A new study has shown that two flood-resistant rice varieties are helping farmers in Africa to improve productivity, with huge potential returns, especially for countries affected by climate change.

According to experts at Africa Rice Center (AfricaRice) and International Rice Research Institute (IRRI), the rice developed could survive for more than two weeks under complete submergence, whereas existing rice varieties die after a week of flooding.

The experts found that it can generate up to two tons per hectare more than rice varieties vulnerable to flooding.

Venuprasad Ramaiah, head of the International Rice Genebank at the IRRI. says, “Until recently, no flood-tolerant rice varieties existed in Africa and farmers suffered enormous losses due to floods,”

“Madagascar, Mozambique, Nigeria, and Tanzania are among the most flood-affected countries in Sub-Saharan Africa.”

Ramaiah points out that the new varieties also produce a higher yield than existing types, even in drier periods.

“Their cultivation is expected to generate income that is comparable with other improved varieties in the market, in years with no floods,” he added.

Ramaiah explains that a gene for submergence tolerance (SUB1 gene) was created and transferred into flood-susceptible African rice varieties.

Baboucarr Manneh, director-general of AfricaRice, said that the SUB1 gene was discovered in 1996 and scientists began transferring it into the farmer-preferred variety in the early 2000s. The first high-yielding submergence-tolerant rice variety called “scuba rice” was released in 2009 in Asia.

“This goes to show that the technology has been validated and proven successful and what we’re doing is taking it further to tailor the needs of Sub-Saharan African rice farmers,” says Manneh.

During the flood season, the new varieties sustain productivity, helping farmers maintain a stable income in both stressed and non-stressed years.

Rice-producing African countries such as Tanzania are highly vulnerable to climate change but rice farmers are particularly vulnerable to the crop as it suffers harsh climatic impacts including drought and flooding.

“Most African countries have an ambitious plan to be self-sufficient in rice and potentially become the new rice bowl of Asia, but flooding poses a threat to these ambitions,” Ramaiah adds.

Ramaiah said that the two released varieties have reached more than 30,000 farmers in Nigeria.

“We are not stopping there yet,” says Ramaiah, adding that IRRI and AfricaRice are working with private seed producers, millers, rice traders, farmer cooperatives, and community organizations to design distribution schemes to get the rice to farmers in areas of need.

“With improved flood-tolerant rice varieties, smallholder farmers in the region are able to adapt better to the floods that used to destroy their crops, ensuring farmers’ yields and income.”

Ramaiah says the innovation has the potential to generate at least US$3 billion in returns for African countries experiencing flooding in the next five years.