

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

Mid August 2019

Medium infestation of pests and diseases on maize so far Affected area reached 5.5 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.

Mid August in 2019, due to the higher temperature and higher precipitation than previous years, pest and disease are moderately occurred in maize regions of China. The total area affected by maize armyworm (*Mythimna separata*), maize fall armyworm (*Spodoptera frugiperda*) and maize northern leaf blight (*Setosphaeria turcica*) has reached 5.5 million hectares.

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Review of meteorological conditions

Field temperature in Northeast China are lower than previous years. In mid-August, the averaged field temperature of the plant areas in most China was 1-4°C higher than the same period of previous years.

Field precipitation in Southwest China and Northern China are higher than previous years. According to the rainfall process in Northeast China and eastern regions of North China in early-mid August, field humidity reached a suitable level for pests and diseases development.

Maize armyworm

In the middle of August 2019, the occurrence of maize armyworm reached 2.9 million hectares, with the pest mainly occurred in Northeast China, North China and Northwest China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the maize armyworm severely occurred in southwestern regions of

Heilongjiang, southern regions of Jilin, northern regions of Shandong and southeastern regions of Hebei, moderately occurred in northern regions of Jilin, and southern regions of Shanxi, while slightly occurred in Henan, central regions of Shanxi and northern regions of Hunan.

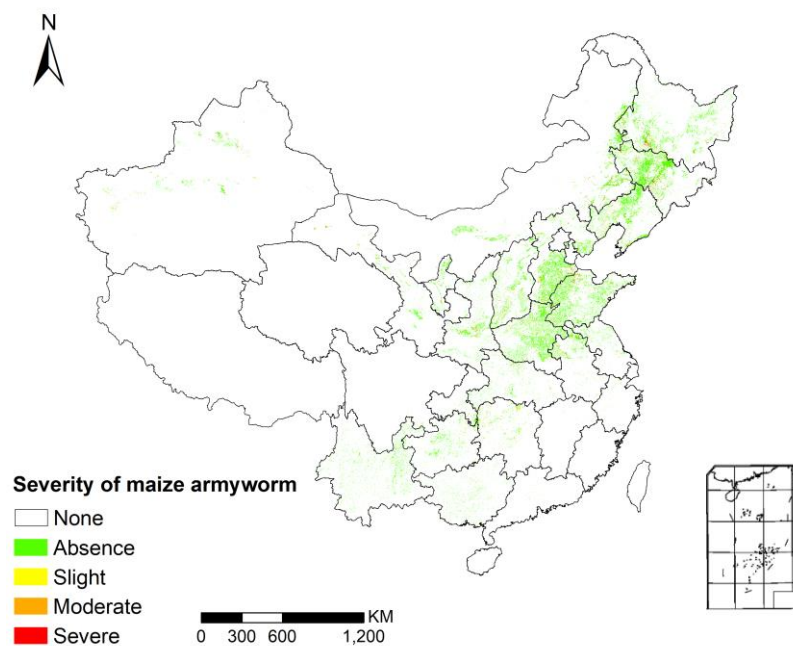


Figure 1 Spatial distribution of maize armyworm in China (mid August 2019)

Table 1 Statistics of maize armyworm in China (mid August 2019)

Region	Area / Thousand hectare					Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe			
Northeast China	10034.7	385.3	411.3	301.4	11132.7	10	
North China	4600	215.3	166.7	117.3	5099.3	10	
East China	4262	184	110	73.3	4629.3	8	
South China	573.3	18	10	7.4	608.7	6	
Central China	3960	252.7	76	39.3	4328	9	
Northwest China	3035.3	129.3	117.3	84.1	3366	10	
Southwest China	2492	154.7	52.7	29.3	2728.7	9	
Total	28957.3	1339.3	944	652.1	31892.7	9	

Maize fall armyworm

In the middle of August 2019, the occurrence of maize fall armyworm reached 1.0 million hectares, with the disease mainly occurred in Southwest China and South China. The specific distributions and severities are shown in Figure 2 and Table 2.

Specifically, the maize fall armyworm severely occurred in southern regions of

Yunnan, Guangxi, Guizhou and southeastern regions of Chongqing, moderately occurred in northern regions of Yunnan, northern regions of Hubei, southern regions of Shaanxi, eastern regions of Shandong and southern regions of Henan, while slightly occurred in Guangdong, Hunan, southern regions of Hubei, Zhejiang and northern regions of Anhui.

