Yield10 Bioscience Files U.S. Patent Application Covering New Technology Enabling Low-cost Production of PHA-based Biomaterials in Camelina

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WOBURN, Mass., June 17, 2019 (GLOBE NEWSWIRE) -- Yield10 Bioscience, Inc. (Nasdaq:YTEN), an agricultural bioscience company that uses its "Trait Factory" to develop high value seed traits for the agriculture and food industries, today announced that the Company has filed a U.S. Patent application for new technology enabling low-cost production of PHA-based ("polyhydroxyalkanoate") biomaterials in *Camelina sativa,* an oilseed crop. PHA-based biomaterials are of significant interest for their use in water treatment to remove nitrogen and phosphates, and as a biodegradable replacement for petroleum plastics in a range of applications.

The new Yield10 patent application describes a discovery around maintaining the viability and vigor of Camelina seed containing high levels of PHA biopolymer. This is an important step toward realizing a cost-effective, seed-based production platform for the simplest member of the PHA family, PHB, using Camelina. With this new patent-pending technology, Yield10 plans to develop and commercialize products for water treatment applications using the Camelina PHB platform. Yield10 is also seeking partners interested in developing commercial opportunities for crop PHA biomaterials in plastics replacements markets, where Yield10 would expect to serve as a technology provider.

"While we maintain our focus on the development of novel yield traits for commercial crops based on a licensing model, we are working to develop independent market opportunities for Yield10 in the specialty oils and niche crop space as part of our business development activities," said Oliver Peoples, Ph.D., president and chief executive officer of Yield10 Bioscience. "We believe that by developing the PHA Camelina platform as a cash cover crop, we can create new sources of revenue for farmers, independent of export markets, reduce run-off from fertilizer, and produce a natural biodegradable product that can be used to reduce nitrate pollution from aquaculture and septic systems. By focusing on the North American market, we believe we can avoid the typical high costs and long timelines associated with global deregulation of a biotech crop, and potentially benefit from the ongoing modernization of the USDA-APHIS regulatory process."

Yield10 is a pioneer in the development of technology for producing PHA/PHB biomaterials in crops. Seed-based PHA/PHB production provides an opportunity to sustainably produce these natural biodegradable materials at low-cost to disrupt the cost advantage of the petroleum plastics they functionally replace. Based on the Company's internal engineering projections, the costs achievable may also enable broad use of this material for water treatment applications where it acts as a maintenance-free growth substrate for bacteria that converts nitrate to nitrogen gas reducing pollution and algal growth.

Over the last several years, Yield10 has developed Camelina as a platform crop using it to identify, develop and evaluate the Company's pipeline of novel traits to enhance yield in commercially important row crops such as canola, soybean and corn. Recent discoveries by Yield10 for producing PHB in an economically viable manner may also benefit from Yield10's work to boost yield in oilseed crops. Yield10 plans to begin testing PHB producing Camelina plants in small field tests as early as the 2020 growing season.

Background on PHA for Water Treatment

Scientific data has clearly shown that fertilizer (NPK) is essential for global food security, however its use is also a major source of nutrient pollution in our waterways. There is global demand for development of sustainable, economically attractive ways to reduce fertilizer run-off via simple and cost-effective methods to remove it from water where it comes from multiple sources, including septic systems. PHA has been successfully used to manage algal growth in aquariums and ponds where denitrifying bacteria present in the water feed on PHA pellets and use the energy to convert the nitrate to nitrogen gas (78% of air is nitrogen). Once the nitrate is removed, the algae will disappear. This market application has been known since the 1980s, but its adoption has been constrained by the high cost of producing material through fermentation. There is significant potential to use Yield10's PHA Camelina platform as a sustainable, low-cost source of PHA biopolymer to improve the overall sustainability of food production and reduce nutrient pollution of our waterways.

AboutYield10 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, the Company's ability to develop and commercialize a seed-based production platform for PHB using Camelina as a commercial business focused on water treatment applications, either by itself or together with a partner; whether or not the patent application described above will result in an issued patent; whether the PHA Camelina platform can be developed to create new sources of revenue for farmers independent of export markets, reduce run-off from fertilizer and produce a natural biodegradable product that can be used to reduce nitrate pollution from aquaculture and septic systems; and whether anticipated regulatory pathways will result in any cost savings or other efficiencies in the development of this platform**,** 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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