



Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: YTEN

CG AgriFood Tech Innovation Forum

Dec. 1, 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.

Yield10's Crop Innovation Platform

“Closed Loop Production of Sustainable Camelina Oilseed Products”

CO₂



Yield10 uses its “Trait Factory” to increase photosynthesis in Camelina and fix more CO₂ from air



Fixed carbon is targeted to:

- Increase seed yield and oil
- High value seed products

Sequestered Carbon

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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
Advanced spring and winter Camelina
varieties
Strong trait pipeline

EXECUTION FOCUS

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

PARTNERING FOCUS

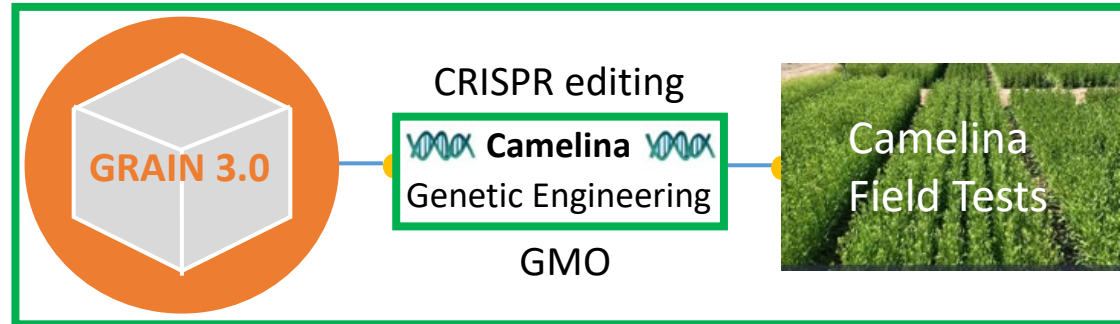
Pursuing value chain partners to secure
offtake agreements for biofuels



Yield10's Trait Factory and Business Models

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

Technology Platform - "Trait Factory"¹



Camelina Renewable Seed Products

1. Feedstock Oil (Biofuel)



2. Omega-3 Oil (EPA+DHA)



3. PHA Bioplastics



Yield10: Biofuels Commercial Development Plan

- **Now:** Launching proprietary Camelina with improved germplasm as low CI biofuels feedstock crop
- **Next:** Address growers needs with herbicide tolerance (*over-the-top weed control, tolerance to herbicide soil residues*) and disease resistance
- **Medium to long-term:** High-value Omega-3 (EPA, EPA+DHA) and PHA Bioplastic traits to significantly increase revenue per acre

¹ 21 Patent Families Pending

Yield10 Vision for Camelina

Closed Loop Production of Sustainable Camelina Oilseed Products

This Requires Developing Camelina for:

- **Seamless integration into rotations and highest farm returns**
 - Advanced varieties – cold tolerant, early maturing
 - Stacked herbicide package to match crop and chemical rotations
 - Higher seed oil and yield, increased protein meal value
- **Non-food winter cover crop – Regenerative Agriculture**
 - New crop rotation options, soil health/carbon, reduced nutrient runoff sustainability benefits
- **Food and fuel** - Camelina - increases **feedstock oil** and **protein meal**

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
 - Named Willie Loh, Ph.D., former Cargill executive, to the board of directors
 - Completed grower contracts for winter 2022/2023 planting; Plantings range from 30 to 160 acres
 - Seed scale up in progress to produce seed for 2023/2024 winter season grain production contracts
 - Activities underway supporting Camelina regulatory filings, variety registrations and branding



Building differentiated elite Camelina germplasm collection

- Intensive effort evaluating herbicide tolerance and downy mildew resistance traits
- Elite herbicide tolerant spring Camelina lines met performance criteria and lead lines are progressing in contra-season testing and seed scale-up
- Developing winter varieties to integrate into rotation with corn and soybean
- Spring program harvested across U.S. and Canada; evaluating data
- Winter 2022/2023 program planted across U.S., Canada, Argentina, Uruguay and Chile

