



Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: YTEN

**Fourth Quarter and Full Year 2022
Financial Results and Business Highlights**

March 14, 2023

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, 2022 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.

Yield10 Business Model

From Crop Science Innovation to Low Carbon Intensity (CI) Biofuels Feedstock Oil



Yield10: Biofuels Commercial Development Plan

- **Ongoing**
 - Contracting production with current Camelina varieties to supply low CI biofuels feedstock
 - Forming tactical and strategic offtake agreements for the Camelina grain to establish value chains
- **Next:** Expand production acres by addressing growers needs with herbicide tolerance (*broadleaf weed control, tolerance to herbicide soil residues*) and disease resistance

¹ 19 Patent families pending

Advancing the Yield10 Business

Momentum driven by recent accomplishments

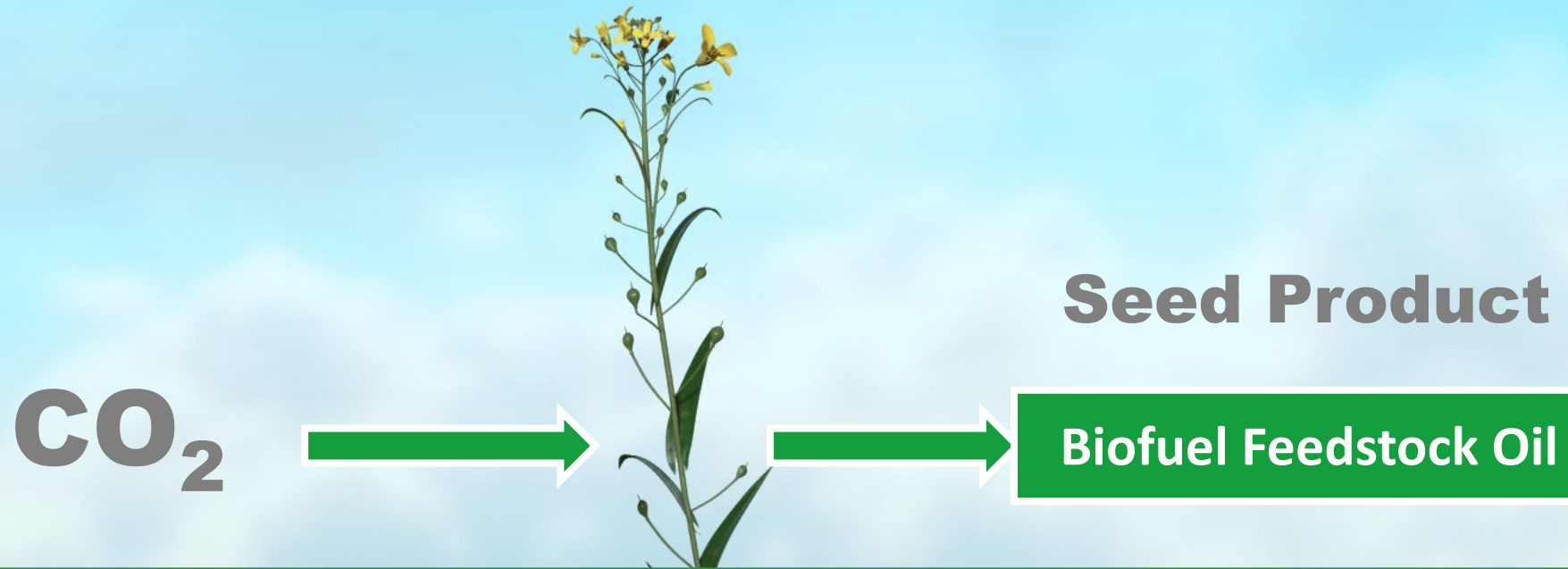
Goal: Establish commercial business targeting the biofuel feedstock market

