



Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: YTEN

Investor Presentation

August 2021

Sustainable Growth Starts with a Seed



10

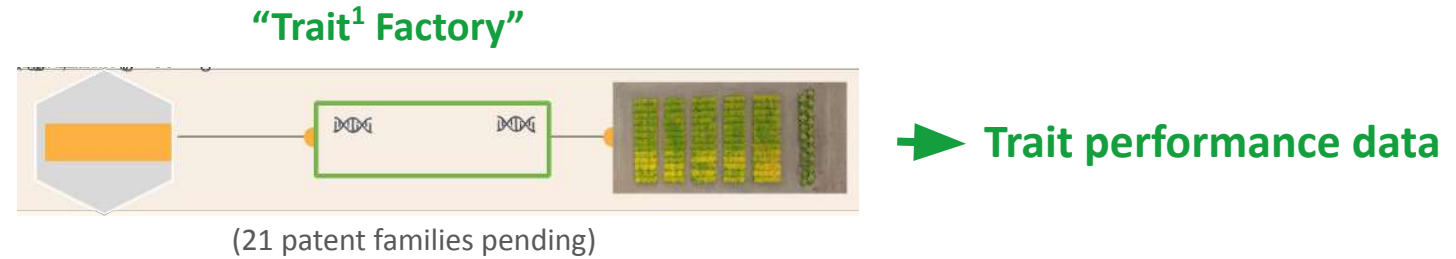
Safe Harbor Statement*

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.

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.

The Yield10 - Trait Factory and Business Models

PLATFORM



PRODUCTS

Camelina Seed Products

- Plant-based Feedstock oils
 - Plant-based Omega-3 oils
 - Plant-based Bioplastics
- (Protein meal – Co-Product)

Trait Licensing (Option Value)

- Commercial licenses
 - Up-front payments, milestones, seed sale royalties
- Corn, soybean, canola, sorghum, potato etc. > 400 million acres

REVENUES

\$4.2 Billion Annual Camelina Revenue Potential by 2030 + Trait Licensing Revenue

3

1. A trait is a genetic change to a crop that increases performance or value

Key Accomplishments 2021 YTD

- Executing on early commercial activities
 - Business development outreach ongoing
 - Performing field work in Argentina as first step to access market for aquafeed in Chile
 - Building a network of contractors for seed scale up and seed crushing for oil/meal samples
- Expanded the team with new hires in regulatory affairs and business analytics
- 2021 field tests and seed scale up activities progressing toward harvest
- 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

2021 R&D Priorities

- Multi-acre seed scale-up of E3902, DH12 and disease resistant lines
- Engaging contractor(s) for seed scale-up in Fall/Winter 2021-2022
- Complete (2H2021) multi-site 2021 Field Trials
 - Elite germplasm, yield and oil traits
 - Seed scale-up of 2 best PHA Camelina lines
- Develop elite commercial Camelina varieties
 - Herbicide tolerance, disease resistance, yield, oil content
 - Develop commercial events for PHA Camelina
- Gain confirmation of non-regulated status for new C3007 lines under the Secure Rule¹
- Support our trait licensing partners – Identify partners for our traits in canola and corn
- Continue discovery of novel yield and oil content traits using the GRAIN platform

