Yield10 Bioscience, Inc.

www.yield10bio.com

Link to Grower Information

Camelina for Winter Planting

This slide deck is intended to provide information to growers

June 21, 2022

Sustainable Growth Starts with a Seed

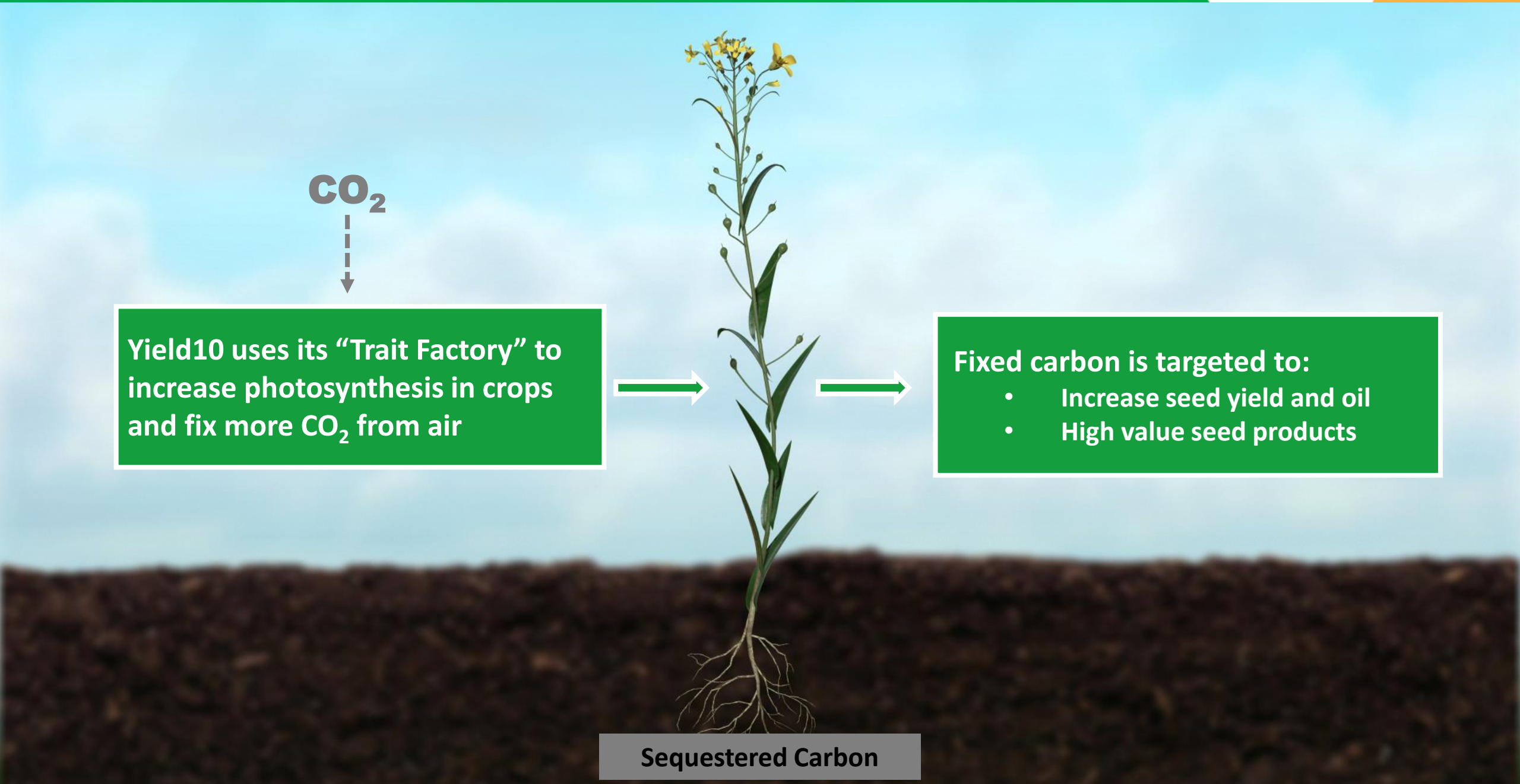
Safe Harbor Statement*

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



Overview of Yield10's Camelina Program

How - 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 (EPA+DHA)**
3. **PHA Bioplastics**

Yield10: Biofuels Commercial Development Plan

- **Now**: Launching proprietary Camelina with improved germplasm as low CI biofuels feedstock crop
- **Short-term**: GM herbicide tolerance for over-the-top herbicides plus soil residues
- **Long-term**: High-value Omega-3 (EPA+DHA) and PHA Bioplastic traits to significantly increase revenue per acre

To read more: Link to our Commercial Plan White Paper

1. 21 Patent Families Pending

Camelina's Value Advantages vs Other Crops

Revenue Streams[1]


- Low CI biofuels feedstock (EPA RINs Credits)
- Animal feed (protein meal)

