



Yield10 Bioscience, Inc.

www.yield10bio.com

NASDAQ: YTEN

**Microcap Rodeo Presents:
Windy City Roundup 2022**

Oct. 12, 2022

Sustainable Growth Starts with a Seed

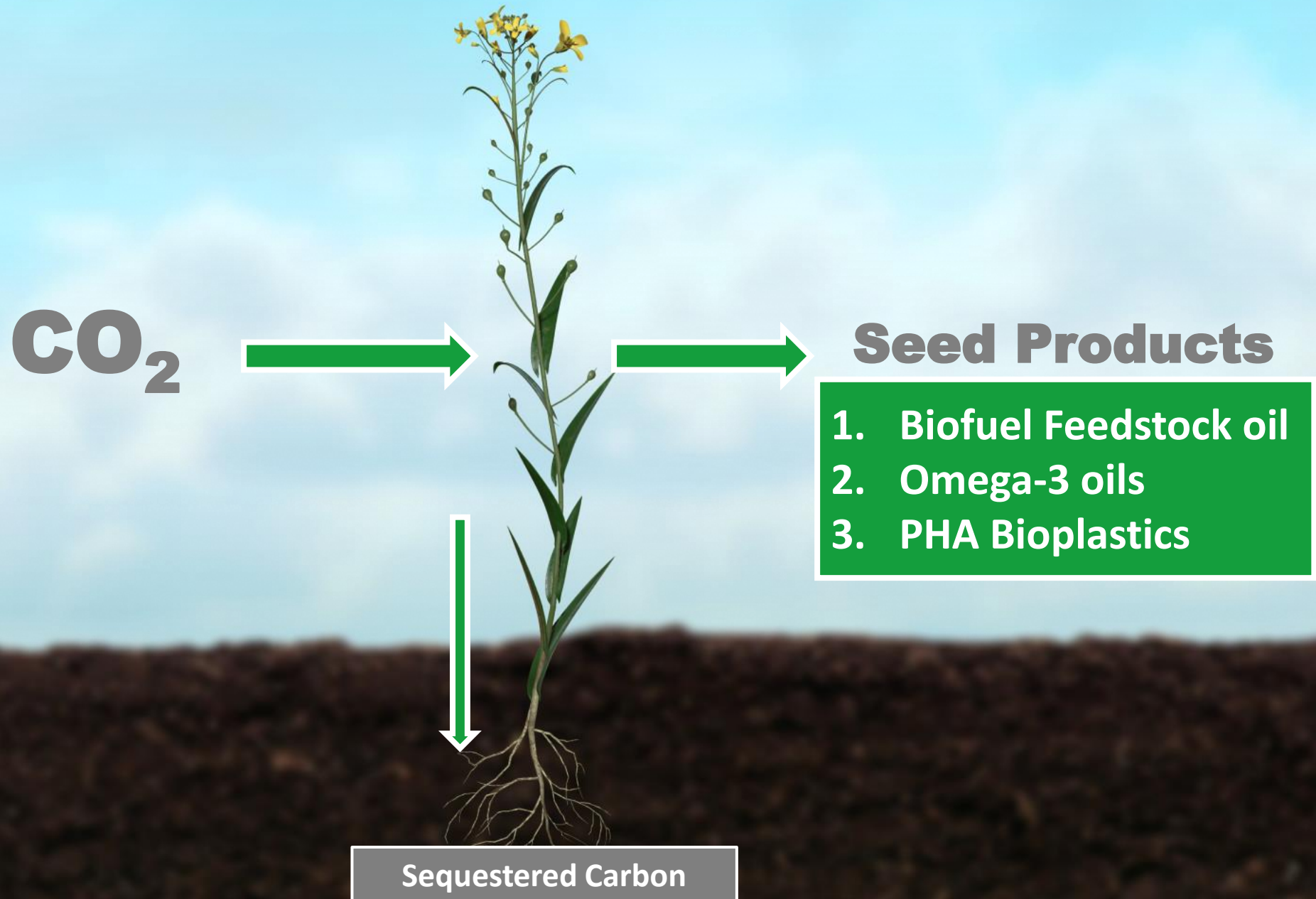


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The statements made by Yield10 Bioscience, Inc. (the “Company,” “we,” “our” or “us”) herein regarding the Company and its business may be forward-looking in nature and are made pursuant to the safe harbor provisions of the Private Securities Litigation 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 Camelina Platform Oilseed Crop



