



Yield10 Bioscience, Inc.

(NASDAQCM:YTEN)

Third Quarter 2018 Conference Call

Yield10 is developing new technologies to achieve step-changes in crop yield to enhance global food security

November 8, 2018



Safe Harbor Statement*

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 for receiving and reporting results of field tests 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 Annual Report on Form 10-k for the year ended December 31, 2017 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**

- **Balance Sheet**
 - \$7.8M in cash, cash equivalents and short term investments at end of Q3
 - Net operating cash usage of \$1.8M for third quarter, \$6.7M for 9 months
 - Estimate total net cash usage of approx. \$9.0 to \$9.5 M for full year 2018, including payments of \$0.5 million made in 1H18 for final restructuring costs
 - No debt on balance sheet
- **Operating Results**
 - Reported net loss for Q3 2018 of \$2.6 M or \$0.26 per share
 - Reported \$0.1 M in grant revenue, \$1.3 M in R&D, and \$1.4 M in G&A spend

Recent Accomplishments

- ✓ Signed research license with Forage Genetics for evaluation of 5 traits to increase biomass yield or drought tolerance in forage sorghum
- ✓ Received confirmation of nonregulated status from USDA-APHIS for triple genome-edited Camelina line
- ✓ Reported first research results on seed yield with C3004 trait in Camelina showing seed yield increases of up to 65%
- ✓ Harvesting complete for 2018 field tests of C3003 and C3008a

Signed Research License with Forage Genetics

Forage Genetics, a subsidiary of Land O'Lakes, is a leader in forage crops

- Non-exclusive research license for sorghum
- Evaluating 5 novel yield traits in sorghum to increase biomass yield
- Sorghum grown on 5.8M acres in the U.S. in 2018, used as a feed crop for cattle
- Forage Genetics is a technology and market leader for forage crops including sorghum and alfalfa



Affiliations Expand Testing of Traits in Key Crops

Leveraging crop expertise of Ag players to deploy Yield10 traits in commercial germplasm, collect field testing data on crop yield performance and provide path to commercial licensing



In-house expertise in Camelina, canola and rice
Access to expertise in soybean and corn



Bayer CropScience

Research license to C3003 and C3004 for evaluation and field testing in elite soybean lines



Research license to C3003, C4001, C4002, C4003 and C4029 for evaluation and field testing in elite forage sorghum



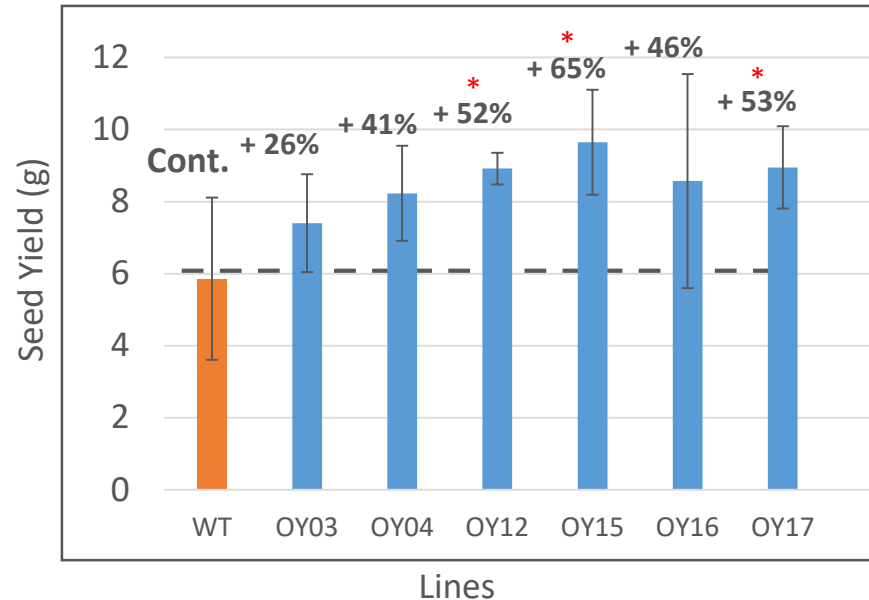
Yield10 research partner for evaluation of novel yield traits in wheat

