

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) January 26, 2017

YIELD10 BIOSCIENCE, INC.

(Exact Name of Registrant as Specified in Its Charter)

DELAWARE

(State or Other Jurisdiction of Incorporation)

001-33133

(Commission File Number)

04-3158289

(IRS Employer Identification No.)

19 Presidential Way, Woburn, Massachusetts

(Address of Principal Executive Offices)

01801

(Zip Code)

(617) 583-1700

(Registrant's Telephone Number, Including Area Code)

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 8.01 Other Events.

On January 26, 2017, Yield10 Bioscience, Inc. (the "Company"), issued a press release announcing preliminary field test results in its model Camelina system showing that the novel yield trait gene C3003 produces significant improvements in seed yield. Specifically, C3003 produced an increase in seed yield in Camelina of up to 23% in the best line as measured by seed weight (kg/hectare), which was statistically significant as compared to control plants. A copy of the press release and investor slides that are being presented in the Company's investor conference call being held on January 26, 2017, are attached as Exhibit 99.1 and Exhibit 99.2, respectively, to this Current Report on Form 8-K, and incorporated by reference into this Item.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

The following exhibits are furnished with this report on Form 8-K:

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press Release dated January 26, 2017
99.2	Investor Slides on C3003 Field Test Results

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

YIELD10 BIOSCIENCE, INC.

Date: January 26, 2017

By:

/s/ Oliver P. Peoples

Oliver P. Peoples, Ph.D.

President and Chief Executive Officer



**Yield10 Bioscience Reports Preliminary 2016 Camelina Field Test Results Showing
that the C3003 Trait Produces Significant Improvements in Seed Yield**

Woburn, Mass., January 26, 2017 - Yield10 Bioscience, Inc. (NASDAQ: YTEN) today announced preliminary field test results in its model Camelina system showing that the novel yield trait gene C3003 produces significant improvements in seed yield. Specifically, C3003 produced an increase in seed yield in Camelina of up to 23% in the best line as measured by average seed weight (kg/hectare), which was statistically significant as compared to control plants. The field trials, which were started in May 2016, were primarily designed to establish Yield10's Fast Field Testing platform and accelerate the generation of field data for crop trait discovery and improvement in addition to evaluating changes in seed yield and composition generated by specific trait leads in Camelina. The Company has substantially completed the analysis of data from this field test relating to C3003; however, gene expression analysis of the plants is ongoing.

"The oilseed yield results for C3003 from this field test represent an important milestone for Yield10 and indicate that this trait may provide a novel way to produce, not incremental improvements, but step-change improvements in yield in oilseeds and other crops," said Oliver Peoples, Ph.D., President and Chief Executive Officer of Yield10. "These results also illustrate that our 'Fast Field Testing' system in Camelina may be a valuable tool for novel yield trait discovery facilitating improvements for translation into commercially important crops such as canola, soybean and rice."

Results

Stable Camelina seed lines expressing the yield trait gene C3003 were studied in this field trial. The highest yielding line expressing the C3003 gene matured an average of six days earlier than controls. While expression of C3003 enabled some lines to produce higher seed yields per acre, up to a 23% increase in the best line, the individual seed size in these lines was decreased compared to controls, likely due to a change in carbon partitioning in the plant. This reduction in seed size was expected based on data from prior greenhouse trials and Yield10 is currently addressing this with its second generation C3003 trait. Expression of C3003 did not change the total amount of oil in the seed.

"The key findings for C3003 in our 2016 field trial in Camelina are very encouraging and consistent with prior greenhouse and small field tests conducted by Yield10 and our academic collaborator," said Kristi Snell, Ph.D., Chief Science Officer of Yield10. "Evaluation of the C3003 trait is progressing in parallel in canola, soybean and rice, key crops where step-change increases in seed yield would improve the prospects for global food security and create considerable economic value."

