



Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: YTEN

Third Quarter 2021 Financial Results and Business Highlights

Nov. 10, 2021

Sustainable Growth Starts with a Seed

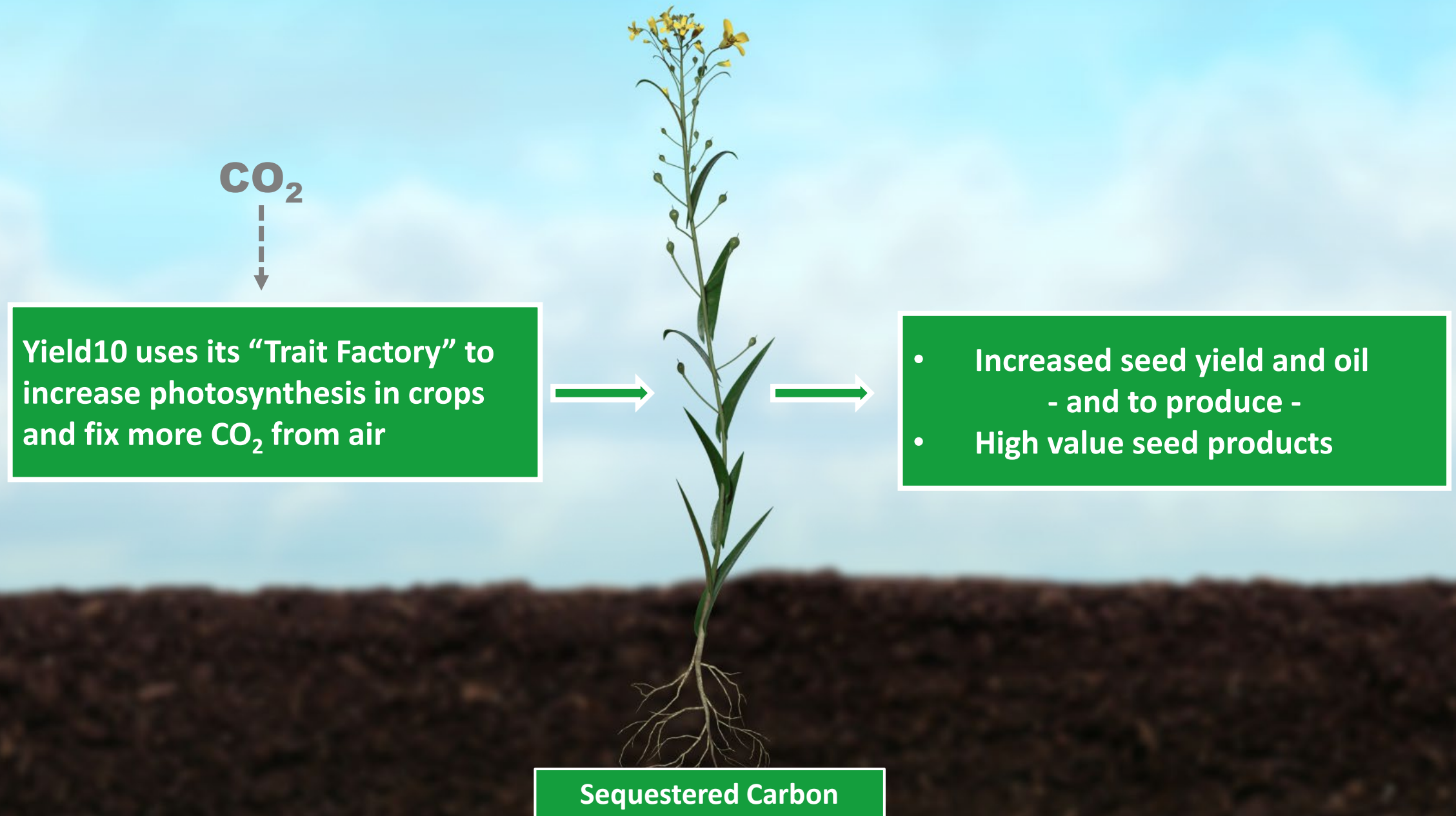


Safe Harbor Statement*

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, expectations related to research and development activities, 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, 2020 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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Yield10's Crop Innovation Platform