Many additional opportunities exist for licensing and/or partnerships

Expression of C3004 Significantly Increases Seed Yield in Camelina

Developing strategies to deploy C3004 as a nonregulated trait in key crops

Seed yield impact of C3004



Student's t-test, * $p < 0.05$; Data average of 3 to 4 plants per line



Control +C3004

Up to 65% increase in seed yield in C3004 plants

- Gen 1 C3003 Camelina plants produce altered expression of C3004
- Field testing planned for 2019, accelerate C3004 trait into soybean and canola
- Develop non-regulated, genome-edited versions of C3004 for key crops
- C3004 may enable Camelina to compete for acreage on a yield basis

Field Tests of C3003 in Camelina, canola; Bulk-up soybean seed

Generate technical data and determine the best way to deploy C3003 in canola and soybean

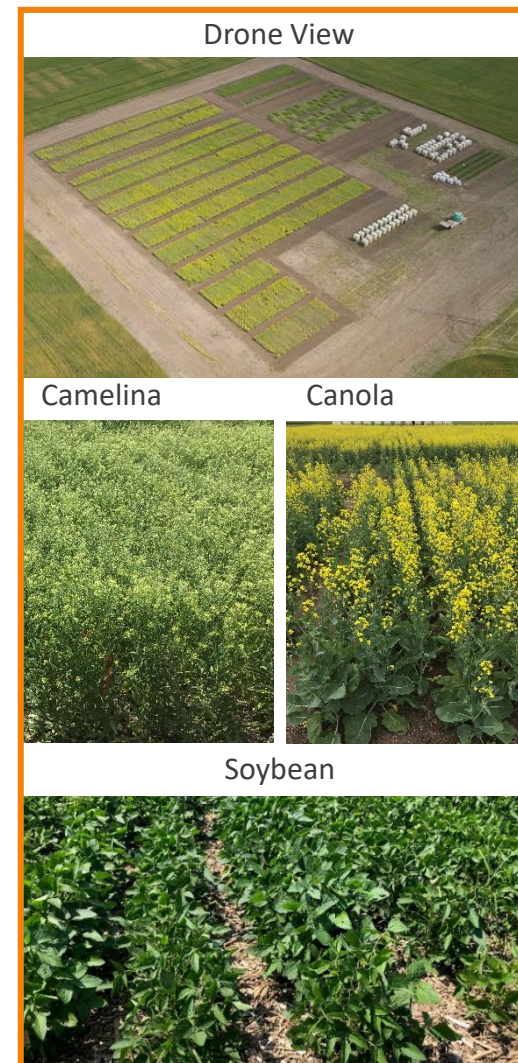
- Test C3003 Gen 2.0 and Gen 2.1 in Camelina
- Test C3003 Gen 1.0 and Gen 2.0 in canola
- Grow C3003 Gen 1.0 and Gen 2.0 soybean to generate field grown seed for 2019
- Multiple sites in Canada
- Harvesting completed, expect to report data in Q4

Field Test of Genome-edited C3008 in Camelina

- C3008a may be a useful target to increase oil yield and improve lipid quality
- First field test of this trait in 2018 at site in the US
- Harvesting completed



2018 C3003 Field Tests

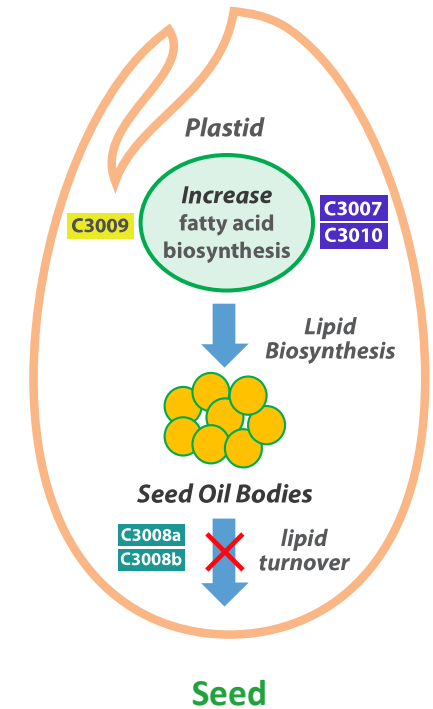


Genome Editing Targets for Increasing Oil Content

Specialty oils: Cost of goods is driven by [seed yield/acre] x [seed oil content]

