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Update: Fall Armyworm Now in 15 of China's Provinces

Report Categories:
Agricultural Situation
Pest/Disease Occurrences
Grain and Feed
Sugar

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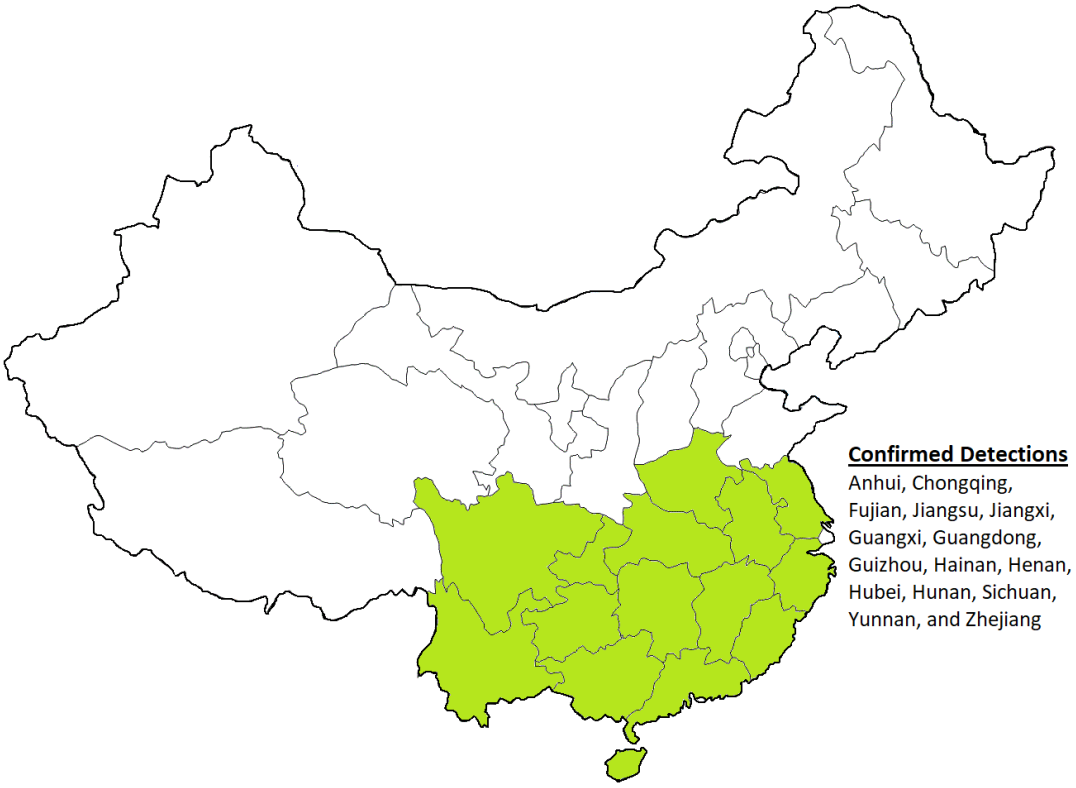
Report Highlights:
The Fall Armyworm (FAW; *Spodoptera frugiperda*) – a crop-eating pest – first detected in China in January 2019 has now spread across 15 Chinese provinces and currently impacts about 90,000 hectares (1.35 million mu) of grain production. Officially, Chinese authorities have employed an emergency action plan to monitor and respond to the pest. FAW has no natural predators in China and its presence may result in lower production and crop quality of corn, rice, wheat, sorghum, sugarcane, cotton, soybean, and peanuts among other cash crops. Experts report that there is a high probability that the pest will continue to spread across China, reaching the Northeast China corn belt by June 2019. China is the world's second largest producer of corn.

General Information:

On January 29, 2019, China's Ministry of Agriculture and Rural Affairs (MARA) reported the first detection of Fall Armyworm (FAW; Spodoptera frugiperda) in Yunnan province. (See GAIN report CH19025). Since the initial report, MARA's National Agricultural Technology Extension Service Center (NATESC) has reported that FAW has been detected in a total of 15 provinces and municipalities across China, including Henan, Anhui, and Jiangsu provinces, which provide a gateway to the North China Plain, a major corn production region. Chinese pest experts forecast that FAW will reach North East China's Corn Belt by June 2019.

To date, the pest has damaged crops on more than 90,000 hectares across South China, predominantly affecting corn and sugarcane production. MARA's NATESC reports that FAW has been detected in Anhui, Chongqing, Fujian, Jiangsu, Jiangxi, Guangxi, Guangdong, Guizhou, Hainan, Henan, Hubei, Hunan, Sichuan, Yunnan, and Zhejiang provinces.

