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FACT SHEET

NITROGEN USE EFFICIENT, DROUGHT & SALT TOLERANT RICE: AFRICA

RICE IN WEST AFRICA

Rice is the fastest growing food source in Africa with consumption increasing 6% each year. Although the crop is grown and cultivated in 40 African countries, there is a shortage of 6.5 million tons per year, or around 30% of their consumption, and Africa must import rice at annual costs of around $1.7 billion. Recent rises in cereal prices make ongoing importation of rice increasingly unsustainable; a better solution is to help African rice farmers sustainably improve productivity. Many African soils have inherently poor fertility as a result of long periods of farming without replenishing nutrients and irrigation with salty water, making African rice yields significantly lower than in other rice producing regions.

Arcadia Biosciences, Davis CA

Bioengineered Rice Trial

BIOTECHNOLOGY

The African Agricultural Technology foundation (AATF), Arcadia Biosciences and their partners are developing new rice varieties that can more effectively utilize soil nitrogen, use less water and grow in saline conditions. These rice varieties will be particularly important for farmers in Africa who often do not use sufficient fertilizer because it is too costly or simply not available and have very low yields as a result. The varieties will also allow farmers to increase rice yields on saline soils and to use saline or brackish water for irrigation (with salt retained in plant to preserve soil for other crops), thereby preserving precious fresh water for human consumption or other agricultural uses.

Arcadia Biosciences, Davis CA

Biotech Rice Crops

REGIONAL IMPACT

Rice availability and price are primary factors affecting the welfare of the poorest and least food secure people in Africa. Studies estimate that in around 90% of African rice lands, nitrogen deficiency is a major constraint. Nitrogen use efficient, drought tolerant and saline tolerant rice varieties could help African farmers increase yield by up to 30%. Furthermore, use of these varieties could have long lasting environmental benefits in minimizing fertilizer and water use, slowing deforestation and expansion of cultivated lands.

PROJECT STATUS

Partner organizations are currently introducing the traits into African rice varieties which will then be field trialed under representative conditions in East and West Africa. High performing lines will be further optimized through conventional breeding and backcrossed with locally adapted rice varieties.

USAID Partner Organizations: African Agricultural Technology Foundation (Kenya), Arcadia Biosciences (USA), National Agricultural Research Systems in Ghana, Burkina Faso, Uganda and Nigeria, International Center for Tropical Agriculture (Colombia), PIPRA (USA).

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