Fall Armyworm (FAW) on Maize

Spodoptera frugiperda

Tanzania

Fall Armyworm egg mass (Desiree van Heerden, Syngenta)

Fall Armyworm caterpillar. Look for the inverted 'Y" on the head or the cluster of four dots on the rear (Russ Ottens, University of Georgia, Bugwood.org)

Damage to leaf, resulting in a "window pane" (Phil Sloderbeck, Kansas State University, Department of Entomology)

Prevention

- Plant early, with the first rains, as Fall Armyworm (FAW) populations build up later in the crop season.
- Avoid planting at different times as this provides a continuous source of food for FAW.
- If available, plant maize varieties with resistance to FAW.
- Consider planting maize varieties with short maturity periods.
- Ensure optimum use of fertilizer for healthy and vigorous maize plants, so that they can compensate for pest damage.
- Keep the area around the plot free of weedy grasses.
- Plant hedgerows of leguminous trees or perennial flowering plants around the fields, to the extent possible, to provide shelter to beneficial insects, predators and birds.
- Intercrop maize with compatible and less susceptible crops, such as beans and cassava.

Scouting

- Start scouting as soon as maize seedlings emerge.
- Scout 10-20 consecutive plants in 5 different locations in the field and calculate % of infestation (See Scouting Form).
- Look for signs of FAW feeding:
  - FAW are easiest to control when the larvae are very small.
  - FAW larvae are extremely hard to find when they are small.
  - Look for FAW feeding signs in the central emerging leaves (whorl): light coloured patches ("window panes") and elongated holes.
  - Look for accumulation of FAW excreta in the whorl.

Decision point:

- At early whorl stage (knee high), take action if >20% of plants are damaged.
- At late whorl stage (shoulder high), take action if >40% of whorls are freshly damaged.
- At tassel and silk stage, do not spray pesticides.

Direct control

This Green Column describes control options that are safest for smallholder farmers.

- On small-scale farms, handpick and destroy the egg masses and larvae.

Direct control / Restrictions

This Yellow Column describes control options that require additional safety precautions for smallholder farmers.

- Avoid spraying broad spectrum synthetic insecticides which might kill beneficial insects or harm the applicator.
- Only select products with proven success in controlling FAW, such as those listed below.
- Personal Protective Equipment (PPE) must be worn to minimize exposure to insecticides. PPE includes coveralls, gloves, respirators and boots.
- The **Pre-Harvest Interval (PHI)** is the time between the application of a pesticide and when that crop can be harvested. The PHI values below were determined with a precautionary approach, but if the PHI value on the pesticide label is higher, observe the longer period.
- The **Restricted Entry Interval (REI)** is the period of time after spraying before anyone should re-enter the field. The REI values provided apply to situations in which PPE is not available. If the REI printed on the pesticide label is longer than the value given below, please observe the longer period.

For more information, please consult: Fall Armyworm in Africa: A Guide for Integrated Pest Management (USAID & CIMMYT), WHO Recommended Classification of Pesticides (WHO), Pesticide Risk Assessment (Jepson *et al.*, DOI: 10.1098/rstb.2013.0491)

♦ Chlorantraniliprole	♦ **REI** 1 day; **PHI** 21 days ♦ **WHO Class** U Unlikely Acute Hazard
♦ Cypermethrin	♦ **REI** 1 day; **PHI** 14 days ♦ **WHO class** II Moderately Hazardous
♦ Lambda-cyhalothrin	♦ **REI** 1 day; **PHI** 21 days ♦ **WHO Class** II Moderately Hazardous
♦ Acetamiprid + lambda-cyhalothrin	♦ **REI** 1 day; **PHI** 21 days ♦ **WHO class** II Moderately Hazardous

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Scouting Form

Planting Date: **District:** **Location:** **Your name:**

	Week 1	Week 2	Week 3
Sampling Date			
Maize Growth Stage:			
Dates of rainfall /intensity:			
Insecticides Applied/Rates/Dates:			
Pheromone Trap Data	Raise the trap as the maize grows taller. Keep the bottom of the trap 30 cm above the plants.		
Number of FAW moths:			
Number of AAW moths:			

Early Whorl Stage (VE-V6)	**Examine two to three (2-3) newest leaves emerging from the whorl.**																				
Five Stops	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**
#Plants with fresh window panes/ Total																					
#Plants with infested whorls/ Total																					

Late Whorl Stage (V7-VT)	**Examine three to four (3-4) newest leaves emerging from the whorl plus the emerging tassel.**																				
Five Stops	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**
#Plants with fresh window panes/ Total																					
#Plants with infested whorls/ Total																					

Tassel & Silk Stage (R1-R3)	**Examine ear(s) plus leaves and leaf axils at, above, and below the ears.**																				
Five Stops	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**	**1**	**2**	**3**	**4**	**5**	**Sum**	**%**
#Plants with any fresh damage/ Total																					
#Plants with worms/ Total																					
#Plants with damaged ear/cob/ Total																					