Germplasm Overview: Early Commercial Lines

Value-Advantaged Spring and Winter Lines

E3902 (Spring Gene-Edited)



E3902 is a triple gene-edited line

- C3008a & b: Two different lipases edited to prevent lipid turnover
- C3009: Transcription factor that controls expression of enzymes in fatty acid biosynthesis pathway
- Lighter seed coat
- Consistent 5% increase in oil content
- USDA-APHIS non-regulated¹
- Recently designated non-regulated in Chile²
- Additional seed scale-up in contra-season underway soon

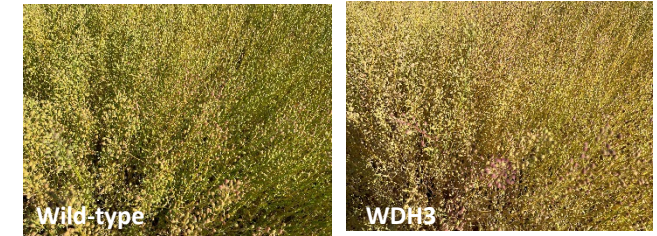
WDH2 (Winter Cold Tolerant)



Cold hardy winter Camelina line

- Adapted to very cold winter conditions in the Canadian prairies
- Secured growers for contracted Camelina grain production
- Seed production underway in winter 2022/2023 to increase seed inventory for grain production

WDH3 (Winter Short Cycle)



Early maturing winter Camelina line

- Adapted to winter growing conditions in the US
- Matures ~1 week earlier than industry leading winter lines
- Multi-acre seed production underway in winter 2022/2023 to increase seed inventory for grain production

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 Grain Contracting and Seed Production

Contracted with Growers in the US and Canada for Grain Production



- Grower contract activities complete for winter 2022/2023
- Growers mostly clustered in southern Alberta and Manitoba
- Farm plots range from 30 to 160 acres
- Harvest expected in summer 2023
- Seeking retail partnerships to expand grower outreach in 2023

Seed Production in Progress at Sites in the US, Canada, and Chile



- Winter program designed to produce quality seed to enable contracted acres in 2023
- WDH2, WDH3 and E3902 varieties in seed production