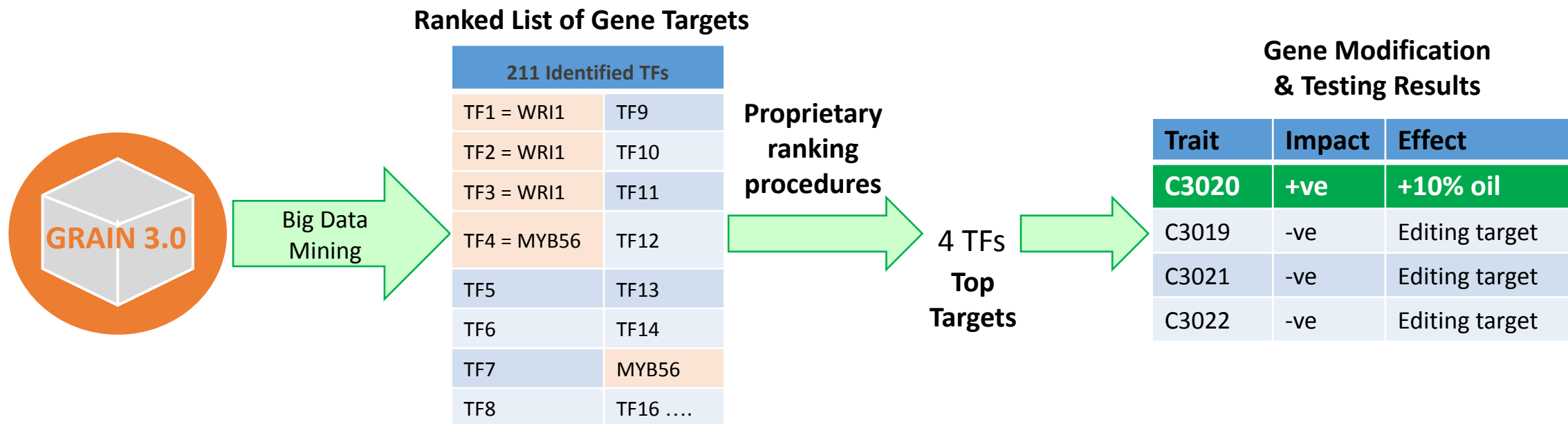
Camelina Field Test Canada 2021



1. Updated USDA-APHIS crop regulatory framework

Grain Platform: Proof of Concept for 4 Novel Oil Content Traits

GRAIN data mining Identified 4 novel trait targets to increase seed oil content in Camelina



- Ranked list of TFs obtained
- Known TFs that impact oil and/or seed yield observed in top spots validating approach (WRI1, MYB56)
- **Novel genes identified, IP white space (patents pending)**
- **Overexpression of C3020 increases seed oil content by 10% (greenhouse data)**
- **Producing pure field grown seed of C3020 in 2021 FT program**

Camelina: An Emerging Crop for North America

Camelina is an oilseed crop which establishes rapidly - can set seed in ~100 days

- Rotation crop with wheat, pulses and canola in pacific north-west
 - 5-10 million acres of potential
- Increase farm productivity and revenue through double cropping in the mid-west
 - 30-50 million acres of potential



Elite Camelina - Oil Markets Today

- Fish oil supplement for aquaculture
- Low carbon index oil for renewable diesel

Proprietary Seed Products In Development

- DHA+EPA omega-3 oils – vegan fish oil replacement
- PHA bioplastics

Elite Camelina: Strategy and Current Activities

- **Capital light** – contract farming - seed crushing – customer offtake agreements
- Business development outreach to value chain partners; Renewable fuel, feed

Trait Type	Trait	Value	Business Impact	Status and Timeline
Input Trait	Herbicide tolerance	Agronomics	Farmer adoption Value/acre	<ul style="list-style-type: none"> ✓ Evaluating non-GMO lines ✓ GMO lines in development
	Disease resistance	Agronomics	Farmer adoption Value/acre	<ul style="list-style-type: none"> ✓ Acquired downy mildew resistant variety
Performance Trait	Seed yield (C3003/C3004)	Revenue/acre Carbon benefits	Farmer adoption Revenue and margin growth	<ul style="list-style-type: none"> ✓ Field trials ongoing
	Oil content (E3902, C3007, C3020)	Revenue/acre, Carbon benefits	Farmer adoption Revenue and margin growth	<ul style="list-style-type: none"> ✓ Field trials ongoing ✓ Seed scale up of E3902 underway

Elite Camelina - Renewable Diesel Tailwind?

