

COWPEA STORAGE PROJECT

PROFILES of PROGRESS



Left: Cowpea farmer Balarabe Kausani (Kausani, Kano, Nigeria, 2010). Right: Cowpeas stored in traditional bags, which are susceptible to insect infestations that diminish annual crop yields. The triple-layer bag introduced by Purdue University effectively protects cowpeas from infestation without the use of chemical pesticides (Kano, Nigeria, 2010).

Balarabe Kausani, a smallholder farmer in northern Nigeria, is earning enough money to make improvements to his home, install an irrigation system on his farm, and pay school fees for his four children.

The secret to his success? A bag.

Balarabe, 50, grows cowpeas, also known as black-eyed peas, a protein-rich crop that thrives in West and Central Africa. Well adapted to harsh, arid climates, a staple ingredient in many meals, and the primary income source for millions of African families, the highly prized crop has just one downside: it's as popular among pests as it is among farmers. Each year, up to 50 percent of cowpeas in Africa are lost after harvest because of infestations by small insects known as weevils.

Faced with such devastating losses, many farmers don't want to risk storing their cowpeas. Instead, they sell their cowpeas at harvest time when prices are lowest. In the off-season, prices can double or triple. Other farmers try to cope with the pests by treating their harvests with hazardous pesticides. Each year, many people fall ill, and in some cases die, from poisoning.

In 2007, researchers at Purdue University teamed up with the Bill & Melinda Gates Foundation to introduce African farmers to a simple solution: an inexpensive, triple-layer

bag that protects cowpeas from losses during storage. Purdue University researchers discovered that cowpeas stored in airtight containers prevent the development of weevil larvae that feed on the dried cowpeas, preserving the crop for months—even more than a year. The Purdue Improved Cowpea Storage (PICS) bag is made from two inner high-density polyethylene plastic bags and an outer nylon sack. Sold for about \$2 each, the rugged bags can be triple-tied, providing an airtight seal for long-term, pest-free storage. **It's a small innovation. But its impact has been huge.**

Since 2007, Purdue University has sold more than one million bags to farmers in Central and West Africa, helping hundreds of thousands of farmers increase their incomes by giving them a chance to get the most from their harvests and reduce their pesticide use.

Researchers expect 1.7 million households in West and Central Africa to increase their annual incomes by an average of \$150 by using them. That's a significant increase in a place where most farmers live on about \$2 per day.

Balarabe has seen his income jump by about 20 percent since he started using the bags two years ago.

By 2012, **1.7 million** households in West and Central Africa are expected to increase their annual incomes by an average of **\$150** by using the bags.

"When we open up the bag, it looks the same as the day I stored it," says Balarabe. "Because of the quality of the cowpeas, you can add 20 percent to the price."



Left: Farmers evaluate and distribute cowpea seeds during the Purdue Improved Cowpea Storage (PICS) bag opening ceremony in Kafinchiri village (Kano, Nigeria, 2010). Center: PICS bags filled with cowpeas await the bag opening ceremony (Kano, Nigeria, 2010). Right: Women work at the Dawanu Cowpea market (Kano, Nigeria, 2010).

Purdue Improved Cowpea Storage (PICS) Project

Goal: To increase annual household incomes of 1.7 million farming families in West and Central Africa by an average of \$150 by helping them protect their cowpea harvests from infestation using innovative storage bags.

Progress: Since 2007, more than one million bags have been sold to thousands of farmers, helping them increase their incomes by giving them a chance to get the most from their harvests.

Partners: Purdue University, International Institute of Tropical Agriculture (IITA); World Vision; Niger National Institute of Agricultural Research (INRAN); National

Institute for Environmental and Agricultural Research (INERA); and many local farm organizations and nonprofit groups.

What's a cowpea? Better known in many parts of the world as a black-eyed pea, the cowpea, *Vigna unguiculata*, is a protein rich and drought resistant legume that is one of the most important agricultural exports from West and Central Africa.



www.ag.purdue.edu/ipia/pics/pages/home.aspx

Changing habits is never easy, and researchers have worked hard to persuade African farmers to try something new. The most effective strategy has been demonstration. Project staff visit rural farming villages and distribute bags to a small group of volunteers, asking them to seal a portion of their harvest in the bags. Extension agents return several months later and ask farmers to open their bags in front of the entire village. The farmers are usually quite surprised by the results.

“I was thinking that I’d open it up and see lots of pests. But it was free of pests,” says Usman Mohd, 45, a farmer in Kafin Chiri, Nigeria, after untying a 100-kilogram bag at a recent ceremony and sifting through his cowpeas for any signs of weevil damage.

The five-year project works with local manufacturers and merchants to make the bags available across West and Central Africa, one farmer at a time. The goal is for 50 percent of all farm-stored cowpeas in the region to be stored in PICS bags.

Balarabe’s village was one of the first in Nigeria to receive the bags, which have caught on as a necessity among farmers, bringing signs of new prosperity to the community, including bicycles.

“Because of the quality of the cowpeas, you can add 20 percent to the price. We are making more money.”

—Balarabe Kausani, smallholder farmer in northern Nigeria

After years of fretting over his cowpea harvest, Balarabe is optimistic about the future. All of his children are in school, and he is expanding his house. Several bags of cowpeas sit in storage, waiting for a good price at the local market.

“When the demand is high, that’s when I’ll sell them,” Balarabe says. “I am confident that even if I wait until next year to sell them, the cowpeas will be fine.”

Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people’s health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. Based in Seattle, Washington, the foundation is led by CEO Jeff Raikes and Co-chair William H. Gates Sr., under the direction of Bill and Melinda Gates and Warren Buffett.

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