

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 Global

April to May 2018

Minor infestation of pests and diseases on wheat

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.

During April to May 2018, wheat rust (*Puccinia striiformis*), Fusarium head blight (*Fusarium graminearum*), aphid (*Sitobion avenae* & *Rhopalosiphum padi*) slightly occurred in ten main wheat production countries, including Russia, France, Turkey, China, Pakistan, United States, Germany, Iran, Uzbekistan, and United Kingdom.

Wheat diseases

Content

Overview	1
Wheat diseases	1
Wheat aphid	2
Contact us	4

The distribution of wheat diseases in these ten countries is shown in Figure 1. The total wheat area in Russia is about 31 million hectares, with affected area of rust accounts for 9%, mainly occurred in the Caucasus, and central economic Region. The total wheat area in France is about 8 million hectares, with affected area of rust accounts for 4%, mainly occurred in maize, barley and livestock zone along the English Channel, and mixed maize/barley and repassed zone from the center to the Atlantic Ocean. The total wheat area in Turkey is about 8 million hectares, with affected area of rust accounts for 12%, mainly occurred in central Anatolia region, and Marmara, Aegean, Mediterranean lowland region. The total wheat area in China is about 24 million hectares, with affected area of rust in China accounts for 4%, mainly occurred in

North China and Central China. The total wheat area in Pakistan is about 14 million hectares, with affected area of rust accounts for 17%, mainly occurred in northern highlands, and northern Punjab. The total wheat area in the United States is about 16 million hectares, with affected area of Fusarium head blight accounts for 5%, mainly occurred in southern plains, California, and northwest. The total wheat area in Iran is about 10 million hectares, with affected area of rust accounts for 10%, mainly

occurred in semi-arid to sub-tropical hills of the west and the north. The total wheat area in Uzbekistan is about 2 million hectares, with affected area of rust accounts for 14%, mainly occurred in eastern hilly cereals zone, and Aral Sea cotton zone. The total wheat area in United Kingdom is about 2 million hectares, with affected area of rust accounts for 8%, mainly occurred in south English mixed wheat and barley zone, and sparse crop area of England, Wales and Northern Ireland.

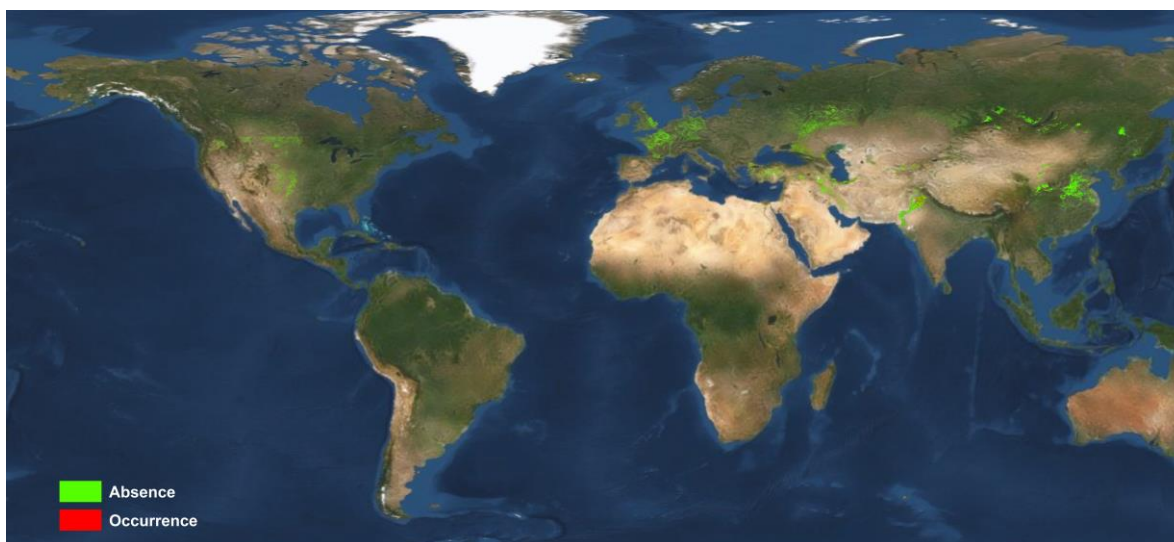


Figure 1 Distribution of wheat disease in ten production countries

Wheat aphid

The affected area of wheat aphid in Russia accounts for 10%, mainly occurred in Volga basin, the Caucasus, and central economic Region. The affected area of wheat aphid in France accounts for 5%, mainly occurred in maize, barley and livestock zone along the English Channel, Southwest maize zone, and mixed maize/barley and repassed zone from

