

# Pack 109, Item 8

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**Using chemical pesticides safely: The case of Fall armyworm in Ethiopia**

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**Notes to broadcaster**

Maize farmers across sub-Saharan Africa are trying various methods to keep Fall armyworm and other pests from damaging their crops. FAW is a migratory pest with a preference for eating maize. Since it was first reported in Africa in 2016, it has caused significant crop damage in more than 40 African countries, and experts say it is here to stay.

In Ethiopia, 55 million people—more than half the population—depend on maize for food and income. In rural areas, people get almost one-fifth of their calories from maize.

Farmers are handpicking the caterpillars off their plants, making insecticides out of local plants, and doing everything they can to keep their maize crops healthy to better resist FAW damage. But when these methods aren’t enough, chemical pesticides can be another effective option.

However, using chemical pesticides can be risky for the health of the farmer and their family, the environment, other species that predate or parasitize FAW, and the people who consume the food grown on the farm.

This script explains the importance of limiting exposure to chemical pesticides, and presents specific actions farmers can take to prepare and equip themselves. This includes knowing when and how to use pesticides, as well as how to store and clean the equipment and protective wear. These tips can help farmers protect themselves, their families, and communities.

As a broadcaster, you and a colleague could read this script on your radio program. Or you could use the information as a starting point for a call-in or text-in program, or an interview with a knowledgeable farmer or other expert. This script was written specifically about maize farmers managing FAW in Ethiopia, but much of the advice about managing FAW applies anywhere in Africa, and all of the advice about pesticide safety applies to using pesticides on any crop.

If you are using this script as part of your research or to help you prepare questions for interviews, you might want to find out:

* What are some other ways farmers in your area are managing FAW without having to resort to chemical pesticides?
* Where can farmers obtain the protective equipment to apply pesticides safely? Are trained pesticide applicators available in your area?
* What are some of the challenges facing local farmers who are considering using chemical pesticides to manage FAW?

Estimated running time: 20-25 minutes, with intro and outro music

Signature tune

**HOST 1:** Hello and welcome to your farmer program. Today we will talk about how to use pesticides safely. We know many farmers use chemical pesticides to manage serious pests such as Fall armyworm. But using chemicals can put your health, your family’s health, and your customers’ health at risk.

**HOST 2:** But there are ways to reduce the risks. Today we’re going to share some useful safety recommendations for using chemical pesticides.

**HOST 1:** We know that many farmers can’t afford to buy all the recommended equipment. Others live in small villages where this equipment is not available. So we have some suggestions about other steps you can take to reduce your exposure to chemicals.

**HOST 2:** First, let’s talk about when to spray. Using chemicals is not always the best way to manage Fall armyworm. Beginning from the time you prepare your soil for planting, there are many other steps you can take to protect your maize from pests. But we’ll talk about that on another episode of our program!

**HOST 1:** Monitoring your field is very important. One week after the plants start growing, check your fields for Fall armyworm. At least twice a week, look at 20 plants in five different parts of the field, for a total of 100 plants. You need to look for signs of damage, or for the pests themselves. Fall armyworm looks a bit like other caterpillars. Have you seen it?

**HOST 2:** Yes, I have. You can tell it apart from other caterpillars because there’s a Y-shaped line on the back of the head. Also, on the second-last segment of its body, there are four little dots in the shape of a square. But just because you see Fall armyworm doesn’t mean you have to spray!

**HOST 1:** That’s right. There are many other ways to manage the problem if you catch it early. But if you find that one out of four plants has severe leaf damage, you might want to consider using chemicals. Keep in mind that that one in four is the threshold for Ethiopia. It might be different where you live, so always check with extension or development agents and other experts.

**HOST 2:** OK. But what do you mean by “severe leaf damage”?

**HOST 1:** Sometimes caterpillars create what we call “window panes” by eating the green parts of leaves and leaving only a transparent strip. Or sometimes they chew right through, making holes in the leaves. That is severe damage.