Key Accomplishments 2021 YTD

- ✓ Executed on 2021 field tests and seed scale up activities

Initial findings in Camelina include:

- ✓ Camelina showed tolerance to heat in areas that experienced weather challenges
- ✓ PHA content of two best Camelina lines evaluated; results were consistent with prior findings at small scale; Successful seed scale-up cycle was completed enabling acre-scale planting in 2022
- ✓ Further data analysis of all other trials is in progress; expect to report in Q1 2022
- ✓ Initiated winter (2021/2022) field testing and seed scale up program in US & Canada
 - ✓ Winter varieties (grown 2020/2021 winter season) met internal yield target
- ✓ Progressed the transition to early commercial focus
- ✓ Expanded our trait pipeline with 4 new oil content traits from the GRAIN platform
- ✓ Reported milestone for producing PHA bioplastic in field grown Camelina
- ✓ Strengthened the balance sheet to extend cash runway to achieve milestones
- ✓ U.S. patents granted for C3007, Omega-3, and U.S. patent allowed for C3006 trait

Yield10's Trait Factory and Business Models

From Crop Science to \$200 Billion Total Addressable Market (TAM)



Technology Platform - "Trait Factory"¹

Camelina Seed Products

1. Feedstock Oil (Biofuel)
2. Omega-3 Oil (EPA+DHA)
3. PHA Bioplastics

\$4 Billion Annual Camelina Products Revenue Potential by 2030

+

Trait Licensing²

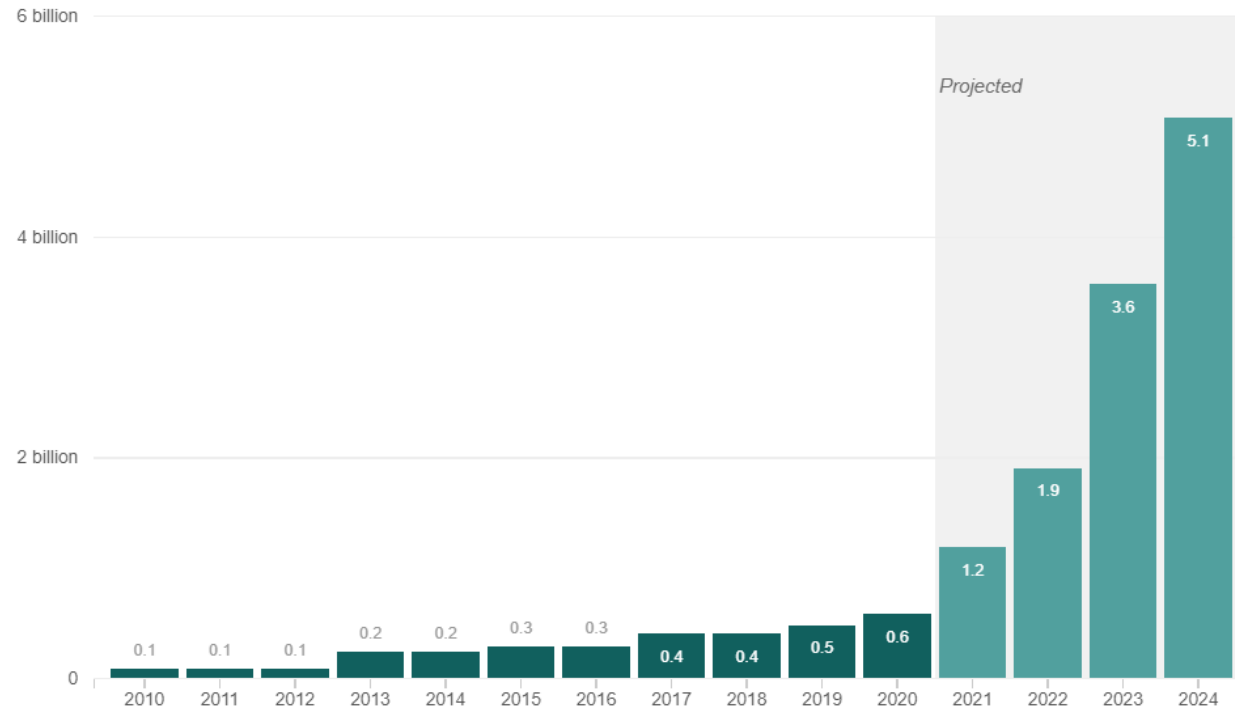


1. 21 Patent Families Pending
2. Research License Agreements, 3rd party R&D to create option value for Yield10 gene traits on over 400 million acres of major crops (soybean, corn, canola, etc.)