the center to the Atlantic Ocean. The affected area of wheat aphid in China accounts for 31%, mainly occurred in North China, Central China and Southwest China. The affected area of wheat aphid in Pakistan accounts for 22%, mainly occurred in northern highlands, northern Punjab, and lower Indus river basin in south Punjab and Sind. The affected area of wheat

aphid in the United States accounts for 5%, mainly occurred in southern plains, and northwest. The total wheat area in Germany is about 5 million hectares, with the affected area of aphid accounts for 9%, mainly occurred in central wheat zone of Saxony and Thuringia, wheat zone of Schleswig- Holstein and the Baltic coast, and mixed wheat and sugar beets zone of the northwest. The affected area of

wheat aphid in Iran accounts for 12%, mainly occurred in semi-arid to sub-tropical hills of the west and the north. The affected area of wheat aphid in Uzbekistan accounts for 17%, mainly occurred in eastern hilly cereals zone. The affected area of wheat aphid in the United Kingdom accounts for 11%, mainly occurred in south English mixed wheat and barley zone.

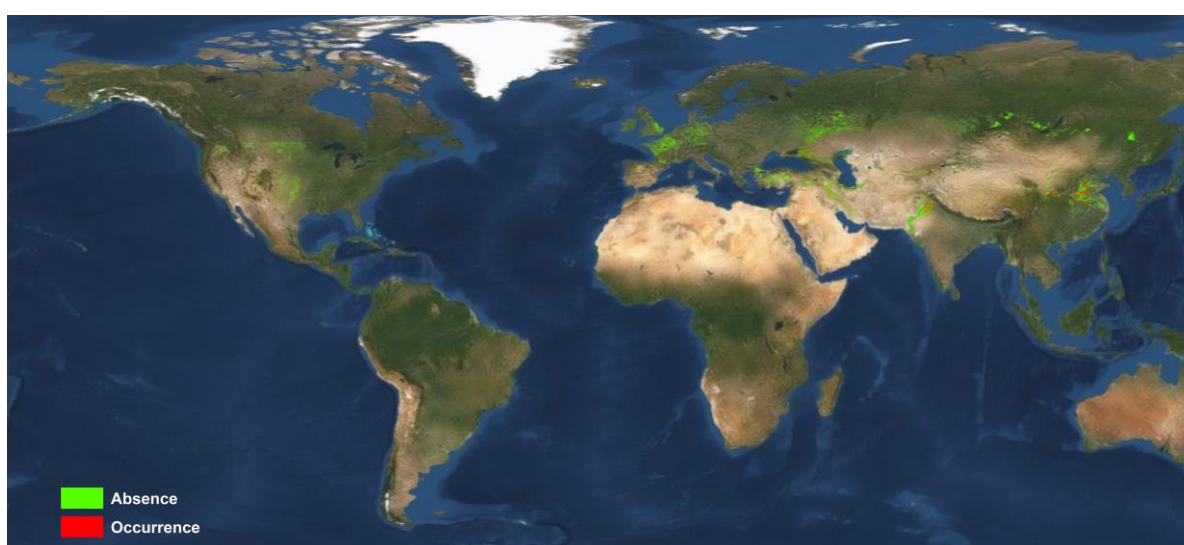


Figure 2 Distribution of wheat pest in ten production countries

Table 1 Statistics of wheat disease and pest in ten production countries

Winter wheat production countries	Disease and pest occurrence ratio / %			Total planting area / million hectares
	Rust	Fusarium head blight	Aphid	
Russia	9	/	10	31
China	4	/	31	24
United States	/	5	5	16
Pakistan	17	/	22	14
Iran	10	/	12	10
France	4	/	5	8
Turkey	12	/	/	8
Germany	/	/	9	5
Uzbekistan	14	/	17	2
United Kingdom	8	/	11	2

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/>



Chinese



English

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

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

Legal Notice

Neither the institution of remote sensing and digital earth nor any person action on behalf of the institute is responsible for the use which might be made of the publication.

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.

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

Supported by the Strategic Priority Research Program of the Chinese Academy of Sciences (XDA19080304), National Key R&D Program of China (2016YFB0501501), National Natural Science Foundation of China (61661136004) and the STFC Newton Agritech Programme (ST/N006712/1).

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.