Feedstock for Renewable Diesel (RD) Fuel



Tailwind:

- ~ 45 billion lbs. of new vegetable oil feedstock demand for RD projects in the US¹

Commercial Opportunity - Increase harvestable oil/acre

- Gene traits for increasing oilseed yield/oil content in canola and soybean
- Double cropping elite Camelina with soybean

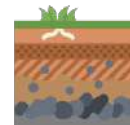
Partner Outreach Goals

- Secure offtake agreements for oil and non-dilutive funding



Renewable Diesel Players

- Phillips 66
- GCE/ExxonMobil
- Diamond Green
- Holly Frontier Corp
- Grön Fuels
- BP
- Marathon Petroleum
- Next Renewable Fuels
- REG
- Ryze Renewables
- Shell
- Chevron



Camelina Relay Cropping with Soybean

Soy @ 3000 lbs/acre, 20% oil = 600 lbs. of oil
+ Camelina @ 1500 /lbs/acre, 40% oil = 600 lbs. of oil
= **1200 lbs. of oil**

1. <http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide>

Plant-Based Omega-3 Oils for Nutrition and Sustainability

EPA and DHA Omega-3 oils are essential for human health and wellness

- Fish oil is the primary source of EPA and DHA omega-3s in the human diet
- Production in Camelina provides differentiated source of omega-3s

Supply constraints and growing global demand for Omega-3s



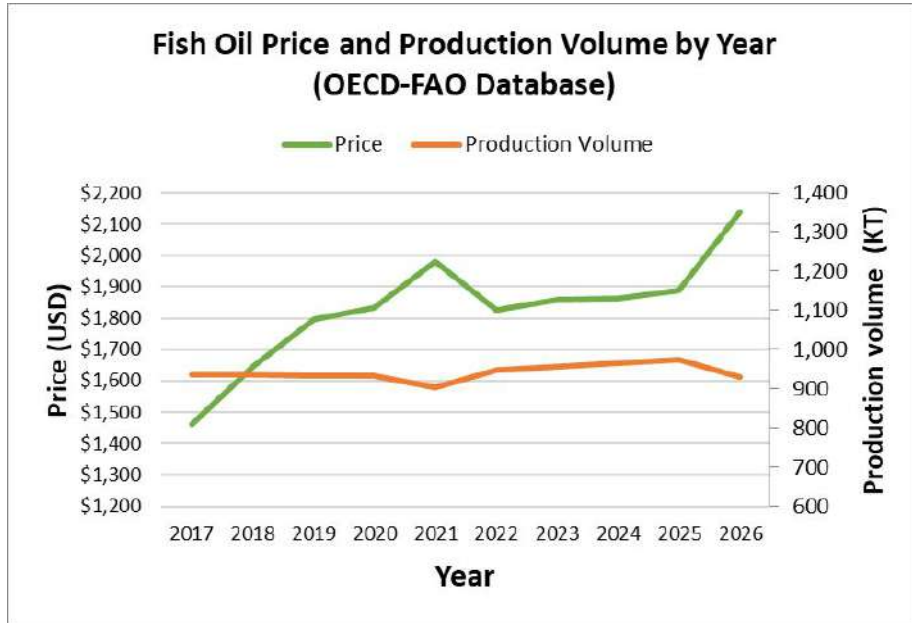
Feeding study: Scotland

>>>> 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 trials	Yield10 secures commercial rights	Develop strategy for FTO, regulatory approvals and path to commercialization



Opportunities in the Fish Oil and Omega-3 Markets

Price Growth and Flat Supply¹



- 7.9% CAGR in fish oil price from 2017 to 2021
- No supply growth– oceans are overfished²
- Future increase in demand for human consumption due to health benefits (EPA/DHA)³

