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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 September 2019

Medium infestation of pests and diseases on maize so far

Affected area reached 5.8 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 September 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 5.8 million hectares.

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Review of meteorological conditions

In early September, the averaged field temperature of the maize planting areas in most China was 1-3℃ higher than the same period of previous years.

Field precipitation in Northeast China and North China are higher than previous years. According to the rainfall process in Northeast China, northern regions of North China, eastern regions of Northwest China and Southwest China, field humility reached a suitable level for pests and diseases development.

Maize armyworm

In early September 2019, the occurrence of maize armyworm reached 3.0 million hectares, with the pest mainly occurred in Northeast China, Northwest China and North China. The specific distributions and severities are shown in Figure 1 and Table 1.

Specifically, the maize armyworm severely occurred in southwest Heilongjiang, south Jilin, north Shandong and southeast Hebei, moderately occurred in central Jilin and south Shanxi, while slightly occurred in central Shanxi, central Henan, west Shandong and north Hunan.

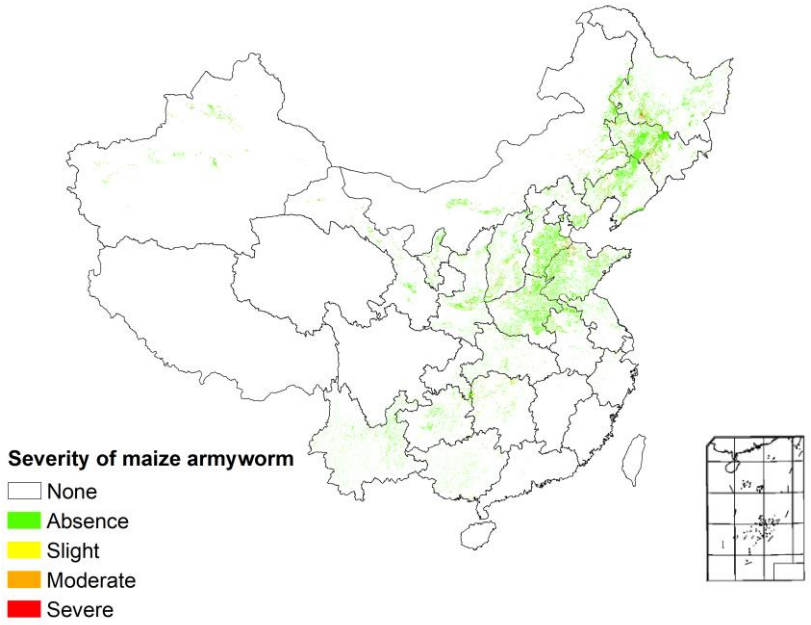

Figure 1 *Spatial distribution of maize armyworm in China (early September 2019)*

Table 1 *Statistics of maize armyworm in China (early September 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	9997.4	398	426	311.3	11132.7	10
North China	4580	224	173.3	122	5099.3	10
East China	4246.7	191.3	114.6	76.7	4629.3	8
South China	570.8	19.3	11.3	7.3	608.7	6
Central China	3944.7	263.3	79.3	40.7	4328	9
Northwest China	3022.7	134	122	87.3	3366	10
Southwest China	2482.7	160.7	55.3	30	2728.7	9
Total	**28845**	**1390.6**	**981.8**	**675.3**	**31892.7**	**10**

Maize fall armyworm

In early September 2019, the occurrence of maize fall armyworm reached 1.1 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 south Guangxi, east Yunnan, central Guizhou and south Hubei, moderately occurred in north Guizhou, southeast Chongqing, northwest Anhui and north Hubei, while slightly occurred in central Hunan, north Chongqing and central Henan.

