Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: **YTEN**

First Quarter 2022
Financial Results and Business Highlights

May 11, 2022

Sustainable Growth Starts with a Seed

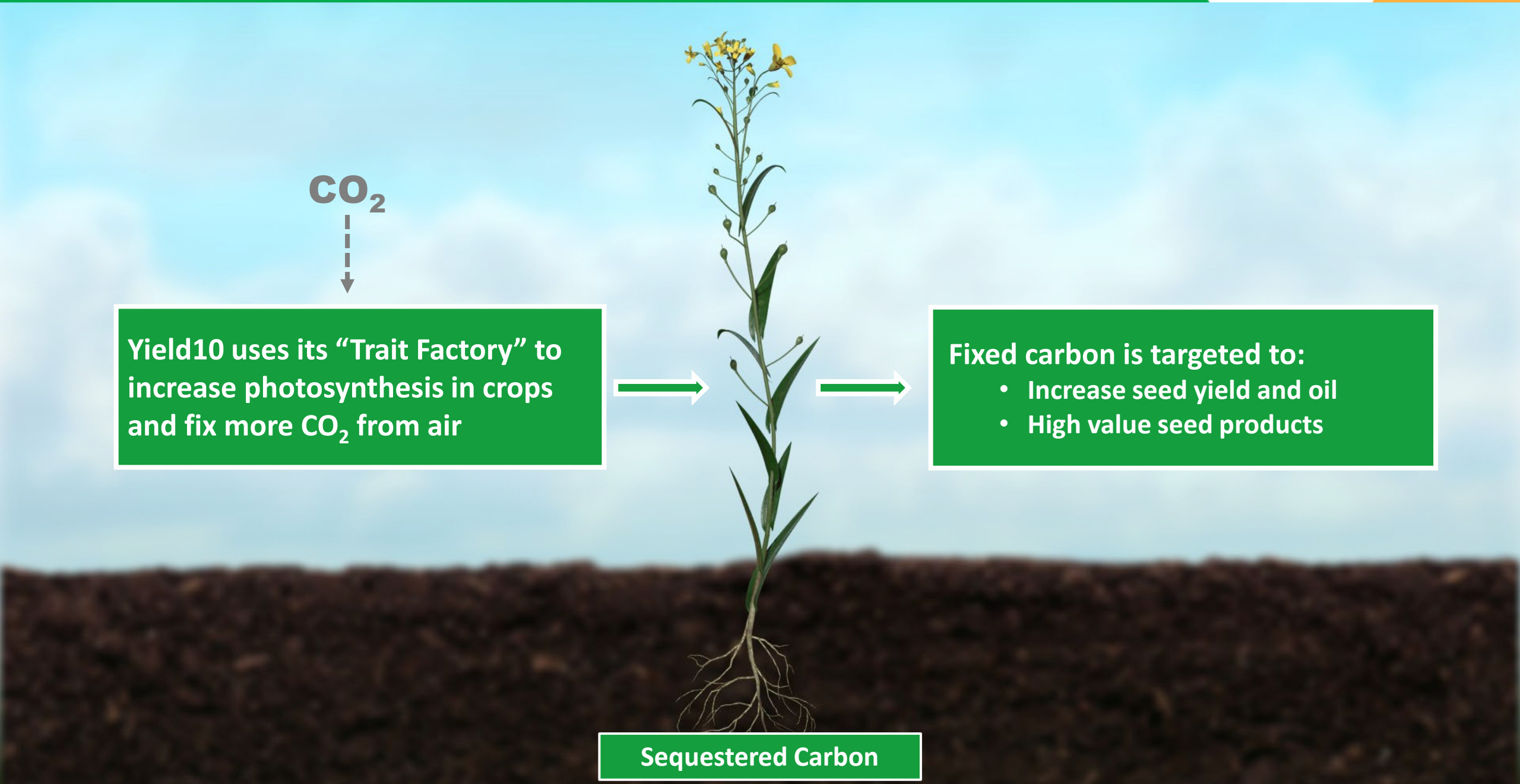
Safe Harbor Statement*

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, 2021 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

