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Advisory No: RC 2019/02 **Date: 13th May, 2019**

New Invasive Pest Alert in NE India

Detection of Fall Armyworm, *Spodoptera frugiperda* (Smith) in Meghalaya

In continuation of Advisory No: RC 2019/01 (revised), dated 02nd May 2019, this is to informed that, in addition to Mizoram, Nagaland, Tripura and Manipur, the Fall Armyworm (FAW), *Spodoptera frugiperda* (Smith) has also been detected infesting maize fields in Meghalaya and also suspected to be exist in Sikkim state of northeast India.



Photo credit: Dr. G T Behere and Dr. D M Firake

The detailed information on life history, identification and ecology is available on ICAR-NBAIR website (http://www.nbair.res.in/insectpests/Spodoptera_frugiperda.php) and the management action plan for this devastating pest in available on the advisory section of the Directorate of Plant Protection, Quarantine & Storage (DOPPQS), Faridabad (http://ppqs.gov.in/advisories-section) and also available on the ICAR-NBAIR, Bengaluru website (http://www.nbair.res.in/recent_events/spodoptera%20frugiperda.pdf). Agriculture departments of different states of Northeastern India are advised to kindly aware the farmers of the region and follow the recommended guidelines and action plan suggested by the DOPPQS, Faridabad and ICAR institutes. Most recent guidelines issued by Govt of India (OM: F. No. L3-L60/2019-SD.lV, dated 6th May 2019) have also been enclosed for reference and further action.

SPEED POST

F. No. 13-160/2019-SD.IV
Government of India
Ministry of Agriculture& Farmers Welfare
Department of Agriculture, Cooperation & Farmers Welfare

Room No. F-211, 2nd Floor
Shastri Bhawan, New Delhi.
Dated: 6th May, 2019.

Office Memorandum

Sub: Compulsory treatment of seeds for the control of Fall Army Worm (FAW).

Sir,

It has been bought to the notice that the Fall Army Worm (FAW) incidence in the Maize crop is rapidly spreading. Fall Army Worm (FAW) is a polyphagous in nature and cause significant damage to crops. ICAR has recommended especially for compulsory treatment of seeds for the Fall Army Worm (FAW) as under. "This is dynamic and is liable to change with new developments, new chemistries and new data based on research and science based facts". The seed treatment should be done as per following advisory.

Seed treatment with Cyantraniliprole 19.8% + Thiomethoxam 19.8% @4 ml per kg seed reported to officer protection up to 2-3 weeks after germination (Note that this formulation is not registered in India and also has not been evaluated in AICRP programme. However, based on the feedback from seed growers this insecticide is giving protection for 2-3 weeks after germination).

However, a complete advice for control of Fall Army Warm as suggested by ICAR is enclosed. All the State Department of Agriculture, State Seed Certification Agencies and State Seed Corporations etc. are advice to follow the advice along with seed treatment

Encl.: A/a.

D.K. Srivastava 6-5-2019

(Dr. Dilip Kr. Srivastava)
Asstt. Comm. (QC)
Phone No. 011-23386236

To,

1. The Director Agriculture & Horticulture all States/ UTs.
2. The Director State Seed Certification Agencies all States/ UTs.
3. The Director State Seed Corporation all States/ UTs.

(1)

Management strategies of
Fall Armyworm (FAW), *Spodoptera frugiperda* on maize

Monitoring : Installation of pheromone traps @ 5/acre in the current and potential area of spread in crop season and off-season.

Scouting:

Start scouting as soon as maize seedlings emerge

1. At Seedling to early whorl stage (3-4 Weeks after emergence)- Action can be taken if 5% plants are damaged.
2. At Mid whorl to late whorl stage (5-7 weeks after emergence) –Action can be taken if 10 % whorls are freshly damaged in mid whorl stage and 20% whorl damage in late whorl stage.
3. At tasseling and post tasseling (Silking stage)- Do not spray insecticides (No insecticide application). But 10% ear damage needs action.

