



RiceAdvice:

An app tailor-made for African farmers

by Savitri Mohapatra

A smart mobile crop management tool is helping farmers in Africa optimize their production and profits.

Farming is often a risky venture and involves a lot of uncertainty. It is no wonder, therefore, that the 17th century writer Jonathan Swift spoke so highly of farmers:

"Whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

Traditionally, farmers have made decisions on the farm based on their own experience and knowledge. To enable them to be more efficient and reduce risks in farming, the recent revolution in information

and communication technology has made it possible to develop decision-support tools that can guide them to make informed decisions to improve their production and increase their productivity.

One such smart mobile app is *RiceAdvice*, a science-backed crop management decision-support tool developed by the Africa Rice Center (AfricaRice), which can be downloaded for free on an Android smartphone or a tablet device through Google Play Store.

This app generates tailor-made recommendations—based on field-specific information—that help African farmers in irrigated and relatively favorable rainfed lowland areas apply mineral fertilizer more efficiently so that they can optimize production and profits.

Customized prescriptions

In Africa, rice production has not been able to keep up with the continent's rapidly growing appetite for rice.

Rice cultivation must significantly increase its efficiency in the continent so that it can lead to improved food security and reduced poverty. The average rice yield in sub-Saharan Africa is around 2 tons per hectare, which is about half the global average.

Farmers' efficient use of mineral fertilizer coupled with good agricultural practices is a key to enhancing rice production in the region.

Many rice farmers are not aware of the right combination, dosage, and timing of fertilizer application. Insufficient fertilizer can result in

IN NIGERIA, a RiceAdvice service provider (right) collects information to generate customized recommendations on fertilizer options. (Photo by Kokou Ahouanton, AfricaRice.)



A FARMER in Nigeria has greatly benefited from RiceAdvice. (Photo by Phillip Onimisi Oboji, GIZ-CARI)



loss of yield, whereas too much can reduce profit and may harm the environment.

Thus, tools that can eliminate guesswork and increase yields and profits through optimal fertilizer application are valuable for farmers. The *RiceAdvice* decision-support tool helps farmers identify the best option for fertilizer to buy, based on nutrient requirement and fertilizer prices.

Moreover, *RiceAdvice* helps farmers make better-informed decisions based on return-on-investment calculations. They can select their own target yield based on their budget. In fact, this feature of *RiceAdvice* has been commended by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)-Competitive African Rice Initiative (CARI), which is helping in the deployment of *RiceAdvice* in sub-Saharan Africa.

RiceAdvice does not need an internet connection to generate the guidelines in villages or fields, except for updating the app. Expected users are farmers, extension workers, input dealers, traders, agricultural entrepreneurs, and development agencies in Africa interested in receiving expert advice for rice production.

AfricaRice studies have shown that the adoption of *RiceAdvice* recommendations can increase rice yield by 0.6 to 1.8 tons per hectare in farmers' fields.

"However, it is important to remember that *RiceAdvice* should be disseminated along with other good agricultural practices," emphasized Dr. Kazuki Saito, AfricaRice agronomist, who has spearheaded the development and dissemination of the tool.

Backed by science

Explaining the importance of data from basic research that underpin *RiceAdvice*, Dr. Saito said that the decision-support system was built on decades of work by AfricaRice scientists and their partners since the late 1990s developing improved crop management options in irrigated and rainfed ecosystems.

Farmers were closely involved in the development of such crop management options. Care was taken to propose prototype technologies and good agronomic principles and decision tools rather than fixed technologies or blanket fertilizer recommendations, as the nutrient requirements of the crop can change, even across short distances in fields.

Thus, *RiceAdvice* is essentially based on databases from research repackaged into a format that is useful and accessible. The tool has been extensively fine-tuned and validated on the ground in consultation with farmers. More than 90% of the farmers who used the tool in Senegal and Nigeria during its validation phase are willing to continue using it.

RiceAdvice deployment

In April 2016, a one-year project was launched by AfricaRice, with support from the government of Japan, to disseminate *RiceAdvice* in Nigeria and Mali to improve rice productivity, maximize rice farmers' investment potential, and catalyze youth employment. The project's overarching goal is to contribute to food security and social stability in the two countries.