Contra-season WDH2 seed production, Chile

Field Report: Winter 2022/2023 Field Testing Program

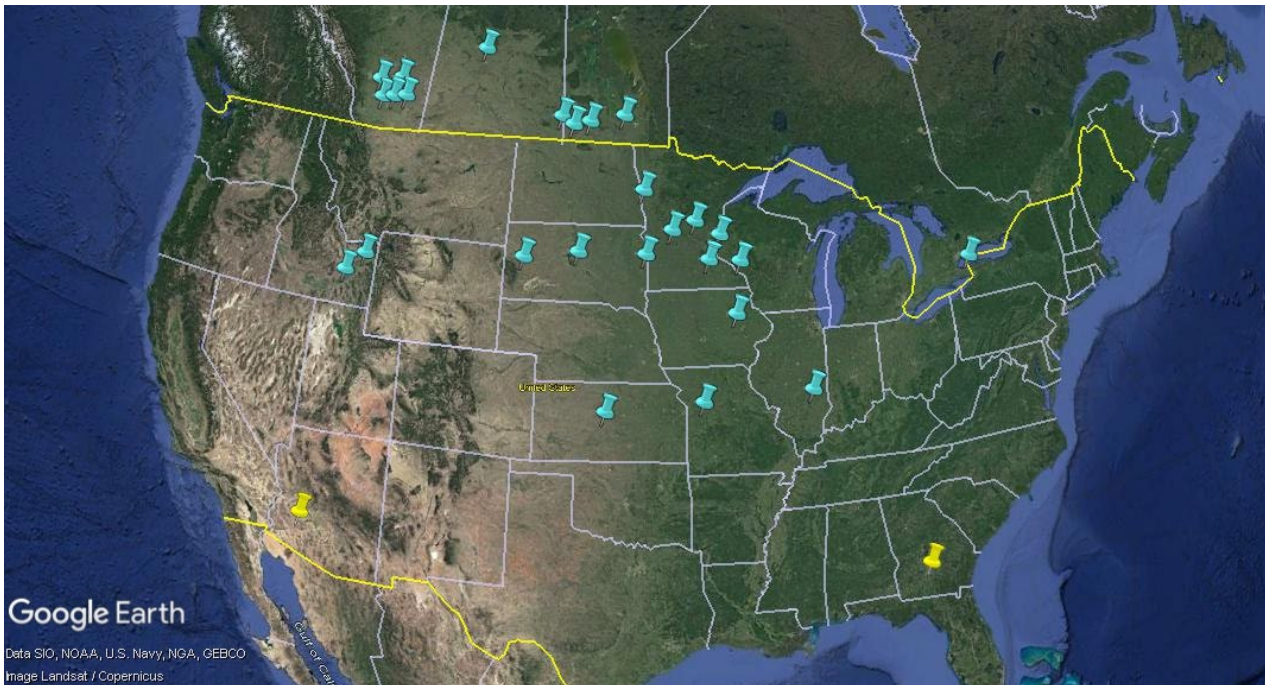
More than 20 sites in the US and Canada



WDH3: Idaho (10/27)



Variety trial: Saskatchewan (10/15)



Program Scope

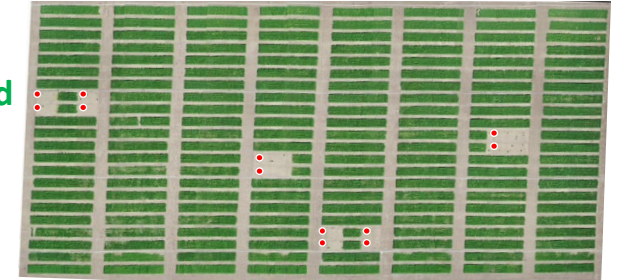
- **Herbicide tolerance (yellow pins)**
 - Lead **spring** herbicide tolerant lines for over-the-top weed control in contra-season testing and seed scale-up in southern US
- **Agronomy Trials (winter lines)**
 - Developing standardized protocols to achieve best germination, stand establishment and yields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

2022 R&D Priorities. Over-the-top spray weed control

Camelina growers need:

- Over-the-top spray broadleaf weed control
- Grassy weed control

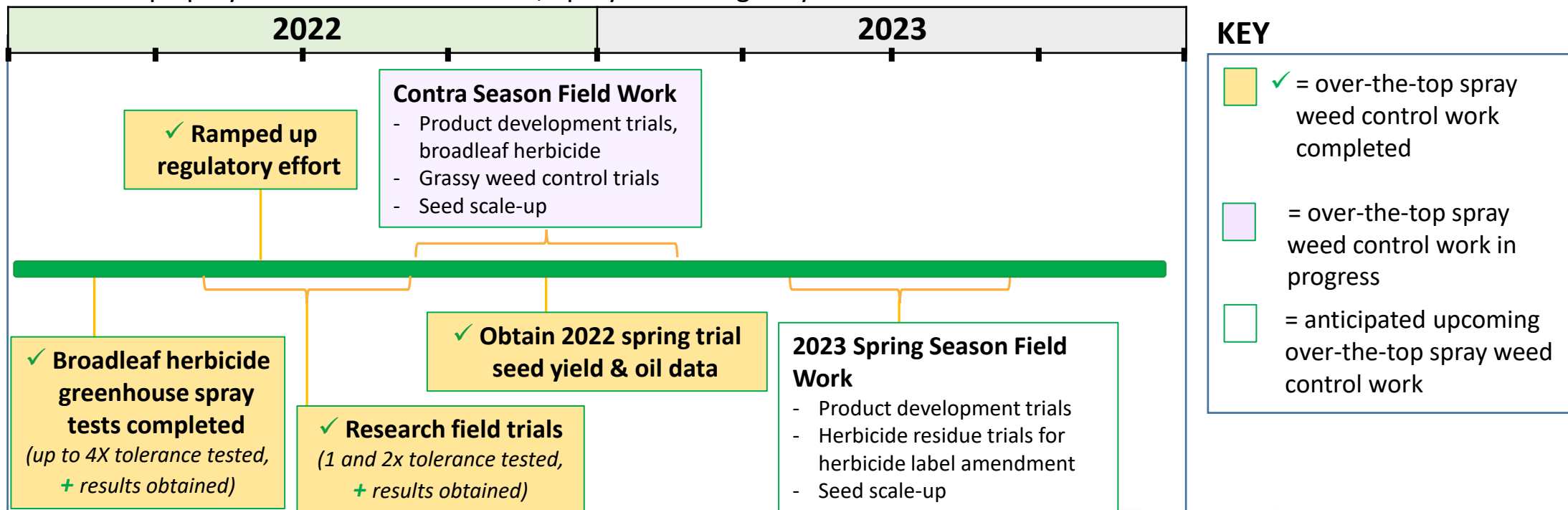
Spring 2022 research field trial showing robust herbicide tolerance