Yield10's Crop Innovation Platform



Yield10: Transition to Commercial Camelina Activities

Platform	Product	Main Markets[1]	2030 Revenue Potential[2]	Status
Camelina Seed Renewable, Decarbonizing Products				
Elite Camelina	**1. Feedstock oil**	▪ Biofuel **~$27 billion**	$0.18 - $1 billion	▪ Early commercial in US, Canada leveraging 3 best lines ▪ **Partner outreach**
Elite PHA Camelina	**2. PHA Bioplastics + Feedstock oil**	▪ Single use plastic **~$200 billion**	$3.6 billion	▪ Trait optimization ▪ **Partner outreach**
Food/Feed				
Elite Omega-3 Camelina	**3. Omega-3 Oil** (DHA+EPA)	▪ Aquaculture feed ▪ Nutrition **$4-6 billion**	$0.5 billion	▪ Pre-commercial development ▪ **Partner outreach**
All Camelina	**4. Protein meal**	Animal feed **~$200 billion**	$0.5 billion	▪ Seed co-product, from all varieties
Technology : Trait Licensing				
GRAIN for trait genes discovery	Performance traits	▪ Trait Licensing **~$10 billion**	$0.5 - $1 billion	Research license agreements Bayer CropScience, GDM, Forage Genetics International, Simplot

1. Internal Company estimates of the total addressable market
2. Internal Company estimates of 2030 product revenue potential

Advancing the Yield10 Business

Momentum driven by accomplishments in 2022

Commercial focus targeting the renewable diesel market

- Commercial team engaging with potential supply chain partners supporting capital-light business model
- Building commercial seed operations capabilities
  - Hired Darren Greenfield (former BASF, Dow Agrisciences, Cibus) to head the area
  - Dr. Willie Loh (former Cargill executive) joined as a commercial and technical advisor
  - Outreach to growers planned for contract planting in winter season
  - Activities underway supporting Camelina regulatory filings, variety registrations and branding

Building differentiated elite Camelina germplasm collection

- Data from 2021 spring field tests highly supportive and encouraging for Camelina development
- Intensive effort testing herbicide tolerance and downy mildew resistance traits
- Developing winter varieties to access large acreage without competition from soy and canola
- Broad based spring program kicking off in U.S. and Canada
- New patents granted on C3007 in Australia and on advanced technology for producing omega-3 oils in Camelina in Canada

