

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 2019

Minor infestation of pests and diseases on wheat so far Affected area reached 5.2 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 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 2019, the temperature and precipitation is a little bit higher than previous years, and pest and disease are slightly occurred in winter wheat regions of China. The total area affected by wheat yellow rust (*Puccinia striiformis*), sheath blight (*Rhizotonia cerealis*), and aphid (*Sitobion avenae* & *Rhopalosiphum padi*) has reached 5.2 million hectares.

Review of meteorological conditions

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Field temperature in Southern and Western China are higher than previous years. In March 2019, the averaged field temperature of the plant areas in China reached 5.6 °C , and higher 1.5 °C than previous years.

In March 2019, the average field precipitation in China reached 30mm, equaled with previous years. In April 2019, in the middle and lower reaches of the Yangtze River basin, the Jianghuai, and the southern Huanghuai wheat area, precipitation was higher than previous years. Field temperature and humidity reached a suitable level for pests and diseases development.

Wheat yellow rust

In early April 2019, the occurrence of yellow rust reached 0.2 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 occurred in southeastern regions of Gansu, central regions of Shaanxi, central regions of Henan, southwestern regions of Shandong, northern regions of Anhui, northern regions of Jiangsu.

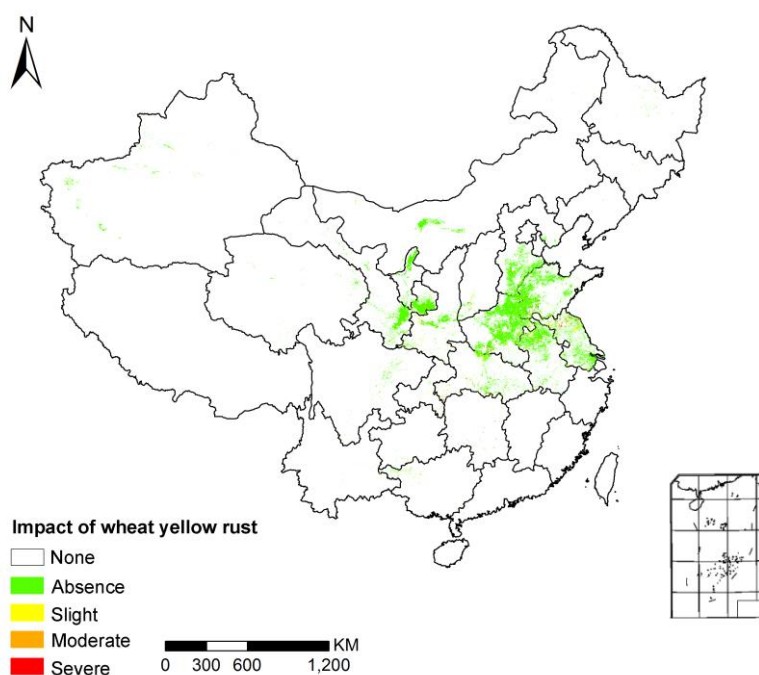


Figure 1 Spatial distribution of wheat yellow rust in China (early April 2019)

Table 1 Statistics of wheat yellow rust in China (early April 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	3561.4	9.3	5.3	3.3	3579.3	1
East China	8499.3	21.3	20.7	14.7	8556	1
South China	16.7	0	0	0	16.7	0
Central China	6665.9	22.7	12.7	8.7	6710	1
Northwest China	3353.3	11.3	6.7	4.7	3376	1
Southwest China	1816	8.7	2.7	1.3	1828.7	1
Total	23997.9	73.3	48.1	32.7	24152	1

Wheat sheath blight

In early April 2019, the occurrence of sheath blight reached 3.6 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 southeastern regions of Gansu and

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

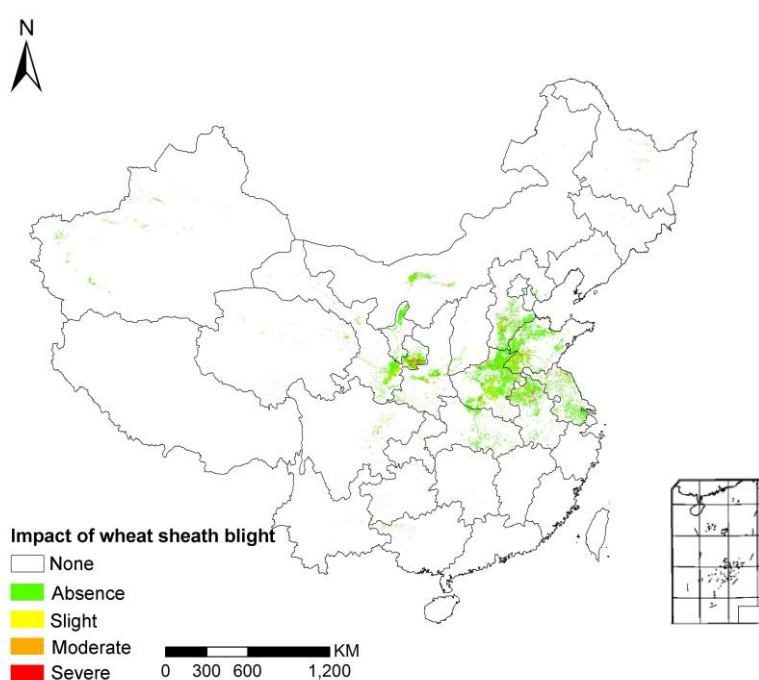


Figure 2 Spatial distribution of wheat sheath blight in China (early April 2019)