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

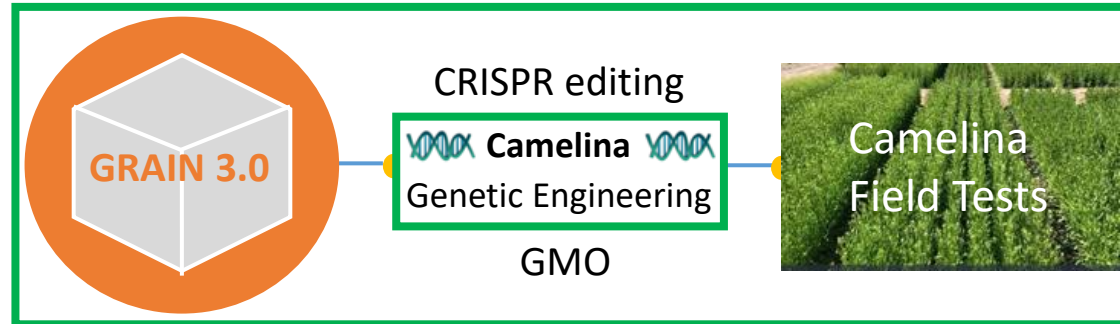
Pursuing value chain partners to secure
offtake agreements for biofuels



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+DHA) and PHA Bioplastic traits to significantly increase revenue per acre

¹ 21 Patent Families Pending

Why 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
- 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

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
 - Seed scale up nearing completion with WDH2 to produce seed for winter grain production contracts
 - Outreach to growers underway for contract planting in winter (2022/2023) for ~ 1,000 acres
 - Activities underway supporting Camelina regulatory filings, variety registrations and branding



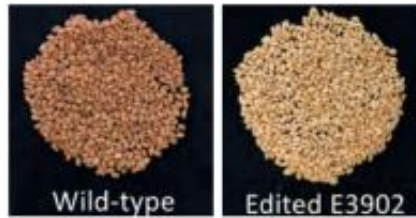
Building differentiated elite Camelina germplasm collection

- Intensive effort evaluating herbicide tolerance and downy mildew resistance traits
- On track to achieve goals of identifying herbicide tolerant spring Camelina lines for seed scale up
- Developing winter varieties to integrate into rotation with corn and soybean
- Broad based spring program nearing harvest in U.S. and Canada

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
- Additional seed scale-up in contra-season planned

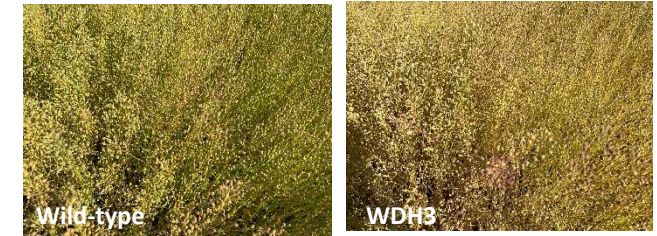
WDH2 (Winter Cold Tolerant)



Cold hardy winter Camelina line

- Adapted to very cold winter conditions in the Canadian prairies
- 2021/2022 winter growth season, 17 acres seed increase in Saskatchewan harvested
- Enables contracted Camelina grain production in 2022/2023 winter season
- Additional seed production planned in 2022/2023 winter season for 2023/2024 grain contracting

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
- 2021/2022 winter growth season, 0.2 acres seed increase in Idaho completed
- Additional multi-acre seed production in winter 2022/2023

