

# Finding the best seeds to match Africa's needs

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Soybean trial in Africa

Soybean farmers in the United States can choose from a "candy store" of

hundreds of varieties of soybean seed—high-yielding seed with proven performance traits for every region and latitude. Soybean farmers in Africa may either only have access to a few seed varieties with an unimpressive yield potential, or a few high-yielding varieties for which no performance data exists for their latitude and altitude. A new coordinated soybean variety evaluation program is underway that will address these problems and give African growers more and better seed options.

"An important component to establishing a foundation for [soybean](#) in Africa is having a third-party trial program. It's vital to have independent confirmation about varieties, yield, adaptation to a particular area, yield performance in area A versus B, and disease resistance," says Peter Goldsmith, University of Illinois economist and principal investigator of USAID's Soybean Innovation Lab (SIL). "Through a partnership with the African Agricultural Technology Foundation and the Syngenta Foundation for Sustainable Agriculture, which operates independently from its parent company, we are transforming the process of soybean seed production by introducing the concept of variety testing."

Goldsmith explained that the Syngenta Foundation for Sustainable Agriculture has extensive experience running variety and input trials across Africa. "They have test plots and protocols, and managers to make sure everything is done consistently. Planting soybean trials at those same locations saves time and money."

The trials are running at 12 locations in Kenya, Malawi and Zambia. Each research station tests about 25 varieties on small standardized plots, each about 12 by 15 feet.

"Varietal testing is a necessary piece of the process of assuring high quality seed is available to farmers, and in turn that allows farmers to be productive and profitable, which leads to reduced levels of poverty and

malnutrition," says Goldsmith. "You don't always know if the yield response was due to genetics, seed quality, agronomics, or just the wrong seed for that particular location. Varietal testing addresses that by testing a set of varieties in numerous locations. Soybean seed is very sensitive to both latitude and altitude so this kind of varietal testing gives objective, third-party assessment of the yield, disease resistance, etc."

University of Illinois soybean geneticist Brian Diers and USDA-ARS geneticist Randy Nelson are working with the Syngenta Foundation on this project.

"Collecting and distributing unbiased variety testing results will be important as soybean production increases in Africa," says Diers. "Only through testing varieties together in field trials do we know which varieties have the best potential to help African farmers generate income that will help them out of poverty."

Goldsmith says the Feed the Future Soybean Innovation Lab is looking at all of the pieces of the puzzle—breeder training, breeder equipment, capacity, ability to obtain and properly handle seed material, and the ability to test the varieties. "It's like a pipeline with the farmer at the end of a long seed development and commercialization process. Without good varietal performance information breeders, multipliers, seed companies, and of course farmers do not have the information to make informed decisions. Varietal testing addresses that problem."

Kenya has two rainy seasons so a pretest and one trial have been completed. Malawi and Zambia are at the pretest stage of the process and should have a first harvest soon.

"Having a public/private partnership is unique," Goldsmith says. "To work with the Syngenta Foundation for sustainable agriculture on a common objective, we combine University of Illinois science with their

development objectives. This kind of trans-border seed movement can be complicated. Syngenta Foundation has done all of the local regulatory work, such as how to bring seed into the country. They have their own network through the donor community and private sector seed growers with their program called Seed2B (seed to business). It's educating African soybean breeders and growers about why trials and third-party information is important in countries that have had little varietal improvement thus far."

Goldsmith says that since SIL began two years ago numerous soybean breeders and public and private [seed](#) organizations have come forward seeking to benefit from SIL's breeder development and varietal testing programs. Although current funds are allocated, SIL and the Syngenta Foundation are actively looking for new sources of donor and private sector funding to expand the in Africa.

For more information, visit the Tropical Soybean Information Portal to see results from soybean varietal trials across the tropics, explore specific soybean interests through the searchable research database, and watch videos from SIL researchers and other experts in tropical soybean development.

Provided by University of Illinois at Urbana-Champaign

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