Field Report: Winter Field Testing Program

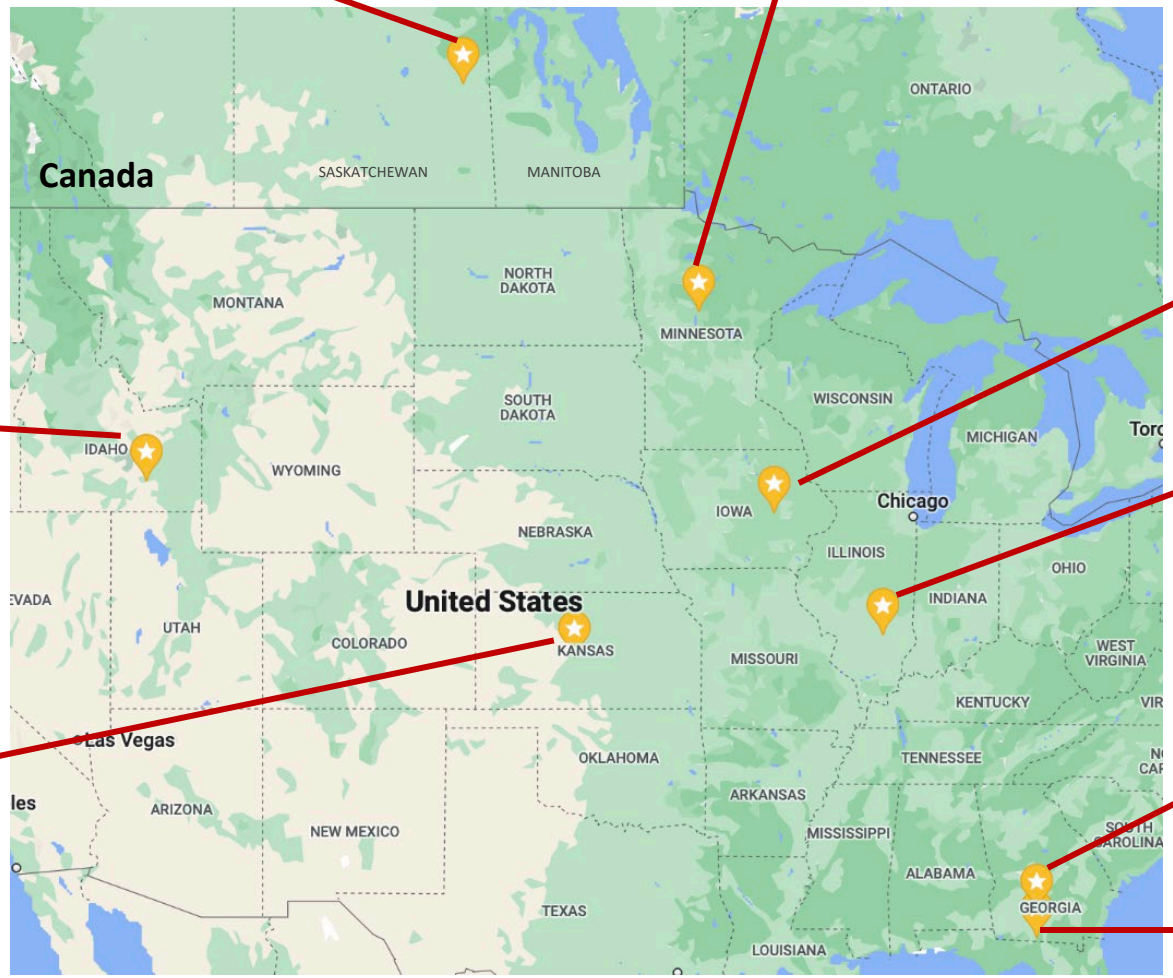
17-acre scaleup, cold tolerant line. *(Picture 5/9/22).* Plants after emerging from snow.

Small plot trials.
3 locations. *(Picture 5/6/22).*
Plants currently bolting[1]

Small plot trials.
(Picture 5/5/22). Plants currently in vegetative growth.

0.2-acre seed scaleup, early maturing line.
(Picture 4/19/22).
Plants currently bolting.[1]

Small plot trials.
(Picture 5/9/22). Plants currently flowering.



Small plot trials.
(Picture 4/23/22).
Plants currently flowering.

Small plot trials.
(Picture 2/10/22)
Seed harvested.

Small plot trials.
Seed harvested

[1]Stage prior to flowering

2022 Spring Camelina Development Program

Advancing along path to commercialization

Continue to Progress Elite Camelina Germplasm Development

- Continue evaluating and scaling up spring and winter varieties
- Focus on progressing herbicide tolerance trait
- Field test lines for downy mildew resistance

Elite Camelina line E3902

- Advance seed production activities for low-carbon feedstock oil
- Field test lead E3902 herbicide tolerant lines

Camelina C3015 trait (PHA)

- Acre-scale seed scale up for process development and product sampling
- Continue trait optimization to increase PHA yield to 10-20% and produce co-polymers

Camelina C3020 trait and Canola C3007 trait (oil content)

- Field testing and seed scale up

Development Plan for Camelina Products

Pipeline and Indicative Launch Sequence

Camelina Type	Seed Products	Gene Trait(s)	Camelina Varieties – Indicative Launch Sequence
Elite Camelina	Biofuel feedstock Protein meal	C3008a,b,C3009	E3902 →
		HT1	E3902-HT1 →
		HT2	E3902-HT1-HT2 →
		Downy Mildew Resistance (DMR)	E3902-HT1-HT2-DMR →
		Performance Traits (PT) Oil content, Seed yield	Next Gen Elite Line-HT1-HT2-DMR-PTs →
Elite PHA Camelina	PHA bioplastics Biofuel feedstock Protein meal	PHA	Next Gen Elite Line-HT1-HT2-DMR-PT-**PHA** →
Elite Omega-3 Camelina	Omega-3 (EPA/DHA) oils Protein meal	Omega-3	Next Gen Elite Line -HT1-HT2-DMR-PT-**OM3** →

