



Yield10 Bioscience, Inc.

(NASDAQCM:YTEN)

First Quarter 2019 Financial Results
and Business Highlights
Conference Call

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

MAY 9, 2019



Safe Harbor Statement*

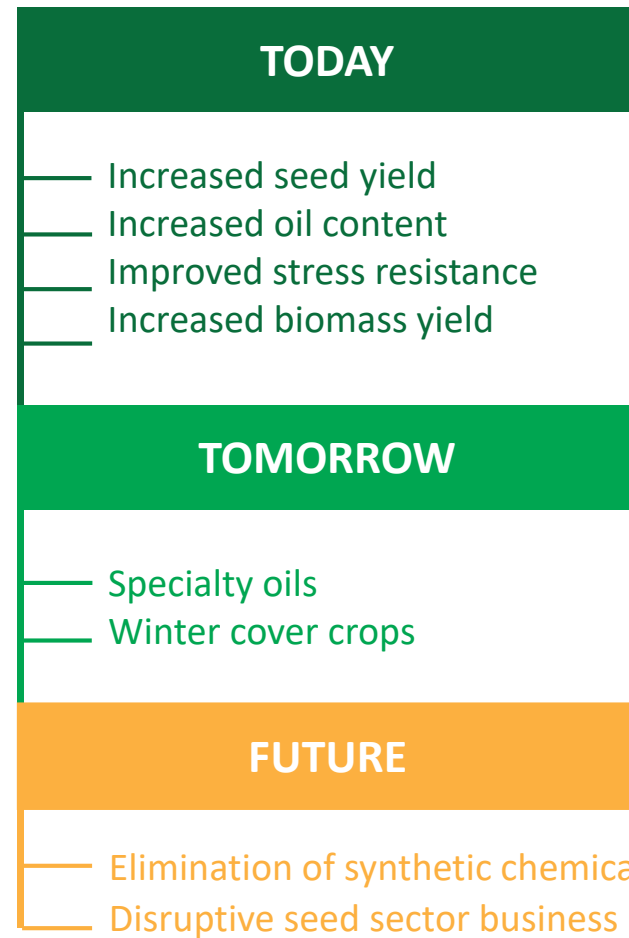
The statements made by Yield10 Bioscience, Inc. (the “Company,” “we,” “our” or “us”) herein regarding the Company and its business may be forward-looking in nature and are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements describe 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, 2018 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**

The Yield10 Trait Factory

Yield10 combines advanced discovery with genome editing to develop valuable crop traits



2-5 years

PRODUCTS
(TRAITS)

BIG DATA

North American Seed Sector Opportunities

Crop	N. America Acres (in millions)	Yield10 Activity	Seed Sector Structure
Canola**	20	Yes	Consolidated value chain, dominated by stacked input traits, path to market through licensing
Soybean	85	Yes	
Corn	90	Yes	
Cotton	13.5	No	
Camelina	potential	Yes	Commercial “white space” Opportunity to participate directly in the seed business or downstream in feed/food products
Wheat	72	Research	
Rice	potential	Research	
Sorghum	5.8	License	Large specialty seed businesses usually dominated by 1 or 2 players, path to market through licensing
Alfalfa*	16.6	No	

- Rice ~400 million acres (ex NA). Challenging China and India markets – **Focus on editing**
- Wheat ~530 million acres (~72 million acres in N. America) – **Focus on editing**
- ** Canola is underinvested in by the majors due to their focus on corn and soybeans
- * Alfalfa is the number 3 most valuable field crop produced in the US (~\$9.9 billion)

Yield10 Path and Timeline to Value Creation

2017-2018	2019-2020	2021-2023
<i>“emerging”</i>	<i>“growing”</i>	<i>“harvesting”</i>
Company launch	Build reputation as innovator	Product revenue
Establishing GRAIN 1.0 trait discovery platform	The “Trait Factory” GRAIN 2.0 platform and CRISPR	Expand range of trait targets (e.g. nitrogen use, pod shatter, etc.)
Focus on trait discovery	Traits in commercial development	Traits on clear path to market
Camelina Platform	Development in: Camelina, canola, soybean, corn, wheat and rice	Expand deployment of traits geographically and in additional crops
Portfolio of traits	Prioritize genome-edited traits	Gen 2 traits and trait stacks
First affiliations	Form revenue generating collaborations, partnerships	Highly sought after partner for trait discovery and development

