



Yield10

B I O S C I E N C E

Yield10 Bioscience, Inc.

(NASDAQCM:YTEN)

SeeThruEquity Presentation

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

June 1, 2017

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, 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.

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***Under the Private Securities Litigation Reform Act of 1995**

Company Overview and Objective

Yield10 is an agricultural biotechnology company bringing extensive expertise and track record in optimizing the flow of carbon in living systems to the agriculture sector to increase yield in key food crops

- **Our technology platform and unique knowledge base enable us to design precise alterations to gene activity and the flow of carbon in plants to produce higher yields with lower inputs of land, water, or fertilizer**
- We are targeting over \$14 billion of incremental value creation in our core target crops for North America (canola, soybean and corn)
- Our technology is based on 15 plus years of cutting edge crop metabolic engineering research
- Our technology is covered by 10 recent patent applications for increased crop yield
- Our lead products are nearing key validation milestones in commercial crops
- Headquartered in Woburn, MA USA, Oilseeds center in Saskatoon, Canada
- Yield10 will focus on its core strengths of advanced bioscience and innovation

Leadership Team

Oliver Peoples, Ph.D.
CEO

- Founder and CSO of Metabolix, an MIT spinout Dr. Peoples is an experienced entrepreneur and biotechnology executive with over 30 years of experience in science and technology innovation and commercialization
- He initiated the crop science program over a decade ago and more recently spearheaded the development of Yield10's research and business focus

Kristi Snell, Ph.D.
VP Research & CSO

- Previously VP of Research and Biotechnology at the Company with over 20 years of experience and industry recognized expertise in metabolic engineering of plants and microbes for the production of novel products and increased plant yield
- Following her post-doctoral research at MIT, Dr. Snell joined Metabolix in 1997 where she has led the plant science research program since its inception

Charles Haaser
VP, Finance & CAO

- Joined the Company in 2008 as corporate controller and was named chief accounting officer in 2014
- Has more than 30 years of senior accounting management and executive experience with public technology-based companies
- Strong professional background includes technical accounting, SEC financial reporting, Sarbanes-Oxley and tax compliance

Lynne Brum
VP, Planning & Communications

- Joined the Company in 2011 as vice president marketing and corporate communications
- Has more than 25 years experience in the life science industry including roles in corporate communications, investor relations, financial planning and corporate development

Yield10: A Compelling Market Opportunity

Crop yield is the key value driver in the Ag sector and the key to addressing food security

Y10 is...aligned with compelling megatrends

- Global population growth from 7 billion to over 9.6 billion by 2050
- Need 70% increase in food production by 2050
- Traditional crop breeding cannot solve this problem¹

9 October 2009
Revised June, 2015
GA/EF/3242



Food Production Must Double by 2050 to Meet Demand from World's Growing Population

Ag Sector... consolidation

- Top 5 Ag players becoming the top three
- Need to fill product development pipelines

Need...Innovation and new technology approaches

- Advances in metabolic engineering (synthetic biology)
- Advanced genome editing technologies e.g. CRISPR/Cas9

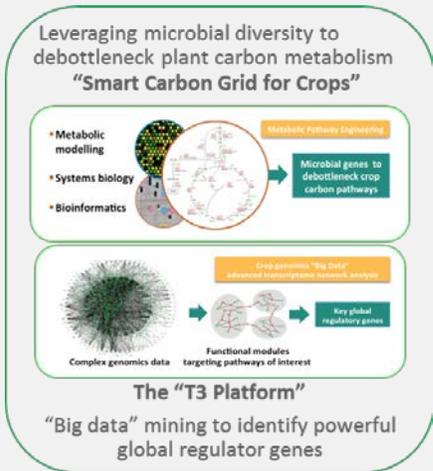
Regulatory...traits developed using specific genetic engineering approaches may be unregulated ²

- Gene deletions using genome editing e.g. CRISPR/Cas9 to delete native gene function
- Introduction of genes from closely related or same species with **no foreign DNA**

