

FALL ARMYWORM *SPODOPTERA FRUGIPERDA* ATTACK ON SUGARCANE: AN ADVISORY

Background

The fall armyworm (FAW) *Spodoptera frugiperda* is native to tropical and subtropical regions of the Americas. The lepidopteran pest feeds on leaves and stems of more than 80 plant species causing major damage to economically important cultivated grasses such as maize, rice, sorghum and sugarcane. It has been reported as a minor pest on several dicotyledonous vegetable crops and cotton, besides wild grasses.

In 2016, it was reported for the first time from the African continent and has subsequently spread to more than 30 African countries where it causes significant damage to maize crop and has great potential for further spread and economic damage. In 2018, FAW was reported on maize from the Indian subcontinent in Hassan, Chikkaballapur, Davanagere, Shivamogga and Chitradurga districts of Karnataka. The pest has also been reported mainly on maize in Maharashtra, Tamil Nadu, Andhra Pradesh and Telangana.

Occurrence in sugarcane

Earlier reports of FAW occurrence on sugarcane are limited to Latin American countries. However, after its first appearance on maize in different states of southern India, the pest has been observed in sugarcane in some districts of Tamil Nadu. Following reports of its suspected damage to the crop in Modakurichi, Erode dt and Pugalur, Karur dt, Entomologists of the ICAR-Sugarcane Breeding Institute, Coimbatore, inspected the farms and identified the pest as fall armyworm. In view of its likely spread in the sugarcane belt, the present advisory is being issued to enable its monitoring and management with the available information.

Field symptoms

Armyworm is known to attack maize as a defoliator in the young stage and as a cob borer in the mature stage. In sugarcane, however, it has appeared on the young crop, as was observed in the farms inspected in Erode and Karur districts in November 2018. Irregular holes or windows in leaves of affected plants and feeding on leaf margins were the typical symptoms (Fig. 1a). In some plants, nibbling and shearing off of central shoot was also observed, apparently due to damage by grown-up larvae (Fig. 1b). Meristem damage and deadhearts were not observed though the pest is known to cause such symptoms in maize. In severely affected plants, large quantity of fresh frass pellets could be seen in the whorl with mature larva visible (Fig. 1c) or hidden (Fig. 1d) in the whorl. Older leaves showed patches of dry frass on outer leaves. Affected plants, however, did not show symptoms of withering or drying.



(a)



(b)



(c)



(d)

Fig. 1. Fall armyworm damage in sugarcane: (a) leaf damage; (b) nibbling of central shoot; (c) grown-up larva visible in the whorl; (d) grown-up larva partly hidden in the whorl

Interim management strategy

In the absence of first-hand research knowledge on the pest in sugarcane, the following interim strategy needs to be adopted for its management in sugar factory areas.

1. Survey and monitoring

- Regular surveys in registered and unregistered areas to detect its occurrence, particularly in young crop
- Routine inspection of other major hosts such as maize, sorghum and paddy
- Sensitization of factory personnel and growers to report occurrence based on symptoms

2. Preventive measures

- Movement of seedlings intended for planting from infested areas to be avoided or monitored to prevent entry and dispersal of the pest in uninfested areas
- Cane transport to long distances for crushing or seed to be avoided to prevent accidental dispersal through infested leaves
- Movement of cane tops also to be avoided to prevent possible dispersal, though the suitability of older crop is presently not very clear
- Earthing-up operation to disturb the soil and expose the hiding larvae and pupae to the activity of general predators
- Collection and destruction of visible larval stages from infested plants wherever possible

4. Curative measures

- Treatment of introduced seedlings with insecticide prophylactically or after inspection for the presence of damaging stages
- Early application of plant products like azadirachtin or neem oil to prevent oviposition and larval feeding
- Judicious use of insecticides recommended for use in sugarcane like chlorpyrifos and monocrotophos at 2-3 ml/liter of water ensuring that the spray fluid is directed to the whorls

Suspected occurrence of FAW in sugarcane may be brought to the notice of ICAR-Sugarcane Breeding Institute, Coimbatore, for confirmation, assessment of damage and management of the pest.

UPDATE ON FALL ARMYWORM IN SUGARCANE

Chlorpyrifos was sprayed at 2-3 ml/liter of water in the focal fields at both Modakurichi and Pugalur under the supervision of the factory personnel. Post-treatment observations in the plots have indicated a reduction in the larval population. Insecticide application may be combined with light earthing-up and fertilizer application, if not already done. Earthing-up will expose the pupating larvae and pupae to the action of predators. Fertilizer will help boost the growth of damaged crop as has been reported in maize elsewhere in the world.

**Team Entomology
ICAR-Sugarcane Breeding Institute**