Background on the Novel Yield Trait Gene C3003

Yield10's "Smart Carbon Grid for Plants" technology platform focuses on identifying gene targets that enhance carbon capture from photosynthesis and regulate the flow of carbon to seed. C3003 represents the lead trait in this platform. C3003 appears to be a very unique gene that impacts photorespiration, a biochemical pathway in C3 plants which is responsible for significant losses in yield. Yield10 is progressing the introduction of the C3003 gene trait and improvements to the C3003 trait in Camelina,

canola, soybean and rice, and expects to disclose additional results from a number of these activities throughout 2017.

Conference Call Information

Management will host an investor presentation conference call on Thursday, January 26th, 2017 at 4:30 p.m. (ET). A live webcast of the call, including a slide deck, can be accessed on the Company website at <http://www.yield10bio.com> in the investor relations section. To participate in the call, dial toll-free 877-709-8150 or 201-689-8354 (international).

To listen to a telephonic replay of the conference call, dial toll-free 877-660-6853 or 201-612-7415 (international) and enter pass code 13653574. The replay will be available for 14 days. In addition, the webcast will be archived on the Company's website in the investor relations section.

About Yield10 Bioscience

Yield10 Bioscience, Inc. is focused on developing disruptive technologies for producing step-change improvements in crop yield to enhance global food security. Yield10 is leveraging an extensive track record of innovation based around optimizing the flow of carbon intermediates in living systems. By working on new approaches to improve fundamental elements of plant photosynthetic efficiency and optimizing carbon metabolism to direct more carbon to seed production, Yield10 is advancing several yield traits it has developed in crops such as Camelina, canola, soybean and corn. Yield10 is based in Woburn, MA.

For more information visit www.Yield10bio.com

(YTEN-G)

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 statements, including, without limitation, expectations regarding the reproducibility of data from field tests, the translation of yield improvements from Camelina to other crops, the potential to produce improvements in seed yield while also maintaining typical seed size and oil composition, the timing of completion of additional greenhouse and field test studies, and 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 Bioscience assumes no obligation to update any forward-looking information contained in this press release or with respect to the announcements described herein.

Contact:

Lynne H. Brum, 617-682-4693, LBrum@yield10bio.com

Investor Relations Contact:
Amato and Partners, LLC
90 Park Avenue, 17th Floor
New York, NY 10016
admin@amatoandpartners.com



Yield10 Bioscience Inc.
(NASDAQ:YTEN) – Investor Presentation

Highlights of 2016 Camelina Field Tests for the C3003 Gene Trait

January 26, 2017

The statements made by Yield10 Bioscience, Inc. (the “Company,” “we,” “our” or “us”) herein regarding the Company and its business may be forward-looking in nature and are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements describe the Company’s future plans, projections, strategies and expectations, including statements regarding future results of operations and financial position, business strategy, prospective products and technologies, timing and likelihood of success, and objectives of the Company for the future, and are based on certain assumptions and involve a number of risks and uncertainties, many of which are beyond the control of the Company, including, but not limited to, the risks detailed in the Company’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016 and other reports filed by the Company with the Securities and Exchange Commission (the “SEC”). Forward-looking statements include all statements which are not historical facts, and can generally be identified by terms such as anticipates, believes, could, estimates, intends, may, plans, projects, should, will, would, or the negative of those terms and similar expressions.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and may be beyond the Company’s control, you should not rely on these statements as predictions of future events. Actual results could differ materially from those projected due to our history of losses, lack of market acceptance of our products and technologies, the complexity of technology development and relevant regulatory processes, market competition, changes in the local and national economies, and various other factors. All forward-looking statements contained herein speak only as of the date hereof, and the Company undertakes no obligation to update any forward-looking statements, whether to reflect new information, events or circumstances after the date hereof or otherwise, except as may be required by law.