¹ D.K. Ray, et. al PLOS, 2013

² https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/sa_brs_vpm/340-peis

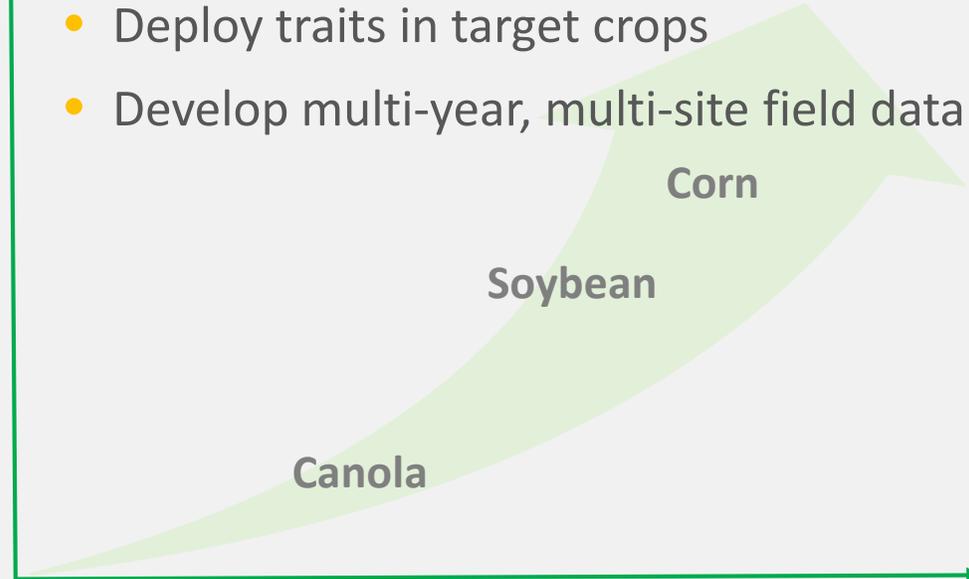
Yield10 applies its technology platforms to enable step-change increases in crop yield



- "Fast Field Testing" in Camelina
 - Validate performance in field
 - Identify any negative effects
 - Identify downstream bottlenecks
 - Optimize gene expression and additional gene modifications to maximize yield outcomes

Value Creation

- Deploy traits in target crops
- Develop multi-year, multi-site field data



Trait Gene Discovery
2012-2016

Translation
Ongoing 2016

Value Demonstration
Started 2017

- Our discovery paradigm based on our metabolic pathway engineering expertise enables the intelligent targeted manipulation of specific gene combinations
 - The industry approach of transgenic screening of thousands of single plant genes has failed
- Our technology focus is based on two proven approaches:
 - The use of microbial genes to bring new functionality to crops
 - First generation ag biotech (microbial genes) – 1990's, currently ~440 million acres
 - Targeted deactivation of combinations of key plant genes known as transcription factors
 - The evolution from teosinte to modern corn through multiple transcription factor inactivation
- We use traditional genetic engineering and newer gene editing techniques
 - Our deep knowledge and modeling capabilities enable the intelligent selection of multiple, simultaneous gene editing targets

Trait Genes in Development

Yield10 has a rich pipeline of crop traits and many opportunities exist for licensing and/or partnerships

	Trait	Value Driver	Genetic Engineering	Genome Editing	Current Activity Next Steps	Licensing/Partnering Opportunities
Smart Grid	C3003 (1 st & 2 nd Gen)	Seed yield Water use	+	-	Camelina field testing Canola, soybean and rice in development	alfalfa, cotton, potato, rice, wheat, sugar beet and potentially corn
	C3004	Seed yield	+	+	Camelina editing underway	cotton, potato, rice, wheat, sugar beet and potentially corn
	C3007	Oil content	+	+	Camelina, canola editing underway	Camelina, canola, soybean
T3 Platform	C4001	Yield	+	+/-	Corn transformation	Forage, all major crops
	C4002	Yield	+	+/-	Corn transformation	Forage, all major crops
	C4003	Yield	+	+/-	Rice transformation Corn transformation	All major crops
	C4004	Yield	+	+	Corn transformation	All major crops
	C4005	Drought	+	+/-	Corn transformation	All major crops
	C4006	Drought	+	+/-	Corn transformation	All major crops

22 additional transcription factor targets for genome editing have been identified and will undergo validation

The Potential for Genome Editing in Agriculture

Potential to Develop Advanced Crop Traits using Genetic Engineering having “Unregulated Status”

- Achieving “deregulated” status for traditional biotech traits is time consuming and expensive
- Genome editing techniques such as CRISPR/Cas9 allow us to reduce the activity or inactivate gene targets in a plant without adding new DNA sequences
- USDA-APHIS has indicated that genome edited plants may be unregulated thereby reducing product development timelines and costs

Key is identifying gene targets for editing to achieve increased crop performance

- Examples of our genome editing targets include our C3004 and C3007 metabolic gene targets and the 22 downstream transcription factors we have shown to be down regulated in high yield plants
- Potential to expand traits developed using genetic engineering tools into a wider range of crop species

