

# THE E-SOLUTION TO CROP MANAGEMENT

BY MARTIN KITUBI

**S**everal farmers in the country have embraced irrigation following dry spells and changes in climate.

With unpredictable climate, farmers risk to lose their produce during the dry spells.

In that spirit, Collins Nuwagaba, a postgraduate student at Uganda Technology and Management University (UTAMU), has developed a low cost system, which will among other things enable a farmer to monitor their produce remotely.

The system, which has been developed to a prototype, will also alert farmers in future on the time to weed and when it is time for harvesting.

According to Nuwagaba, the innovation will also help reduce on the farmer's workload and increase yield potential.

"Currently, I am entering water needs for different crops comparing figures from agricultural institutions, such as National Agricultural Research Organisation (NARO)," he said.

Nuwagaba has spent about sh600,000 to develop the system, but says he needs about sh100m to develop it commercially.

The system, which will be hosted on a website will be compatible to all mobile gadgets, such as smartphones.

## HOW IT WORKS

The intelligent control system uses several sensors, a micro-controller and other devices to monitor the garden so as



Nuwagaba (second-left) demonstrates to farmers how the irrigation system works recently

to autonomously determine when it is appropriate to irrigate.

Nuwagaba says the hybrid irrigator is a merger of solar powered pumps (for ground water), drip irrigation structure and an intelligent control system.

Combining solar-powered irrigation with an intelligent control system; small scale farmers would be able to boost their productivity and enhance resilience.

The system is able to detect soil moisture levels as well as temperature/humidity, detect water reservoir levels and inform the farmer in-case of inadequacy via SMS.

With the use of sensors, the system pumps water either from ground or surface water

sources into the reservoir," Nuwagaba said.

It is also able to autonomously open and close the necessary valves to control water flow to the necessary plots within the garden.

The system can also collect and send data from each individual garden to an online server from which a farmer can receive real-time updates about the farm regardless of the geographical location.

This, according to Nuwagaba reduces the farmer's workload and time, which would be used to move to the farm and irrigating.

"The irrigation solution aims to improve livelihoods of rural communities through sustainable agricultural practices, especially irrigation,"

he said.

By raising productivity, sustainable water management, especially when combined with adequate soil husbandry, the system helps to ensure better production.

The low cost hybrid irrigation system could potentially eliminate the medium scale farmers' water woes. Nuwagaba says the innovation has the potential to grow quite rapidly as long as he can establish relationships with locals in need of irrigation services.

## TARGET MARKET

The target market of the innovation are the local medium scale farmers and research firms, institutions, scientists and any other

individuals in need of agricultural data.

## WHAT OTHERS SAY

Wernan Tulyanehwa, the academic registrar at UTAMU, said the university has an arrangement where students are mentored and supported by industry experts in the country.

He added that students are connected to individuals or organisations that can support them financially to improve and develop their innovations.

"For example, last year, UTAMU collaborated with Uganda Communications Commission (UCC) to train university students to develop mobile applications to solve agricultural problems. The winners got funding to fully develop and implement their innovations," he said.

## WHAT GOVERNMENT SAYS?

Vincent Waiswa Bagire, the

permanent secretary of the ICT ministry, said such innovations are highly needed in the country.

He added that his ministry supports young innovators with funding with an aim to commercialise the innovations.

In addition, Bagire explained that with construction of the Nakawa Incubation Centre, students' innovations will be patented and secured.

He added that technology is evolving fast and changing the way everyone conducts business globally and that this explains why the Government is supporting innovators.

To the Government, he said, this presents an opportunity not only to reach everyone, but also involve them in identifying and solving problems.



Nuwagaba