**HOST 2:** Another way to measure the damage is to look for live caterpillars in the whorl of the plant. If you find them on one out of five plants, it is recommended to spray with chemicals.

**HOST 1:** So, let’s say you’ve tried handpicking, you’ve tried other preventive practices, and your monitoring shows severe damage and lots of caterpillars in your field. You’re out of other options and you decide to spray. Which product should you use? Many chemical pesticides are toxic to humans.

**HOST 2:** Here in Ethiopia, the ministry of agriculture recommends several specific products against Fall armyworm. You can talk to your local development agent to find out more about this.

**HOST 1:** But here’s an important tip: When buying pesticides, watch out for expired or fake products. Some chemicals are too old to use. Or maybe the container looks like a pesticide, but it’s not the real thing.

**HOST 2:** That’s right. It’s also very important to carefully read the label. In Ethiopia, all pesticides are supposed to have labels in both English and Amharic. But we know that not all of our listeners can read those languages, so if you need help, ask a development agent. The label also says how long you should wait between spraying and returning to your field, and between spraying and eating the food. We’ll talk about this again later in the program.

**HOST 1:** The best time to spray is after 6 p.m. because the caterpillars are most active at night. Plus, you won’t harm the bees, which are active in the morning. Don’t spray near rivers or lakes, and never spray when it’s windy.

**HOST 2:** We’re always eager to hear from you and share your ideas with our listeners! What methods have you used to control Fall armyworm? Call or text the radio station (insert radio station contacts here). Maybe we can include your comments in our next program.

**HOST 1:** That would be great! So we’ve talked about when to spray. Let’s take a short break and when we come back, we’ll talk about ways to protect yourself while applying chemical pesticides.

Short musical interlude

**HOST 1:** Welcome back to our program about how to keep yourself and your family safe when using chemical pesticides to control Fall armyworm.

**HOST 2:** As we said earlier, chemical methods are your last option when it comes to keeping Fall armyworm from damaging your maize.

**HOST 1:** Now let’s talk about protective equipment. What do we usually see when someone is applying pesticides?

**HOST 2:** We often see barefoot farmers using backpack spray pumps. Sometimes they tie a cloth over their nose and mouth while they spray. Is that enough protection?

**HOST 1:** No! For chemical pesticides, it’s important to protect your whole body. These are very strong substances. Occasionally, farmers die from exposure to pesticides. And it’s common to get a headache or stomach ache if you breathe in the spray or get some in your mouth. If you get some on your skin, you might get a rash or irritation. Sometimes those symptoms go away. But over time and with repeated exposure, you might develop more serious illnesses, including cancer.

**HOST 2:** These are very serious health risks. But there are ways you can reduce your exposure. Let’s go from head to toe and make some suggestions.

**HOST 1:** First of all, farmers who cover their noses and mouths have the right idea. It’s important to block the chemicals so you don’t breathe them in.The best way to do this is to buy a respirator mask that is designed for this job. They’re fitted with a brown filter, and the package says they protect against solvents, gases, and pesticides.

**HOST 2:** This also means you shouldn’t put anything in your mouth while you are applying pesticides. Don’t eat, and don’t smoke!

**HOST 1:** That’s right. Chemicals can also irritate your eyes. It’s best to wear goggles that fit tightly. Sometimes you can get goggles like these at a shop that sells clothing for construction workers or metalworkers. If you can’t find goggles, a pair of simple glasses is better than nothing. You can cover your head with a hat or a piece of cloth.

**HOST 2:** If you spray only when the plants are young, more of the chemical will stay close to the ground. That means your eyes, nose, and mouth are less exposed.

**HOST 1:** But chemicals don’t just affect your head, they can also be absorbed through your skin. How can farmers protect their skin?

**HOST 2:** The best way is to cover yourself from your neck to your ankles with two layers of clothing. It might be hot, but it’s the safest way!

**HOST 1:** Right. One option to protect your skin is to wear coveralls—a one-piece suit with long sleeves and full-length trousers. Just wear the coveralls over top of your regular clothes. If possible, pick coveralls with zippers rather than buttons because the chemicals can pass through the spaces between the buttons.

