South Africa eyes home-grown rice as ARC expands research efforts

South Africa is taking bold steps toward reducing its dependence on rice imports by exploring the viability of home-grown upland rice. Through a major research drive led by the Agricultural Research Council's Small Grain division, scientists and industry partners are testing rice varieties capable of thriving in South Africa's diverse soils and increasingly water-scarce climate. **Anelisa Gusha** reports.

As South Africa continues to explore sustainable solutions for food security, the Agricultural Research Council (ARC) is turning its attention to an unexpected contender – rice. At the heart of the initiative is the ARC's Small Grain campus, where Prof Toi Tsilo and Timmy Baloyi, together with partners within the agriculture sector, academia and the rice value chain, are hard at work in establishing the development and production of upland rice cultivars for adoption in South Africa.

This project at ARC-Small Grain is strategically aimed at shaping the agriculture sector to provide opportunities for economic growth within the rice value chain which farmers can participate in.

According to project lead Baloyi, the initiative aligns naturally with existing grain production practices and carries major economic potential, from lowering import costs and creating jobs to strengthening national food security.

As research scales toward national roll-out, the project signals a transformative opportunity: a climate-resilient, locally produced staple that could reshape South Africa's agricultural landscape and bolster resilience in the face of climate extremes.

Unlike traditional paddy rice, which requires large volumes of water, different cultivars are being tested for their ability to thrive in South Africa's diverse soils and increasingly water-scarce climate, potentially laying the foundation for a future domestic rice value chain.

BELOW: A couple of rice varieties displayed great possibility for further improvement and development across South Africa's diverse soils and climate.
PHOTOS: SUPPLIED

FAST FACTS

The Agricultural Research Council is testing upland rice varieties that require far less irrigation than traditional paddy rice, making them potentially suitable for South Africa's increasingly water-scarce conditions.

The project involves a network of stakeholders, including the Department of Agriculture, universities, seed and mechanisation companies, importers, regulators, and international rice organisations.

Early trials show strong adaptation potential in several rice varieties, paving the way for local production that could reduce import dependence, create jobs, and strengthen South Africa's food security.

UPLAND RICE PROJECT

The upland rice project in South Africa targets and participates with a wide range of stakeholders, including the Department of Science and Innovation, the Technology Innovation Agency, the Department of Agriculture, the National Agricultural Marketing Council, Land Bank, farmers, farmer associations, universities, seed companies, mechanisation companies, and current rice value chain industry stakeholders such as importers and regulators, as well as international rice organisations.

A wide range of rice varieties acquired from an international rice organisation were evaluated across multiple grain production areas in South Africa for adaptation, and a couple of them displayed great possibility for adaptation and

further improvement and development across South Africa's diverse soils and climate.

By focusing on the development of low-input requirement, high-yielding crops, the ARC and its collaborators hope to establish profitable crop production alternatives to add to the annual crop production cycle and portfolio of South African farmers.

Baloyi says this approach aligns with traditional crop production methods, ensuring farmers don't have to devise production practices from scratch.

"The South African grain production system is currently carried out under upland conditions where grain production relies on seasonal rainfall and irrigation.

"Upland rice production will conform to the traditional grain production practices that farmers are currently deploying, rather than reinventing the wheel," he says.

MADE FOR LOCAL PRODUCTION

Baloyi says the goal behind the multimillion rand project is to contribute to needs-driven research, which outlines the importance of achieving self-subsistence in rice production as South Africa is considering the growing rice consumption within the country, and to further mitigate any unforeseen political challenges the country may be faced with when having to import rice in the future.

"The response to South Africa's needs is in the development of climate-resilient, low-input requirement crops that are drought tolerant, high yielding and profitable. This will address the gap in the rice value chain and reliance on imports in a country that has a high demand for rice," says Baloyi.

The rice adaptation and development strategy deployed is designed to work with limited rain, and irrigation only during critical stages, allowing rice to grow well even under varying weather conditions.

"The project is structured in a way that it can identify and develop rice genotypes that can be produced with minimal rainfall and supplementary irrigation at critical growth stages, without the need for excessive irrigation," he says.

UPLAND RICE ALSO HAS SIGNIFICANT COMMERCIAL POTENTIAL

"Rice production would be more profitable for farmers compared to numerous other crops, considering the price of long aromatic rice (like basmati and jasmine). The existing rice value chain also indicates there would be established market opportunities for farmers," says Baloyi.

This fits neatly into existing farming cycles.

"The planting window of rice would also assist multiple production of other crops within farmers' production cycles per annum," says Baloyi.

He underscores that the project is of national importance.

"Rice production would largely contribute to food security, considering the growing demand for rice in South Africa."

GOVERNMENT BACKING

Although interest in rice production is high, Baloyi stresses that government backing remains vital.

"There is positive and substantial participation; however, more attention and participation is still required from various spheres of government."

He says on the horizon is a national rice roll-out, which depends on resources.

"The project will be expanded nationally across all provinces; however, there are still more funds required, and support is needed from some government departments. There is an established rice task team that involves industry stakeholders, universities, government departments and international partners."

ABOVE: Unlike traditional paddy rice, which requires large volumes of water, other cultivars are being tested for their ability to thrive in South Africa.

'UPLAND RICE PRODUCTION WILL CONFORM TO THE TRADITIONAL GRAIN PRODUCTION PRACTICES THAT FARMERS ARE CURRENTLY DEPLOYING'

Mentioning young scientists and agriculturists, Baloyi encourages them to be innovative.

"They need to keep on looking for innovative ways to contribute to global agricultural needs through applying biotechnology and plant breeding techniques. There are endless opportunities that could be created through plant breeding," he says.

For the ARC, the upland rice project is beyond merely cropping science; it's about creating jobs, strengthening farmers against future challenges, and building real resilience in communities facing climate extremes.

Rice production is a practical, impactful step toward a food-secure South Africa.

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