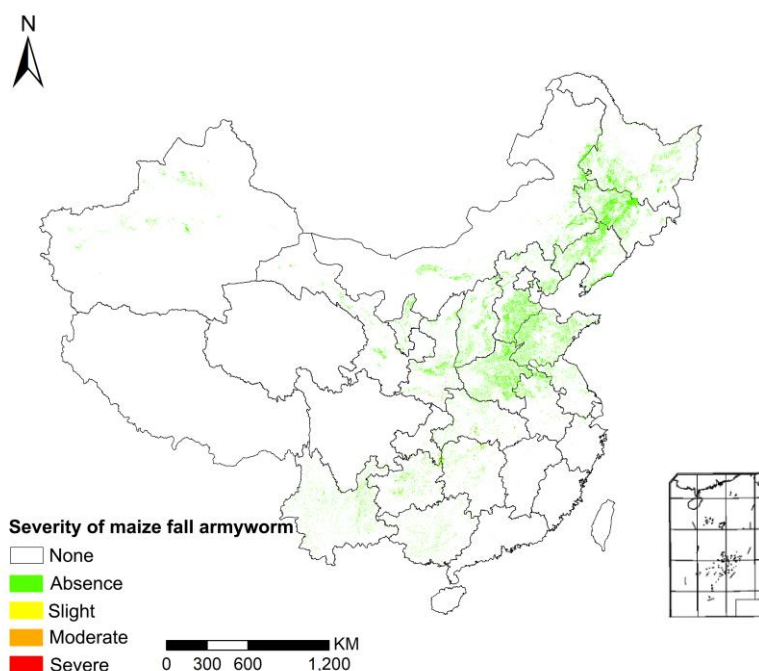


Figure 2 Spatial distribution of maize fall armyworm in China (mid August 2019)

Table 2 Statistics of maize fall armyworm in China (mid August 2019)

Region	Area / Thousand hectare					Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe			
Northeast China	11132.7	0	0	0		11132.7	0
North China	5098.6	0	0.7	0		5099.3	0
East China	4378.6	92.7	90.7	67.3		4629.3	5
South China	523.4	32.7	25.3	27.3		608.7	14
Central China	4070.7	80	89.3	88		4328	6
Northwest China	3321.3	13.3	12.7	18.7		3366	1
Southwest China	2377.4	107.3	117.3	126.7		2728.7	13
Total	30902.7	326	336	328		31892.7	3

Maize northern leaf blight

In the middle of August 2019, the occurrence of maize northern leaf blight reached 1.6 million hectares, with the disease mainly occurred in Northeast China and North China. The specific distributions and severities are shown in Figure 3 and Table 3.

Specifically, the maize northern leaf blight

severely occurred in southwestern regions of Jilin, northern regions of Shandong and southern regions of Hebei, moderately occurred in southern regions of Liaoning and central regions of Hebei, while slightly occurred in Henan and northern regions of Hunan.

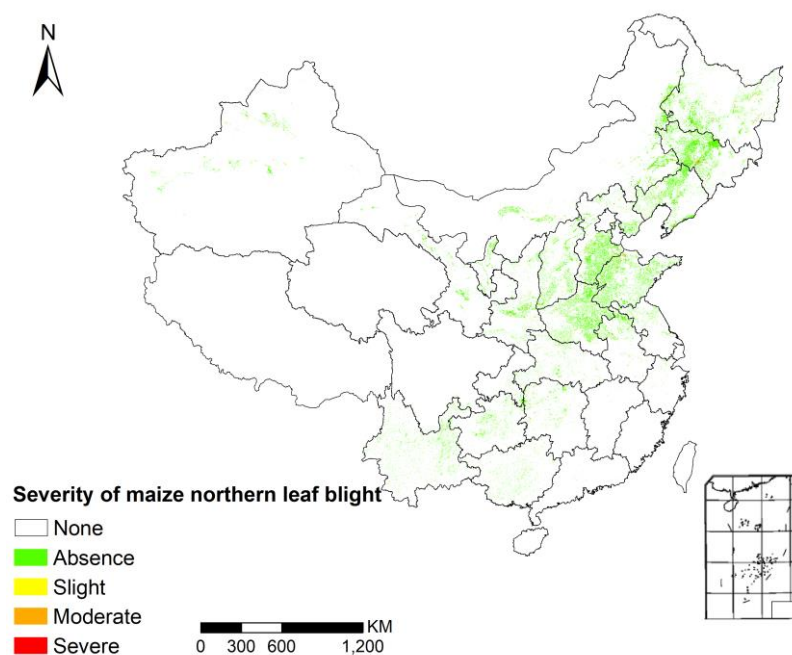


Figure 3 Spatial distribution of maize northern leaf blight in China (mid August 2019)

Table 3 Statistics of maize northern leaf blight in China (mid August 2019)

Region	Area / Thousand hectare				Total area	Occurrence ratio/%
	Absence	Slight	Moderate	Severe		
Northeast China	10530.7	207.3	228.7	166	11132.7	5
North China	4818.7	120	94.7	65.9	5099.3	6
East China	4418	106	63.3	42	4629.3	5
South China	586	11.3	6.7	4.7	608.7	4
Central China	4125.3	139.3	42	21.4	4328	5
Northwest China	3180.7	72	66	47.3	3366	6
Southwest China	2596.7	86.7	29.3	16	2728.7	5
Total	30256.1	742.6	530.7	363.3	31892.7	5

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



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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, Muye 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.