Yield10 technologies enable multiple paths to value creation



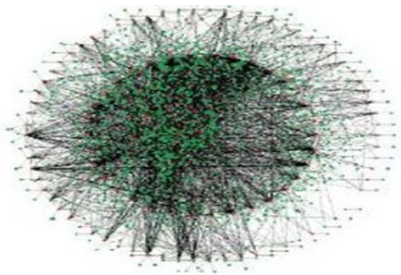
North American Commodity Crops

- Accelerate deployment with Ag majors
- License agreements with milestones and participation in downstream economics



Specialty and Niche Crops including Nutritional Oils

- Focus on development of high value products in food and animal feed
- Participation in the downstream business



Technology Platforms

- “GRAIN” unique approach to identifying gene combinations for editing
- Non-dilutive funding and relationships with leading plant scientists
- R&D support for partner funded programs

Recent Accomplishments

- ✓ Completed seed bulk up, permitting and contracting for 2019 Field Tests for evaluation of seed yield traits in oilseed crops; on track to initiate planting in Q2
 - ✓ Second generation C3003 in **canola** (Canada)
 - ✓ C3004 in **Camelina** (Canada)
- ✓ Consistent with C3003 canola being in the Commercial Development phase, we have been developing additional independent C3003 **canola** lines for field testing and crossing into elite canola lines
- ✓ Progressed characterization of C3007 CRISPR edits in **canola** lines
- ✓ Produced first **canola** lines containing C3004 trait (based on the Camelina gene)
- ✓ Began early development program in **corn** to evaluate 6 novel yield traits including C3003, C3004, C3011, C4001, C4002, C4003
- ✓ Progressing work with C4000 series to obtain seed yield data in **rice** and **wheat**
- ✓ Received a Notice of Allowance from US PTO covering the use of C3003 to increase seed yield in crops
- ✓ In-licensed additional technology to boost oil content in crops (C3012) from University of Missouri based on new IP developed by Dr. Jay Thelen and his team

Yield10: Rich Pipeline of Trait Genes in Development

Many opportunities exist for licensing and/or partnerships

Yield Traits	Target Crops	Potential N. A. Acreage
Carbon conversion efficiency		
C3003, C3004 ¹ , C3011	canola, soybean, corn, sorghum	200 million
Oil enhancing traits¹		
C3007, C3008a, C3008b, C3009, C3010, C3012	canola, soybean	110 million
Gene regulators¹		
C4001-C4003	wheat, rice ² , corn and sorghum	169 million
C4004	wheat, rice	74 million
C4029	sorghum	5 million

¹ traits accessible with genome editing; not regulated by USDA-APHIS, could be regulated by EPA and/or FDA and/or regulated in EU, Canada

² Market for rice is fragmented; est. 2 million acres US; 400 million acres ex-US

2019 Field Testing Plan for C3003 and C3004

Planting to begin soon pending suitable weather conditions

Field Test C3003 in Canola

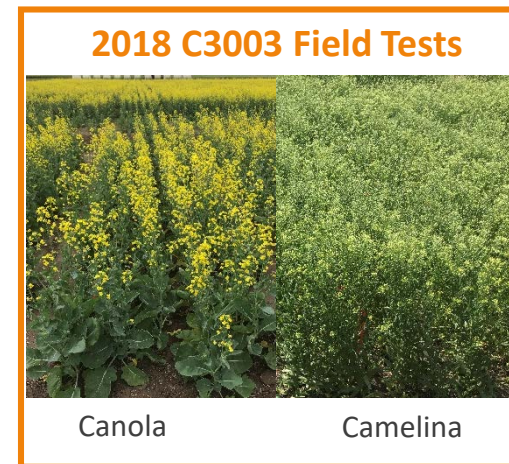
Objective: Generate multi-site field data to identify commercial quality events and data to drive partnership discussions

- Test C3003 Gen 2.0 in canola
- Generate field grown seed for 2020 field tests
- Scaling up C3003 to make more canola events for testing and crossing into elite varieties
- Continue to support Bayer/Monsanto in evaluation of C3003

Gen 1,
expressed
throughout
plant



Gen 2,
seed
specific



Field Test C3004 in Camelina

Objective: Generate multi-site field data to validate impressive seed yield results (up to 65% increase) obtained in growth chambers

