

# Nigerian startups make ag-tech accessible to small local farmers

Digital technologies are indispensable in modern agriculture. Yet farmers themselves sometimes lack confidence in adopting particular tools before they're sure of the benefits. However, the coronavirus epidemic may serve as the turning point adopting at least one new method - precision agriculture.



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Here, Adewale Adegoke, managing director and GIS and remote sensing at Nigeria Flying Labs South West Hub talks about the company's experience with EOS data analytics in Western Africa.

***What are the main issues and challenges with running a farm business in Nigeria? Why does it need a unified network for local farmers?***

A key constraint in managing agricultural lands in Nigeria is the lack of access to constantly evolving data. This means we can't comply with advanced agronomic practices. Smallholder farmers are especially at the risk of missing out on the benefits of technology as they don't have access to credit facilities.

Therefore, having a unified network of smallholder farmers provides the access to information and a platform that is pivotal to embedding technology into their daily workflow. AgroXchange technologies like mapping and crop monitoring mitigate this constraint. For instance, the National Cotton Association of Nigeria (NACOTAN) is now able to optimize its cotton production. The introduction of technology and data analytics spurred the NACOTAN management to focus on endorsing smallholder farmers registered with the association.

***How many local farmers use precision farming technologies? How many of them have been using precision farming before joining AgroXchange?***

Nigeria has over 300,000 square kilometres of arable land, roughly 32,5% of the country's total area, according to the World Bank collection of development indicators. It is difficult to give the exact number of local farmers using precision farming technology out of over 10 million farmers.

However, we can suggest the number is relatively small. This is due to the low level of adoption stemming from the cost of technology and its complexity. Few large-scale farmers apply precision farming technology. However, currently, AgroXchange aims to provide precision farming technology to smallholder farmers in Nigeria.

***How many farms are there in the AgroXchange database? How big are they?***

The number of farms on the AgroXchange database is around 126,000 and on average these farms are three hectares each. These are the farms that specialise on different cultures and operate across different supply chains.

***Covid-19 spread provided a certain boost in digital technology adoption around the globe. How did the epidemic affect Nigerian agriculture? Have you noticed the change in the attitude among the local farmers?***

At the onset of Covid-19, the border closures resulted in market isolation globally. Hence our food export was impacted. The pandemic disrupted the economic plans of the Nigerian Government with the focus shifting towards economic palliatives to support vulnerable populations and small businesses. However, this trend did not affect technology adoption among smallholder farmers in a big way since most of them do not have access to digital infrastructure whatsoever.

This is the opportunity that we have taken by establishing partnerships with smallholder farmer clusters or cooperatives to build capacity and to promote digital technologies in agriculture. The key strategies here are cost-sharing, technology accessibility, and data usage to foster strategic alignment with private sector investors in the textile industry.

***When did satellite monitoring become a turning point for farm-network growth? What value does it bring to you and your clients?***

The Covid-19 pandemic was a turning point, as the continuous usage of drones for crop monitoring was not sustainable anymore due to high cost of service. We opted for the continuous monitoring of land use using artificial intelligence and machine learning. This resulted in a partnership with EOS Crop Monitoring in Nigeria and Ghana.

Satellite imagery for crop monitoring offers a lower cost of implementation, higher efficiency for bigger farm sizes, and improved accessibility to operational data for better farm management. Identifying problem spots and knowing soil moisture levels field-by-field allows to save extra resources on irrigation and fertilisation as well.

***Which satellite monitoring features your clients use the most? What kind of farming decisions are facilitated through satellite monitoring?***

The most demanded satellite features are health assessment, weather reporting, and notifications. In the future, we expect an increase in demand for report generation and land-use change detection.

***Where do you think satellite monitoring would be of maximum benefit? What do you suggest to farmers willing to use it?***

Using satellite imagery for crop monitoring is quite effective as farmers need to know the conditions on their farms anytime and from anywhere. Crop health monitoring through the interpretation of crop indices, weather forecasts, and reporting functions are the first fields satellite monitoring is good for.

To new farmers not familiar with the technology, we suggest giving it a try since there are many free trial offers to have a taste of satellite monitoring online. Plus, the interface is quite user-friendly and intuitive for beginners to use.

***How do you see the evolution of community farm tech and what are the main obstacles of precision-farming implementation in the region? How do you see overcoming those obstacles?***

Nigeria and most of the Sub Saharan states are experiencing a technological renaissance in agriculture. However, key constraints to the adoption of digital agriculture are the size of land, cost, and relative complexity from an average farmer's perspective. Over 80% of Nigerian farmers are smallholders with no commensurate income due to the lack of crop volumes and access to information that will guarantee optimal yield. It is hard to break this vicious circle.

The ultimate goal of using technology is to increase yields through farm optimization. For instance, the availability of local farm records and crop condition information improves agronomy through advisory which reduces farm maintenance. To raise the credibility of satellite monitoring we have to prove its efficiency with real cases.

***Any future plans to make precision farming even more accessible for a wider community of farmers?***

We will collaborate more with farmer associations to build the capacity of farmers on precision agriculture and to improve the accessibility of precision farming. It is more impactful to improve access to precision farming as a support agronomy service advisory, considering the disposable income of smallholder farmers.

The flexibility of the product helps us to adjust its functionality on a wider range of fields and makes it easier to promote precision tech in the region.

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