*Under the Private Securities Litigation Reform Act of 1995

Yield10 Bioscience is working to produce step-change improvements in crop yield to enhance global food security

- Headquartered in Woburn, MA USA
- Oilseeds center of excellence in Saskatoon, Canada

Yield10 is bringing the extensive expertise and track record of Metabolix in optimizing the flow of carbon in living systems to the agriculture sector with a focus on increasing yield in key row crops

- Our technology is based on 15 plus years of cutting edge crop metabolic engineering research
- 10 recent patent applications for increased crop yield
- Initial development targets include canola, soybean and corn
- Additional market opportunities include licensing or partnering in other crops

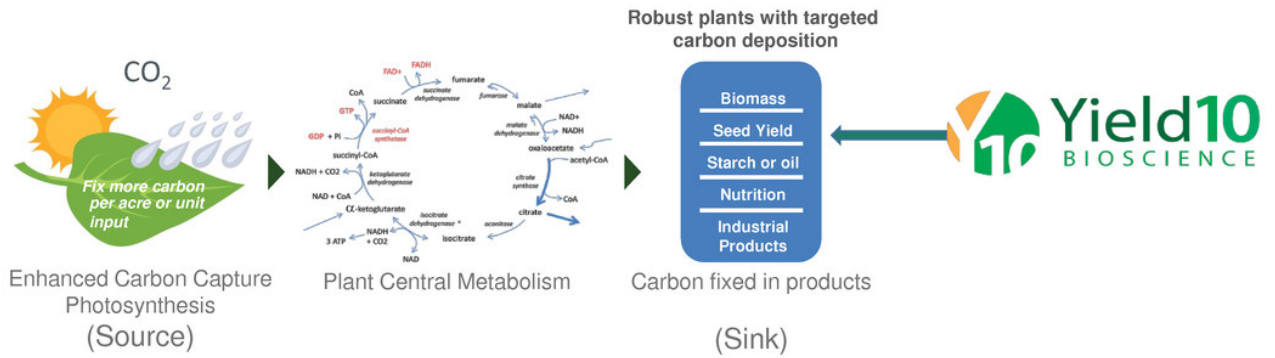
“Step-change improvements” - Yield10 is targeting >10 bushel/acre increases in our key row crop targets

- This is a very challenging goal, today we will present a technical update on progress from field testing of our lead trait C3003



Fundamentally increasing crop yield is a complex two-step carbon optimization problem

- 1) Increase the rate of carbon fixation in crops having the C3 (e.g. soybean) and C4 (e.g. corn) photosynthetic systems
- 2) Directing the increased fixed carbon to the harvested part of the plant, mostly seed

