




# Fall Armyworm (FAW) on Sorghum

Ghana

*Spodoptera frugiperda*

	Prevention	Scouting	Direct control	Direct control	Restrictions				
 <p>Eggs mass of <i>S. frugiperda</i> (Desiree van Heerden, Syngenta)</p>  <p>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)</p>  <p>Whorl damage on sorghum (Z.M. Kinyua, KALRO)</p>	<ul style="list-style-type: none"> <li>◆ Avoid planting at different times as this provides a continuous source of food for FAW.</li> <li>◆ If available, plant sorghum varieties developed with resistance to FAW.</li> <li>◆ Ensure optimum use of fertilizer for strong sorghum plants able to compensate for pest damage.</li> <li>◆ Intercrop sorghum with pest-repellent plant species (e.g., <i>Desmodium</i> spp.).</li> <li>◆ Use sorghum hybrids with loose panicles.</li> <li>◆ Conserve wildlife shelters and flowering plants on the edges for beneficial insects.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Start scouting as soon as the sorghum emerges.</li> <li>◆ FAW attacks sorghum from early leaf stage (whorl) to hard seed head stage.</li> <li>◆ Scout 10-20 consecutive plants in 5 different locations of the field and calculate % of infestation (See Scouting form).</li> <li>◆ Look for signs of FAW feeding:               <ul style="list-style-type: none"> <li>* FAW are easiest to control when they are small.</li> <li>* FAW are extremely hard to find when they are small.</li> <li>* During the vegetative stages you may see a few FAW larvae causing shot-holes in the leaves - this damage is usually just cosmetic - FAW is mostly a grain pest in sorghum.</li> <li>* Egg masses are deposited on the underside of leaves or in panicles.</li> <li>* Small larvae will feed on sorghum flowers and large larvae on developing seeds.</li> </ul> </li> </ul> <p><b>Decision Point:</b></p> <ul style="list-style-type: none"> <li>◆ At early whorl stage (pre-bloom), take action if &gt;50% of plants are infested at the whorl stage.</li> <li>◆ At flowering head stage, take action if 20% (range of 10–30%) of the plants are infested or have damage.</li> </ul>	<p><i>This Green Column describes control options that are safest for small holder farmers</i></p> <ul style="list-style-type: none"> <li>◆ On small-scale farms, handpick and destroy the egg masses and larvae.</li> </ul>	<p><i>This Yellow Column describes control options that require additional safety precautions for small holder farmers</i></p> <ul style="list-style-type: none"> <li>◆ Avoid spraying broad spectrum synthetic insecticides which might kill beneficial insects or harm the applicator.</li> <li>◆ Only select products with proven success in controlling FAW, such as those listed below.</li> <li>◆ Personal Protective Equipment (PPE) must be worn to minimize exposure to insecticides. PPE includes coveralls, gloves, respirators and boots.</li> <li>◆ The <b>Pre-Harvest Interval (PHI)</b> 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.</li> <li>◆ The <b>Restricted Entry Interval (REI)</b> 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.</li> </ul> <p>For more information, please consult: <a href="#">Fall Armyworm in Africa: A Guide for Integrated Pest Management</a> (USAID &amp; CIMMYT), <a href="#">WHO Recommended Classification of Pesticides</a> (WHO), <a href="#">Pesticide Risk Assessment</a> (Jepson et al., DOI: 10.1098/rstb.2013.0491)</p> <table border="1" data-bbox="1413 1027 1655 1219"> <tr> <td data-bbox="1413 1027 1655 1123">◆ <i>Bacillus thuringiensis</i></td> <td data-bbox="1655 1027 2145 1123">◆ REI 1 day; PHI 1 day ◆ WHO class III Slightly Hazardous</td> </tr> <tr> <td data-bbox="1413 1123 1655 1219">◆ Cypermethrin</td> <td data-bbox="1655 1123 2145 1219">◆ REI 1 day; PHI 14 days ◆ WHO class II Moderately Hazardous</td> </tr> </table>	◆ <i>Bacillus thuringiensis</i>	◆ REI 1 day; PHI 1 day ◆ WHO class III Slightly Hazardous	◆ Cypermethrin	◆ REI 1 day; PHI 14 days ◆ WHO class II Moderately Hazardous	
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# Scouting Form

Planting Date:	District:	Location:	Your name:																			
	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>																			
Sampling Date																						
Sorghum Growth Stage:																						
Dates of rainfall/intensity:																						
Insecticides Applied/Rates/Dates:																						
Pheromone Trap Data	Raise the trap as the sorghum grows taller. Keep the bottom of the trap 30 cm above the plants.																					
Number of FAW moths:																						
Number of AAW moths:																						
<b>Early/Late Whorl Stage (0-5)</b>	<b>Examine two to four (2-4) newest leaves emerging from the whorl.</b>																					
<b>Five Stops</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Sum</b>	<b>%</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Sum</b>	<b>%</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Sum</b>	<b>%</b>	
#Plants with fresh shot-holes/Total																						
#Plants with infested whorls/ Total																						
<b>Flowering and Soft Dough Stage (6-7)</b>	<b>Examine head(s) plus leaves and leaf axils at, above, and below the heads.</b>																					
<b>Five Stops</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Sum</b>	<b>%</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Sum</b>	<b>%</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Sum</b>	<b>%</b>	
#Plants with any fresh damage/Total																						
#Plants with worms/Total																						
#Plants with damaged heads/Total																						