Editing gene combinations to maximize oil/acre

- US field test of single edited non-regulated Camelina lines executed
- Completed editing of three distinct genes of Camelina designed to increase oil
 - Received confirmation of nonregulated status from USDA-APHIS in Sept. 2018
 - Field tests planned for 2019
- Completed exclusive license to technology and IP from MU (C3007, C3010)



Canola Seed (Canada, 2016 harvest ¹)	Oil Content	Oil Value	Meal Content	Meal Value
19.6 million Tonnes, \$534/Tonne (CDN)	43%	\$959/Tonne	57%	\$341/Tonne

If deployed on the total acreage, a trait increasing oil content by 10% with no impact on protein would add \$0.8 billion (CDN) of value per year

¹ <https://www.canolacouncil.org/markets-stats/statistics/>

Yield10: Rich Pipeline of Trait Genes in Development

SUMMARY OF TRAITS IN DEVELOPMENT

Business Area

Current Status

Seed Yield Traits-Regulated

C3003	Camelina canola, soybean field trials, sorghum transformations starting up
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Metabolic engineering traits
C3003/C3004: enhance carbon flux and seed yield

Seed Yield Traits-Non-Regulated

C3004	Camelina testing underway – field trials 2019
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Oil Enhancing Traits-Non-Regulated

C3007	Camelina, canola editing underway
C3008a	Camelina non-regulated ¹ status achieved; at field testing stage
C3008a, C3008b and C3009 combinations	Camelina, editing completed and nonregulated status confirmed by USDA-APHIS
C3010	Completed in-license
Additional oil traits and combinations	Research in progress

Metabolic engineering traits
C3007,8, 9 and 10 – increased oil content – niche oil market opportunities

Yield Trait Improvement Discovery Platform

C4001	Wheat, rice, sorghum underway and corn transformation next step
C4002	Sorghum underway, Corn transformation next step
C4003	Wheat, rice, sorghum underway and corn transformation next step
C4004	Editing in rice and wheat underway
C4029	Sorghum underway

Key element of the GRAIN discovery platform,
Transcription factors – seed and biomass yield, stress tolerance

Many opportunities exist for licensing and/or partnerships

¹ not regulated by USDA-APHIS, could be regulated by EPA and/or FDA and/or regulated in the EU, Canada

New Tools Enable the Development of Exceptional Performance Traits

Working to translate the identification of novel yield traits to valuable commercial outcomes

C3003/C3004 traits: 23% - 65% increase in seed yield in oilseed crops

C4001, C4003 traits: 70% increase in photosynthesis, over 150% increase in biomass

C3005 advanced synthetic biology trait: 128% increase in seed yield in an oilseed crop

- Current biotech traits (~470 million acres¹) provide yield protection
- We have generated proof points demonstrating step-change improvements in yield
- Genome-editing is a key tool to deploy new traits and unlock the value created using our GRAIN technology platform and metabolic engineering approach
- Our business model is to optimize acreage in which our traits are used through licensing for the major crops, canola, soybean and corn
- In addition, Yield10's traits are broadly applicable to a wide range of food, feed and biomass crops