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

Upcoming work and milestones:

Over-the-top-spray broadleaf weed control; Spray tests for grassy weed control



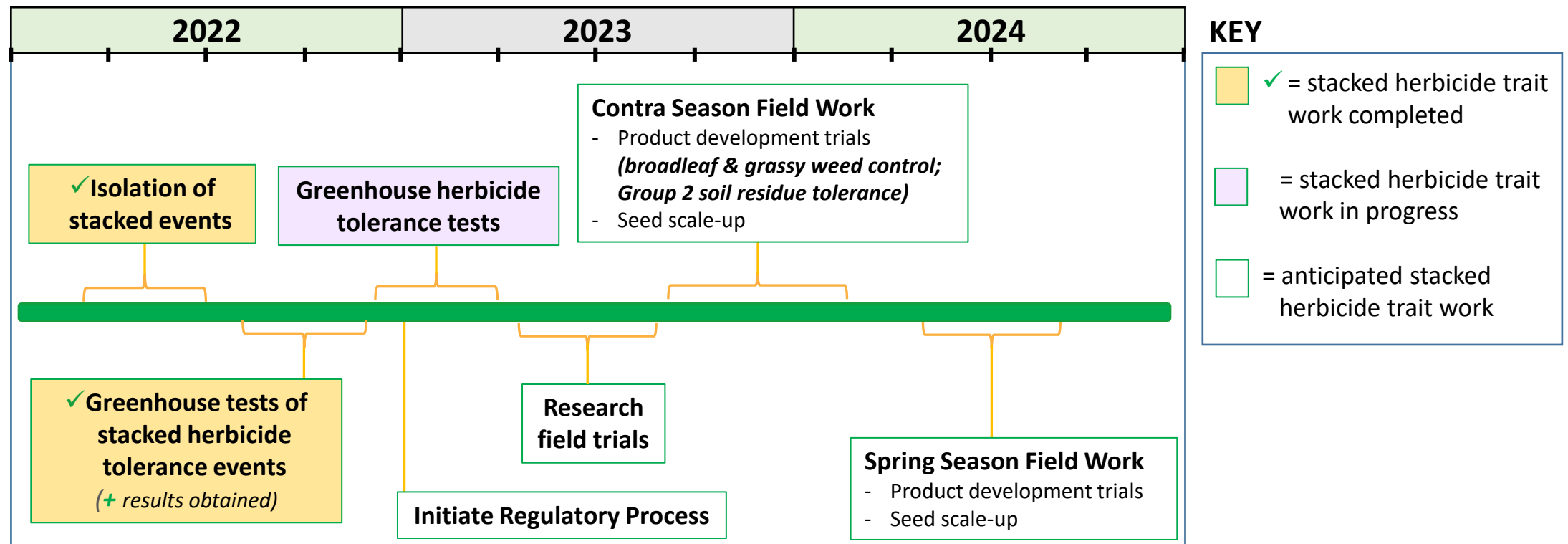
Stacked Over-The-Top with Group 2 Residue Tolerance

- Group 2 herbicide residues in soil affect the growth of Camelina
- Group 2 herbicide soil residue tolerance will expand acreage available for Camelina