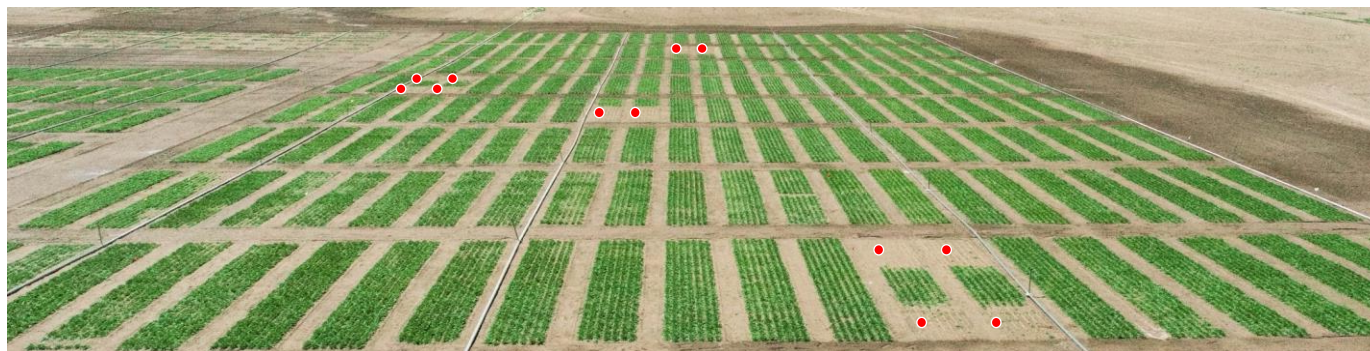
¹USDA-APHIS's Biotechnology Regulatory Services (BRS) confirmed that the use of CRISPR genome-edited traits C3008a, C3008b, and C3009 in Camelina plant lines does not meet the definition of a regulated article under 7 CFR Part 340 regulations.

Field Report: Spring 2022 Herbicide Tolerance Trials

Over-the-top spray trials in small plots. Group 2 herbicide residue trials in 2-row plots.

1. Trial Performance, over-the-top broadleaf spray. Plants currently at late seed set or at maturity

June 23, 2022. Drone picture after 1st spray application of broadleaf herbicide



● = Control lines sprayed with herbicide

July 1, 2022. Drone picture ~ 1 week after 2nd spray of herbicide



2. Trial Performance, Group 2 soil residues. Plants currently at late seed set or at maturity

June 28, 2022. Camelina growth in presence of IMI herbicide in soil

1 X residue IMI residue in soil



"IMI" tolerant line.
Normal growth

Conventional Camelina.
Growth impaired

2 X residue IMI residue in soil



"IMI" tolerant line.
Normal growth

Conventional Camelina.
Growth impaired

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

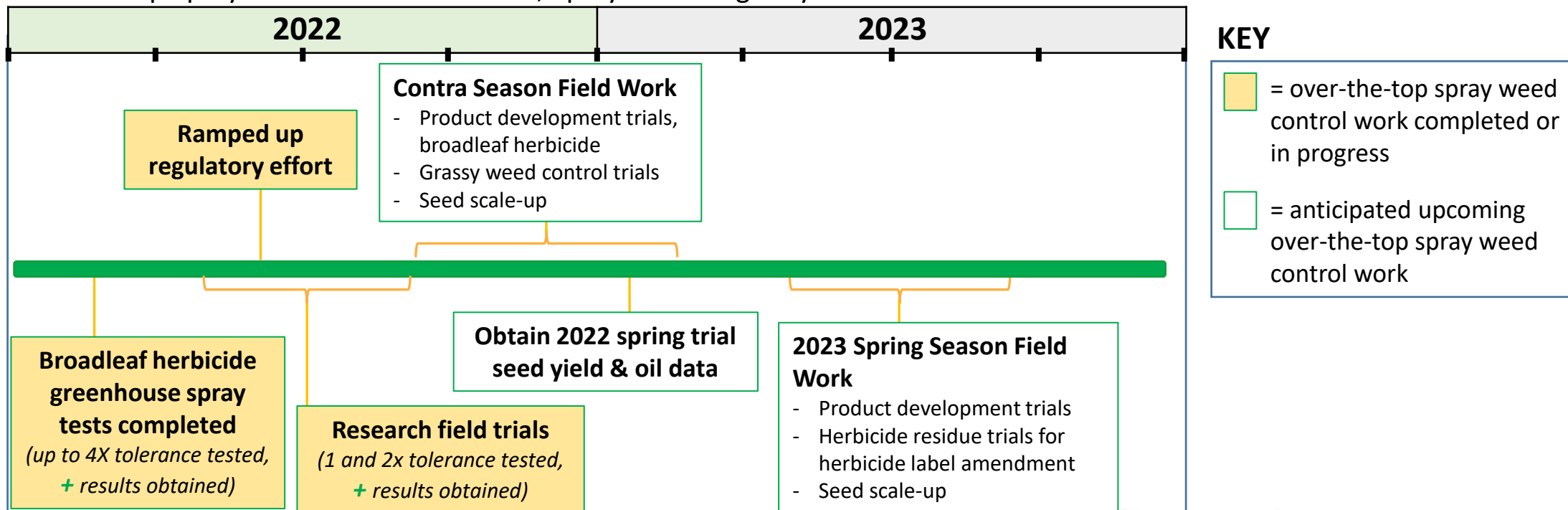
Camelina growers need:

- Over-the-top spray broadleaf weed control + tolerance to soil residues from prior crop
- Grassy weed control

GOAL: Develop high quality Camelina lines containing robust herbicide package for farmers

Upcoming work and milestones:

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



Initiate planting for multi-site 2022/2023 winter field trials

- Germplasm variety trials in different locations
- Expanded winter germplasm breeding program underway
 - **Key targets:**
 - Earlier maturation for improved integration with corn and soy rotations in the mid-west
 - Higher seed oil content and yield

Winter contra-season seed production for spring varieties

- Yield10 herbicide tolerant lines, continued testing of best events with broad leaf herbicide
- Scale-up of best herbicide tolerant lines
- Testing of Camelina lines with herbicide for grassy weed control

2022 Commercial Winter Season Production Priorities

Seed production activities focused on ramp up of quality seed for planting to enable contracted acres for grain production in support of commercial objectives

- Contract seed production for winter Camelina lines WDH2, WDH3 to ramp up contracted acres
- Contra-season seed production for spring varieties including E3902, herbicide tolerant lines

2021/2022 winter scale-up of WDH2 winter Camelina seed
Saskatchewan, Canada



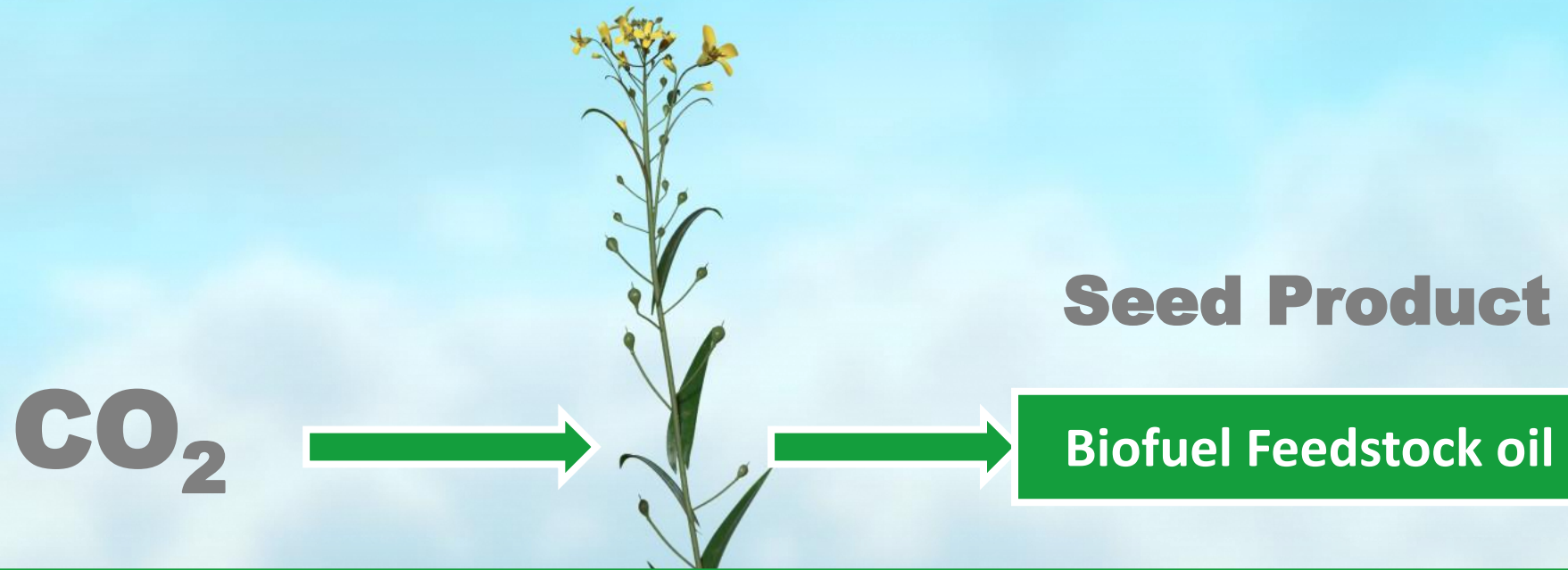
Purpose: Contracted grain production 2022-2023