- Building commercial capabilities
 - Seed scale-up in progress to build seed inventory for supply under grain production contracts
 - Increasing acres under production - outreach to growers underway for contract planting in spring and fall of 2023
 - Expecting first product revenue in 2023
 - Activities underway supporting Camelina regulatory filings, variety registrations and branding
- Engaging with potential supply chain partners supporting capital-light business model
 - Mitsubishi Corp: MOU for partnership for supply, offtake, and marketing of Camelina as a feedstock oil for biofuel
 - American Airlines: MOU for collaboration to develop value chain for Camelina in SAF
 - Crusher/Biorefiner: Signed agreement for offtake of Camelina grain in key target growing region demonstrating supply chain from YTEN ➡ grower ➡ crush and refining customer



Seed scale-up of spring
E3902 HT Camelina
in Feb. 2023

Yield10: Camelina Biofuel Feedstock Oil Focus



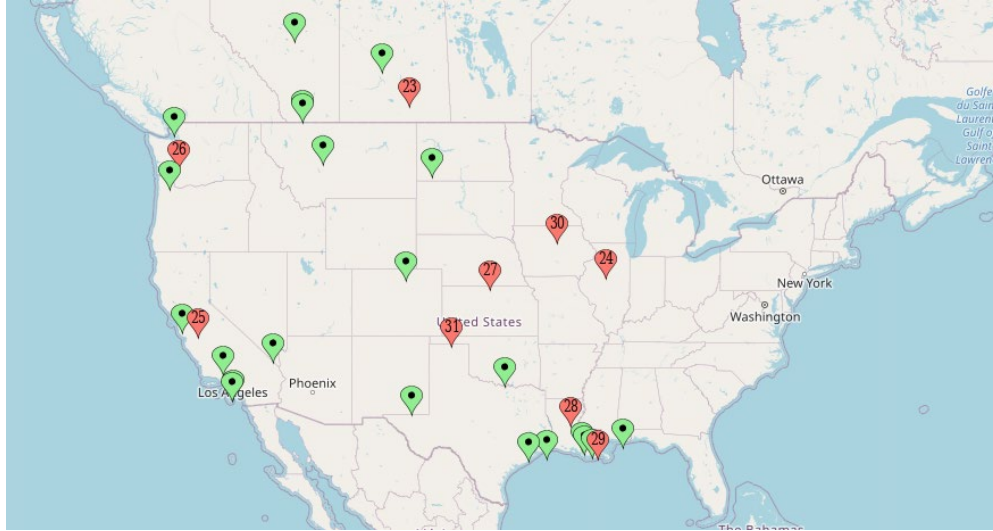
Tailwinds for increased vegetable oil production for decarbonizing biofuels

Sequestered Carbon

The diagram shows a green arrow pointing downwards from the roots of the plant into a dark brown soil layer at the bottom of the image. Below the soil layer, the text **Sequestered Carbon** is displayed in a grey rectangular box.

Expansion of Biofuels Facilities in North America

Growth in Feedstock Oil Demand¹



- 6 billion gallons of new capacity for recently funded RD projects in the US²
- **3 billion gallons of additional feedstock demand by end of 2024**
 - **Half** of soybean oil production in the US
- Additional decarbonization programs for biofuels potentially coming online in Japan and elsewhere to further increase demand

Where Will Additional Feedstock Come From?

- Tallow and UCO markets already thin
- US from net exporter to import of soybean oil in last several years
- Soybean acres growing by several percent year-over-year, but not enough suitable production acres to meet demand increase

Commercial Opportunity – Cover Crops for Biofuels


OIL — 25 Feb 2013 | 09:50 UTC — Houston

EPA approves use of camelina oil as biodiesel feedstock under RFS

Long-Term Opportunity for 45 Million Acres of cover crops in the US and Canada to fill feedstock supply-demand gap

1. 10 new biofuels facilities in US/Canada announced in last ~9 months. , chart is not exhaustive
2. <http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide>

