

“Smallholders could meet much more of Africa’s soybean demand”

The Syngenta Foundation helps farmers access better varieties

Soybean has numerous uses in Africa. Today, most supplies are imported. To compete, the continent’s smallholders need a larger choice of better seeds. In our Kenyan team, James Wathiru is helping them get there. We asked him about the crop’s special features and the complicated process of moving improved soybean from breeders to growers.

Syngenta Foundation: How would you describe your job to a 16-year-old?

James Wathiru: I help farmers to grow more and better food, and to earn more money. This lets them look after their children well, pay for their schooling, and enjoy better housing and food.

And in a little more detail?

I work with farmers so that they can become more professional growers. Above all, my colleagues and I increase smallholders’ access to good, disease-free seeds which perform well in their fields. To do this, we connect them with seed companies, and the companies with breeders. I also link farmers to markets where they can sell their produce at good prices.



A lot of your work focuses on soybean. Isn’t that more a Latin American crop?

Yes and no. Compared to Latin America, Asia and the USA, Africa is a very small producer. Our farmers grow less than 1% of the world’s soybean*. There is some commercial production in southern Africa, but soybean is mostly a minor food crop planted by smallholders. However, there is huge potential for growth. In my country, Kenya, for example, annual supply averages 2000-5000 tons, but demand is about 150,000 – 200,000 tons. Domestic growers could be filling a lot more of that import gap.

What has prevented them from seizing that opportunity so far?

There are a number of issues here. By far the most important is the poorly developed soybean seed system. There are very few suitable varieties available on the local market. Sadly, this is not only the case in Kenya, but across the continent. Worldwide, there are about 1000 soybean varieties on sale. But very few get registered and commercialized in Africa.

What makes soybean a worthwhile crop on which to work?

It is important nutritionally, and a good source of farm income. There is strong demand for soybean from producers of animal feed and vegetable oil. In Kenya, it accounts for about 60% of cow, pig and poultry feed. For households, it provides a high-quality source of protein which is much cheaper than meat. Dry soybeans serve as milk substitutes and flour. Families fry the bean curd as a snack or breakfast food.

While growing, soybean improves soil fertility by fixing nitrogen from the atmosphere. This is a major benefit in Africa. Many soils there have become exhausted by food production, but fertilizers are often unavailable or too expensive. Furthermore, soybean copes well with pressure from pests, diseases and the weather. It is also a good rotation choice between cereal harvests.

Sounds like the perfect crop. So what particular challenges do African smallholders face with it?

As well as suffering from the lack of suitable tropical varieties, many farmers also have inadequate agronomic know-how for optimum soybean production. They also lack the money to buy necessary accompanying inputs. Furthermore, smallholders often find it hard to tap into the market for soybean sales. That is pretty ironic, considering the massive import gap.

“To be successful, varieties have to be attractive to the market”

How are you helping – or hoping – to meet those challenges?

One important step is to identify suitable varieties and the technology owners. We do that in partnership with the USAID-sponsored Soybean Innovation Lab**, based at the University of Illinois. We then help with all the necessary paperwork including import permits and Material Transfer documents. In 2015, we made 23 new varieties available for testing in Kenya, and hope to add about 15 this year.



However, for farmers worldwide, “seeing is believing”. Before adopting a new variety, they want to watch it perform in a relevant setting. So the Syngenta Foundation runs field days. These enable smallholders to participate directly in variety evaluation. We trial varieties both under controlled conditions for later registration and on farm to determine market acceptance. A variety can be biologically outstanding, but if buyers don’t like it, that’s the end of the story.

We also help bring together all the relevant stakeholders. As well as smallholders, these include breeders, seed companies, aggregators, processors, regulators, research organizations, government agencies, academics and NGOs. All of them play valuable individual roles in the value chain, but it’s also important that they communicate closely. In addition we help with aspects such as product registration and agronomy training.

What about the commercial side?

There we help local seed companies obtain varietal licenses for commercial production. We also link smallholders to the market through contract farming. This gives them the security of knowing that an aggregator will buy their produce at a predictable price. The Syngenta Foundation additionally links farmers and seed companies to credit institutes, and opens the door to suitable insurance.

How is a soybean field trial organized?

We run ours on well-drained, well-prepared fields suitable for soybean production, and fenced off against wild animals. Before we start, we train the staff carefully. We also randomize the distribution of the little plots containing the different varieties for testing. Randomization means that all these sub-units have an equal chance of receiving a particular treatment. Only the researcher and the provider of each variety knows which plots contain that variety. Correct coding and clear labeling are very important. Planting also has to follow the planned layout exactly. The seeds have to be at the right intervals and depth. To avoid statistical errors, we also replicate each trial three times in the same field.



What are you looking for in such a trial?

Our overall aim is to identify new varieties adapted to tropical growing conditions. We have a whole list of criteria. Some of the key ones are early maturity, disease-resistance, high yield, and good protein and oil content.

“Smallholders and other people in the value chain need to talk”

That is the scientific bit. What do farmers’ field days look like?

A field day lets farmers and other people in the crop value chain see the new varieties in action. We do not have a rigid format, but adapt to the local situation. The event has to take place when the crop is at a suitable stage for evaluation. We always also choose a farmer whose fields are easily accessible for the guests.

We start with some introductory explanations. Then we let the visitors take a close look at the crop, accompanied by hosts who can give further information. Good signage guides the groups between the new varieties and the more familiar ones grown for comparison. It’s important that smallholders and potential buyers, etc. get a proper chance to talk to each other. Participants from relevant government agencies also add a lot of value to field days.

Displaying new varieties is one small step. How does the Syngenta Foundation intend to ensure that African smallholders can really use the best seeds?

One key aspect is our facilitation of licensing agreements between variety owners and seed companies. We also help local companies produce the seeds for farmers as soon as possible. Before commercial release, however, the varieties must undergo a barrage of public registration tests. In countries where the breeders do not have local experience, we help them with the registration process.

What do you particularly enjoy about your work?

It is all about making impact and helping resource-poor farmers improve their livelihoods. Contributing to greater food security is very gratifying. I also have the pleasure of meeting many different people with a wide range of experience. Furthermore, I enjoy having clear objectives but the flexibility to meet them in the best possible way. Sometimes when we try new methods, we make mistakes. But those help us learn and work better!

If you were not in agriculture, what profession would interest you most?

Public policy and administration, helping my fellow citizens to meet their socio-economic challenges.

James Wathiru (35) comes from Central Kenya, and is now based in Nairobi. Before joining our Foundation, he worked at Syngenta. His roles there included senior agronomist, seed production specialist, quality manager and operations manager. James is married and has a three-year-old daughter. A keen singer, he particularly enjoys listening to gospel music.

*The main African producers are Nigeria, Malawi, South Africa, Uganda, Zimbabwe, Ethiopia, Rwanda, Egypt, DRC, Cameroon, Benin, Côte d’Ivoire, Liberia, Burkina Faso, Zambia, Gabon, Tanzania, Morocco and Kenya. Nigeria contributes nearly 50% of Africa’s output. In Kenya most production is in the Western, Rift Valley, Eastern, Nyanza and Central regions. Western Kenya accounts for about half the smallholder soybean area.

** <http://soybeaninnovationlab.illinois.edu/>