

Fall armyworm Management in Maize

Situation analysis/Problem statement:

Fall armyworm (FAW), *Spodoptera frugiperda* (Lepidoptera: Noctuidae), is native to tropical and subtropical regions of the Americas and is the key insect pest of maize in tropical regions. The occurrence of FAW was reported in Africa for the first time in late 2016 in West Africa. FAW is a highly polyphagous insect pest that attacks more than 80 plant species, including maize, sorghum, millet, sugarcane, and vegetable crops nevertheless, maize is the main crop affected by FAW. In India, the pest was first observed in Karnataka during May 2018. Subsequently, during the field survey made by our ICAR Krishi Vigyana Kendra, Karur Scientists team in maize crop in Nathamedu (Krishnarayapuram block) and Karuppur (Thanthoni block) of Karur district on 9.8.18, the occurrence of Fall army worm (*Spodoptera frugiperda*) an invasive pest on maize has been confirmed. Severe incidence (up to 80%) was noticed in few isolated fields. We had alerted the Department of Agriculture and Central IPM Centre, Trichy about the pest immediately.

Plan, Implement and Support:

Mr. N. Gopal, of Karuppur village, Thanthoni block has undivided share of 14 acres of land along with his brother. Out of this they are cultivating in 10 acres of land and remaining area serves as grazing land. The major crops cultivated are Maize, Sorghum, paddy, drumstick, brinjal and fodder crops. Apart from crop cultivation, the farmer is also engaged in livestock farming such as dairy cattle rearing, goat rearing and desi bird rearing. The land gets irrigation from well and also from lift irrigation scheme situated near Cauvery river.

The farmer participated in KVK demonstrations, trainings and other extension activities including a sponsored training on Integrated Pest Management with special reference to Fall armyworm and Paddy pests management sponsored by Irrigation Management Training Institute, Trichy on 15.11.19.

During June 2018 the farmer Mr Gopal participated in the training on maize as part of the frontline demonstration and he was provided Maize CO MH 6 seeds, biofertilizers and other inputs for the demonstration. During a field visit on 9.8.18, the occurrence of Fall armyworm (*Spodoptera frugiperda*) was observed on his maize crop.

This was followed by a joint field survey by KVK Scientists with Joint Director of Agriculture, Deputy Director of Agriculture, Assistant Director of Agriculture, Entomologist from SRS, TNAU, Plant Protection Officer, Central IPM Centre, Ministry of Agriculture, Trichy and other officials was made in Karuppur (Thanthoni block) to assess the incidence of Fall army worm on 13.8.18. The maize crop was cultivated in 30 cents area and incidence was very severe (88%). The situation was very serious, as it was feared that this field would serve as a breeding ground for the FAW and an idea of complete ploughing the field was also mooted to curtail the pest. However, the idea of ploughing the field was dropped.

Subsequently, followup diagnostic visit by KVK Scientists with CIPMC Officials team and Agricultural Department officials was made to the maize of Mr Gopal for devising management tactics for Fall armyworm on 14.8.18. For this the CIPMC officials distributed *Trichogramma chilonus* cards and *Metarhizium anisopliae* and also demonstrated the application. The farmer followed the advisories of the Team of Scientists.

This was followed by followup diagnostic visit to observe the incidence of Fall armyworm on 20.8.18 and on 25.8.18, to record the incidence of Fall armyworm and install pheromone traps received from BCRL. A joint diagnostic field visit by KVK Scientists was made with Dr. Srinivasan Ramasamy, Lead Entomologist, World Vegetable Center, Taiwan on 27.8.18 to maize field of Mr Gopal to observe the level of incidence of Fall armyworm and observe pheromone trap catches. Subsequently, the incidence levels of FAW and the trap catches were continuously monitored.

Output:

Following the adoption of IPM measures, such as avoidance of chemical insecticides which facilitated the build up of natural parasitoids, periodical monitoring of the pest with pheromone traps, release of *Trichogramma chilonus* cards and application of *Metarhizium anisopliae* led to reduction of pest below 10%.

The farmer could harvest maize grains about 200 kg from 30 cents of his field. Although the yield level was low, this was a significant achievement in the light of the very high initial incidence level of FAW. The total cost of cultivation was Rs 1000 for 30 cents area. The farmer also shared the success story in All India Radio, Trichy through a recording programme at his farm on 8.11.2018.

Large scale dissemination:

- Similarly efforts were taken by the KVK to create awareness to 700 farmers on Fall Army Worm (FAW) in Maize and its management through various activities. Also awareness created to a large mass of farmers through All India Radio, Trichy and FM Rainbow.
- Effectively managed the Fall armyworm on maize in major growing areas of Karur district through demonstrations, trainings, in coordination with Central IPM Centre (Min. of Agriculture), Trichy and Department of Agriculture by adoption of IPM methods.