Opportunities and Challenges in Renewable Diesel (RD)

U.S. capacity for renewable diesel expected to rise

Production capacity for renewable diesel could reach more than 5 billion gallons per year by 2024, according to projections from the U.S. Energy Information Administration. The data includes proposed projects and those that are under construction.



Source: U.S. Energy Information Administration

Credit: Dan Charles and Rina Torchinsky/NPR

Challenges for Oil Companies

- Oil companies like to “own the well”
- Feedstock security is dependent on the Ag value chain
- Competition with food use

Solution

- *Develop high yield/oil spring and winter Camelina varieties,*
- *Enable large acreage Camelina production*
- *Expand feedstock oil and protein (food)*

Elite Camelina: Strategy and Current Activities

Capital light – contract farming - seed crushing – customer offtake agreements

- Competitive advantage: GRAIN - advanced spring and winter seed varieties - value-added performance traits – trait stacking
- Building the commercial team
- Scaling up proprietary spring and winter varieties for larger scale planting
- Extensive partnering outreach to biofuel sector – potential non-dilutive funding and/or offtake agreements

Trait Type	Trait	Business Impact	Status
Input Trait	Herbicide tolerance	Farmer adoption	<ul style="list-style-type: none">▪ Evaluating non-GMO lines▪ GMO lines in development
	Disease resistance	Farmer adoption	<ul style="list-style-type: none">▪ Evaluating downy mildew resistant variety
Performance Trait	Oil content (E3902, C3007, C3020)	Revenue and margins	<ul style="list-style-type: none">▪ Seed scaleup for E3902▪ Field trials
	Seed yield (C3003/C3004)	Revenue and margins	<ul style="list-style-type: none">▪ Field trials

Note: Elite Camelina varieties developed for feedstock oil will then be used for Omega-3 and PHA bioplastic

Herbicide Tolerance Key to Accessing Commercial Acres

Goal: Launch of Elite Spring & Winter Camelina Varieties for the Biodiesel Market

Elite Germplasm (lines in pipeline)	Yield Targets Met	Herbicide Tolerance (HT) Timeline Target	Pre-Commercial ¹ Seed Scale up 1 to 1000+ acres
DH12 & E3902 <i>Spring</i>	✓	N/A	2021-2023
E3902—HT <i>Spring</i>	✓	1H2023	2023-2024
WDH2, WDH3 <i>Winter</i>	✓	N/A	2021-2023
WDH2, WDH3—HT <i>Winter</i>	✓	2H2023	2023-2025

1. Assume completion of any required regulatory filings and LCF in pre-commercial phase.

Elite Camelina - Renewable Diesel Tailwind?

Feedstock Oil for Renewable Diesel (RD) Fuel

Challenge:

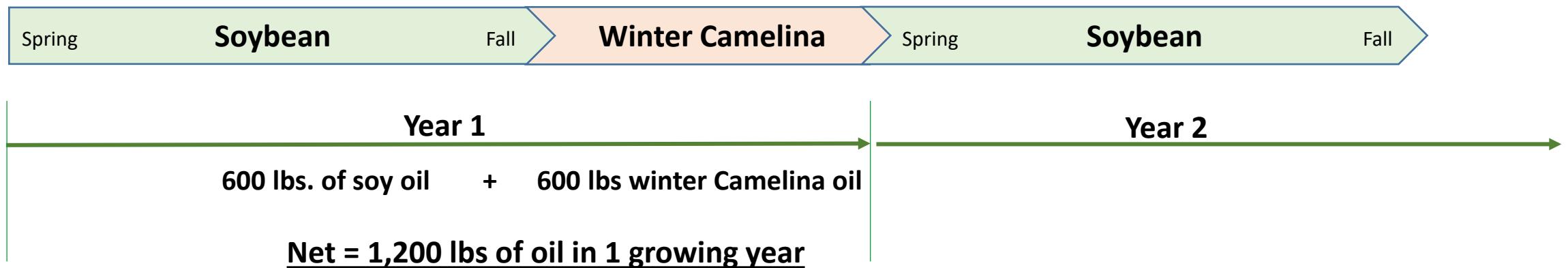
- Increasing feedstock oil supply without impacting food production with no additional land