- Collect agronomic and initial seed yield data
- Generate field grown seed for 2020 field tests
- Generate data to drive partnership discussions
- Continue work to deploy trait in canola and corn



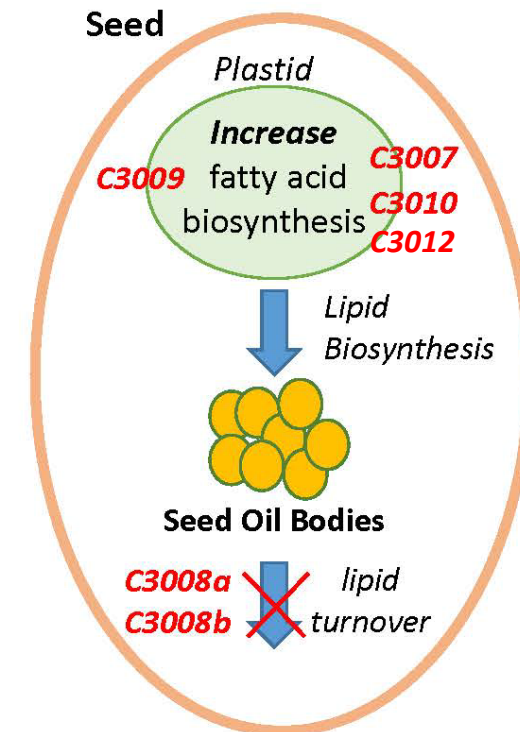
Control +C3004

Genome Editing Targets for Increasing Oil Content

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

Goal: Develop the best combination of gene edits to maximize oil/acre

- **C3008a:** US field tests of non-regulated lines planned in 2019
- **C3008a, C3008b, C3009**
 - Completed editing of three distinct genes of Camelina designed to increase oil
 - Received confirmation of nonregulated status from USDA-APHIS Sept. 2018
 - US field tests of non-regulated lines planned in 2019
- **ACCase Pathway Technology including C3007 (BADDC), C3010, C3012**
 - Signed exclusive license to technology and IP from MU in 2018
 - Expanded scope of license with additional technology and IP in 2019
 - C3007 is a novel negative regulator, obtained edited canola lines
 - C3010 may increase the enzymatic activity of ACCase
 - C3012 may act alone, or in combination with C3007



Update: C4000 Series Traits for Wheat and Rice

Focus on CRISPR genome-editing strategies for key food crops

Opportunity: Large global acreage (~950 mm acres), highly fragmented market, no dominant players

Challenge: Public concern around GMO technologies in staple food crops

Yield10 Approach: Deploy yield traits using CRISPR genome-editing of novel targets identified using GRAIN platform

- C4000 series traits produced significant increases in photosynthesis and biomass yield when tested in switchgrass
- Conduct testing of C4000 series in wheat and rice
- Characterize GE plants and collect initial seed yield data in 2019
- Identify collaborative opportunities to test traits in commercial varieties

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

- **Balance Sheet**

- Net operating cash usage of \$2.3 M for Q1 2019
- \$6.1 M in cash and cash equivalents at end of Q1
- On March 18, closed on \$2.6 million, net proceeds, in registered direct offering of approx. 2.4 million shares of common stock priced at market
- Estimate total net cash usage of approx. \$9.0 to \$9.5 M for FY 2019
- No debt on balance sheet

- **Operating Results**

- Reported net loss for Q1 2019 of \$2.3M or \$0.22 per share
 - Based on \$0.1 M in grant revenue, \$1.2 M in R&D, and \$1.2M in G&A spend

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

- Continue commercial development of C3003 in canola and other crops (soybean, corn)
 - *Focus on C3003 development in canola through creation of additional events and testing in elite germplasm*
 - *Generate field data and field grown seed in 2019 field testing program*
 - *Support Bayer/Monsanto in development of C3003 and C3004 traits in soybean*
 - *Continue independent evaluation of C3003 in soybean, rice and corn*
- Report data from C3004 Camelina 2019 field tests, fast-track into canola and corn
- Report progress on oil boosting traits using CRISPR genome-editing
- Report progress on C4000 series traits in wheat and rice
 - *Support Forage Genetics in forage sorghum*
- Secure revenue generating Ag industry collaborations
- Build our intellectual property portfolio
- Communicate our scientific innovations in technical presentations and papers



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