Spring 2022 tented seed production of spring Camelina
British Columbia, Canada



Purpose: Certified seed production 2022-2023

Yield10: Camelina Biofuel Feedstock Oil Focus



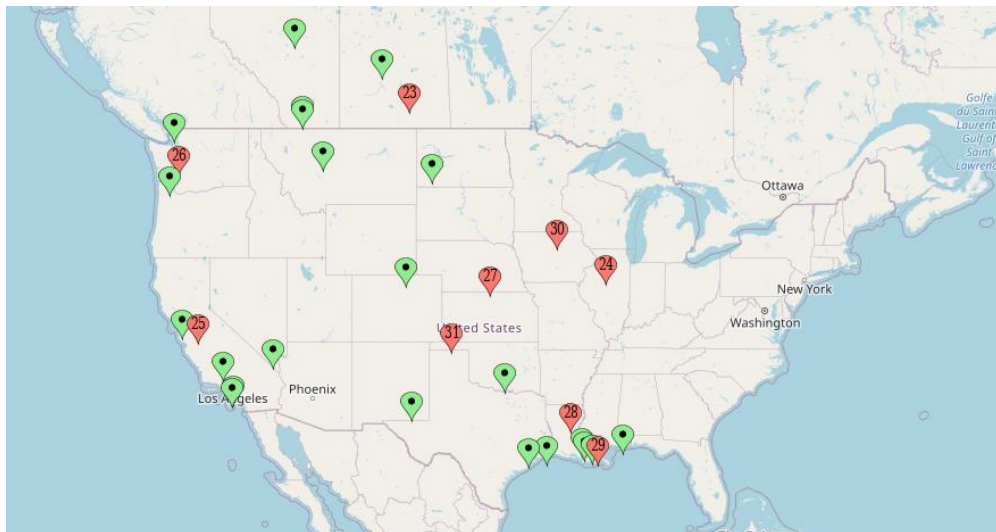
Tailwinds for increased vegetable oil production for decarbonizing biofuels

Sequestered Carbon

The diagram shows a green arrow pointing from the roots of the plant down into the soil, indicating carbon sequestration. The soil is depicted as a dark, textured layer at the bottom of the image.