The regulatory path for trait development through this sequence may be supported by the SECURE Rule in the U.S. and the updated, emerging CFIA regulations in Canada

BioFuels : Establishing the Camelina Value Chain

Elite Camelina Variety Development- Contract Farming → **Logistics/ Crushing** → **RD or SAF Production**

Vision for the Business

Contract with growers for large scale production

Contract offtake for biofuels and feed

Development Highlights and Milestones

- Engage with players in biofuels supply chain for oil offtake
- Build relationships with contract growers in the U.S. and Canada
- Progress pipeline of elite Camelina varieties
- Scale-up activities to enable 1,000 to 20,000 acres
- Progress regulatory path for new varieties

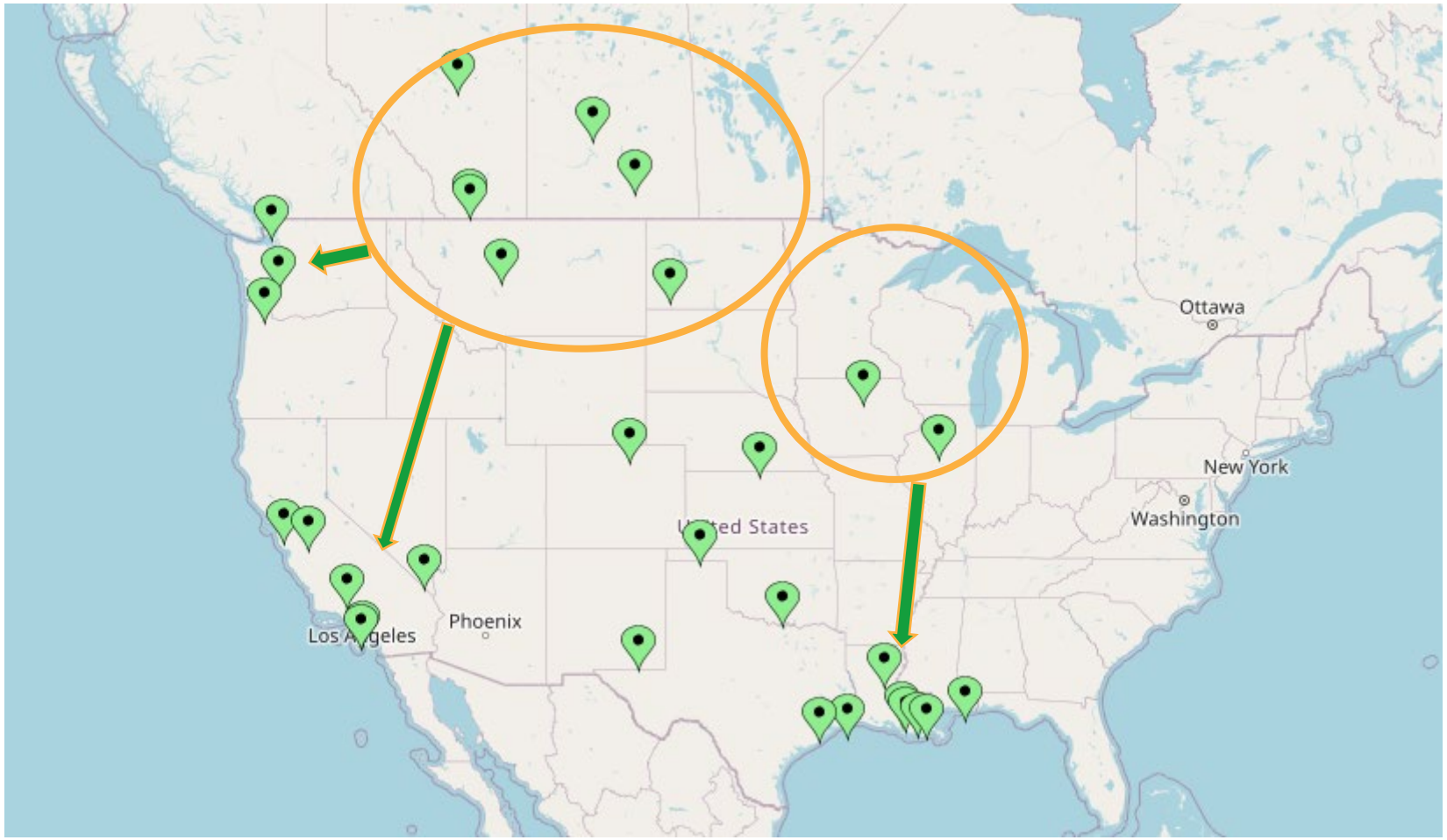
Value Chain Players

ADM
Bunge
Cargill
Richardsons
Viterra
Dreyfus
and others

Customers/Market Pull

North American Biorefinery Investments

Areas of Camelina production correspond to areas of biorefinery operation



PHA Bioplastic and Omega-3 Programs

PHA and Omega-3 Traits Leverage Elite Camelina Platform and Address High Value Markets

PHA Market Opportunity

Growing global demand for biobased polymers

Development Highlights and Milestones

- Pilot scale activities
  - Execute field trial plan to produce seed at acre-scale and PHA for process development and product sampling
- PHA trait optimization
  - Execute R&D to improve PHA content to 10-20% of seed weight
  - Conduct R&D program to produce co-polymers
  - Field test PHA winter Camelina
- Pursue collaborations with industry

Omega-3 Market Opportunity

Growing demand for sustainable plant-based production of omega-3 oil aligned with sustainability as well as health and wellness trends

Development Highlights and Milestones

- Develop regulatory and launch plan based on DHA1 (EPA+DHA)
- Effectively collaborate with Professor Napier and team
- Build relationships with major oil/feed players
- Exercise commercial option with Rothamsted
- Expand the IP portfolio around omega-3 oils

Yield10 – Trait Licensing Opportunities

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

TAM: $1-3 Billion[1]