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

Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	80.7	2	1.3	1.3	85.3	5
North China	3118	231.3	138.7	91.3	3579.3	13
East China	7230.7	883.3	284.7	157.3	8556	15
South China	14	1.3	0.7	0.7	16.7	16
Central China	5682	704.7	213.3	110	6710	15
Northwest China	2847.4	266	157.3	105.3	3376	16
Southwest China	1555.3	136.7	82.7	54	1828.7	15
Total	20528.1	2225.3	878.7	519.9	24152	15

Wheat aphid

In early April 2019, the occurrence of aphid reached 1.4 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 central regions of Shaanxi, southern regions of

Henan and northern regions of Anhui; moderately occurred in eastern regions of Gansu, western regions of Shandong and northern regions of Henan; slightly occurred in southern regions of Henan, northern regions of Shandong and central regions of Anhui.

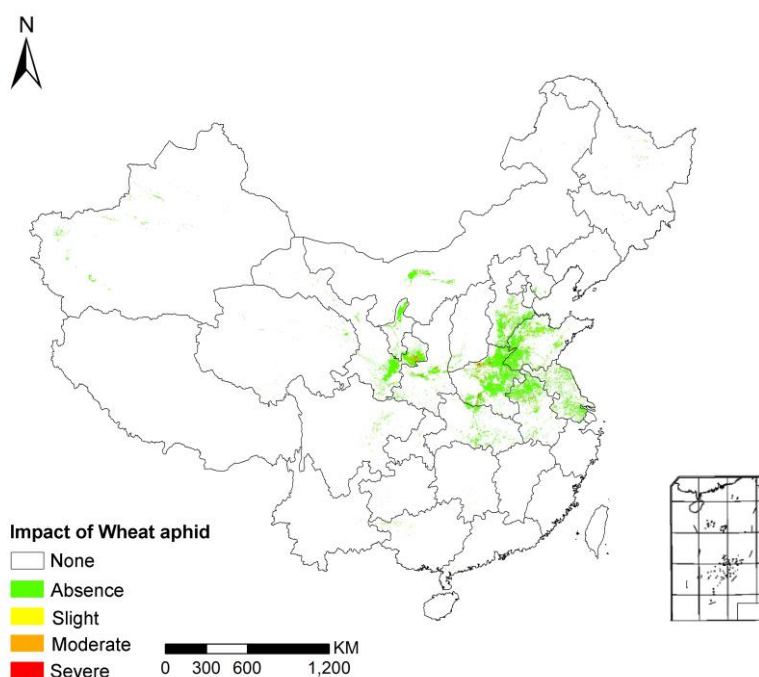


Figure 3 Spatial distribution of wheat aphid in China (early April 2019)

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

Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	83.2	0.7	0.7	0.7	85.3	2
North China	3385.3	112	50.7	31.3	3579.3	5
East China	8048.7	324	117.3	66	8556	6
South China	15.3	0.7	0.7	0	16.7	8
Central China	6315.3	120.7	156.7	117.3	6710	6
Northwest China	3173.3	94	64.7	44	3376	6
Southwest China	1736	28.7	36.7	27.3	1828.7	5
Total	22757.1	680.8	427.5	286.6	24152	6

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

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

This crop pest and disease monitoring and forecasting report was released by Professor Wenjiang Huang's research group in AIR-CAS.

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

Foreign contributors: Belinda Luke, Pablo Gonzalez-Moreno, Sarah Thomas, Timothy Holmes, Bryony Taylor, Hongmei Li, Wenhua Chen, Martin Wooster, Bethan Perkins, Jason Chapman, Stefano Pignatti, Giovanni Laneve, Raffaele Casa, Simone Pascucci.

Advisory Experts: Bing Zhang, Jihua Wang, Qiming Qin, Puyun Yang, Yuying Jiang, Jingquan Zhu, Zhonghua Zhao, Yubin Lan, Anhong Guo, Zhanhong Ma, Yilin Zhou, Wenbing Wu, Feng Zhang, Zhiguo Wang, Lifang Wu, Dong Liang, Yanbo Huang, Chenghai Yang, Ruiliang Pu, Hugh Mortimer, Jon Styles, Andy Shaw, Liangxiu Han, Jadu Dash.