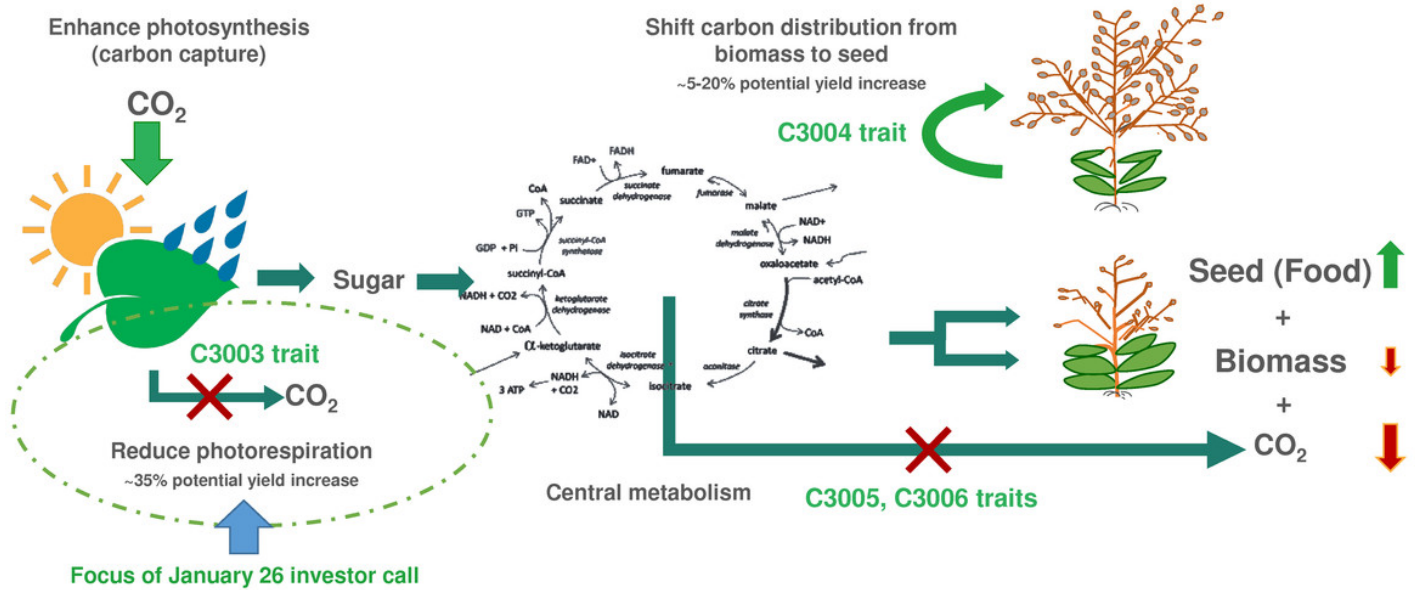


“Enhanced Carbon Capture >>>> Targeted Carbon Deposition”

The Yield10 technology platform leverages advanced metabolic engineering systems and proprietary transcriptome network analysis to enhance carbon capture and control metabolic pathways driving crop yield

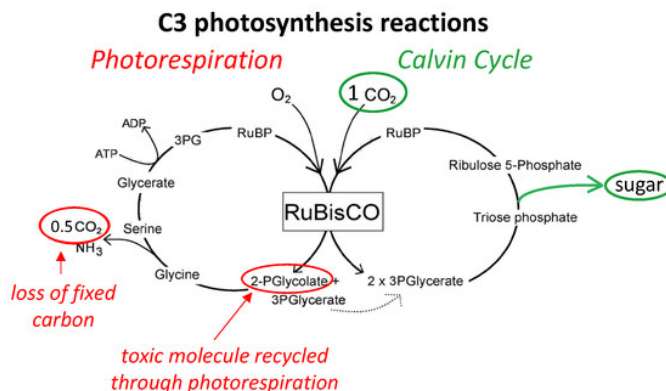
Innovative Approach to Increasing Seed Yield in C3 Crops

(vast majority of food consumed by humans, e.g., canola, soybean, rice, wheat and potato)



Photorespiration: A side reaction in crops having the C3 photosynthesis system

- Many key food crops rely on C3 photosynthesis
 - Rice, wheat, soybean, canola, potato, etc
- Calvin cycle of photosynthesis, key enzyme RuBisCo fixes carbon dioxide producing sugar for plant growth
- C3 crops have considerable yield loss due to photorespiration, a competing wasteful cycle where RuBisCo fixes oxygen instead of carbon dioxide
 - produces a toxic compound that must be removed
 - leads to significant fixed carbon and energy loss
- Models suggest that photosynthesis could improve by 12-55% in the absence of photorespiration.
- A 5% reduction of photorespiration in soybean and wheat would increase yields estimated to add ~\$500 million/year of economic value in the US
(Walker et al., 2016, *Ann. Rev. Plant Biol.* 67:17.1 – 17.23)



Selected Findings from 2016 Camelina Fast Field Test of C3003 Trait

	C3003 Study Findings
Avg Seed Yield (lbs/hectare)	Line NJ01 23%* yield increase vs. control Line NJ02 5% yield increase vs. control
Avg Maturity	Avg 6 days* earlier
Avg Seed Weight (mass of 100 seeds)	Line NJ01 17%* decrease vs. control Line NJ02 19%* decrease vs. control
Seed Oil Content (% of seed weight)	No significant change Line NJ01 34.8 +/- 0.6% Line NJ02 35.5 +/- 1.5% WT Line 34.1 +/- 0.9 %