The project's strategy was to train 200 people, including youth and women, in these countries in the use of *RiceAdvice* and good agricultural practices in rice farming. The trained people, in turn, served as advisory service providers and gave recommendations generated by *RiceAdvice* to 12,000 farming households.

The project aimed to increase rice yield in the target areas in Mali and Nigeria by 20%.

For the rollout in the two countries, the project benefited from the help of key development partners GIZ-CARI and Syngenta Foundation for Sustainable Agriculture as well as national agricultural research and extension systems such as the Institut d'économie rurale in Mali, the National Cereals Research Institute, and Ahmadu Bello University in Nigeria.

At the project closing meeting held at the AfricaRice-Cotonou research station in February 2017,

it was reported that, thanks to the Japan-funded project, 200 trained service providers have helped more than 16,000 rice farmers in Mali and Nigeria benefit from *RiceAdvice*, leading to increased productivity, efficiency, and profits.

“Farmers are happy with the significant improvement in yield and income that *RiceAdvice* has brought to them and are eager to continue with the service,” observed GIZ-CARI, which is helping deploy the *RiceAdvice* technology to more than 9,000 farmers in the Nigerian states of Kogi, Niger, Jigawa, and Kebbi through 97 trained service providers.

Mr. Murtala Aliyu, a farmer from Kebbi with 0.2 hectare of land, said, “Before, I used to apply four bags of fertilizer and harvest only six bags

of paddy. But now, with *RiceAdvice*, I applied just two bags of fertilizer and I harvested 18 bags of paddy on the same farm.”

After seeing the increase in yield on his farm because of *RiceAdvice*, Mr. Abdullahi Mahari from Jigawa expressed his willingness to pay NGN 20,000 (USD 65) for *RiceAdvice* service because it was so profitable to him.

Syngenta Foundation for Sustainable Agriculture recounted a similar experience from Kouroumari area in Office du Niger, Mali. Of the 600 farmers who benefited from *RiceAdvice*, 99% wish to reuse the service in 2017 and 44% of them are ready to pay between 250 F CFA (about USD 0.50) and 10,000 F CFA (about USD 16) for *RiceAdvice* recommendations.

“We are pleased that nearly all the project targets have been achieved or even surpassed in some cases,” said Dr. Saito, *RiceAdvice* project coordinator, at a meeting to review the progress and achievements, share experiences, and develop a follow-up plan for after the project ends in March 2017.

Thanking the government of Japan and the various partners for their strong support, Dr. Saito reported that various media tools have been developed for promoting *RiceAdvice*, such as a promotional video, social media, and a dedicated website.

The way forward

The meeting participants discussed opportunities for and constraints to outscaling and upscaling *RiceAdvice* in a sustainable manner so that the tool could serve more people and achieve broad impact.

“AfricaRice and its partners agree that we need appropriate business models, coordination mechanisms, and new partners, particularly from the private sector,” said Dr. Saito. “We are quite lucky as a wide range of partners is interested in this tool.”

AfricaRice and its partners are analyzing the data from the project and are making follow-up field visits to assess the initial impact and identify mechanisms for the effective rollout of *RiceAdvice* in sub-Saharan Africa after the end of the project. GIZ-CARI is actively supporting the dissemination and validation of *RiceAdvice* in Burkina Faso and Ghana, in addition to Nigeria. Syngenta Foundation for Sustainable Agriculture is also disseminating *RiceAdvice* to farmers in Mali and Senegal. GIZ is supporting an AfricaRice project to develop and validate *RiceAdvice* for Eastern Africa. All these efforts will ensure that many more farmers can make two rice plants grow where only one grew before. ■



A RICE farmer (second from left) in Burkina Faso followed *RiceAdvice* recommendations and is happy with the result. (Photo by Kokou Ahouanton, AfricaRice.)

KOKOU AHOANTON, AfricaRice research assistant (third from right), demonstrates how to use the *RiceAdvice* in Nigeria. (Photo by Phillip Onimisi Obosi, GIZ-CARI.)



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