



FAW GUIDANCE NOTE 4

HOW TO MANAGE FALL ARMYWORM: A QUICK GUIDE FOR SMALLHOLDERS

Fall Armyworm is new to Africa, but it has been in the Americas for thousands of years. Smallholder maize farmers have been managing FAW for a very long time. Many of the farmers in Central America and Mexico grow their maize under conditions similar to smallholder maize farmers in Africa. Typically smallholders grow small plots of maize (typically less than two hectares), use saved seed of local varieties, use very few purchased inputs (fertilizers or pesticides), grow maize in a plant-diverse plot or landscape, and produce their maize with their own labour using simple tools.

There are valuable experiences and lessons to be learned from the smallholder maize farmers in Mesoamerica for managing FAW. Many farmers in Africa are beginning to use many similar practices, based on agroecological knowledge, while adapting to local conditions that vary from region to region.

This Quick Guide summarizes some of the key concepts and practices that smallholders around the world are trying and using to sustainably manage FAW. Farmers should work together to share their knowledge and experiences to better manage FAW in their local context. They should learn, innovate, try new approaches and share experiences. This guide is designed to support that process.

Prevent

Sustainable management of Fall Armyworm (FAW) starts with prevention. While it is very difficult to completely eliminate FAW from fields, there are actions that farmers can take before or when planting their fields to reduce infestation and impact of FAW in their crops. Some key first steps include:

- Use **high quality seed**. The seed should germinate well, be disease-free and be of the variety the farmer wants to plant. Good pest management depends on healthy plants.
- **Avoid late planting or staggered planting** (plots of different ages). Female moths have a favourite stage of maize to lay eggs on. If your field is one of the few late-planted plots, all the female moths in a region will come to your plot, where she will lay her eggs.
- **Increase plant diversity** in your plots. Plants emit chemicals that can attract or repel FAW moths. If

a plot of land has a mixture of varieties or crops, the adult moths may not land on maize plants to lay her eggs. Some plants that are unattractive to FAW moths are crop plants, such as cassava, but also include non-crop plants, whose sole function in the cropping system is to repel FAW moths from maize plants. The ‘push-pull’ technology promoted by ICIPE is one example of the use of plant diversity, using one plant species that ‘pushes’ (repels) FAW away from maize and another plant species that ‘pulls’ them (attracts them), where they can be controlled easily.

- Plant diversity can also increase the populations of farmers’ friends – those organisms that are naturally in the environment and can kill a high proportion of FAW eggs and caterpillars. Predators (ants, earwigs, etc.), parasitoids (wasps that kill FAW), and pathogens (virus, bacteria, fungi, etc. that kill FAW) are in and around farmers’ fields. Plant diversity can keep them close to your maize so that they can find and kill the FAW.

Monitor

Farmers should **visit their fields frequently** to observe, learn, and take action. Beginning one week after planting and at least once a week, farmers should walk through their fields every 3-4 days. While doing this, they should observe:

- **General health** of the plants: Do they have a nice dark green colour (indicating good nutrition)? Do they appear moisture-stressed? Are there signs of damage (from FAW, other insects, or diseases)? Are there weeds (especially striga)?
- If there is FAW damage, then check 10 consecutive plants in 5 locations of the field. See [FAW Guidance Note 2 – Scouting](#) for details.
 - You may look into the whorl (3-5 young leaves) and see if there are holes in the leaves in the whorl and fresh frass,
 - Look for creamy or grey egg masses located on leaves and sometimes stems.

- Look in early morning or evening hours for young larvae and larvae with the inverted “Y” and four dark spots forming a square (on the second to last body segment).

- If you have access to the [FAMEWS](#) application, input data on the percent of plants currently infested with FAW (follow [FAW Guidance Note 2 – Scouting](#)) while scouting your fields.
- Look for presence of farmers’ friends (ants, wasps, larvae killed by pathogens).

Know

Maize plants can **compensate for certain levels** of foliar damage without losing much yield. Not all FAW damage results in lower yields.

Farmers’ friends (the natural enemies of FAW) can be very important in naturally controlling FAW – studies have found up to 56 percent of FAW larvae naturally killed by farmers’ friends. Key to good FAW control is attracting and keeping farmers’ friends in the fields.



There are actions that can be taken to attract farmers' friends to their fields, keep them there, or harvest and use them.

Effective control **does not have to be fast**. Parasitized or infected larvae may be alive, but stop feeding. If FAW are not feeding, they are not causing damage to your crop.