Yield10 Platform Crop - Camelina

- Promising oilseed crop
 - Uses same farming, storage and processing assets as other oilseed e.g. canola
 - Seed oil levels ~ 40% of seed weight, protein meal ~55% of seed weight
- Both spring and winter varieties
 - Winter varieties, potential use as cover crop for corn and soybean acres
 - Leading in input and performance traits
- Excellent platform crop for novel high value seed products - value proposition for farmer 



Greenhouse grown Camelina



Camelina field plots at flowering



Large scale winter Camelina growth

Camelina Based Biofuel Feedstocks

The Potential of the Camelina Crop for Biofuel Feedstocks is Driven by:

- **Grower adoption – Weed control** and seamless integration into crop rotations
- **Grower adoption – Revenue** - increasing the harvest value for biofuel feedstocks
 - Camelina grain (seed) yield per acre, oil as a percent of seed weight (oil/acre)
 - Carbon intensity (CI) score of the oil (carbon score as a trait target ?)
 - Improved protein meal value
- **Grower adoption – Technology** – pipeline of Camelina lines and proprietary gene traits
 - Priority 1: HT Camelina to enable seamless integration into grower crop rotations
 - Priority 2: Seed yield and seed oil content to increase the harvest value for biofuels
 - Priority 3: Meal quality traits to improve meal value in feed
- **Grower adoption – Partnerships across the biofuel value chain**

BioFuels: Establishing the Camelina Value Chain

Elite Camelina Variety Development-
Contract Farming

Logistics/
Crushing

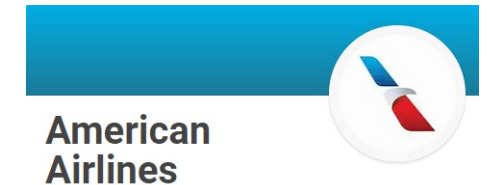
RD or SAF
Production

Vision for the Business

- Gain leadership position for Camelina as a low-carbon feedstock oil
- Contract with growers for large scale production
- Build a network of alliances for contract offtake for biofuels and feed

Development Highlights and Milestones

- Mitsubishi Corp MOU for supply, offtake, and marketing of Camelina as low-carbon intensity feedstock oil for biofuel
- American Airlines MOU to develop value chain for Camelina in SAF
- Signed offtake agreement with privately owned crusher/biorefiner in a target growing region providing a customer for Camelina grain
- Engage with additional players in biofuels supply chain
- Build relationships with contract growers in the U.S. and Canada
- Progress pipeline of elite Camelina varieties
- Commercial seed scale-up activities to enable 1,000 to 20,000 acres for grain production
- Progress regulatory path for new varieties



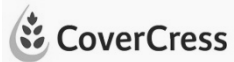
Offtake partner for
Camelina grain in key
growing region

Oilseed Cover Crop Development Approaches

Building a Differentiated Position in Oilseed Cover Crops

Germplasm Development/Breeding

- Low barrier to entry (lead time)
- Accessing public germplasm
- Traditional crossing of diverse genetics
- Accelerated approaches using molecular technologies



Vision Bioenergy
Oilseeds LLC

Stacked Gene Traits

- Performance differentiation
- Potential for step change improvements
- Leverage new tools like genome editing
- Leverage closed loop production in US/Canada in non-export crop
- Leverage improved regulatory environment in US



Early Commercial Camelina Varieties

Value-Advantaged Spring and Winter Camelina Available under Grower Contract

E3902 (Spring Gene-Edited)



E3902 is a triple gene-edited spring Camelina

- C3008a & b/C3009: Lighter seed coat
- Consistent 5% increase in oil content
- USDA-APHIS non-regulated¹
- Recently designated non-regulated in Chile²
- Scaling-up seed for contracted grain production