**HOST 2:** Like the kind that construction workers wear?

**HOST 1:** Exactly. If that’s not available, put on your regular clothes and then wear a long-sleeved shirt and trousers over top. Tuck in your shirt, and make sure your pant legs fit over top of your boots, covering the opening so no chemicals can spill into your boots. You want to seal yourself off as much as possible.

**HOST 2:** Ok. What about your hands?

**HOST 1:** Cover your hands, too. The best kind of gloves are made of rubber, and are not only waterproof but also chemical-resistant. Avoid the kind with cotton lining, as they’re harder to wash and because the chemicals can pass through the cotton and be absorbed into your skin. You can sometimes find rubber gloves at shops that sell cleaning products or construction wear. Tuck your gloves inside your shirt sleeves to avoid exposing your wrists.

**HOST 2:** We said we would go from head to toe. What about your feet?

**HOST 1:** Rubber boots are the best option. If you don’t have them, try using another pair of shoes that cover your feet. Avoid sandals. And always wear socks.

**HOST 2:** All right, so let’s make a list: you’ll need a filter, goggles, a hat or piece of cloth, long sleeves, rubber gloves, full-length trousers, socks, and rubber boots.

**HOST 1:** You’ll look like an astronaut!

**HOST 2:** That’s right. And remember, all of that has to go over top of your regular clothes.

**HOST 1:** Why?

**HOST 2:** That’s so that you have two layers of protection. So, if a little bit of the chemical gets through the first layer, you’re still protected. Also, it makes it easier to clean up.

**HOST 1:** What do you mean? I thought we were finished!

**HOST 2:** No! Some of our most important safety tips are about cleaning up and storing chemicals. Let’s take a quick break and when we come back, we’ll talk about that.

**HOST 1:** Listeners, do you have any questions about how to protect yourself while applying pesticides? We love to hear from you. Call or text us at(insert radio station contacts here). If we don’t have the answers to your questions, we’ll find an expert who does.

**HOST 2:** Stay with us; we’ll be back in a moment to finish our discussion of pesticide safety.

Short musical interlude

**HOST 1:** Hello again and welcome to listeners who are just tuning in. Today we are talking about how to stay safe when you are using chemical pesticides against Fall armyworm.But of course, these safety tips are useful whenever you’re using chemical pesticides.

**HOST 2:** Chemical pesticides can be an effective option if you use them at the right time and only when they are necessary. But they can also put your health at risk. Today, we have some tips for how to reduce those risks.

**HOST 1:** That’s right. We’ve already talked about how to decide when to spray. Then we talked about which kinds of clothing and protective equipment are best to reduce your exposure to the chemicals.

**HOST 2:** Now let’s say you’ve just finished spraying. You’re tired and hot and hungry, and you want to rest. But first …

**HOST 1:** But first, what are you going to do with that empty pesticide container?

**HOST 2:** Sometimes we see children playing with empty pesticide containers, or even using them for water. This is very dangerous! Even if you scrub it with soap, there will always be some traces of poison in the container. It is never ok to re-use a pesticide container.

**HOST 1:** For that reason, we ask you to destroy it: First, rinse it three times. Then poke holes in it or pinch it so it cannot be re-used.

**HOST 2:** Then do you put it in the garbage?

**HOST 1:** No. If you burn the containers, the smoke can cause health problems. You can bury the containers, but you must do it far from any water source—at least 300 metres.

**HOST 2:** The other option is to store them. But not in your house! You could store them in a shed, well covered. Be sure children don’t have access to the storage area.

**HOST 1:** Ok. So once you have rinsed the container, poked holes in it, and disposed of it, you can finally relax.

**HOST 2:** Well, not quite yet. You also have to put away your equipment. First, clean and rinse the sprayer so the nozzles don’t get clogged. Then, cover it and store it somewhere that children don’t go—maybe a shed, for example, but not in your house.

