Food and Agriculture Organization of the United Nations

FAW GUIDANCE NOTE 2

FALL ARMYWORM SCOUTING

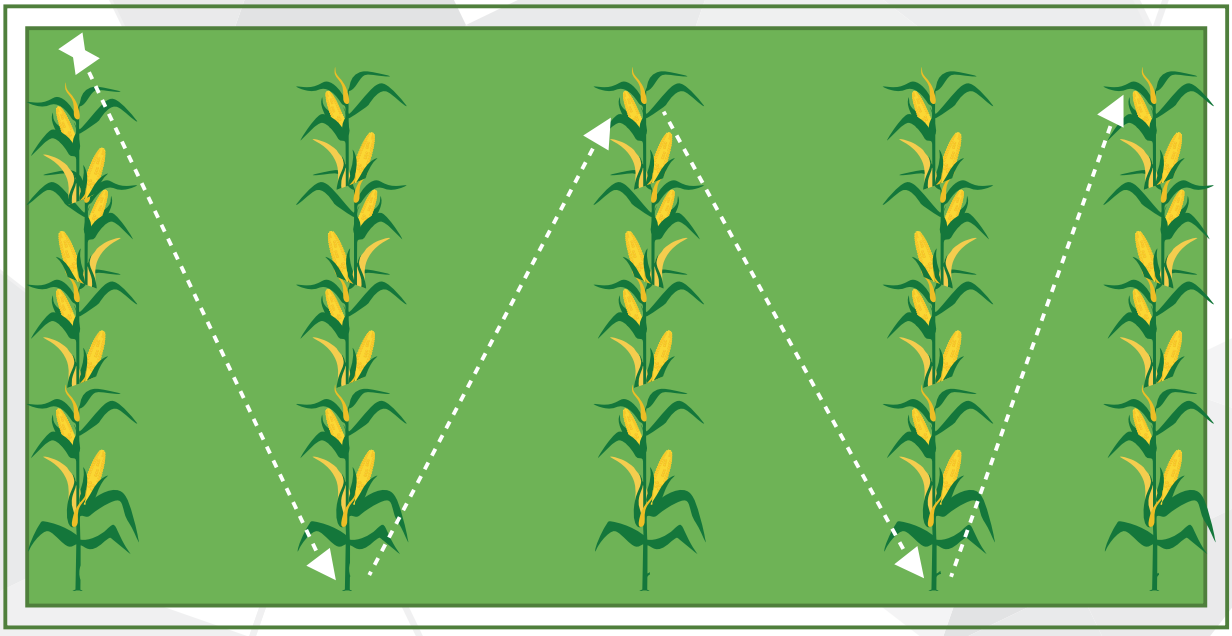
One of the most important things that farmers can do to manage Fall Armyworm is to enter their fields at least once a week, more often when there are dynamic changes. This "scouting" will help farmers better understand the biology of the organisms in the field and their interactions (ecology). The increased understanding is the basis for better understanding and knowledge, leading to better decision-making, resulting in greater production, fewer wasted resources and more sustainability. For smallholders (with less than 2 ha), scouting will also help farmers learn the variability of their fields – where the low-lying spots are that are more humid, where the soil types are different, where increased organic matter results in better plant growth, where a certain type of weed is almost always more abundant, etc.

"Scouting" means rapidly and systematically determining overall crop health and estimating presence of certain organisms causing damage and potentially yield reduction.

For Fall Armyworm, the procedure is quite simple:

Determine the field to be sampled. For a smallholder, this is typically less than 2 ha. If the fields were planted at different times, with different varieties, or with different conditions (intercropping, fertilization, etc.), then each plot should be sampled differently.

In the field, walk a letter "W", covering the entire field:



At the start and at every turn, inspect 10 plants in a row. These ten plants are called a "station". Look carefully in the whorl of each plant for signs of recent leaf damage or fresh frass in the whorl. These indicate a live larva, probably FAW, in the whorl. Do NOT include plants with some damage to older leaves, but with no clear signs of current damage. Only currently infested plants need be counted. Keep track of the number of plants currently infested in this way (in this example FAW infested plants are marked with an "X"):

STATION 1		STATION 2		STATION 3		STATION 4		STATION 5	
Plant no.	Infested?	Plant no.	Infested?	Plant no.	Infested?	Plant no.	Infested?	Plant no.	Infested?
1	X	1	X	1		1	X	1	X
2		2		2		2		2	
3	X	3		3	X	3	X	3	
4	X	4	X	4	X	4	X	4	X
5		5		5		5		5	X
6	X	6	X	6		6		6	X
7		7		7		7		7	X
8	X	8		8	X	8	X	8	X
9		9		9		9		9	
10	X	10	X	10	X	10	X	10	X
Total number plants infested									
	6		**4**		**4**		**5**		**7**

The total number of plants infested in the 50 plants counted is 6+4+4+5+7= 26

So in 100 plants it would be double: 26 X 2 = 52, or 52% of the plants infested.

Because we are looking for signs of FAW presence (fresh leaf damage or frass in whorl), the sampling doesn't depend of finding the larvae. So the sampling is fast, non-destructive and can be done any time of the day.

While scouting for FAW-infested plants, it is also important to make an overall assessment of the fields, the crops, and for FAW, especially for natural enemies. There are many naturally-occurring "farmers' friends" that help control FAW – predators (ants, earwigs, pirate bugs, birds, etc.), parasitoids (wasps that kill eggs and larvae), and pathogens (bacteria, fungi, and virus). Farmers should look for uneven darkened eggs and any larvae killed by parasitoids (white silken cocoons) or pathogens (hard or soft larval cadavers). As farmers learn about their friends and observe their effectiveness in the field, they can begin to appreciate their activity and learn how to favor their populations in the field. Farmers can begin to understand how to create the conditions to favor natural enemies, and even how to increase their populations.

Information collected during field scouting should be carefully recorded, ideally in a mobile app, so that it can be shared and used for early warning.

When the level of FAW infestation is calculated, along with observations about the general health of the crop, the farmer may want to know: 'Is the FAW infestation level so high that it will significantly reduce my yield?' This is a topic for discussion in the next FAO Guidance Note for sustainable management of FAW.

CONTACT US

Plant Production and Protection Division
Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla, 00153 Rome, Italy
E-mail: AGP-Director@fao.org

MORE INFORMATION

Fall-Armyworm@fao.org
Food-chain-crisis@fao.org
www.fao.org/food-chain-crisis/how-we-work/plant-protection/fall-armyworm/