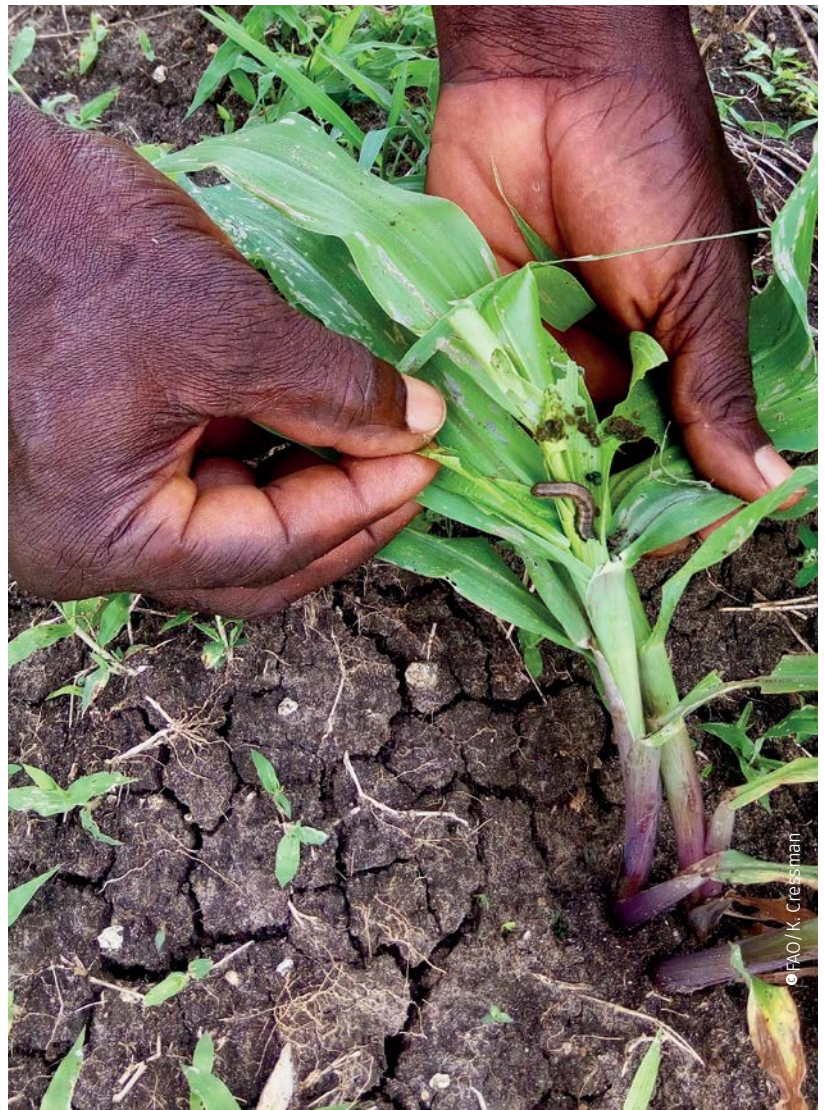
Chemical insecticides are expensive. Their use is probably not economically justifiable for smallholder African maize farmers. Some also present high human health risks. Some older types of pesticides, which have been banned from use due to human health risks in many countries, are being used by smallholder maize farmers. Many pesticides kill farmers' friends, those predators, parasitoids, and pathogens that can naturally kill a large proportion of FAW eggs and caterpillars.

Act

Effective and sustainable FAW management requires **action**. Some of the actions prevent FAW, others are required when something goes wrong in the system and there are high levels of FAW infestation in the field.

One of the simplest actions that farmers can take is **mechanically killing FAW eggs and young larvae**. This is best done as soon as possible, beginning a week after planting. Eggs are laid in a mass, easily found on maize leaves. These can be immediately crushed. Likewise, young larvae can be picked off the leaves, before they penetrate deep into the whorl. Some farmers feed the caterpillars to chickens.

Many smallholder farmers try **local solutions** and report satisfaction with these tactics. In addition to the preventive actions, some farmers report success in using the following practices:



- **“Recycling” pathogens.** When dead caterpillars that were killed by virus, fungi or bacteria are observed in the field, they can be collected, taken home, ground (or put through a blender), and strained. The liquid that strains through may be full of fungal spores, bacteria, or virus particles that can be diluted and sprayed back into infested plants. This is a free, effective natural bio-pesticide. Many farmers spray only into the whorls of infested plants, so as not to waste the natural insecticide.
- **Attract predators & parasitoids.** Ants are important natural predators of FAW larvae. They crawl up the plants, into the whorls, and find, and drag out FAW larvae. Some farmers have found that they can attract ants to their maize fields by putting lard, grease from cooked meat, or fish soup into their maize fields. These substances

attract ants to their fields, and then they stay and find and eat FAW larvae in the maize fields. Some farmers use sugar water to attract and feed the wasps that can eat or parasitize FAW.

- Other farmers try and report satisfaction with using a number of **local substances, applied directly to the whorl of infested plants**. Some of the substances that have been tried include: soil, ash, sand, lime, salt, soaps, oils, and extracts from local plants: hot peppers, Tephrosia, Marigold flowers, neem, etc. Farmers can try these and

other local solutions and then compare and share the results, to see which work best under local conditions.

There are many ways to manage sustainably FAW in Africa. Good management will depend on good knowledge, observations, innovation and action. Farmers and extensionists are encouraged to learn about FAW biology and ecology, closely observe what happens in their fields, try some of these practices, develop new ones, and share their knowledge and experiences!



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