**HOST 1:** And you still need to take off all those protective clothes, gloves, boots, and goggles. But not in that order! Keep your gloves on while you remove everything else, so that you don’t touch your contaminated clothing. Then shake your hands to remove the gloves. Remember, you don’t want to touch any of your protective equipment with your bare skin.

**HOST 2:** Once you have removed your outer layer of clothes, wash them separately, and store them in a separate place. These are the clothes that you will use only for spraying.

**HOST 1:** And don’t just wash the clothes! Even if you have been using gloves and a face mask, you still need to thoroughly wash your hands, wrists, face, and neck with soap.

**HOST 2:** That’s right. Good personal hygiene is cheap and easy, and it’s one of the best ways to reduce your risk of contamination.

**HOST 1:** Some of the equipment we mentioned is expensive, or it might not be available where you live. You might have another option. A US-funded initiative called Feed the Future Ethiopia Value Chain Activity is training Ethiopian farmers to be pesticide applicators, also called Spray Service Providers. This means they will have the skills and equipment to spray safely against Fall armyworm. This is a pilot project, so for now it is only available in certain areas of Ethiopia. Listen to your local radio’s farmer programs or contact a development agent or extension agent to find out if pesticide applicators are available in your area.

**HOST 2:** We have two final tips for you about how to keep yourself—and your family and neighbours—as safe as possible when using chemical pesticides against Fall armyworm—or any other pest!

**HOST 1:** That’s right. The first is called “re-entry interval.” This is the number of days you must wait after spraying before going back to your field. You can find this number on the pesticide label.

**HOST 2:** Here’s something else: You know that you have sprayed, but your family and neighbours might not know. So please put up a sign or tell people in your village to stay away from your field after you’ve sprayed. And tell them how long they must stay away for.

**HOST 1:** Now the second number on the label is the “PHI” or pre-harvest interval. This is the number of days you must wait between spraying and harvesting food from the sprayed area.

**HOST 2:** This is very important, because if you eat food that was recently sprayed, you—or your children, or the customers who buy your produce—can become very sick.

**HOST 1:** And that is what we are trying to avoid! So let’s recap. Only use chemical methods to control Fall armyworm if you see severe leaf damage on one out of four plants, or if you see caterpillars in the whorl of one out of five plants. Remember that these are the thresholds for Ethiopia. Always check with local experts to find out the situation in your area.

**HOST 2:** If you decide to use chemicals, it’s best to do it when the plants are young, and after 6 p.m.

**HOST 1:** And protect yourself! Wear goggles, a face mask, boots, rubber gloves, and two layers of clothing. Make sure the outer layer has long sleeves and full-length trousers. Tuck your cuffs, waist, and pant legs to limit the ways that chemicals can reach your skin.

**HOST 2**: Rinse the empty container and make holes in it so it cannot be re-used. Then either bury it at least 300 metres from a water source, or store it away from your home and children.

**HOST 1**: Finally, wash your spraying clothes separately. And wash your hands, face, and neck thoroughly with soap. Never eat or smoke while using chemicals.

**HOST 2:** Don’t let anyone into the field until the re-entry period has elapsed. And be sure to wait the recommended interval before harvesting.

**HOST 1:** Those are some of the best ways to keep yourself, your family, and your neighbours safe when you use chemical pesticides.

**HOST 2:** We know many Ethiopian farmers are watching carefully to see if Fall armyworm is eating their maize. Which methods will you use to manage Fall armyworm this season? Share your ideas on our radio programs. You can reach us anytime at (insert contact phone numbers for the radio station here)*.*

**HOST 1:** Thank you for listening. We hope you have enjoyed our program. We wish you a plentiful harvest and a safe and healthy future!

SIGNATURE TUNE

## Acknowledgements

Contributed by: Jaime Little, Barza Wire Advisor, Farm Radio International

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**Sources of information**

Interviews: Amenti Chali, National Crop Production Specialist, Feed the Future Ethiopia Value Chain Activity, June 2018.

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