



Yield10 Bioscience Announces Results of 2019 Field Test Program

March 19, 2020

-- 2019 Field Test Results Highlight CRISPR Technology Approach to Increase in Oil Content in Oilseed Crops

-- Outlines Field Tests Planned for 2020

WOBURN, Mass., March 19, 2020 (GLOBE NEWSWIRE) -- Yield10 Bioscience, Inc. (Nasdaq:YTEN), an agricultural bioscience company, today announced the results from field tests conducted in the 2019 growing season in the United States and Canada.

Data from the field tests suggest that novel traits can be successfully deployed in the oil biosynthesis pathway using CRISPR genome-editing technology to boost seed oil content in Camelina. Additional results recorded in the field studies suggest that the activity and expression of trait C3004 can boost photosynthetic efficiency in Camelina, an outcome that supports further field work in 2020. Permitting is underway to continue the testing of these traits and for testing of several traits in Camelina and canola in 2020 field tests in the U.S. and Canada, with planting expected to begin in the second quarter.

Highlights of 2019 Field Test Program and Plans for 2020 Field Tests

For the first time, Yield10 field tested CRISPR genome-edited Camelina plants possessing combinations of edits to three genes ("triple edit" of C3008a, C3008b and C3009) at sites in the U.S. Yield10 received confirmation in 2018 that USDA-APHIS does not consider these to be regulated pursuant to 7 CFR part 340.

- The best genome-edited Camelina plants exhibited good agronomics including germination, stand establishment and seed formation.
- Edits to certain combinations of the three genes in the oil biosynthesis pathway produced an increase in oil content in individual seeds as well as an increase in seed oil content as a percentage of seed weight, as compared to wild type plants.
- The best performing Camelina line (E3902) produced an average 11.8 percent increase in oil per individual seed, an 8.7 percent increase in individual seed weight, and a 4.7 percent increase in seed oil content as a percentage of seed weight.
- No significant change in oil composition was observed.
- The best performing line will be field tested again in 2020 at sites in the U.S. and seed bulk-up will be performed to enable the planting of larger trials in 2021.

Yield10 also conducted field tests at sites in Canada, where field and weather conditions throughout the season posed a challenge to collecting seed yield data.

Yield10 field tested for the first time the C3004 yield trait in Camelina at sites in Canada.

- In 2019 field trials, photosynthetic measurements were taken during the growing season on C3004 Camelina lines at similar developmental stages. When tested, five lines showed statistically significant increases in several important photosynthetic parameters for plants, including carbon dioxide fixation, electron transport rate, and the conversion of light energy to chemical energy (effective quantum yield).
- While field conditions throughout Western Canada were harsh throughout the growing season including severe drought, there were indications that the C3004 plants produced more seed than wildtype Camelina. However, substantial variability among the test plots under these severe conditions complicated the collection of statistically significant seed yield data from the study.
- In prior greenhouse [studies](#) reported in 2018 and additional studies in 2019 C3004 produced increased branching and significant increases in seed yield in Camelina.
- In 2020, Yield10 plans to field test C3004 in Camelina at an expanded number of sites to collect agronomic and seed yield data; field testing of C3004 in canola for the first time is also planned.

Yield10 field tested C3003 in canola at sites in Canada.

- Substantial variability among the test plots caused by the severe drought conditions complicated the collection of statistically significant seed yield data from the study.
- [Prior field testing in canola](#) has suggested that C3003 can increase seed yield by more than 10%.
- In 2019, Yield10 engineered approximately 15 additional commercial quality lines of C3003 that can be crossed into

multiple elite germplasms of canola.

- In 2020, Yield10 plans to conduct seed bulk up for the new C3003 lines in canola to generate field grown seed for future field tests and to support development of the trait for licensing.

“The promising field test results associated with our triple genome-edited Camelina are a highlight of our 2019 field test program, as they clearly demonstrate that we can use CRISPR to edit gene targets in the oil biosynthesis pathway in plants to produce an increase in seed oil content,” said Kristi Snell, Ph.D., Chief Science Officer of Yield10 Bioscience. “Our work on this genome-edited crop also highlights the internal capabilities we’ve built to develop CRISPR traits. We plan to continue characterizing this promising trait, as well as to develop and test additional CRISPR genome-edited plants including new Camelina lines deployed with the trait C3007, which we plan to field test for the first time in 2020.”

“The photosynthetic data collected on C3004 in the field is compelling and contributes important new information to the data set we are collecting on this unique trait. We plan to retest C3004 in Camelina and perform seed bulk up of C3004 canola plants in the field in 2020. At the same time, C3004 is currently being evaluated in corn, soybean, and potato through major agriculture companies. The broad testing of the trait in several crops should enable us to assess the commercial potential of this promising new trait.”

“The recent growing season was especially challenging in the Canadian prairies and affected our ability to collect and validate certain seed yield data for C3003 and C3004. In 2020, we plan to expand the number of field test sites in both the U.S. and Canada to help mitigate the effects of weather and field conditions,” said Dr. Snell.

Yield10 is developing Camelina as a platform crop to evaluate new yield trait leads identified using our GRAIN platform. The Company is also developing Camelina as an oilseed crop for nutritional oils for food and feed applications and future bioproducts such as PHA biomaterials. Boosting seed yield and oil content will make Camelina an increasingly attractive crop for farmers. Yield10 is also continuing to develop C3003 and C3004 as performance seed yield traits in Camelina, canola, and corn, and has formed relationships with major seed companies to test these traits in other commercially important crops.

About Yield10 Bioscience

Yield10 Bioscience, Inc. is an agricultural bioscience company developing crop innovations to address sustainable global food security. The Company utilizes its proprietary “GRAIN” (Gene Ranking Artificial Intelligence Network) gene discovery platform to identify gene targets to improve yield performance and value in major commercial food and feed crops. Yield10 uses its Camelina oilseed platform to rapidly evaluate and field test new trait leads enabling the translation of promising new traits into the major commercial crops. As a path toward commercialization, Yield10 is pursuing a partnering approach with agricultural companies to drive new traits into development in crops such as canola, soybean and corn. The Company is also developing Camelina as a platform crop for producing nutritional oils and specialty products such as PHA biomaterials for use in water treatment applications. 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, or follow the Company on [Twitter](#), [Facebook](#) and [LinkedIn](#).

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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 ability of the Company’s novel traits to boost seed yield, oil content, and photosynthetic efficiency in Camelina, the commercial potential of any of the Company’s novel traits, 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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Source: Yield10 Bioscience, Inc.