Camelina Omega-3 vs Fish Oil and Competitors

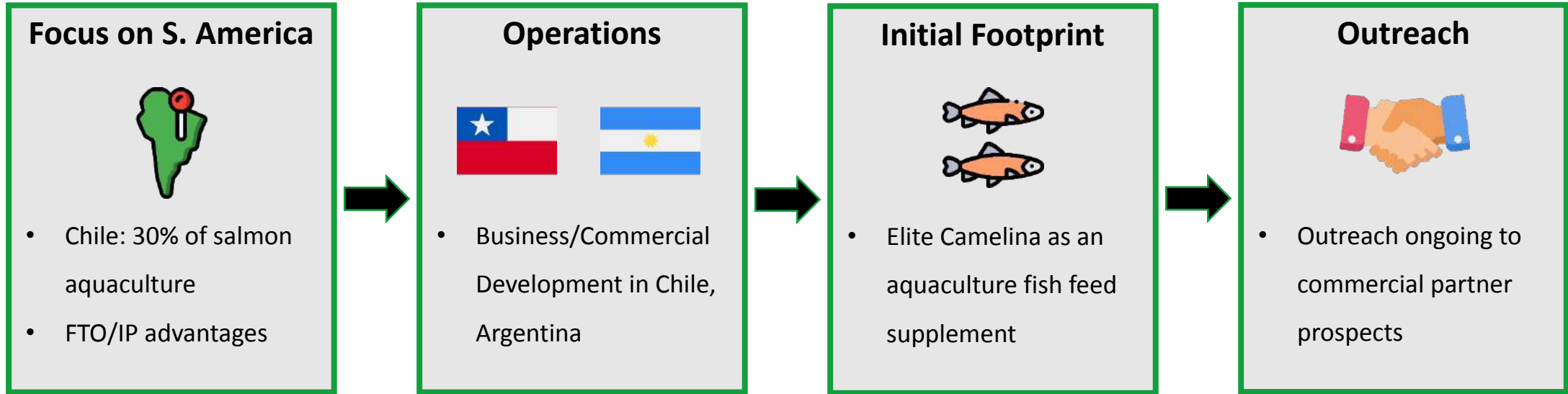
Comparison Point	Fish Oil	Yield10 Camelina Omega-3	Competitors' Canola Omega-3	Competitors' Algae Omega-3
Cost	\$\$	\$ Vegetable Oil Costs	\$ Vegetable Oil Costs	\$\$\$\$ ~3-4x more expensive
EPA/DHA Levels	✓	✓	✗ EPA or DHA	✓
Ability to Meet Market Growth	✗	✓ Crops are Scalable	✓ Crops are Scalable	✗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

1. <https://stats.oecd.org/>
 2. <https://www.nationalgeographic.com/science/article/sea-running-out-of-fish-despite-nations-pledges-to-stop>
 3. Finco, Mamani, Carvalho, Pereira, Thomaz-Soccol & Soccol(2016): Technological trends and market perspectives for production of microbial oils rich in omega-3, Critical Reviews in Biotechnology, DOI: 10.1080/07388551.2016.1213221

Camelina Omega-3 Business Development Plan

Market Entry Strategy



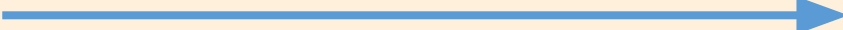

Omega-3 Camelina

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

TAM: \$4-6 billion¹

1. Estimates of market opportunity are based on industry sources as well as management's analysis, financial estimates and timelines for market introduction and adoption. Includes fish oil for aquaculture and Omega-3 supplements and nutraceuticals.