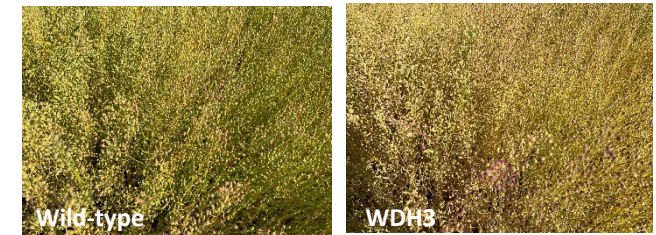
WDH2 (Winter Cold Tolerant)



Cold hardy winter Camelina variety

- Adapted to very cold winter conditions in the Canadian prairies
- Secured growers for contracted Camelina grain production
- Seed production underway
- Available for winter 2023/2024 grower contracts

WDH3 (Winter Short Cycle)



Early maturing winter Camelina variety

- Adapted to winter growing conditions in the US
- Matures ~1 week earlier than industry leading winter lines
- Seed production underway
- Available for winter 2023/2024 grower contracts

¹USDA-APHIS's Biotechnology Regulatory Services (BRS) confirmed that the use of CRISPR genome-edited traits C3008a, C3008b, and C3009 in Camelina plant lines does not meet the definition of a regulated article under 7 CFR Part 340 regulations.

²E3902 is not under the scope of the Chilean Biotechnology Crops resolution No. 1523 of 2001 Regarding GMOs.

Winter 2022/2023 Field Testing Program

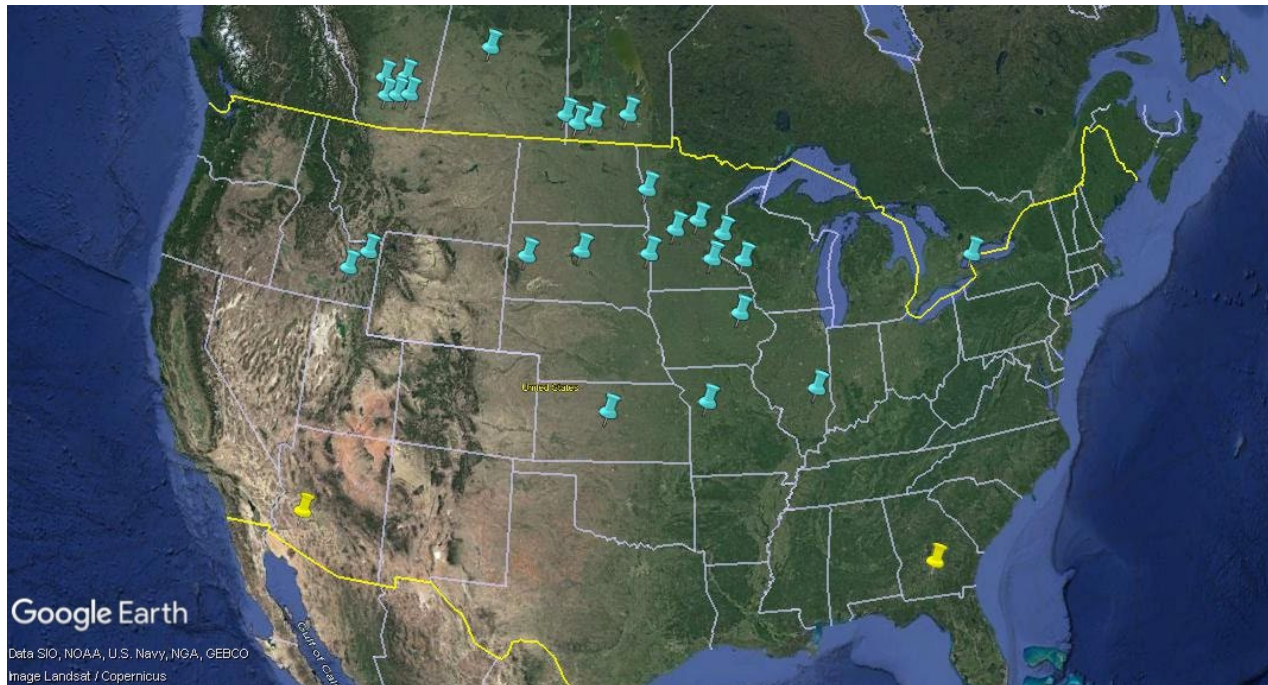
Generating Data Set to Support Farming Best Practices with Camelina