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

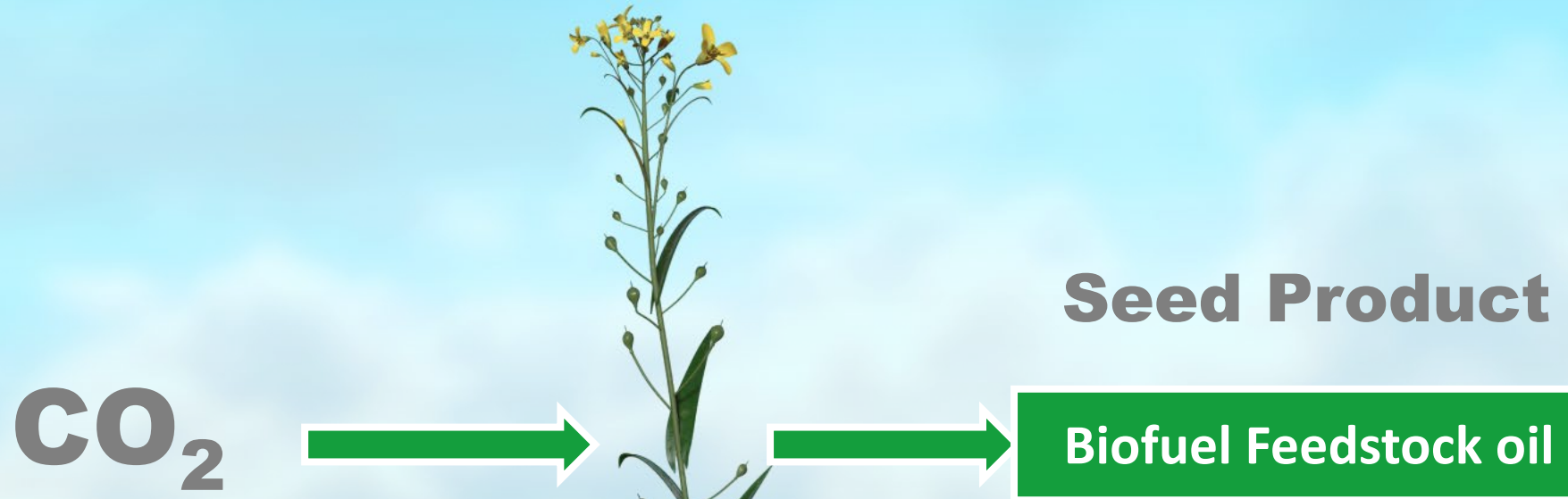
Upcoming work and milestones:

Stacked traits for over-the-top spray herbicide tolerance and Group 2 soil residues



¹IMIs = imidazolinones, SUs = sulfonylurea herbicides

Yield10: Camelina Biofuel Feedstock Oil Focus



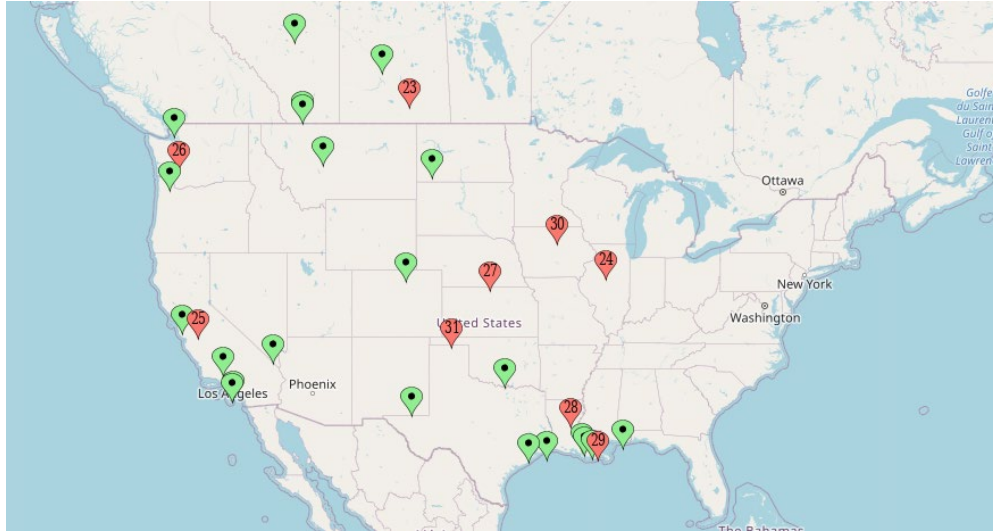
Tailwinds for increased vegetable oil production for decarbonizing biofuels