- 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	Bayer CropScience	Research License Collaboration	→	→			
Soybean Multiple traits	GDM	Research License Collaboration		→		→	
Sorghum Multiple traits	Forage Genetics International	Research License Collaboration	→	→			
Potato Multiple Traits	Simplot	Research License Collaboration		→			

- Seeking collaborations to develop yield and seed oil content traits in canola
- Seeking partners for traits in 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 Q1 2022 Summary Financial Results[1]

Investment ongoing to achieve key strategic objectives

Operating Results	Q1 2022	Q1 2021
Revenue	**$0.1 million**	$0.2 million
R&D Expense	**$1.8 million**	$1.3 million
G&A Expense	**$1.7 million**	$1.4 million
Net Loss after Taxes	**$3.3 million**	$2.6 million

Balance Sheet

- $12.7 M in cash, cash equivalents and investments at end of first quarter 2022
- Net operating cash usage of $3.1 M for first quarter 2022
- Estimate total net cash usage of approx. $12.0 M to $12.5 M for FY 2022
- No debt on balance sheet

[1] Current as of date of conference call on May 11, 2022. Press release, including financial tables, available at www.yield10bio.com

On Track to Achieve Key Milestones in 2022 and Beyond

Corporate, Commercial and R&D Milestones	Period
Expand commercial activities targeting Renewable Diesel market	**2022**
-Identify partner(s) and/or sign offtake agreement(s)	Ongoing
-Engage growers to plant Camelina under contract	Ongoing
Build differentiated Elite Camelina germplasm collection	**2022**
-Field test herbicide tolerant E3902 Camelina lines	*Ongoing*
-Execute on R&D program to optimize PHA trait	*Ongoing*
-Progress early commercial development of omega-3 oil in Camelina	*Ongoing*
Execute 2022 Field Testing and seed scale-up program	**2022**
-Harvest 2021 winter Camelina field tests (in progress)	*H1 2022*
-Complete planting for 2022 spring field program	*H1 2022*
-Complete planting for 2022 winter field program	*H2 2022*
Secure revenue based strategic industry collaborations to address market opportunities	**2022-2023**
-Biofuels, PHA bioplastics, omega-3 and trait licenses	*Ongoing*
Expand intellectual property portfolio	**2022-2023+**

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