## Fall armyworm on maize

**Spodoptera frugiperda**

### Prevention
- Avoid late planting. Plant early to avoid peak immigration of adults.
- Remove and destroy all crop residues after harvest.
- Plough the soil deeply to bury the larvae and pupae in the soil.
- Regularly weed the field and surroundings.
- Ensure optimum fertilization. Recommended fertilizer rates (4 bags or 200kg of NPK 15:15:15 per ha) to increase the growth vigour.
- Remove volunteer crops and alternative hosts to reduce carryover of larvae.
- Rotate with non-host crops (e.g. Cassava, Yam).
- Intercropping maize with cowpea, pigeon pea, cassava.

### Monitoring
- Start monitoring for presence of the pest or symptoms 2 weeks after emergence.
- Look for cream or grey egg masses on the stem, lower and upper parts of leaves.
- Check for light green to dark brown larvae with three thin yellowish white stripes down the back and a distinct white inverted “Y” on head.
- Check the whorl for larvae covered with a plug of yellowish brown frass.
- Look for patches of small shot holes "window pane" in the leaves emerging from the whorl.
- Monitor damage on 10 consecutive plants in 10 randomly selected sites. Take control measures if >20% of plants are infested with larvae.
- At tassel/silk stage, do not spray anymore.

### Direct Control
- On small-scale farms, handpick and destroy the egg masses and larvae.
- Put a handful of sand (mixed with lime or ash), sawdust or soil in the whorl of the attacked plants to kill the larvae.
- When using a pesticide or botanical, always wear protective clothing and follow the instructions on the product label.
- Do not use chemicals with the same mode of action three successive applications as this can lead to resistance.
- Always consult the most recent list of registered pesticides of MOFA, Ghana.
- For recommended synthetic insecticides (Contact any District/Regional Dept. of Agric. for advice).
- Apply Maltodextrin Eradicoat.
- Apply biopesticides: *Bacillus thuringiensis* products (e.g. Agoo Bypel1) and *Beauveria* sp.
- Apply Azadirachtin (e.g. Nemazaal).
- Apply ethyl palmitate + ethyl oleate + elcosen (e.g Adepa).

### Direct Control
- WHO class U (Unlikely to present acute hazard). Apply 50ml/15lt water. REI and PHI is 0. Apply weekly based on monitoring result. Ensure good coverage of the foliage.
- WHO class U (Unlikely to present acute hazard). Apply at three weeks intervals @ 50g (1 sachet)/15lt water based on monitoring result. REI is 3hrs. Ensure good coverage of the foliage.
- WHO class U (Unlikely to present acute hazard). Apply 60-80ml per 15 litre knapsack. REI is 3 hrs. Apply weekly based on monitoring result. Spray late afternoon 4-6:00pm. Ensure good coverage of the foliage.
- WHO class U (Unlikely to present acute hazard). Apply 100ml/15lt water at three weeks interval. REI is 24hours. Ensure good coverage of the foliage.

### Restrictions

**Ghana**

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