Plant Based Bioplastics – Status Update

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



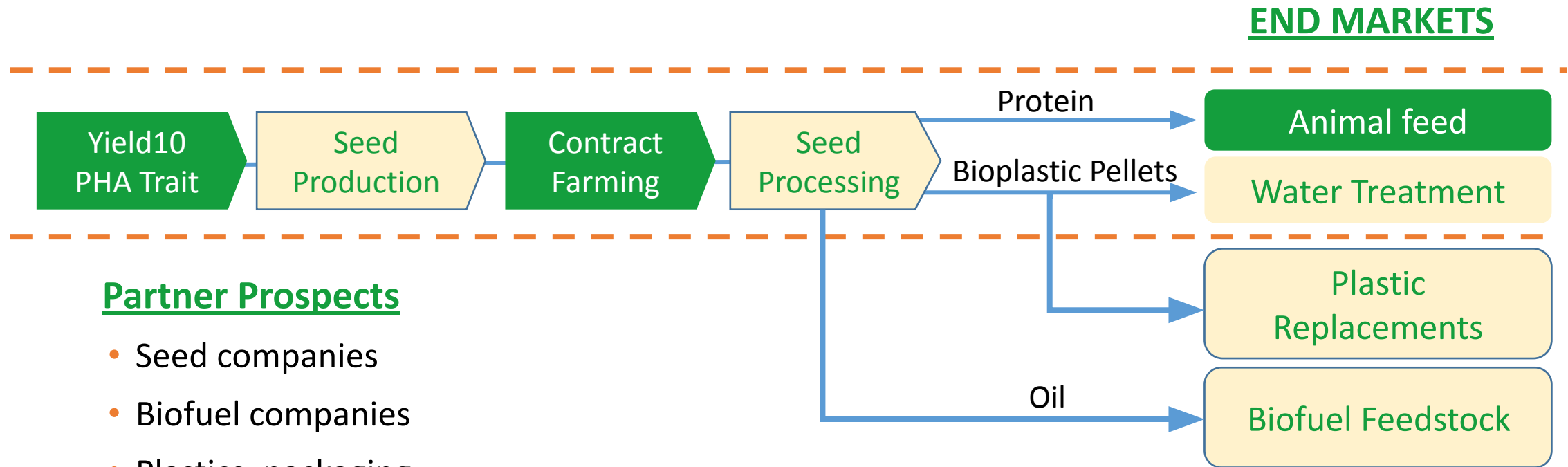
2020 – Bioplastic Camelina plants at U.S. Field Test



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

Plant Based Bioplastics - Establishing the Value Chain

Identity preserved value chain with high growth potential in large markets



Partner Prospects

- Seed companies
- Biofuel companies
- Plastics, packaging
- Brand owners - consumer products, food companies
- Bioplastics companies

Market Opportunity for Camelina Products

\$4.2 Billion Annual Revenue Potential For Oil, Meal and Bioplastic by 2030

Addressable Market

\$200 billion¹

Bioplastic

2.0 – 4.0 million acres

@ \$500 >>> \$900 product revenue per acre

\$8 billion²

Omega-3

0.3 – 0.7 million acres

@ \$600 >>> \$900 product revenue per acre

Feedstock oil

0.5 – 2.0 million acres

@ \$300 >>> \$500 revenue product per acre

(Replace with oil and meal from value added varieties)

2030 Revenue Potential

\$1 Billion > \$3.6 Billion
(Bioplastic, feedstock oil and meal)

\$180 Million > \$630 Million
~16% of fish oil (2030)
(Omega-3 oil & meal)

\$150 Million - \$1 Billion³
(Oil & meal)

2021

2030

Yield10: enabling grower participation in value-add

1. Assuming ~25% of plastics production, 50% of plastics used in single use packaging
2. Estimates of market opportunity are based on industry sources as well as management's analysis, financial estimates and timelines for market introduction and adoption
3. Oil and meal for this market will be supplied from PHA Camelina in the future
>>> Technology Improvements, yield and oil/or PHA seed content





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		→			

- 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 Q2 2021 Summary Financial Results¹

Investment ongoing to generate proof points and achieve key strategic objectives

Operating Results	Q2 2021	Q2 2020	6 months 2021	6 months 2020
Revenue	\$0.2 million	\$0.2 million	\$0.4 million	\$0.4 million
R&D Expense	\$1.7 million	\$1.2 million	\$3.0 million	\$2.6 million
G&A Expense	\$1.6 million	\$1.2 million	\$3.0 million	\$2.6 million
Loss from Operations	\$3.1 million	\$2.1 million	\$5.6 million	\$4.8 million
Net Loss	\$3.1 million	\$1.8 million	\$5.7 million	\$5.4 million

Balance Sheet

- Net operating cash usage of \$2.1 M for second quarter and \$4.8 M for first 6 months of 2021
- \$20.6 M in cash, cash equivalents and investments at end of Q2 2021
- Estimate total net operating cash usage of approx. \$10.0 M to \$11.0 M for FY 2021
- No debt on balance sheet

¹Guidance current as of date of conference call on August 11, 2021. Press release including financial tables available at www.yield10bio.com

