7	430.7	8556.0	18
South China	14.0	1.3	0.7	0.7	16.7	18
Central China	5504.7	607.3	357.3	240.7	6710.0	18
Northwest China	2760.0	411.3	134.7	70.0	3376.0	18
Southwest China	1512.7	159.3	94.0	62.7	1828.7	17
Total	19922.1	2085	1287.4	857.5	24152.0	18

Wheat aphid

In early April 2018, the occurrence of aphid reached 1.6 million hectares, mainly occurred in Central China and East China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the aphid severely occurred in Jiangsu, Anhui, and Hubei; moderately occurred in Anhui, Shandong, and Sichuan; while slightly occurred in Henan and Hebei.

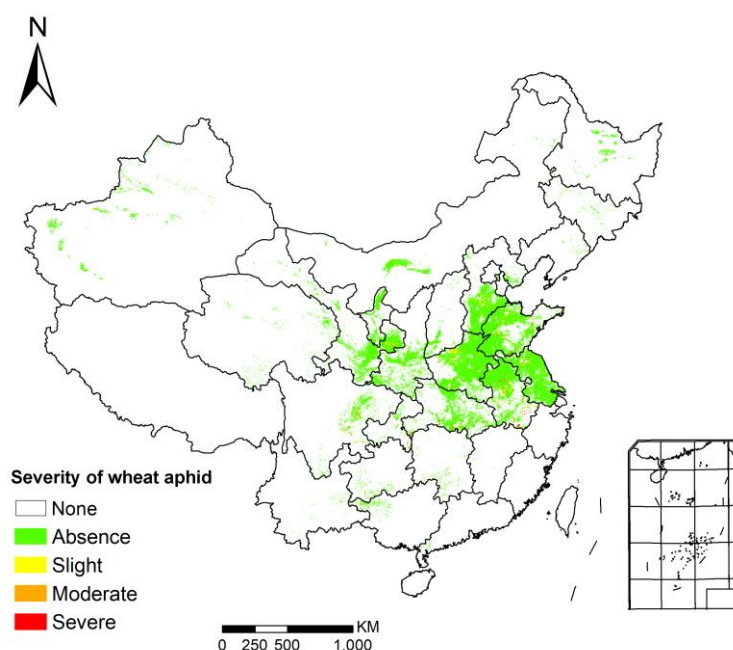


Figure 3 Spatial distribution of wheat aphid in China (early April 2018)

Table 3 Statistics of wheat aphid in China (early April 2018)

Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	83.3	1.3	0.7	0	85.3	2
North China	3356.7	156.0	44.6	22.0	3579.3	6
East China	7975.3	278.7	180.7	121.3	8556.0	7
South China	16.0	0.7	0	0	16.7	4
Central China	6256.0	307.3	96.0	50.7	6710.0	7
Northwest China	3142.7	163.3	46.7	23.3	3376.0	7
Southwest China	1723.3	31.3	42.8	31.3	1828.7	6
Total	22553.3	938.6	411.5	248.6	24152.0	7

Contact us

Institute of remote sensing and digital earth Chinese academy of sciences

No.9 Dengzhuang South Road,Haidian District,

Beijing 100094, P.R.China.

<http://rscrop.com/>

<http://www.rscropmap.com>

<http://www.wechat.com/en/>



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

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

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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.

Contact us **Email:** rscrop@radi.ac.cn

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Corresponding author

Professor Wenjiang Huang

Institute of Remote Sensing and Digital Earth,
Chinese Academy of Sciences

Email: huanwj@radi.ac.cn

Tel: +86-10-82178178

FAX: +86-10-82178177

Main contributors

Chinese contributors: Yingying Dong, Huichun Ye, Yue Shi, Qiong Zheng, Huiqin Ma, Linyi Liu, Jingcheng Zhang, Jingfeng Huang, Xiangqun Nong, Bo Liu, Bei Cui, Linsheng Huang, Juhua Luo, Xiaoping Du, Xiaodong Yang, Yanhua Meng, Hong Chang, Qing Zhang, Dacheng Wang, Gang Sun, Dailiang Peng, Longlong Zhao, Wei Feng, Chao Ding, Xianfeng Zhou, Qiaoyun Xie, Weiping Kong, Cuicui Tang, Fang Xu, Jianli Li, Wenjing Liu, Junjing Lu, Bin Wu, Naichen Xing, Furan Song, Chuang Liu, Chao Ruan, Yun Geng, Yu Ren, Jing Jiang, Zhaochuan Wu, Anting Guo, Yu Jin.

Foreign contributors: Belinda Luke, Pablo Gonzalez-Moreno, Sarah Thomas, Timothy Holmes, Bryony Taylor, Feng Zhang, Hongmei Li, Wenhua Chen, Jason Chapman, Martin Wooster, Bethan Perkins, Hugh Mortimer, Jon Styles, Andy Shaw, Liangxiu Han, Yanbo Huang, Ruiliang Pu, Jadu Dash, Stefano Pignatti, Giovanni Laneve, Raffaele Casa, Simone Pascucci.