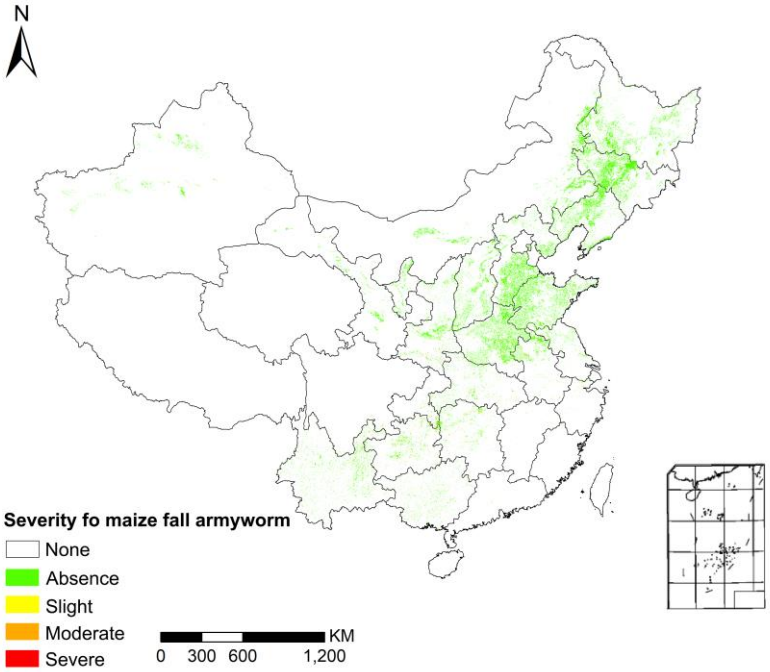

Figure 2 *Spatial distribution of maize fall armyworm in China (early September 2019)*

Table 2 *Statistics of maize fall armyworm in China (early September 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	11132.7	0	0	0	11132.7	0
North China	5083.3	10	5.3	0.7	5099.3	0
East China	4340	120	100	69.3	4629.3	6
South China	517.3	36.7	26.7	28	608.7	15
Central China	4032	110	97.3	88.7	4328	7
Northwest China	3303.4	26	17.3	19.3	3366	2
Southwest China	2356	122	122.7	128	2728.7	14
Total	**30764.7**	**424.7**	**369.3**	**334**	**31892.7**	**4**

Maize northern leaf blight

In early September 2019, the occurrence of maize northern leaf blight reached 1.7 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 northeast Heilongjiang, southwest Jilin, north Shandong and south Hebei, moderately occurred in south Liaoning, central Hebei and central Shaanxi, while slightly occurred in central Henan, central Guizhou and north Shanxi.

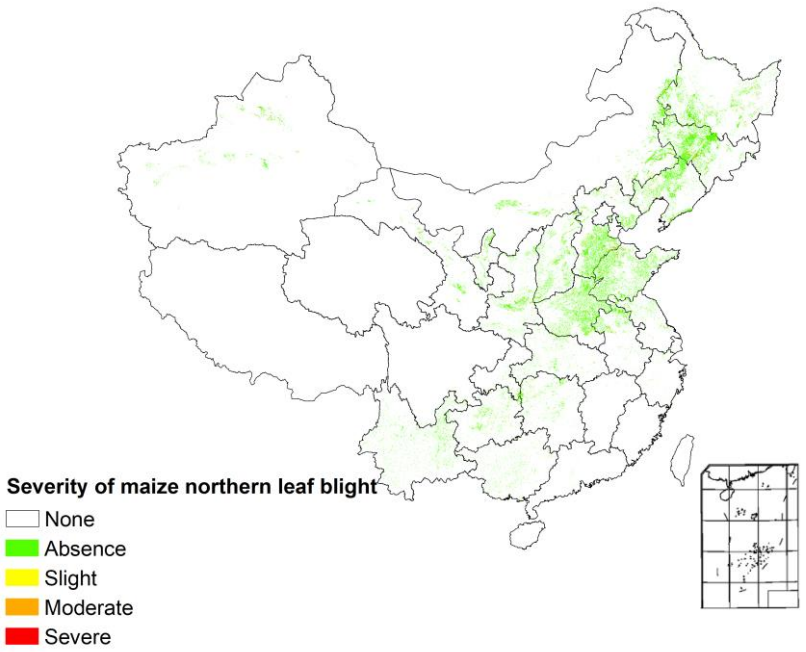

Figure 3 *Spatial distribution of maize northern leaf blight in China (early September 2019)*

Table 3 *Statistics of maize northern leaf blight in China (early September 2019)*

Region	Area / Thousand hectare					
	Absence	Slight	Moderate	Severe	Total area	Occurrence ratio/%
Northeast China	10504	217.3	237.4	174	11132.7	6
North China	4804.6	126.7	98.7	69.3	5099.3	6
East China	4408	111.3	66	44	4629.3	5
South China	585.3	12	6.7	4.7	608.7	4
Central China	4116.7	146	43.3	22	4328	5
Northwest China	3171.3	76	68.7	50	3366	6
Southwest China	2590.6	90.7	30.7	16.7	2728.7	5
Total	**30180.5**	**780**	**551.5**	**380.7**	**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 English

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.

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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.