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>

Tail Winds for Biofuel Production

Climate change initiatives supporting Ag, biofuels and cover cropping

N. America Policy Drivers

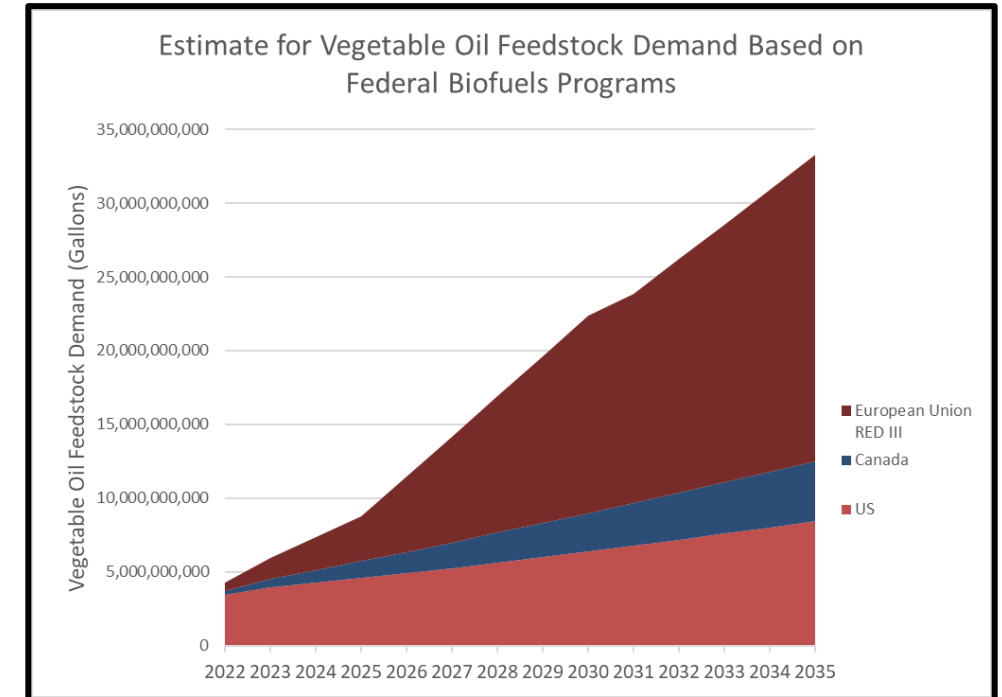
U.S. Inflation Reduction Act of 2022

- Goal: Decarbonize the U.S. economy
- \$20 billion for climate-smart agricultural practices
 - Cover cropping
- Investments in rural communities

Canada: 2030 Emissions Reduction Plan (2022): Clean Air, Strong Economy

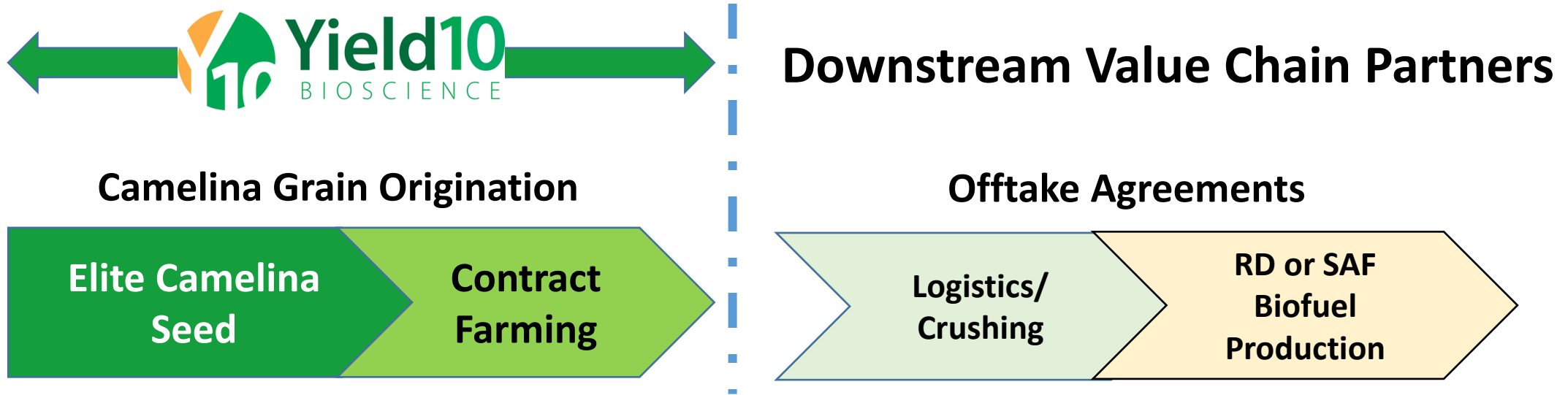
- Sets national targets for greenhouse gas emissions
- Clean technologies