WSJ

Next Phase of High-Tech Crops,
Editing Their Genes

May 7, 2017 By Jacob Bunge

 Yield10 | BIOSCIENCE

Yield10 has a rich pipeline of yield gene trait leads but must be selective in those we choose to pursue on our own

- Does the gene trait bring new science to a known yield limitation problem?
 - Do we understand the biological mechanism?
 - Is it differentiated and do we believe we have a solid IP position?
- Acreage potential and hence revenue potential
 - Effective in all varieties for a major crop (in e.g. all soybean varieties)
 - Can it be used to enhance yield in a number of different crops?
 - Could it become a franchise trait similar to Roundup® Ready or YieldGard®?
- Do we have access to capabilities with a clear path to develop field trial data?
- Assessment of economic potential based on results achieved in our studies
- Is the gene trait amenable to genome editing, i.e. lower cost and regulatory barriers to entry?
 - Deploy in crops currently not GMO
 - Can this be leveraged for near term licensing/partnerships for revenue to support longer term goals

Advancing Development of C3003 in Key Oilseed Crops and Rice

Background on C3003

- The algal gene C3003 enables more efficient carbon capture through photosynthesis and step-change increase in seed yield
 - First generation C3003 produced up to a 23% increase in average seed yield in the best performing Camelina lines (2016 field test)
 - Second generation C3003 produced up to a 24% increase in seed yield while maintaining seed weight (2016 greenhouse study)



Spring 2017 Field Tests of C3003 Starting Q2

- Testing 2nd generation C3003 in Camelina
- Testing 1st generation C3003 in canola
- Study results due in Q4 2017

Translating the C3003 Trait to Additional C3 Crops

- Work underway to insert C3003 trait into soybean and rice

CFIA approves camelina oil for use in Atlantic salmon feed by Aquafeed.com on 05/04/2017

The Canadian Food Inspection Agency (CFIA) has approved the use of mechanically-extracted camelina oil as a feed ingredient for farmed salmon and trout.

Camelina sativa, or false flax, is a hardy oilseed plant that is rich in omega-3 fatty acids, protein and antioxidants. This super-nutritious plant is used as a vegetable oil for human consumption and as an ingredient or supplement in some animal feeds. Fish feed manufacturers have also explored the use of crop-based oilseeds like camelina as viable and cost-efficient substitutes for wild-sourced fish oils and proteins currently used in fish feeds.

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)*	Field trial		
	Camelina/Gen 3 C3003		TBD*		
Value Demonstration	Canola/Gen 1 C3003	Field test data (Q4)*	Field trial data (Q4)	Field trial	
	Canola/Gen 2 C3003	Greenhouse data (Q4-Q1)	Field test data (Q4)*	Field trial	
	Canola/Gen 3 C3003				
	Soybean/Gen 1 C3003	Greenhouse data (Q4 2017/Q1 2018)	TBD ¹	Field test	Field trial
	Soybean/Gen 2 C3003	Greenhouse data (Q4 2017/Q1 2018)	TBD ¹	Field test	Field Trial
	Rice/Gen 1 C3003		Greenhouse data	TBD ¹	