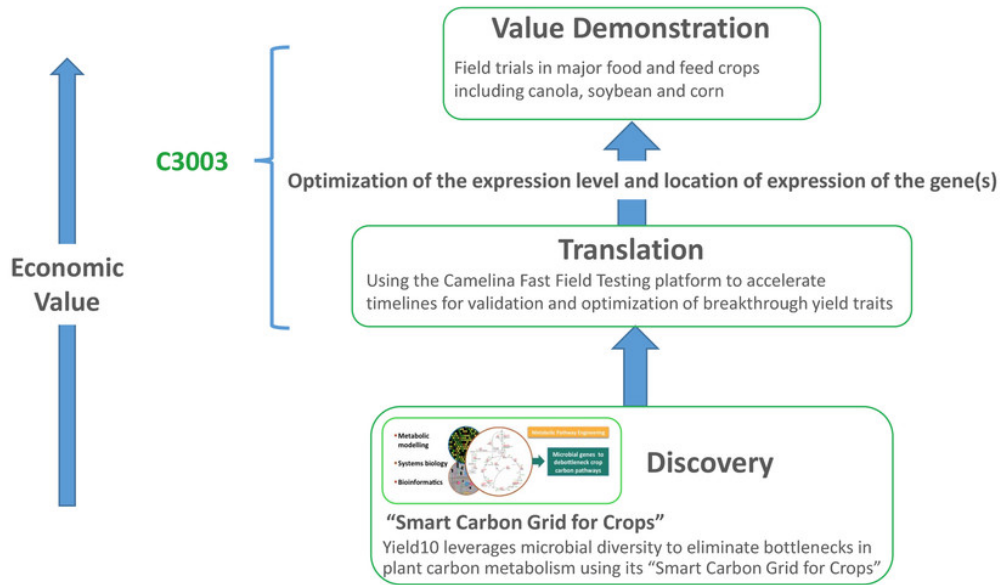
*Data is average of 5 plots * Statistically significant, P<0.05
Molecular analysis of representative plant samples from the trial are ongoing*

Key positive outcomes:

- C3003 expressed in Camelina produced up to 23% increase in average seed yield in the best line, supporting rationale for accelerating development in canola, soybean and rice
- Plants matured on average 6 days earlier than controls, an agronomic benefit
- Expression of C3003 trait did not affect seed oil content

Other observations:

- Seed size was decreased, we believe due to tissue-wide expression of C3003. Molecular analysis of greenhouse grown plant samples shows C3003 alters the function of plant genes (e.g. C3004) involved in carbon distribution networks
- Yield field trials are challenging and there is a lot of variability to manage



C3003 Trait Development Timeline

Indicative Proof Point Timelines for C3003

	Crop/Trait	Year			
		2017	2018	2019	2020
Translation	Camelina/Gen 1 C3003	Field test data (Q1)			
	Camelina/Gen 2 C3003	Greenhouse data (Q1) Field test data (Q4)*			
	Camelina/Gen 3 C3003		Field test data (Q4)		
Value Demonstration	Canola/Gen 1 C3003	Greenhouse data (Q1/Q2) Field test data (Q4)*	Field trial data (Q4)	Field trial	
	Canola/Gen 2 C3003			Field trial	
	Canola/Gen 3 C3003				
	Soybean/Gen 1 C3003	Greenhouse data (Q4 2017/Q1 2018)		Field test	Field trial
	Soybean /Gen 2 C3003	Greenhouse data (Q4 2017/Q1 2018)		Field test	Field Trial
	Rice / Gen 1 C3003	Greenhouse data (TBD)			

* Progress depends on results achieved in greenhouse studies

Commercial value increases and risk decreases as we progress through field validation, with numerous options for value capture along the way

Yield10 is working to progress its yield enhancement technologies and build collaborations

- Report on progress on C3003 with additional constructs and crops
 - Q1 Report greenhouse data from 2nd generation C3003 trait in Camelina
 - Q1-Q2 Report greenhouse data from 1st generation C3003 trait in canola
 - Q4, 2017 - Q1, 2018 Report greenhouse data from 1st and/or 2nd generation C3003 traits in soybean
 - Report greenhouse data from 1st generation C3003 trait in rice (TBD)
- Continue to deploy additional technology innovations in Camelina, canola, soybean and corn lines
 - Progress C4000 series traits from the T3 discovery Platform into corn and rice
 - Report greenhouse data for C4003 in rice (TBD)
 - Progress the CRISPR/Cas9 genome editing program focused on Yield10's proprietary targets
 - Continue to leverage academic collaborations to access breakthrough crop science
 - Publication of technical papers on key technologies
 - Secure Ag industry collaborations and additional grants
 - Continue to build intellectual property portfolio