Growing Global Demand



- Biofuel supply chain constrained by feedstock supply
- A major opportunity for new winter cover crops like Camelina

Yield10 Business Model for the Biofuel Value Chain



- Yield10 deploys proprietary Camelina seed on the farmers land under contract with the right to purchase all the Camelina grain they produce
- 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 1,000 to 20,000 acres for grain
- Progress regulatory path for new varieties

Value Chain Players



Customers/Market Pull



Cover Crop Partnerships Across the Value Chain

Nuseed, bp partner on carinata for biofuel production

By Nuseed | February 02, 2022

Nuseed on Feb. 1 announced that it has entered into a long-term strategic offtake and market development agreement with BP Products North America Inc. (bp), an affiliate of BP p.l.c., that will see bp, or its affiliates, purchase Nuseed Carinata oil that it plans to process or sell into growing markets for the production of sustainable biofuels.

Nuseed Carinata is a non-food cover crop that can be used to produce low-carbon biofuel feedstock that is independently certified, sustainable and scalable.

Increased global demand for biofuels is



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SOURCE: Nuseed

ExxonMobil helps GCEH advance renewable diesel, camelina projects

By Global Clean Energy Holdings Inc. | February 09, 2022

Global Clean Energy Holdings Inc. is advancing its renewable diesel production through an agreement with ExxonMobil, which will invest \$125 million with an option to acquire up to a 25 percent equity stake in the company. The investment, outlined in filings with the U.S. Securities and Exchange Commission, will help Global Clean Energy grow its proprietary camelina business in key farming regions in the United States and accelerate expansion into Europe and South America.



Bunge, CoverCress, Chevron taking us into the future and into the past

May 9, 2022 | Jim Lane

[Tweet](#) [Share](#) [Mail](#) [Share](#)



Monday - August 1, 2022

Bayer expands existing investment to acquire majority share in sustainable lower carbon oilseed producer CoverCress Inc.

Establishing Camelina as a Replenishable Reserve

Yield10 Vision for Camelina

- Enable the highest Camelina grain product value/acre
 - **Seamless integration and highest farm returns** – securing acres *“owning the well”*
- Winter cover crop – soil health, carbon, and sustainability benefits
- Increases production of oil and protein meal (*“**food and fuel”**”*)
- Co-produce oil and PHA bioplastic – zero waste biodegradable packaging
 - Higher value crop, potential to allocate carbon savings from petroleum plastics to feedstock oil? – **Negative CI feedstock¹**

1. CI reduction is based on Yield10's internal estimates of carbon savings versus the production of either petroleum plastics or bioplastics from bio-fermentation. See Yield10's white paper *“Biofuels and Bioplastics Commercial Development Plan”* for additional details.

On Track to Achieve Key Milestones in 2022 and Beyond

Corporate, Commercial and R&D Milestones	Period
Expand commercial activities targeting Renewable Diesel market <ul style="list-style-type: none"> - Engage growers to plant Camelina under contract - Form value chain partnerships and/or sign offtake agreement(s) - Execute seed scale up and production of spring and winter varieties 	2022 Ongoing Ongoing Ongoing
R & D: Continue to build differentiated Elite Camelina germplasm collection <ul style="list-style-type: none"> - Field test herbicide tolerant E3902 Camelina lines - Harvest 2021 winter and 2022 spring Camelina field tests - Complete planting of 2022 winter field program 	2022 Ongoing Ongoing Ongoing
Continue technology and commercial development activities, including seeking industry collaborations to address other market opportunities <ul style="list-style-type: none"> - Trait licensing, omega-3 oils and PHA Bioplastics 	2022-2023 Ongoing
Expand intellectual property portfolio	2022-2023+

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