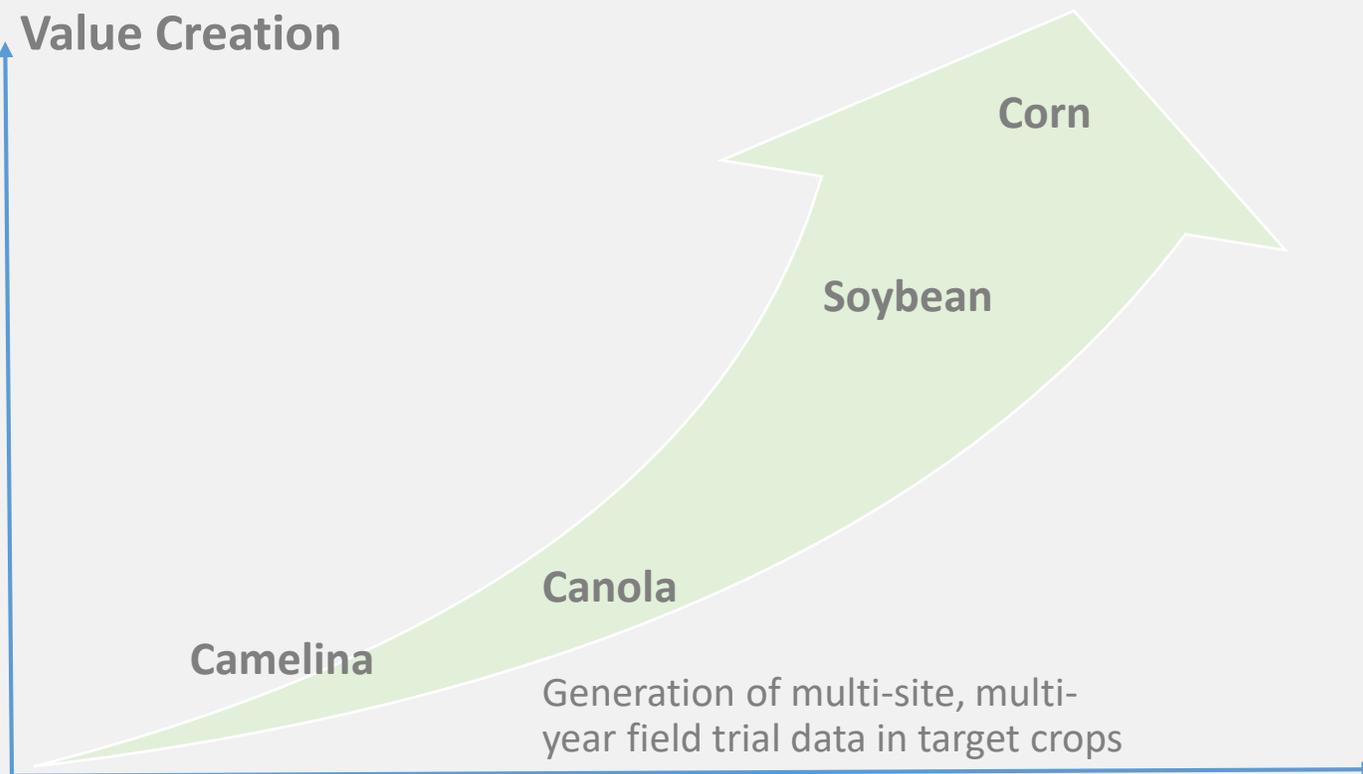
* Progress depends on results achieved in greenhouse studies

¹ Progress depends on seed bulk up in greenhouse

Yield10's technology platforms enable value creation through step-change increases in crop yield

Crop	2016 Harvest Tonnes/ Bushels	2016 Value in Billions	Total Annual Value Potential	
			Target Yield Increase	Annual Value in Billions
Canola ¹ (Can)	18.4 M tns	\$9.6	20%	\$1.92 B
Soybean ² (US)	4.36 B bu	\$40.11	20%	\$8.01 B
Corn ² (US)	15.2 B bu	\$50.16	10%	\$5.16 B

Value Creation



USDA projected on-farm corn price 2016-2017 is \$3.30/bu

USDA projected soybean price for 2016-2017 is \$9.20/bu

AAFC projected canola price 2016-2017 is \$520/tonne

1. <http://www.statcan.gc.ca/daily-quotidien/161206/dq161206b-eng.htm>

2. https://www.nass.usda.gov/Newsroom/2017/01_12_2017.php;

High Plains/Midwest AG Journal, Jan. 19, 2017

Translation → **Value Demonstration**
Ongoing 2016 Starting 2017

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

- Report on progress on C3003 with additional constructs and crops
 - Q4 Report field test data from 2nd generation C3003 trait in Camelina
 - Q4 Report field test data from 1st generation C3003 trait in canola
 - Q4, 2017 - Q1, 2018 Report greenhouse data from 1st and 2nd generation C3003 traits in soybean
 - Report greenhouse data from 1st generation C3003 trait in rice in 2018
- 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 in 2018
- Progress the CRISPR/Cas9 genome editing program focused on Yield10's proprietary targets
- Secure Ag industry collaborations and additional grants
- Continue to leverage academic collaborations to access breakthrough crop science
- Continue to build intellectual property portfolio
- Publish technical papers on key technologies

Aligned with compelling megatrends

- Global prosperity and population growth creates reliable long-term demand for ag-innovation
- Growing pressure on water and land resources, issues with intensive agriculture

We are leveraging a large historical investment in advanced metabolic engineering into a new arena

We are approaching the problem via a technology approach/knowledge base that has been historically productive at a time when a critical new tool, genome editing, is available

Significant, near-term milestones in major row crops

- Canola (field trials Q4 2017) and soybean (greenhouse data Q1 2018)

Numerous opportunities for value capture

- Licensing or partnering
- Post-consolidation Ag companies will need to aggressively source new innovation

Organization is structured to achieve upcoming milestones

To learn more about Yield 10 Bioscience, please visit www.yield10bio.com

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