Solution:

- Camelina Relay Cropping with Soybean, in effect a second growing season in the same ~12-month period

Result:


- Potential to double feedstock oil/acre, additional feed protein (Camelina meal) and sustainability benefits



Total Oil estimate basis: Soybean, 3000 lbs/acre harvest at 20% oil; Winter Camelina, 1500 lbs/acre harvest, at 40% oil

Contra Season & Winter Season Field Program

Winter Season 2021/22 Development Program for Spring & Winter Camelina

Elite Germplasm	Most Recent FT Results	Winter Program	Goals
E3902 Spring  E3902 WT	5% increase in oil content observed in 2020; differentiated seed color; good tolerance to heat	Contra season scale up in California; testing small plots in 5 additional states	Scale up seed for larger planting; Determine if winter planting in additional areas of US is viable
DH12 Spring	Consistent seed and oil yield; good tolerance to heat	Testing small plots in 5 additional states	Determine if winter planting in additional areas of US is viable
WDH2 Winter	Consistent seed yield; cold tolerant	Planting complete; multi-acre seed scale up in Saskatchewan	Multiacre seed scale up for next cycle of planting
WDH3 Winter	Consistent seed yield; early maturing	Planting complete; Seed scale up in Idaho	Seed scale up for next cycle of planting

Opportunities in the Fish Oil and Omega-3 Markets

Camelina Omega-3 vs Fish Oil and Competitors

Comparison Point	Fish Oil	Yield10 Camelina Omega-3	Competitors' Canola Omega-3	Competitors' Algae Omega-3
Cost	\$\$	\$ Vegetable Oil Costs	\$ Vegetable Oil Costs	\$\$\$\$\$ ~3-4x more expensive
EPA/DHA Levels	✓	✓	✗ EPA or DHA	✓
Ability to Meet Market Growth	✗	✓ Crops are Scalable	✓ Crops are Scalable	✗ High CapEx
Sustainability	✗ Overfishing	✓ Carbon Negative	✓ Carbon Negative	⊖

Yield10's Camelina Omega-3 product has the potential to be best-of-class across cost, quality (EPA/DHA), supply and sustainability

Omega-3 Camelina

- YTEN 2030 production potential: 0.3 – 0.7 million acres
- Product value/acre depending on seed yield = \$600 - \$900
- Potential revenue to Yield10 of \$180 M – \$600 M



2016-2021 UK, Canada, US	2017-2020 Studies published	Q4, 2020	2021 - >>>>
Multi Acre Field tests (ALA + EPA + DHA)	Product validation In aquafeed and human clinical trials	Yield10 secures commercial rights	Develop strategy for FTO, regulatory approvals and path to commercialization

Petroleum and Degradable Plastics

Petroleum Plastics

Non-degradable
Major pollution source

Benefits:

- Lowest cost
- Largest Scale - 350 million tons/year in 2017¹
- **US\$720 billion market²**
- Excellent functionality

Problems:

- Ocean plastics pollution -150 million metric tons
- Produced from petroleum
- CO₂ emissions in production



