

MANAGING THE FALL ARMY WORM (FAW) OUTBREAK IN SOUTH AFRICA

A CROPLIFE SOUTH AFRICA PERSPECTIVE

Version 4

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Detection, identification and management protocol



FAW adult larva
(Green-brown morph)



FAW adult larva
(Pink morph)



FAW adult larva
(Green morph)



FAW egg parcel



FAW hatchlings



FAW moth



FAW moth

Species invasion

The Fall Army Worm *Spodoptera frugiperda* has recently invaded South Africa and established itself mainly in maize but also in sorghum, cotton, potatoes, some vegetables, onions, probably in groundnuts and in natural veld around maize fields. It has been recorded and confirmed in Limpopo (widely distributed), Northwest (significant pockets), Gauteng (east and west), Free State (significant pockets), Mpumalanga (widely distributed), Northern Cape (localized), Eastern Cape and KwaZulu-Natal. Reports from the Western Cape (single locality) are unconfirmed. There is a possibility that this pest may also invade sugarcane and other crops.

THE FALL ARMY WORM IS A DEVASTATING PEST THAT DEMANDS ALL FARMERS'S ATTENTION!! EARLY DETECTION IS CRUCIAL!!
FALL ARMY WORM HAS BEEN POSITIVELY IDENTIFIED IN POTATOES IN LIMPOPO!!

Management

Scouting, detection and pest identification

1. If pheromone traps are available, they can be placed according to the manufacturers' specifications to monitor moth flights and early moth arrivals. See pictures of moths for easy identification. Moths are grey or brown with irregular markings. Moths can be seen at night in crop fields.
2. Early detection is crucial; monitor by scouting crops every 2 days starting from the current wind direction, checking borders and centres of crop fields. Note all egg parcels, new hatchlings or young larvae penetrating the whorls. See attached pictures for easy identification. Egg parcels are covered by a woolly cover. The larvae are quite easy to identify: looking at the larva from its head gives the appearance of a dragon fly face with the markings on the head. Four dark spots in a square are also clearly visible on the 8th segment. Their colour varies from green to dark green, pinkish, brown or dark brown with paler green longitudinal stripes. **DO NOT CONFUSE THIS SPECIES WITH THE AFRICAN ARMY WORM OR THE FALSE ARMY WORM. CHECK THE HEAD AND 8TH SEGMENT FOR THE DIAGNOSTIC CHARACTERISTICS!**

Control

3. Spray insecticides as soon as the pest is noticed or if 5 – 10% of plants show infestation, e.g. 5 or 10 plants per 100 plants inspected. Use those active ingredients that have already been approved for the fall army worm by the Registrar of Act No. 36 of 1947 (see table below).

DO NOT APPLY PYRETHROIDS ON THEIR OWN AS THIS SPECIES APPEARS TO BE TOTALLY RESISTANT TO PYRETHROIDS!!!

4. Insecticides must be applied during the early development stages of larvae. Adult larvae may prove to be very difficult, if not impossible to control.
5. The best control is obtained when larvae feed on exposed leaf surfaces where insecticides can reach them outside cobs, ears and tassels.
6. As soon as larvae penetrate too deep into the whorl or feed inside the cob nothing will effectively control them. Small larvae are easier to control than that fully-grown larvae that can reach up to 40 mm in length.
7. Farmers are urged to refrain from using any concoctions or unregistered mixtures and to adhere to the label specifications and dosage rates of the registered products.
8. Select the appropriate insecticide, apply according to label recommendations and dosage rates.
9. Control varies from very poor to adequate when carbamates and organophosphates are used; it is advisable to test any carbamates and organophosphates on a small patch for efficacy before using it on a large scale.
10. Certain strains of *Bacillus thuringiensis* may not be effective against fall army worm; as with the carbamates and organophosphates it is advisable to first test the product on a small patch before deploying it on a large scale.
11. Calibrate sprayer and maintain nozzles and equipment, make sure it is in good working condition, delivering the expected droplet size and spray volume.
12. Aim nozzles *at* plant rows and not *between* rows to ensure that the target is reached with the maximum spray volume.
13. Use optimal spray volumes and best management technique; on average between 200 – 400 l/ha for maize crops should be adequate to deposit active ingredients on the target. Always refer to labels for instructions.
14. Adjust water pH and add adjuvants if necessary in accordance with label recommendations.

Resistance management

15. Rotate pesticides groups with different modes of action (MoA) as indicated on the front panel of each pesticide label; simply rotating between active ingredients of the same MoA is not conducive to resistance management.
16. Avoid treating consecutive generations of the fall army worm with pesticides with the same MoA.

17. All diamide pesticides (chlorantraniliprole and flubendiamide) must be used with very careful consideration of resistance management: consult labels for application cycles and maximum number of applications per season.