Cultural Measures

1. Deep ploughing is recommended before sowing. This will expose FAW pupae to predators.
2. Timely sowing is advised. Avoid staggered sowings.
3. Intercropping of maize with suitable pulse crops of particular region. (eg. Maize + pigeon pea/black gram /green gram).
4. Erection of bird perches @ 10/acre during early stage of the crop (up to 30 days).
5. Sowing of 3-4 rows of trap crops (eg. Napier) around maize field and spray with 5% NSKE or azadirachtin 1500 ppm as soon as the trap crop shows symptom of FAW damage.
6. Clean cultivation and balanced use of fertilizers.
7. Cultivation of maize hybrids with tight husk cover will reduce ear damage by FAW.

Mechanical control:

1. Hand picking and destruction of egg masses and neonate larvae in mass by crushing or immersing in kerosine water.
2. Application of dry sand in to the whorl of affected maize plants soon after observation of FAW incidence in the field.
3. Mass trapping of male moths using pheromone traps @ 15/acre.

Bio Control:

1. *In situ* protection of natural enemies by habitat management : Increase the plant diversity by intercropping with pulses and ornamental flowering plants which help in build-up of natural enemies
2. Augmentative release of release of *Trichogramma pretiosum* or *Telenomus remus* @ 50,000 per acre at weekly intervals or based on trap catch of 3 moths/trap

3. Biopesticides: Suitable at 5% damage in seedling to early whorl stage and 10% ear damage with entomopathogenic fungi and bacteria

   a. Entomo pathogenic fungal formulations: Application of Metarhizium *anisopliae* talc formulation (1×10^8cfu/g) @ 5g/litre whorl application at 15-25 days after sowing. Another 1-2 sprays may also be given at an interval of 10 days depending on pest damage or *Nomuraea rileyi rice* grain formulation (1×10^8cfu/g) @ 3g/litre whorl application at 15-25 days after sowing. Another 1-2 sprays may also be given at an interval of 10 days depending on pest damage

   b. *Bacillus thuringiensis* v. *kurstaki* formulations @ 2g/l (or) 400g/acre

Chemical Control:

1. **Seed treatment:** with ***Cyantraniliprole 19.8% + Thiomethoxam 19.8%*** @ 4 ml per kg seed reported to offer protection up to 2-3 weeks after germination (*Note that this formulation is not registered in India and also has not been evaluated in AICRP programme. However, based on the feedback from seed growers this insecticide is giving protection for 2- 3 weeks after germination*)

2. **First Window (seedling to early whorl stage):** To control FAW larvae at 5% damage to reduce hatchability of freshly laid eggs, spray 5% NSKE / Azadirachtin 1500ppm @ 5ml/l of water.

3. **Second window (mid whorl to late whorl stage):** To manage 2nd and 3rd instars larvae at 10-20 % damage spray ***Emamectin benzoate @ 0.4 g/l of water*** OR ***Spinosad @ 0.3 ml/l of water*** OR ***Thiamethoxam 12.6% + lambdacyhalothrin 9.5% @ 0.5 ml/l of water*** OR ***Chlorantraniliprole18.5% SC @ 0.3 ml/l of water***.

   Poison baiting: Poison baiting is recommended for late instar larvae of second window. Keep the mixture of 10 kg rice bran + 2 kg jaggery with 2-3 litres of water for 24 hours to ferment. Add 100g thiodicarb just half an hour before application in the field. The bait should be applied into the whorl of the plants.

4. **Third Window (8 weeks after emergence to tasseling and post tasseling):** Insecticide management is not cost effective at this stage. Hand picking of the larvae is advisable.

All the sprays should be directed towards whorl and either in the early hours of the day or in the evening time.

Capacity building and mass awareness

1. Application and timely plant protection measures to avoid spread of the insect from the abandoned crop.

2. Creation of awareness among important stake holders through trainings /group discussions.

3. Community based and area-wide approach for implementing management strategies.