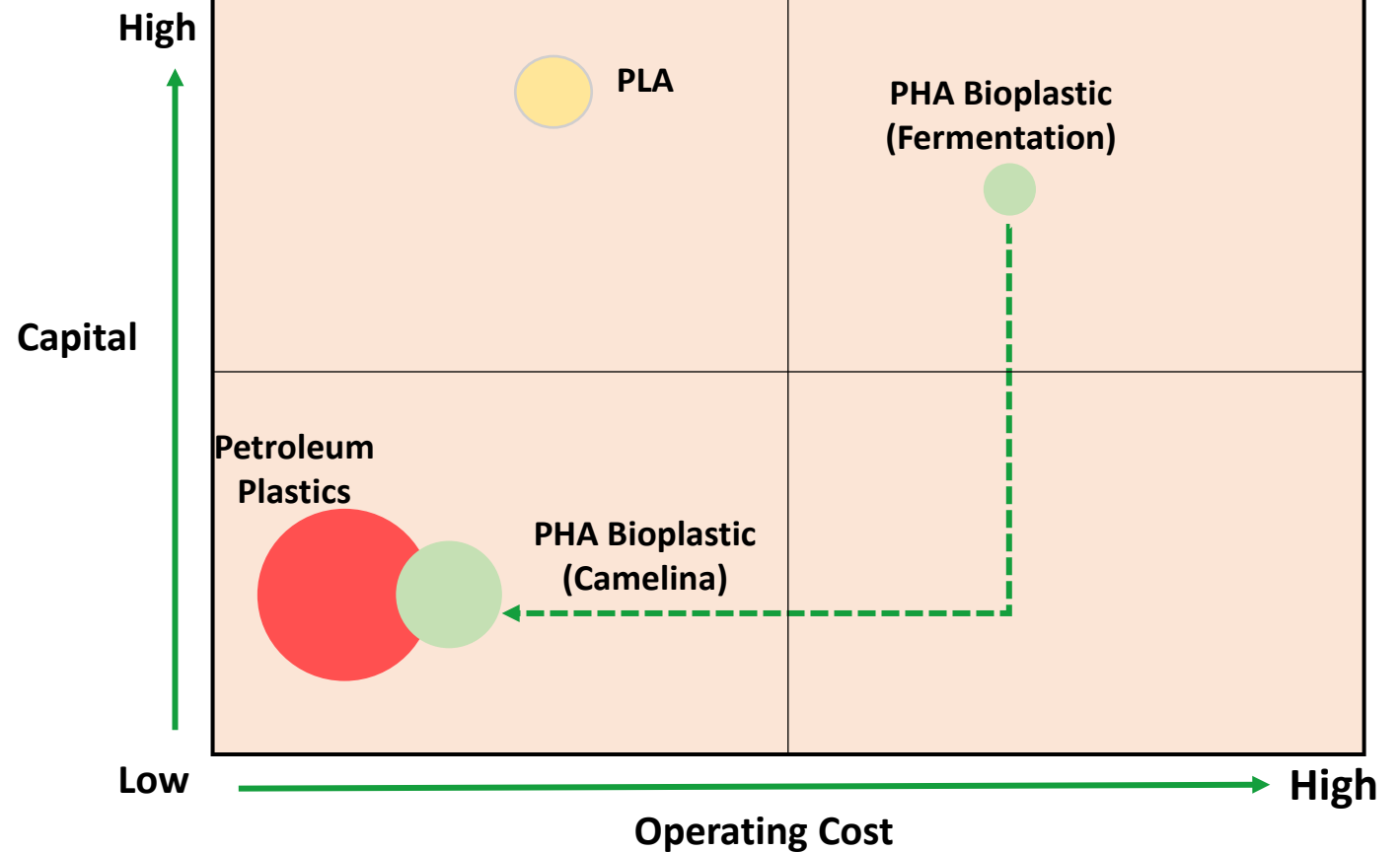
Bio-based & Degradable Plastics

Compostable Plastics

Degradable in industrial compost
Lower pollution potential

PHA Bioplastics

Natural & fully biodegradable
Zero pollution potential



1. https://www.plasticseurope.org/application/files/5715/1717/4180/Plastics_the_facts_2017_FINAL_for_website_one_page.pdf
2. <https://www.prnewswire.com/news-releases/plastics-market-size-worth-usd-721-14-billion-by-2025--cagr-4-0-grand-view-research-inc-300801897.html>

Plant Based Bioplastics – Status Update

>>>> 2019	2020 - 2021	2021 - 2022	2022 >>>>>
Proof of concept, 10% PHA in seed (greenhouse)	2020 Field tests 6% PHA in seed	Seed scale up of current lines	Pilot scale production Product prototyping
	2021 Field tests 6% PHA in seed	2 nd gen line development: increase seed Bioplastic >10-20%	
	Develop and execute the regulatory strategy		
	Business development (value chain partners)		



2021 - 0.2 acre plots for seed scale up in U.S.