List of insecticides that could be used for the control of FAW

Active ingredient(s)	Trade name	Reg. nr.	Status	Reg holder
Indoxacarb	Steward 150 EC	L8435	Registered	DuPont de Nemours
Indoxacarb	Advance 150 SC	L9147	Registered	Universal Crop Protection
Indoxacarb	Steward	L6332	Registered	DuPont de Nemours
Indoxacarb	Addition 150 SC	L9146	Registered	Villa Crop Protection
Indoxacarb	Doxstar Flo	L9884	Registered	Meridian Agrochem. Company
Chlorantraniliprole	Coragen	L8529	Registered	DuPont de Nemours
Chlorantraniliprole/Lambda-cyhalothrin	Ampligo	L8685	Registered	Syngenta
Chlorantraniliprole	Prevathon 5 SC	L9150	Registered	DuPont de Nemours
Emamectin benzoate	Emma	L9022	Registered	Arysta LifeScience
Emamectin benzoate	Proclaim	L7581	Registered	Syngenta
Emamectin benzoate	Vitex 50	L9525	Registered	Meridian Agrochem. Company
Emamectin benzoate	Promec 20 EW	L9729	Registered	Meridian Agrochem. Company
Emamectin benzoate	Warlock 19.2 EC	L9872	Registered	Adama South Africa
Flubendiamide	Belt	L8860	Registered	Bayer
Methomyl	Spitfire 900 SP	L8197	Registered	Bitrad Consulting
Methomyl	Cyplamyl 90 SP	L3436	Registered	Castle Ag-Chem
Methomyl	Masta 900 SP	L9449	Registered	Arysta LifeScience
Methomyl	Methomyl 200 SL	L7100	Registered	Universal Crop Protection
Methomyl	Methomate 200 SL	L8123	Registered	Villa Crop Protection
Methomyl	Methomex 900 SP	L5254	Registered	Adama South Africa
Methomyl	Methomex 200 SL	L5253	Registered	Adama South Africa
Methomyl	Mylomex 900 SP	L4783	Registered	Nulandis
Lufenuron	Sorba	L5343	Registered	Syngenta
Lufenuron	Judge	L9927	Registered	Arysta LifeScience
Spinetoram	Delegate 250 WG	L8329	Registered	Dow AgroSciences
Spinetoram/Methoxyfenozide	Uphold 360 SC	L10164	Registered	Dow AgroSciences
Benfuracarb/Fenvalerate	Oncol Super 220 SC	L7649	Registered	Dow AgroSciences
Chlorpyrifos	Avi Klorpirifos 480 EC	L4318	Registered	Avima
Chlorpyrifos	Agropyrifos	L4888	Registered	Arysta LifeScience
Chlorpyrifos	Pyrinex 480 EC	L4673	Registered	Adama South Africa
Chlorpyrifos/cypermethrin	Cyferfos 500 EC	L7606	Registered	Nulandis
Profenofos	Farmag Profenofos 500	L5547	Registered	Castle Ag-Chem
Mercaptothion	Avi Gard (lawns only)	L0216	Registered	Avima
Mercaptothion	Datathion 500 EC	L0828	Registered	Nulandis
Mercaptothion	Avi-Merkaptothion DP	L4278	Registered	Avima
Novaluron/Indoxacarb	Plemax	L10246	Registered	Adama South Africa
Pyridalyl dichloropropene derivative	Sumipleo	L8377	Registered	Philagro South Africa
Carbosulfan	Marshall	L3314	Registered	FMC Chemicals
<i>Beauveria bassiana</i>	Eco Bb	L8469	Registered	Madumbi Sustainable Agric.
<i>Bacillus thuringiensis</i> var. <i>kurstakii</i>	Delfin	L9761	Registered	Madumbi Sustainable Agric.
<i>Bacillus thuringiensis</i> var. <i>aizawai</i>	Florbac WG	L5531	Registered	Valent Biosciences
FAW Pheromones			Import per.	River Bioscience
FAW Pheromones			Import per.	ChemPac



African army worm
Dark green with yellowish
longitudinal stripes



False army worm (A. Erasmus)
From pinkish to greenish with pale green
longitudinal stripes

NB: AS SOON AS NEW REGISTRATIONS ARE APPROVED THEY WILL BE ADDED TO THE LIST. REGISTRATION HOLDERS THAT RECEIVE REGISTRATIONS SHOULD INFORM CROPLIFE SA IMMEDIATELY AT NESHER@TISCALI.CO.ZA WITH THE TRADE NAMES, ACTIVE INGREDIENTS AND REGISTRATION NUMBERS OF SUCH PRODUCTS. BIOLOGICAL REMEDIES MUST ALSO BE REPORTED AS THESE ARE ESSENTIAL TOOLS IN AN INTEGRATED PEST MANAGEMENT STRATEGY FOR THE FALL ARMY WORM