

# Pack 113, Item 8

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# Farmer strategies for adapting to climate change in Ghana

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**Notes to broadcaster**

There is often limited information available on the risks of climate change and on strategies for adapting to it, especially for small-scale farmers. It can be difficult for farmers to find reliable information about how a changing climate will impact their crops and livestock. It can be even more difficult to learn about effective strategies to adapt to the changing weather conditions.

In 2018-2019, the Potsdam Institute for Climate Impact Research and the German Corporation for International Cooperation (GIZ) conducted a study in Ghana on the predicted trends for temperature and precipitation, future water availability, and the country’s suitability to grow crops. Based on their findings, researchers identified adaptation strategies for farmers that are feasible, cost-effective, and suitable for specific local conditions.

The hosts in this script are fictional but the content is based on a real study conducted in Ghana. You could use the information in the script to inspire a radio program on adapting to climate change in any country. Speak to local researchers about the local impacts of climate change and about what farmers can do to adapt and prepare.

Some of the questions you might ask an expert are:

1. What does climate change mean for farmers in this area?
2. How will climate change affect crop and livestock production?
3. How will climate change affect food security?
4. What should farmers do to prepare?

Estimated duration of the script with intro and extro: 15 minutes.

**Host 1:** Welcome to your favourite farmer’s program. My name is Grace Acheampong. My co-host is Abdul Mohammed. Today’s topic is: How can small-scale farmers across Ghana adapt to a changing climate?

 We will be discussing a scientific study that was conducted in Ghana by the Potsdam Institute for Climate Impact Research and the German Corporation for International Cooperation or GIZ. The study looked at the impact of climate change and made recommendations on what farmers can do to prepare and adapt.

**host 2:** Like many other African countries, Ghana is also vulnerable to climate change. The country spans tropical and desert climates, and agriculture plays a vital role in the economy. Crop production depends on a sufficient supply of water and a relatively narrow range of climatic conditions, but agricultural production is being affected by increasing temperatures and changing rainfall patterns.

That’s why the Ministry of Food and Agriculture commissioned a study to enable researchers to determine adaptation strategies that can help farmers prevent serious losses and damage to livelihoods, the economy, and the environment.

**HOST 1:** That’s right. This study projected the kinds of changes in weather and climate that will take place over the next 100 years. But before we talk about the study any further, let’s discuss the difference between weather and climate. Weather means the atmospheric or weather conditions at a given time. For example, the weather today in Tamale is cloudy. Climate means the day-to-day weather conditions that prevail over a long period of time. For example, Tamale has a dry, desert climate.

 The study predicts that northern Ghana will experience the highest temperature increase in the country—up to 2.5 degrees Celsius above current temperatures by 2050. Rainfall is also expected to be more erratic throughout the country, and is expected to increase slightly in the north and decrease in the south until about mid-century.

**Host 2:** The variations between different parts of the country can make it difficult to understand the effects of climate change. And while an increase of 2.5 degrees might not sound like a lot, it could have devastating effects on food security. This means that farmers could struggle to grow enough food to feed their families and earn a stable income.

 An important thing for farmers to know is that climate change will bring an increase in extreme weather events. In Ghana, that means extremely hot temperatures, combined with heavy and prolonged rainfall or prolonged drought, depending on the region. But climate change also means gradual changes in weather and climate over time. The relative slowness of these changes can make it difficult for farmers to identify exactly how and when they start to feel the effects of climate change.

The study recommended five ways that farmers can adapt to climate change. There are a number of other useful adaptation strategies, but the study made these recommendations based on stakeholder interest and analysis. The five strategies include: improved post-harvest management activities, using irrigation, harvesting rainwater, crop insurance, and using improved crop varieties. Some of these strategies are easier to adopt than others, and the study suggests that a combination of strategies is most effective.

 Over the course of today’s program, we’re going to discuss two of these strategies: post-harvest management activities and rainwater harvesting. We will discuss the problems these strategies are meant to address, and how farmers, government bodies, and others can help farmers adopt them. Stay tuned.

 *30-second musical break*

**HOST 1:** Welcome back. In today’s program, we’re talking about a study by the Potsdam Institute for Climate Impact Research and the German Corporation for International Cooperation, also called GIZ, on the projected impact of climate change on small-scale farmers in Ghana. We’ve learned that temperatures are expected to increase across the country, with particularly large increases in northern Ghana, and that rainfall will become more erratic across the country.

**HOST 2:** Let’s talk about some of the things farmers can do to prepare for the changing weather. Most of you already use some effective methods to limit damage from adverse weather, but this study presents more strategies to prevent serious losses in yields and income.

 On today’s program, we will be discussing two of the five recommendations from this study: improved post-harvest management activities, and rainwater harvesting. We chose to discuss these two in particular because they are generally easier to implement on small-scale farms across the country. These strategies also require less support from the public or private sectors than crop insurance schemes and improved seeds—which means that farmers can start making changes right away.

