

Three Years of Field Trials With Nitrogen-Efficient Rice Demonstrate Significant Yield Increases

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-- Increased Productivity Will Enhance Food Security and On-farm Economics --

DAVIS, Calif. and PALMIRA, Colombia (March 24, 2015) – Arcadia Biosciences, Inc., an agricultural technology company that develops and commercializes plant traits and products that improve farm economics and benefit the environment and human health, has joined with the International Center for Tropical Agriculture (CIAT) to announce the completion of a third year of field trials of Nitrogen Use Efficient (NUE) rice. CIAT has been testing the rice at the center’s research fields in Colombia. For the third year in a row, rice lines with Arcadia’s NUE trait produced significant yield increases relative to conventional varieties.

Over the three years of field trials, the leading rice line with Arcadia’s NUE trait out-yielded control lines by an average of 27 percent. The trials included both irrigated lowland and rain-fed upland locations. In the third year trial, at 50 percent of normal applied nitrogen fertilizer, the leading NUE rice line out-produced the control line by 33 percent. The previous two years’ trials showed yield increases of 22 percent and 30 percent, respectively.

“These results, combined with earlier results in other types of rice, demonstrate the efficacy of our NUE trait in all major rice types,” said Eric Rey, president and CEO of Arcadia. “We believe that NUE rice offers an opportunity to address food security issues globally, while also significantly improving economic outcomes for small farmers and their communities.”

Rice is the world’s most valuable crop, grown on 162 million hectares globally with a harvest value of \$334.7 billion in 2012 (FAO 2012 statistics; FAOSTAT). The crop plays a critical role in food security for more than half of the world’s population. In a recent report, the International Food Policy Research Institute (IFPRI) predicted that maintaining food security in the face of climate change and population growth will require a combination of technologies that target broad-based yield improvement, abiotic stresses such as heat and drought, and improved nitrogen use efficiency.

Arcadia’s NUE trait was created to help farmers reduce their use of nitrogen fertilizer, a staple in the agricultural industry for increasing crop yield. Conventional crops only utilize about half of the costly fertilizer applied. Much of the remainder moves through the soil and enters ground and surface water systems, or volatilizes into the air as a greenhouse gas 300 times more potent than carbon dioxide. Arcadia’s NUE trait enables plants to use nitrogen more efficiently, helping farmers improve yields while reducing costly fertilizer inputs and reducing the environmental footprint of agriculture.

The NUE rice field trials in Colombia are part of a five-year collaboration between Arcadia, CIAT, and the African Agricultural Technology Foundation (AATF), under the Nitrogen-use Efficient, Water-use Efficient and Salt Tolerant (NEWEST) rice project, aimed at improving the productivity and sustainability of rice production across Sub-Saharan Africa. The collaboration is funded by the United States Agency for International Development (USAID) under [Feed the Future](#), the U.S. Government’s global hunger and food security initiative. CIAT conducts field trials as initial validation and screening of NUE rice lines prior to field trials in Africa, which are now underway in Ghana, Uganda and Nigeria.

“This project definitely marks a major scientific milestone,” said Michael Gomez Selvaraj, crop physiologist who is leading the project at CIAT. “We believe that the multi-location field trials that are conducted across the countries will be more useful to study the proof of concept of these interesting genes and select promising transgenic lines that will enable the small holder rice farmers to increase the rice production in Africa.”

About Arcadia Biosciences, Inc.

Based in Davis, Calif., with additional facilities in Seattle, Wash. and Phoenix, Ariz., Arcadia Biosciences develops agricultural products that create added value for farmers while benefitting the environment and enhancing human health. Arcadia’s agronomic performance traits, including Nitrogen Use Efficiency, Water Use Efficiency, Salinity Tolerance, Heat Tolerance and Herbicide Tolerance, are all aimed at making agricultural production

more economically efficient and environmentally sound. Arcadia's nutrition traits and products are aimed at creating healthier ingredients and whole foods with lower production costs. The company was recently listed in the Global Cleantech 100 and was previously named one of MIT Technology Review's 50 Smartest Companies. For more information, visit www.arcadiabio.com.

About the International Center for Tropical Agriculture (CIAT)

CIAT is an international agricultural research organization focused on eco-efficient agriculture that is, farming systems that better harness the available resources to be more competitive and to sustainably increase productivity, while leaving a smaller environmental footprint. CIAT significantly contributes to major global initiatives that seek to reduce rural poverty, strengthen food security, improve human health and nutrition, and sustainably manage natural resources throughout the developing world. For more information, visit www.ciatnews.cgiar.org.

About The African Agricultural Technology Foundation (AATF)

The African Agricultural Technology Foundation (AATF) is a not-for-profit organization that facilitates and promotes public/private partnerships for the access and delivery of appropriate agricultural technologies with potential to increase the productivity of resource-poor smallholder farmers in Sub-Saharan Africa. For more information, visit www.aatf-africa.org.

About USAID

USAID is the lead U.S. Government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential.

About Feed the Future

Feed the Future is the U.S. Government's global hunger and food security initiative. With a focus on smallholder farmers, particularly women, Feed the Future supports partner countries in developing their agriculture sectors to spur economic growth and trade that increase incomes and reduce hunger, poverty and under nutrition. For more information, visit www.feedthefuture.gov.