Genome-edited Traits: Disruptive to the Ag Landscape

New traits, new agronomic profiles, new product profiles and more players

Deploy Trait in
Target Plant

Confirm Nonregulated
Status with
USDA-APHIS¹

Introgression
w/Elite Varieties,
Field Studies

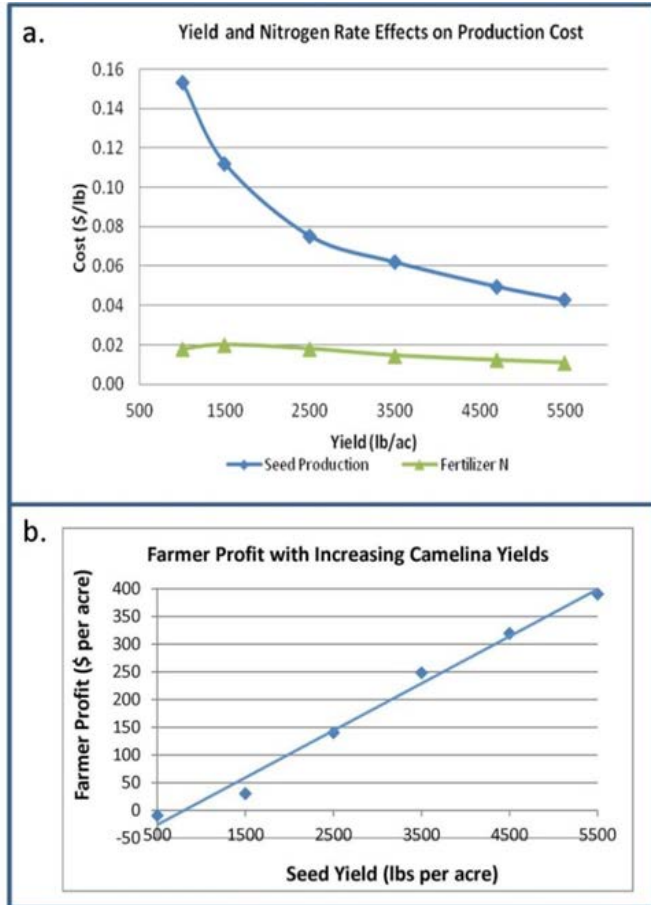
US Launch
New Trait

Major steps in the development and commercialization of genome-edited traits

- Genome-editing accesses the genetic diversity of plants to enhance composition, yield or other benefits
- USDA-APHIS position significantly streamlines the development of new traits
- First two steps can be achieved in 2-3 years, next two steps dependent on trait/crop
- These developments may accelerate the path to royalty streams and increase the share of trait value available to the trait innovator

Developing a Business Case for Commercial Camelina

Improvement in Camelina seed yield could enable commercialization of the crop



- Improving Camelina seed yield to 2,500-3,500lb/acre¹ with higher oil content could make it an attractive commercial crop
- Yield10 has been developing high yielding, high oil content Camelina traits
 - Nutritional oils²
 - Commercial fish feed additive
 - Winter Camelina has potential as a cover crop to provide growers with additional revenue from oil, and prevent nitrogen runoff
- Assessing potential for commercial development

¹Shown in Table a. "Integrating Biology and Techno-economic Analysis to Create BTEA," Kelly Zering, NCSU, BIO World Congress of Industrial Biotechnology (2015)

²Camelina sativa oil, but not fatty fish or lean fish improved serum lipid profile in subjects with impaired glucose metabolism—a randomized controlled study. Molecular Nutrition and Food Research, U. Schwab, et. al. (2018)

Yield10 is working to advance our crop yield technologies and build collaborations

- Continue progress on C3003 with additional constructs and crops
 - *Report field testing results of C3003 in Camelina and canola in 4Q 2018*
 - *Support Bayer/Monsanto in development of C3003 and C3004 traits in soybean*
 - *Continue independent evaluation of C3003 in soybean and rice*
- Continue to build data set on C3004, fast-track into canola and soybean, and evaluate the trait in 2019 field tests
- Advance oil boosting traits using CRISPR genome-editing
- Progress C4000 series traits into key crops
 - *Support Forage Genetics in forage sorghum*
- Secure Ag industry collaborations and non-dilutive sources of funding
- Build our intellectual property portfolio
- Communicate our scientific innovations in technical presentations and papers



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