WDH3: Idaho (10/27)



Variety trial: Saskatchewan (10/15)



Program Scope-US/Canada

- **Agronomy Trials (winter Camelina)**
 - Developing standardized protocols to achieve best germination, stand establishment and yields
 - Planting alongside winter wheat to assess winter hardiness
- **Demonstration Fields (winter Camelina)**
 - Suitable for hosting grower events
- **Herbicide tolerance (yellow pins)**
 - Lead **spring** herbicide tolerant lines re-tested for over-the-top weed control in contra-season and seed scale-up in southern US

Commercial Priority: Over-the-top Broad Leaf Weed Control

Camelina growers need:

- Broadleaf weed control
- Grassy weed control

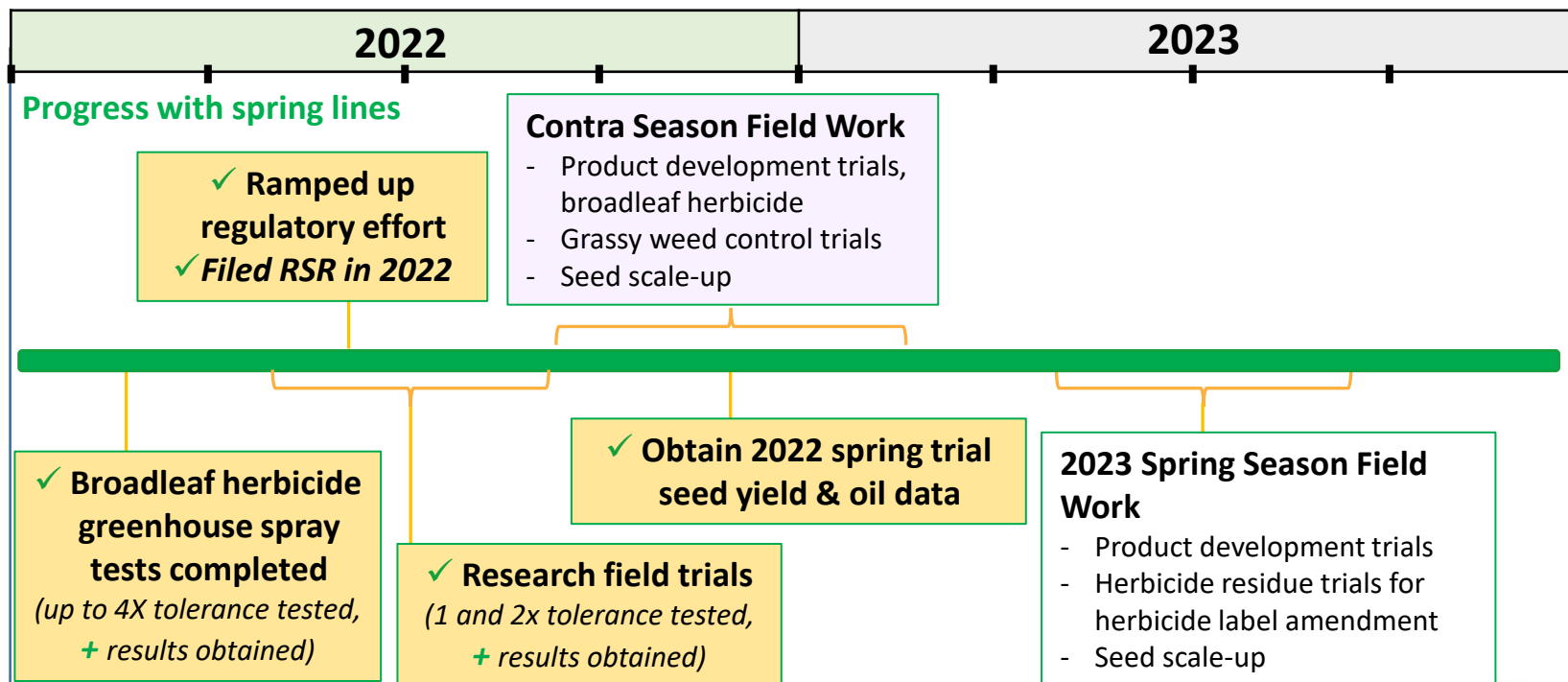
Winter 2022/2023 contra-season field trial showing robust herbicide tolerance
Lead HT event, Feb. 2023



