Demonstration farms can help revolutionise African agriculture

By Esther Ndumi Ngumbi

27 Jun 2017

Farms that are used to teach agricultural techniques and technologies - known as demonstration farms - are a smart investment that can help accelerate the adoption of game-changing innovations. Farmers can learn new ways of doing things without having to do it on their farms.

Demonstration farms showcase agricultural techniques and technologies to improve crops. Flickr/Remi Nono-Womdim, FAO (Source: The Conversation)

Demonstration farms are used to teach various agricultural techniques and technologies, showcase new or improved crops. They also serve as a venue to research and test new methods alongside traditional ones.

Their sizes can vary widely, ranging from small to big farms. Depending on what's being tested or showcased, the demonstration farm could have different types of crops and crop varieties, livestock or poultry breeds, fertiliser treatments or technology, such as drip irrigation. They are often owned and operated by universities, government or private research institutions, private industries or agriculture focused startups and non-governmental organisations.

The importance of demonstration farms was first recognised over a century ago by agriculturalist Seaman Knapp. He believed in the philosophy of teaching through demonstration. He's credited as the father of demonstration farms which are used around the world in countries ranging from the US to Israel, Ghana, and Nigeria.

But demonstration farms have the potential to do much more. There are still far too few of them in Africa. If carefully designed, they could help revolutionise African agriculture. They could help solve some of Africa's most persistent challenges including degraded soils or the low adoption of irrigation technologies.

They could also help with the uptake of new concepts that are transforming agriculture including precision agriculture – a farm management system that ensures soils and crops receive exactly what they need for optimal growth and productivity. Or conservation agriculture – a sustainable agriculture production system comprised of three linked principles; minimal soil disturbance, mixing and rotating crops and keeping the soils covered as much as possible.

Where it's working

The US Department of Agriculture recently funded statewide demonstration farms to showcase soil health practices and related cropping system comparisons.

In Israel, a centre for agricultural development has trained over 270,000 people from 132 countries in its various courses, 70% of which use demonstration agricultural farms.

There have also been substantial advances on the continent. In Nigeria, a fertiliser company has over 3,000 demonstration farms that it uses to showcase and teach farmers about modern farming practices.

In Ghana, the Ministry of Food and Agriculture has established over 1,242 community demonstration farms that showcase new agricultural technologies.

In Kenya a demonstration farm in Meru is teaching women everything they need to know about conservation agriculture. This includes covering crops like grass or legumes, to provide seasonal soil cover to protect bare land. These kinds of steps improve crop productivity, increase yields as well as profits and food security.

Farmers can see how practices work over time, ranging from one season to another to a period of years. They are then able to use them on their own farms. In Kenya over 10,000, of over 7 million farmers, have adopted these practices.

China has rolled out 23 demonstration centres across Africa with a goal of upgrading African farming by passing on successes in agriculture.

But China is not alone. Agriculture-focused companies like Amiran Kenya have used demonstration sites to showcase the technologies they sell. Their aim is to prove to farmers that these really work and that they can be used to improve productivity and generate income. Their kits have an easy to use gravity based drip irrigation system, a water tank, and all the necessary agro-inputs. There were soon success stories from farmers that bought these and this helped to spread the word.

Non-governmental organisations are also using demonstration farms. Development in Gardening in Kenya, for example, uses demonstration farms as classroomsto showcase good agricultural practices.

One of the most successful initiatives is helping solve one of Africa's greatest challenges – degraded soils. The Alliance for a Green Revolution in Africa has set up over 155,000 demonstration gardens to showcase best soil health practices across 13 countries. Farmers using these practices have doubled, and in some cases, tripled their crop yields.

More to be done

The need for demonstrations farms can't be overemphasised – particularly in Africa. Challenges such as droughts, degraded soils and low crop productivity persist and threaten the livelihoods of millions of people.

One of the major challenges is funding. Setting up demonstration farms to try new technologies or best practices takes lots

of funds, time and effort.

Luckily there are several funding agencies, including governments, that fund demonstration farms. The Bill and Melinda Gates Foundation, for example, funded the Alliance for a Green Revolution in Africa's soil health initiative. The Ministry of Agriculture in Ghana has also recognised their importance and funded 1,242 demonstration farms.

This trend should continue.

This article was originally published on The Conversation. Read the original article.

ABOUT THE AUTHOR

Esther Nduni Ngumbi, Research Fellow, Department of Entomology and Plant Pathology, *Auburn University*