2020 – PHA Bioplastic Camelina plants at U.S. Field Test










Yield10 – Trait Licensing Opportunities

Patented traits to increase major crop production with less land and inputs

TAM: \$1-3 Billion¹

◆ Milestones and royalties based on a share of the trait value add

Research license Agreements with Ag majors to create option value on >400 million acres

Crop/Trait ²	Company	Agreement	2019	2020	2021	2022	2023
Soybean/C3003 Soybean/C3004		Research License Collaboration					
Soybean Multiple traits		Research License Collaboration					
Sorghum Multiple traits		Research License Collaboration					
Potato Multiple Traits		Research License Collaboration					

- Extended research agreement with Forage Genetics for one year term
- Yield10 plans to seek partners for its traits in canola and corn
- Seeing higher interest in GRAIN platform driven by interest in multi-gene pathways identified using metabolic modeling

1. Milestones and royalties based on a share of the trait value add

2. The start and duration of each research agreement is indicated by the green arrows

Yield10 Q3 2021 Summary Financial Results¹

Investment ongoing to generate proof points and achieve key strategic objectives

Operating Results	Q3 2021	Q3 2020	9 months 2021	9 months 2020
Revenue	\$0.1 million	\$0.2 million	\$0.5 million	\$0.6 million
R&D Expense	\$1.6 million	\$1.3 million	\$4.6 million	\$3.9 million
G&A Expense	\$1.5 million	\$1.1 million	\$4.6 million	\$3.7 million
Loss from Operations	\$3.1 million	\$2.2 million	\$8.7 million	\$7.0 million
Net Loss after Taxes	\$2.4 million	\$2.2 million	\$8.1 million	\$7.6 million

Balance Sheet

- \$18.5 M in cash, cash equivalents and investments at end of Q3 2021
- Net operating cash usage of \$2.0 M for third quarter and \$6.8 M for first 9 months of 2021
- Estimate total net operating cash usage of approx. \$10.0 M to \$10.5 M for FY 2021
- No debt on balance sheet

¹ Guidance current as of date of conference call on Nov. 10, 2021. Press release including financial tables available at www.yield10bio.com

On Track to Achieve Key Milestones in 2021 and Beyond

Corporate and R&D Milestones	Period
Complete data analysis of 2021 Field Testing and seed scale-up program <i>-Report results to inform 2022 field testing and seed scale up priorities</i>	2021 Q1 2022
Build elite Camelina germplasm collection <i>-Make field test “ready” herbicide tolerant E3902 and Winter varieties</i> <i>-Create Gen 2 multigene constructs; herbicide/disease resistance and yield traits</i>	2022 Ongoing Planned
Progress the business plan for Camelina products <i>-Access year-round seed scale-up in U.S.</i> <i>-Identify partner(s) and/or sign offtake agreement for biodiesel</i>	2021 – 2022 ✓ Q2 2021 Ongoing
Advance the commercial launch plan for Camelina DHA+EPA omega-3 oils <i>-Engaged seed service provider and business development support for SA</i> <i>-Complete regulatory analysis of omega-3 lines and finalize regulatory strategy</i>	2021– 2022 ✓ Q1-Q2 2021 Ongoing
Broaden commercial capabilities <i>-New hires in regulatory affairs and business analytics</i> <i>-New hires to drive seed operations and seed scale up</i>	2021 – 2022 ✓ Q2 2021 Ongoing
Secure revenue based strategic industry collaborations to address market opportunities	2021 – 2022
Expand intellectual property portfolio <i>-U.S. patents granted on omega-3 and C3007; U.S. allowance granted on C3006</i>	2021 – 2023+ ✓ Q1-Q3 2021



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