GOAL: Develop elite Camelina containing robust weed control package for farmers

Recent milestones:

Confirmed over-the-top-spray broadleaf weed control and grassy weed control



KEY

- ✓ = over-the-top spray weed control work completed
- = over-the-top spray weed control work in progress
- = anticipated upcoming over-the-top spray weed control work

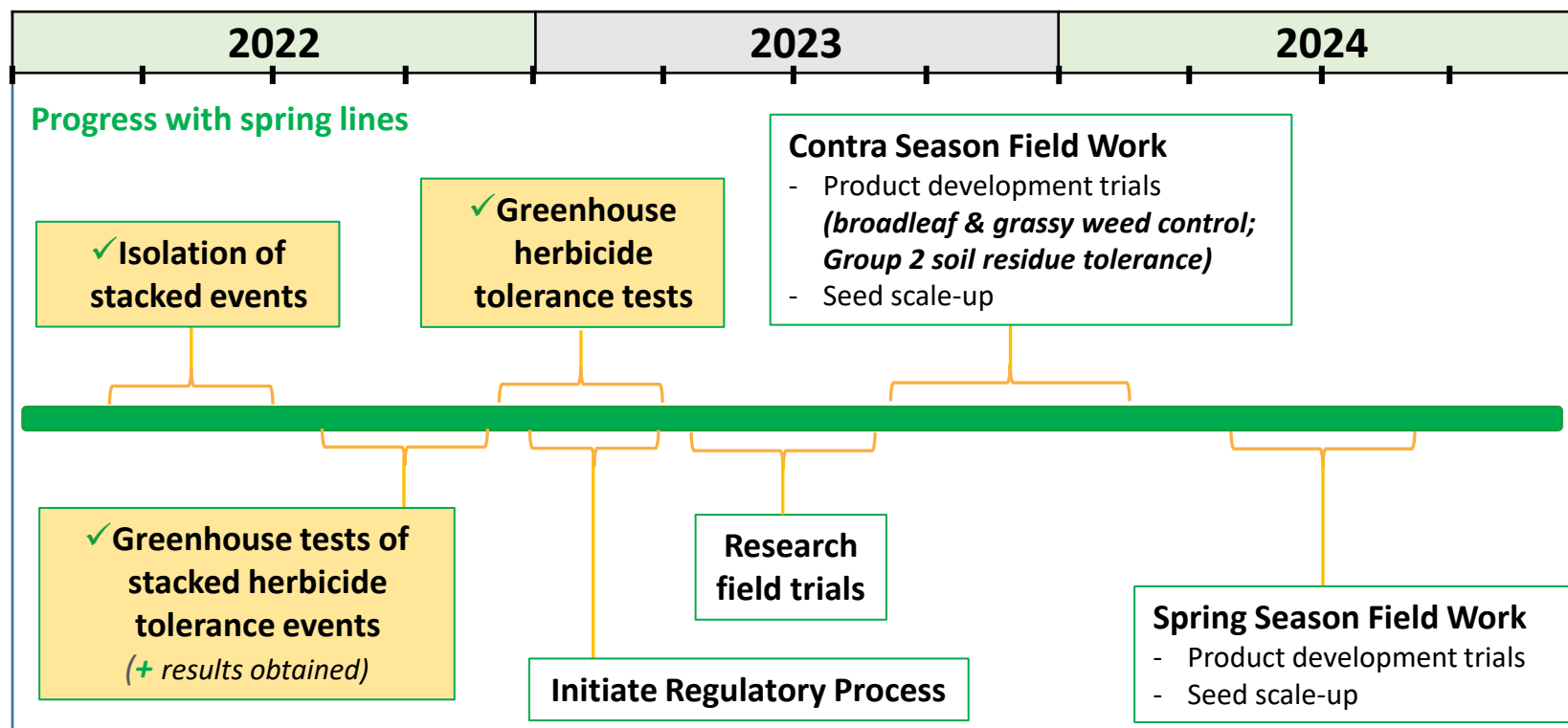
Goal: Herbicide Stack for Robust Weed Control