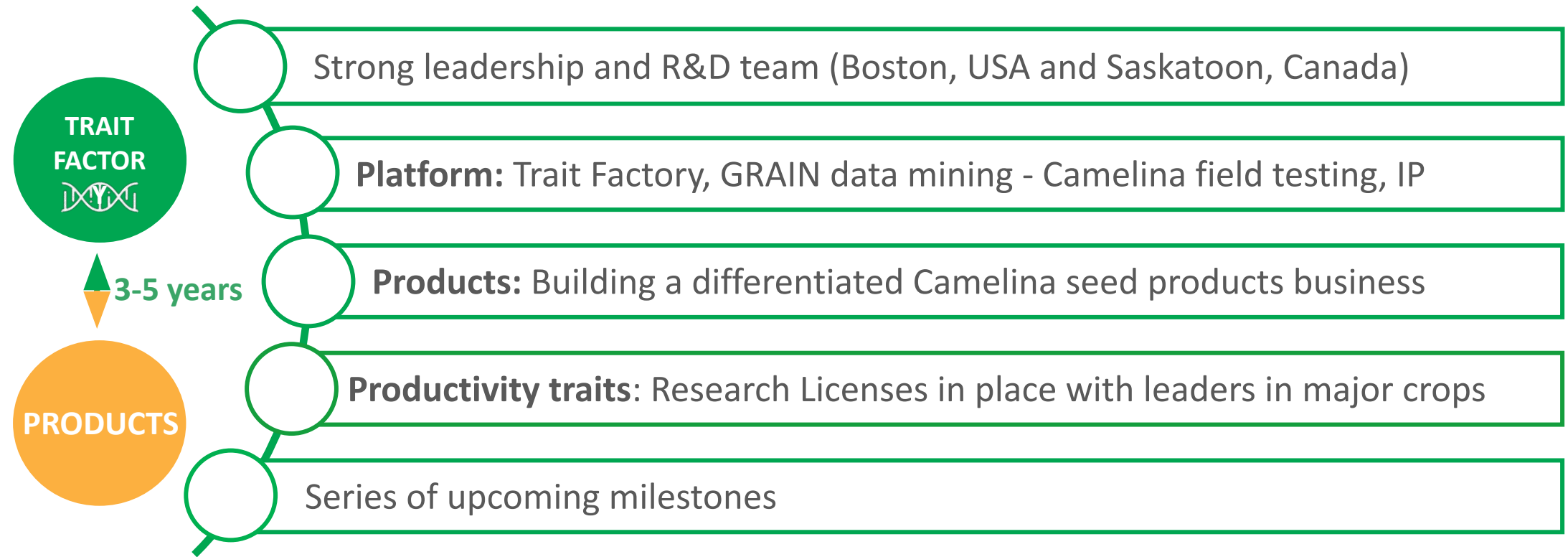
Upcoming Milestones

Yield10 is on track to achieve key milestones in 2021 and beyond

Corporate and R&D Milestones	Period
Execute 2021 Field Testing and seed scale-up program <i>-Complete planting for field tests & seed scale-up</i>	2021 ✓ Q2 2021
Build elite Camelina germplasm collection	2021 – 2022
Progress the business plan for Camelina products <i>-Access year-round seed scale-up in U.S.</i> <i>-Obtain permits to transfer lines to So. America, Planted lines</i>	2021 – 2022 ✓ Q2 2021 ✓ Q2-Q3 2021
Advance the commercial launch plan for Camelina DHA+EPA omega-3 oils <i>-Engaged seed service provider and business development support for SA</i>	2021– 2022 ✓ Q1-Q2 2021
Broaden commercial capabilities <i>-New hires in regulatory affairs and business analytics</i>	2021 – 2022 ✓ Q2 2021
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

Yield10 Bioscience (Nasdaq: YTEN)

An Agricultural Bioscience Company -
Developing genetic innovations in crops for sustainable food security



“The impacts of climate change on land will raise food prices and risk widespread food instability, but there are solutions.” UN IPCC Report Aug 2019



Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: YTEN

Investor Presentation

August 2021

Sustainable Growth Starts with a Seed