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, a grey rectangular box contains the text **Sequestered Carbon**.

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 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

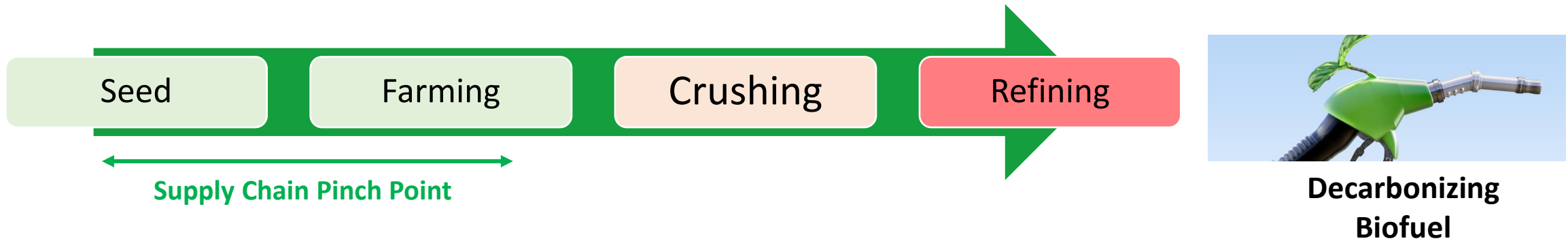
OIL — 25 Feb 2013 | 09:50 UTC — Houston

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

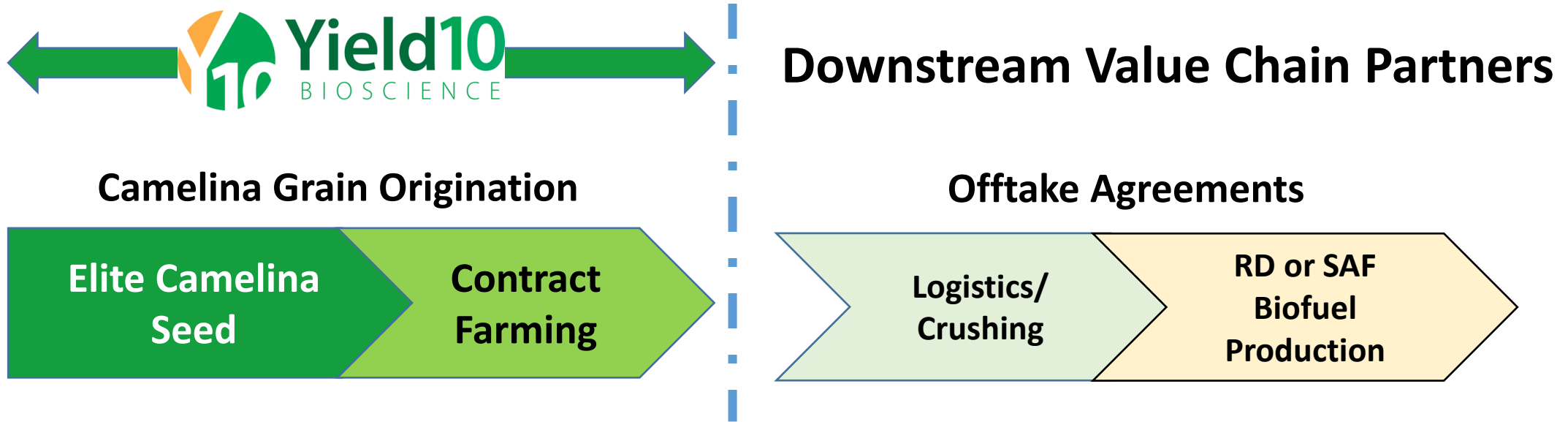
1. 10 new biofuels facilities in US/Canada announced in last ~9 months. , chart is not exhaustive
2. <http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide>