Fall Armyworm Confirmed Detections in China



UPDATE: Fall Armyworm in Africa and Asia

Fall armyworm is an invasive plant pest, which is endemic to North America. The pest consumes plant material and more than 80 species of plants, including corn, rice, wheat, sorghum, sugarcane, cotton, soybean, and peanuts. Since 2016, FAW has caused extensive economic damage across Africa (See FAS GAIN reports from Mozambique, Ethiopia and East Africa for more information). FAW has

reportedly caused corn yield losses ranging from 20 to 50 percent in Africa, South Asia, and Southeast Asia. In China, to date, corn and sugarcane have been most heavily impacted in the Guangxi province.

Production of Major Agricultural Commodities in South China

		Corn	**Rice**	**Soybean**	**Peanut**	**Sugarcane**
1	Yunnan	3%	3%	2.4%	0%	15%
2	Guangxi	1%	5%	1.1%	4%	66%
3	Guangdong	0%	5%	1.3%	6%	13%
4	Hainan	0%	1%	0	1%	2%
5	Guizhou	1%	2%	1.4%	1%	1%
6	Hunan	1%	13%	1.6%	2%	1%
7	Henan	8%	3%	3.9%	29%	0%
8	Anhui	2%	7%	9.7%	5%	0%
9	Jiangsu	1%	9%	3.6%	2%	0%
10	Zhejiang	0%	3%	1.7%	0%	1%
11	Fujian	0%	2%	1.4%	2%	0%
12	Hubei	1%	8%	1.6%	4%	0%
13	Sichuan	4%	8%	4.1%	4%	0%
14	Jiangxi	0%	10%	1.9%	3%	1%
15	Chongqing	1%	2%	1.6%	1%	0%
All Province Total (in 10,000 tons)		**21,955**	**20,707**	**1,294**	**1,729**	**11,382**
Percentage of Total		**25%**	**81%**	**37%**	**64%**	**100%**

Source: China National Bureau of Statistics (2017); 2016 China Agricultural Statistical Report

UPDATE: Pest Management and Control Measures

MARA is taking emergency measures to monitor and control the spread of FAW. Chinese officials reportedly administer a national crop protection monitoring and surveillance program with offices in each local agricultural bureau, implementing a trapping and scouting program. On March 18, 2019, China's MARA issued a 2019 Fall Armyworm Prevention and Control Technology Plan (Pilot Program). The plan recommends the adoption of prevention and control measures on more than 90 percent of the affected area, and environmentally-friendly technical measures, such as crop rotation, across more than 30 percent of the affected area.

MARA and Chinese Academy of Agricultural Sciences (CAAS) researchers have partnered with crop protection companies to revise labeling requirements for certain crop protection chemicals, which have been shown to effectively manage FAW. This effort will enable farmers to more easily access and comply with China's regulations for pesticide use. On May 22, 2019, MARA's NATESC and CAAS's Plant Protection Institute held a seminar in Beijing aimed at selecting pesticides for FAW control.

Twenty pesticides and three spray aids were selected for trials to be conducted in: Yunnan, Guizhou, Guangdong, Guangxi, and Hainan provinces.

Figure 1 - Fall armyworm, Spodoptera frugiperda (Source: USDA/ARS, Photo by Barry Fitzgerald)

Chinese researchers are also collaborating with the private sector to enhance existing drone technology to apply appropriate chemical sprays to ensure that environmental and labor impacts are minimal.

To mitigate the FAW threat, Chinese producers mainly rely on chemicals; biological controls such as fungi or bacteria; or crop management practices such as crop rotation. There are currently no pesticides registered[1] to control FAW for any crops.
It is important to note that most farmers in China do not have the financial resources and training needed to effectively manage FAW. Even if a FAW mitigation program is employed, costly control measures (mainly chemical sprays) will drag producer margins into negative territory for farmers of most crops that could be affected. FAW management requires farmers to closely monitor their fields and to time their spraying efforts to target FAW during its larval stage of development.

Preliminary Pest Forecasts

FAW has become established in South China and is projected to begin moving northward as summer temperatures rise and crops develop along major growing areas in Central China, the North China Plain, and eventually North East China. Seasonal factors such as the timing of the monsoon season in September/October 2019, and the number of typhoons, will influence the timing, distribution, and impact of FAW in North East China and the North China Plain, China's principal grain producing regions. CAAS experts report that there is a high probability that the pest will spread across all of China's grain production area in the coming months. Recent announcements have alerted plant protection and quarantine officials as far north as Shandong Province on the North China Plain, indicating that FAW's progress northward to the North China Plain is imminent. The North China Plain accounts for more than 30 percent of China's total corn production.

While it is difficult to assess the production loss associated with FAW, as FAW continues to spread throughout China, FAS-Beijing anticipates major changes to agricultural practices across China as producers will need to begin adopting crop rotation as one of the practices to manage FAW. Environmental conditions in South China are similar to those in parts of South Asia and South East Asia, where farmers have been dealing with the pest for the past two years. In these regions, chemical pesticides and rainy weather have mitigated the spread and impact of the disease.

[1] China's regulatory authority for plant protection products is the Institute for the Control of Agrochemicals (ICAMA) of the Ministry of Agriculture and Rural Affairs.