Study Shows Nitrogen Use Efficiency Trait Increases Biomass of Sugarcane

April 15, 2015 10:54 AM ET

-- Results Demonstrate Potential for Increased Yield and Reduced Fertilizer Input --

DAVIS, Calif. and MOUNT EDGECOMBE, South Africa (April 15, 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, announced the results of a new study conducted by the South African Sugarcane Research Institute (SASRI). The study, published in the scientific journal Plant Cell Reports, showed significant improvements in plant growth parameters and biomass in sugarcane lines incorporating Arcadia's Nitrogen Use Efficiency (NUE) trait.

In a greenhouse trial under low nitrogen conditions, the sugarcane lines with Arcadia's NUE trait showed substantial increases in biomass and nitrogen uptake compared to conventional lines. The leading NUE sugarcane lines showed a 38 to 93 percent increase in biomass over controls.

"This study is a significant step in the development of higher yielding, less costly and environmentally sustainable sugarcane varieties," said Eric Rey, president and CEO of Arcadia Biosciences. "Nitrogen fertilizer is one of the most important crop inputs in sugarcane production, and this study indicates that Arcadia's NUE trait can support enhanced yields for one of the world's most important food and biofuel crops, improving on-farm efficiency, reducing waste and improving the environmental footprint of sugarcane production."

With more than 26 million hectares cultivated globally, sugarcane is a major contributor to rural economies, food markets and energy markets. Grown primarily in rural and tropical areas, sugarcane accounts for more than 70 percent of the world's sugar production, and it is among the most nitrogen-intensive crops in some areas.

Arcadia's NUE trait was developed to help farmers increase yields and reduce their use of nitrogen fertilizer, a staple in the agricultural industry for increasing crop yield. Conventional crops only use about half of applied nitrogen fertilizer. 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 improving the environmental footprint of agriculture. The trait's efficacy has been demonstrated in multiple crops, including rice, wheat, barley and canola.

Further testing will examine NUE sugarcane performance in the field under various nitrogen levels, as well as the trait's effect on compositional factors such as sucrose levels in the mature crop.

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 South African Sugarcane Research Institute (SASRI)
A division of the South African Sugar Association based in Mount Edgecombe, KwaZulu-Natal, SASRI conducts research into the development of new sugarcane varieties and the improvement of crop management and farming systems for the long-term sustainability of the South African sugar industry. For more information, visit www.sasa.org.za.