- Enable good emergence and growth of Camelina in presence of soil herbicide residues
- Expand land and acreage available for growing Camelina

GOAL: Progress stacked traits for over-the-top spray herbicide tolerance with tolerance to Group 2 soil residues (IMIs, SUs)¹

Recent milestones:

Encouraging GH results for stacked traits for over-the-top spray herbicide tolerance and Group 2 soil residues



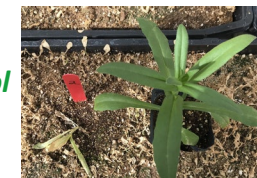
Greenhouse tests

Herbicide tolerant event



Spray (healthy) No spray (healthy)

Control line



Spray (dead) No spray (healthy)

KEY

- ✓ = stacked herbicide trait work completed
- = stacked herbicide trait work in progress
- = anticipated stacked herbicide trait work

¹IMIs = imidazolinones, SUs = sulfonylurea herbicides

Portfolio of Camelina Traits in Development

Trait	Camelina Phenotype	Trait Source	Comments
HT 1	Tolerance to over-the-top herbicide	Known gene	YTEN patent pending on HT Camelina
HT 1 plus Group 2 HT	Tolerance to over-the-top herbicide plus Group 2 herbicide soil residues	Known gene	YTEN patent pending on HT Camelina
HT 1 plus HPPD HT	Tolerance to over-the-top and HPPD soil residues	Proprietary HPPD ¹ trait	Recently added to portfolio Enable rotation in corn/soy belt
E3902	Increased seed oil	Yield10	5% increase in oil yield PCT/US2020/043063
C3004	Increased vigor and seed yield	Yield10	PCT/US19/49281
C3007	Increased seed oil Increased seed yield	U. Missouri ² Yield10	Issued US 10,883,113 PCT/US2021/045717
C3020	Increased seed oil	Yield10	PCT/US2020/032696
C3019, C3021, C3022	TBD-in testing	Yield10	PCT/US2020/032696
C3006	Increased seed yield and oil	Yield10	PCT/US2016/026767
C3026	TBD-in testing	Yield10	PCT/US2021/018743
Yield trait stack	Increased seed oil	Yield10	Patent in preparation

¹ Exclusive option to novel HPPD trait

² Exclusive License from U. Missouri for use in increasing oil content in crops

Omega-3 and PHA Bioplastic Programs

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

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

- Extended collaboration with Rothamsted through 2023
- Prioritizing development of EPA omega-3 in Camelina with robust technology package, followed by EPA+DHA omega-3 Camelina; Scale-up in 2023 (permits pending)



Omega-3 Camelina seed scale-up and field trials planted in spring 2022
Drone photo courtesy of Rothamsted Research, June 2022