Oilseed Based Decarbonizing Biofuel Value Chain



- Options for additional vegetable oil supply to meet increasing biofuel demand
 - Plant more acres – eg. increased soybean and canola acres
 - Higher yield of oil per acre in current oilseed crops
 - **New crops – where do we get the acres ?**
 - Regions where canola and soybean perform poorly (dryland Pacific North-West)
 - How far North can you effectively grow Camelina as climate change impacts continue
 - Regenerative Ag - Winter crop vs winter fallow
 - Winter oilseeds with short growing cycles that enable double cropping

Yield10 Business Model for the Biofuel Value Chain



- Yield10 deploys proprietary Camelina seed on the farmer's land under contract with the right to purchase all the Camelina grain produced
- Similar to a Power Purchase Agreement

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 to address the estimated 6 billion gallon gap in supply for biofuels

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
- Commercial seed scale-up activities to enable progression from ~1,000 to 20,000+ acres for grain production
- Progress regulatory path for new varieties

Value Chain Players



Customers/Market Pull



PHA Bioplastic and Omega-3 Programs

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

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

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
- Prioritizing development of EPA omega-3 in Camelina with robust technology package, followed by EPA+DHA omega-3 Camelina
- Expanding the IP portfolio around omega-3 oils
 - Publication of patent application describing significant improvements to the technology for producing EPA and EPA+DHA; Expected to extend patent protection through 2040







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					
Potato Multiple traits		Research License Collaboration					

- Extended Simplot research license
- Forage Genetics research license expired due to their discontinuation of R&D investment in forage sorghum
- Additional opportunities for alliances to develop yield and seed oil content traits in key crops

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 2022 Summary Financial Results

Investment ongoing to achieve key strategic objectives

Operating Results	Q3 2022	Q3 2021	9-months 2022	9-months 2021
Revenue	\$0.1 million	\$0.1 million	\$0.4 million	\$0.5 million
R&D Expense	\$2.1 million	\$1.6 million	\$5.9 million	\$4.6 million
G&A Expense	\$1.5 million	\$1.5 million	\$4.7 million	\$4.6 million
Net Loss	\$3.5 million	\$ 2.4 million	\$10.3 million	\$8.1 million

Balance Sheet

- \$7.4 M in cash, cash equivalents and investments at end of third quarter 2022
- Net operating cash usage of \$ 2.7 M for third quarter 2022 and \$8.3 M for nine months 2022
- Estimate total net cash usage of approx. \$12.0 M to \$12.5 M for FY 2022¹
- No debt on the balance sheet

¹ Current as of date of conference call on November 14, 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 <i>-Identify partner(s) and/or sign offtake agreement(s)</i> <i>-Engage growers to plant Camelina under contract</i>	2022 <i>Ongoing</i> <i>Ongoing</i>
Build differentiated Elite Camelina germplasm collection <i>-First field tests of herbicide tolerant E3902 Camelina lines</i> <i>-Execute on R&D program to optimize PHA trait</i> <i>-Progress early commercial development of omega-3 oil in Camelina</i>	2022 <i>Complete</i> <i>Ongoing</i> <i>Ongoing</i>
Execute 2022 Field Testing and seed scale-up program <i>-Harvest 2022 spring field program</i> <i>-Execute 2022/2023 winter field test program</i> <i>-Execute seed scale up and production of spring and winter varieties</i>	2022 <i>Complete</i> <i>Ongoing</i> <i>Ongoing</i>
Secure revenue based strategic industry collaborations to address market opportunities <i>-Biofuels, PHA bioplastics, omega-3 and trait licenses</i>	2022-2023 <i>Ongoing</i>
Expand intellectual property portfolio	2022-2023+

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