 Let’s start by discussing improved post-harvest management. I will ask my co-host a few questions and she will provide answers based on some of the findings from the study. Please, Grace, can you start by explaining what post-harvest management means?

**HOST 1:** Thanks, Abdul. Good post-harvest management practices reduce crop losses, damage, and deterioration after harvest. They include more effective practices for cleaning, sorting, drying, transporting, and storing crops, which are all critical steps in ensuring that farmers can preserve their product for their own consumption and for the market.

**HOST 2:** Why is it important to practice effective post-harvest activities?

**HOST 1:** Post-harvest losses can significantly reduce the amount of food available for farmers and their families to eat—and to sell in the market. For example, the study cites recent statistics that show that an average of 14 percent of Ghana’s maize crop is lost every year due to poor handling after harvest. As climate change continues to impact growing and harvesting seasons, these losses could get even worse. Experts say effective post-harvest management is crucial to reduce these losses.

**HOST 2:** What are some examples of effective post-harvest management activities?

**HOST 1:** There are many low-cost technologies that can prevent or reduce post-harvest losses—and this study specifically recommends using PICS bags.

PICS bags—or Purdue Improved Crop Storage bags—are airtight storage bags that have been proven to reduce insect and rodent infestation while maintaining seed quality and seeds’ ability to germinate. Compared to standard woven sacks, PICS bags better maintain the weight of the grain and prevent contamination from insects, pests, and diseases, including contaminants such as aflatoxin.

**HOST 2:** Are PICS bags accessible for most farmers?

**HOST 1:** In some regions in Ghana, PICS bags are relatively inexpensive and accessible at local input supply dealers. The study says there is a relatively well-established network of suppliers across Ghana. But there are financial and logistical challenges which mean that not all farmers have equal access to PICS bags. So the study recommends that private companies get more involved in supplying and distributing PICS bags, and that government extension workers support them in reaching the most remote and vulnerable communities.

**HOST 2:** Are PICS bags an effective post-harvest management strategy on their own?

**HOST 1:** They are one example of an effective post-harvest management strategy, but certainly farmers must be trained and supported to adopt other practices as well. Some of these include using moisture meters when drying crops, using solar dryers, and using small plastic or metal storage silos to store crops.

**HOST 2:** Okay, let’s move on to the second adaptation strategy, which is rainwater harvesting. Grace, can you tell us what exactly is rainwater harvesting and how it works?

**HOST 1:** Rainwater harvesting is simply collecting and storing rainwater in reservoirs or tanks, rather than letting it run off. Collecting rainwater reduces dependency on rainfall, which will become more erratic with climate change. As we mentioned, the study projects that rainfall will increase slightly in the northern parts of Ghana and decrease in the south.

Rainwater harvesting is an effective way to store water that can then be used for irrigation at critical times in the growing period. It’s also considerably cheaper than building the infrastructure needed to use groundwater for irrigation.

**HOST 2:** What are some other benefits of rainwater harvesting?

**HOST 1:** Rainwater harvesting has particular benefits for women farmers, since they are usually in charge of fetching water. Collecting and storing rainwater frees up time for women to engage in other farming and income-generating activities.

 Rainwater harvesting is particularly effective for small-scale horticulture production. It would allow farmers to diversify their income by growing a variety of crops for sale, crops that are also full of vitamins and nutrients that contribute to a healthy diet.

**HOST 2:** That brings us to the close of this week’s farmer program. We have had an interesting discussion about ways that farmers can adapt to climate change, based on recommendations in a study by the Potsdam Institute for Climate Impact Research and the German Corporation for International Cooperation, or GIZ.

**HOST 1:** We have been discussing two strategies for adapting to climate change: effective post-harvest management activities and rainwater harvesting.

**HOST 2:** We hope you learned something from this episode. But as always, we encourage you to call into the studio line with your questions, comments, and concerns.

**HOST 1:** Thank you for listening and see you next week.

## Definitions:

*Climate*: The day-to-day weather conditions that prevail over a long period of time.

*Irrigation:* The application of controlled amounts of water to help grow agricultural crops, maintain landscapes, and revegetate disturbed soils in dry areas and during periods of low rainfall.

*Rainwater harvesting*: The process of collecting rainwater in tanks or reservoirs to use on crops or for other purposes.

*Weather*: The atmospheric conditions in a particular place at a given time.

**Sources of information:**

Murken, Lisa, et al. “Climate risk analysis for identifying and weighing adaptation Strategies in Ghana’s agriculture sector.” *Potsdam Institute for Climate Impact Research,* 2019. <https://www.pik-potsdam.de/research/climate-resilience/projects/project-pages/agrica>

## Acknowledgements

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