PHA Market Opportunity

Growing global demand for biobased polymers

Development Highlights and Milestones

- Pilot scale activities
 - Produce seed at acre-scale and PHA for process development and product sampling
- PHA trait optimization R&D
 - Increase PHA content to 10-20% of seed weight
 - Demonstrate co-polymer production
 - Field test PHA winter Camelina lines
- Pursue collaborations with industry

Yield10 Q4 and FY 2022 Summary Financial Results

Investment ongoing to achieve key strategic objectives

Operating Results	Q4 2022	Q4 2021	FY 2022	FY 2021
Revenue	\$0.1 million	\$ 0.2 million	\$0.5 million	\$0.6 million
R&D Expense	\$ 1.9 million	\$ 1.6 million	\$7.8 million	\$6.2 million
G&A Expense	\$ 1.4 million	\$ 1.5 million	\$6.2 million	\$6.1 million
Net Loss	\$ 3.3 million	\$ 3.0 million	\$13.6 million \$2.76/share	\$11.0 million \$2.33/share

Balance Sheet

- \$4.3 M in cash, cash equivalents and investments at end of 2022
- Net operating cash usage of \$3.1 M for fourth quarter 2022 and \$11.4 M for FY 2022
- Estimate total net cash usage of approx. \$13 M to \$14 M for FY 2023¹
- Expect to book product revenue from harvest of Camelina grain in 2H2023
- No debt on the balance sheet

¹ Current as of date of conference call on March 14, 2023. Press release, including financial tables, available at www.yield10bio.com

On Track to Achieve Key Milestones in 2023 and Beyond

Corporate, Commercial and R&D Milestones	Period
Expand commercial activities targeting the Biofuel market <ul style="list-style-type: none"> - Form partnerships and/or sign offtake agreement(s) across the biofuel value chain - Advance discussions under MOUs with Mitsubishi and American Airlines - Obtain regulatory clearance for herbicide tolerance traits deployed in Camelina - Build commercial organization and capabilities consistent with capital light business model 	2023 <i>Ongoing</i> <i>Ongoing</i> <i>Ongoing</i> <i>Ongoing</i>
Execute on grower engagement program ensuring rapid offtake of Camelina grain; engage growers in 2023 production contract program, hold field events and build visibility for the benefits of growing Camelina <ul style="list-style-type: none"> - Engage growers to plant Camelina under contract and deliver grain to specified crushers - Build seed inventory to ramp up contracted acres of spring and winter Camelina 	2023 <i>Ongoing</i> <i>Ongoing</i>
Continue to build industry leading, differentiated Elite Camelina varieties <ul style="list-style-type: none"> - Generate field data and seed inventory to support launch of HT and stacked HT spring and winter Camelina - Plant spring Camelina field trials, including HT, yield, and omega-3 traits - Generate field data from 2022/2023 winter and 2023 spring field trial programs 	2023 <i>Ongoing</i> <i>Q2</i> <i>H2 2023</i>
Continue technology and commercial development activities, including seeking revenue generating industry collaborations to address other key market opportunities <ul style="list-style-type: none"> - Omega-3 oils, PHA bioplastics and trait licensing 	2023 <i>Ongoing</i>
Expand intellectual property portfolio	2023+

Yield10 (Nasdaq:YTEN) Investment Highlights

An Agricultural Bioscience Company

LEADERSHIP

Strong leadership and R&D team
(Boston, USA and Saskatoon, Canada)

VISION

Strategic business vision aligned with
decarbonization, climate change, food
security and the circular economy

MARKET FOCUS

Biofuel feedstock oil
>6 billion gallons of demand by 2030

TECHNOLOGY FOCUS

Differentiated technology platform
Strong trait pipeline
Advanced spring and winter Camelina
varieties

EXECUTION FOCUS

Herbicide tolerant Camelina
Certified seed scale up
Grower contracts
Commercial launch for biofuels

PARTNERING FOCUS

Pursuing value chain partners to secure
offtake agreements for biofuels





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