



Yield10 Bioscience Signs Exclusive Worldwide License with University of Missouri for Advanced Technology Used to Boost Oil Content in Crops

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WOBURN, Mass., May 08, 2019 (GLOBE NEWSWIRE) -- Yield10 Bioscience, Inc. (Nasdaq:YTEN), an agricultural bioscience company which uses its "Trait Factory" to develop high value seed traits for the agriculture and food industries, today announced that it has signed an exclusive worldwide license from the [University of Missouri](#) (MU) for a novel, advanced technology to boost oil content in crops. The license expands Yield10's intellectual property portfolio around technologies for increasing oil content in oilseed crops. This new gene target, designated C3012 by Yield10, is consistent with the Company's focus on using CRISPR-Cas/9 genome-editing to increase seed oil content, the primary economic value driver in these crops.

Professor of Biochemistry Jay Thelen, Ph.D., and his team at the MU [Bond Life Sciences Center](#), have made fundamental biochemistry discoveries related to the function and regulation of Acetyl-CoA carboxylase ("ACCCase"), a key rate-limiting enzyme involved in oil production in crops. In 2018, Yield10 licensed technology from MU related to a trait named C3007, a gene for a negative controller that inhibits the enzyme activity of ACCase. The new technology licensed by Yield10, C3012, targets an additional gene in the ACCase complex that may complement the activity of C3007 to boost oil content in crops. Yield10 also licensed from MU in 2018 a yield target called C3010, which, if over-expressed, results in increased activity of ACCase and may lead to increased oil content.

"This additional license with University of Missouri underscores our focus on gene targets in the ACCase complex to re-engineer oil biosynthesis pathways in crops," said Oliver Peoples, Ph.D., President and Chief Executive Officer of Yield10 Bioscience. "We look forward to evaluating the new technology accessed under the license which we have designated C3012 both on its own as well as in combination with C3007, where we believe its activity may be synergistic. The detailed biochemistry studies performed by Dr. Thelen and his team have not only improved our understanding of the regulation of these critical metabolic pathways but have led to these impressive discoveries and patent applications around the ACCase complex, and we look forward to continuing our work together."

"The ACCase protein complex is the gatekeeper for carbon flow into fatty acid biosynthesis," said Dr. Thelen. "In terms of regulation, this complex is poorly understood in plants. My lab is focused on identifying new components to this complex and leveraging these discoveries to push carbon flow through this bottleneck. The end goal is to engineer plants to produce more oil."

"The discoveries made by Dr. Thelen and his team around the biochemistry of a key enzyme in a key fatty acid biosynthesis pathway in plants represents an innovative and significant advancement in boosting oil content and yield in crops," said [Sam Bish](#), Interim Director and Senior Licensing and Business Development Associate, MU Technology Advancement Office. "This additional license to Yield10 Bioscience further enables the company to assemble and deploy advanced technologies to increase the amount of oil harvested from plants, an important renewable source of hydrocarbons for food, energy and chemical feedstocks. The availability of healthy, edible oils is a crucial element in enhancing global food security."

Dr. Thelen is a member of Yield10 Bioscience's Science Advisory Board.

Background on C3007

The protein encoded by C3007, also known as BADC, is a novel, negative regulator of an essential enzyme (ACCCase) in fatty acid biosynthesis. Its normal function slows down oil biosynthesis, where reducing BADC has the effect of allowing more oil biosynthesis to occur. The advanced oilseed technology comprising C3007 was developed by [Dr. Thelen](#), and his team, a group of researchers with a combined 35 years of experience in the field. Their research enabled the engineering of a new biochemical mechanism to increase seed oil content in a model plant system. In 2018, Yield10 produced a CRISPR-cas9 genome-edited version of C3007 in canola and further development and evaluation of the trait is underway. Yield10's ongoing research to modify C3007, C3010, C3012 in oilseed crops using genome-editing may enable the Company to develop these promising traits on an expedited timeline for the U.S. market based on securing a "non-regulated" designation from USDA-APHIS, although they may be subject to regulation by EPA or FDA.

About the Technology Advancement Office and the Bond Life Sciences Center, University of Missouri

The Technology Advancement Office (TAO) manages technology transfer functions at the University of Missouri in Columbia, Missouri. TAO professionals identify, assess, license and protect innovations resulting from MU's world-class research. They also create and facilitate pathways for the transfer of innovations to the marketplace, where research truly benefits society. Founded in 1839, MU is Missouri's largest public research university. The MU Bond Life Sciences Center houses researchers from six schools and colleges who conduct interdisciplinary research to solve problems in human and animal health, the environment and agriculture. The university's Department of Biochemistry is part of both the College of Agriculture, Food and Natural Resources and the School of Medicine.

About Yield10 Bioscience

Yield10 Bioscience, Inc. is an agricultural bioscience company which uses its "Trait Factory" to develop high value seed traits for the agriculture and food industries to achieve step-change improvements in crop yield to enhance global food security. Yield10 has an extensive track record of innovation based around optimizing the flow of carbon in living systems. The "Trait Factory" has two components: the "GRAIN" computational modeling platform, which is used to identify specific gene changes designed to improve crop performance, and the deployment of those changes into crops using genome-editing or traditional agricultural biotechnology approaches. The purpose of the "Trait Factory" is to engineer precise alterations

to gene activity and the flow of carbon in plants to produce higher yields with lower inputs of land, water or fertilizer. Yield10 is advancing several yield traits it has developed in crops such as canola, soybean, rice, wheat and corn. Yield10 is headquartered in Woburn, MA and has an Oilseeds Center of Excellence in Saskatoon, Canada.

For more information about the company, please visit www.yield10bio.com.

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Safe Harbor for Forward-Looking Statements

This press release contains forward-looking statements which are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. The forward-looking statements in this release do not constitute guarantees of future performance. Investors are cautioned that statements in this press release which are not strictly historical, including, without limitation, expectations regarding development of the new MU oil content technology designated C3012, C3007 and C3010 as traits to boost oil content in crops, the potential to secure "non-regulated" designations for traits submitted to USDA-APHIS, and the progress of Yield10 Bioscience, Inc., constitute forward-looking statements. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated, including the risks and uncertainties detailed in Yield10 Bioscience's filings with the Securities and Exchange Commission. Yield10 assumes no obligation to update any forward-looking information contained in this press release or with respect to the matters described herein.

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