Robust Growth


- Drought tolerant
- Cold tolerant
- Natural disease resistance

Winter Cover Crop


- Short maturity allows double/relay cropping
- Improved soil health & nutrient runoff management

Carbon Savings

- Attractive carbon profile
- Cover cropping = additional carbon sequestration

Scalability

- Small acreage today
- Little to no land usage competition for winter

Improvement Potential

- Little history of selective breeding/gene editing
- Growth in seed yield

Genetic Engineering

- GRAIN – proprietary oil & yield trait targets
- Readily segregated from commodity export crops

Economics

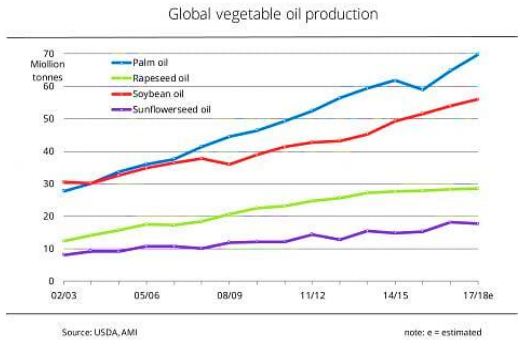
- Economically viable today (high oil content)
- Huge upside potential

1. Camelina qualifies for the Environmental Protection Agency's Renewable Fuel Standard pathway credits for class 4 and 5 biofuels

Feedstock Supply Challenges in Biofuels

Pressures on Vegetable Oil Supply

- Steady growth in vegetable oil usage – price pressures[1]
- ***5 billion gallons*** of new demand for RD projects in the US[2]



Challenges for Oil Companies

- "***Owning the Well***" – How to secure supply for renewable diesel facility investments?
- ***Carbon Index*** – lower CI renewable diesel feedstock
- ***Food vs Fuel*** – how to procure vegetable oil supply without competing with food resources

- Where does the additional 5 billion gallons of feedstock come from?
  - Add 60 million acres of soybean?
- Limited acres opens opportunities for new oilseed crops
  - Use acres currently not productive with soybean and canola
  - Re-use acres through oilseed cover cropping

Developing Camelina as, high yield, low carbon-index and high revenue crop for biofuel feedstock

1. https://www.biofuelsdigest.com/bdigest/2018/02/25/vegetable-oil-production-projected-to-reach-a-new-high/
2. http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide

Spring Camelina: An Emerging Crop for Marginal Land

Spring Camelina is an oilseed crop which establishes rapidly – harvested in 90-100 days

- Spring rotation crop with wheat, pulses and Canola
  - Can also be overwintered in the Southern US
- Robust – can be grown on marginal land, drought resistant
- Sustainability advantages - low carbon index
- Improvement Potential - Little history of selective breeding/gene editing

Camelina - Oil Markets Today (Non-Transgenic)

- High-value protein meal for animal feed
- High ALA oil for animals/aquafeed
- Low CI feedstock oil (renewable diesel)

Winter Camelina - Commercial Opportunity in Cover Cropping

How do we fulfill increased vegetable oil demand given limited farmland?

Commercial Opportunities –

- Mono-cropping Winter Camelina to protect income against drought and heat risks

- Double or Relay cover cropping Winter Camelina with other crops (soybean, pulses, corn) to increase harvestable oil/acre

Long-Term Opportunity
Camelina Double Cropping with Soybean[2]

Soy @ 3000 lbs/acre, 20% oil	= 600 lbs. of oil
+ Camelina @ 1400 lbs/acre, 40% oil	= 560 lbs. of oil
	= 1160 lbs. of oil

Photo: Russ Gesch, USDA Soil Conservation Research Lab
https://tinyurl.com/ucfduzcz

1. *http://www.biodieselmagazine.com/articles/2517318/renewable-diesels-rising-tide*
2. Assumes no yield drag for soybean, likely to require shorter maturity for winter Camelina. See Slide 20 for recent research on cropping systems.

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 under greenhouse and field conditions

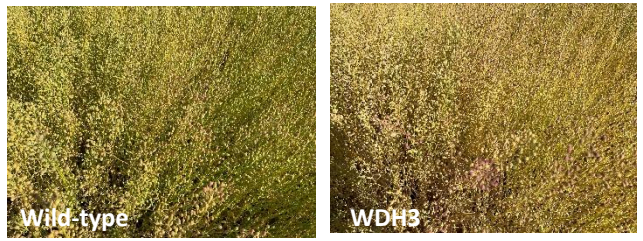
USDA-APHIS non-regulated

WDH2 (Winter Cold Tolerant)

Cold hardy doubled haploid winter Camelina line

- Adapted to very cold winter conditions in the Canadian prairies
- 2021/2022 winter growth season, 17 acres seed increase in Saskatchewan

WDH3 (Winter Short Cycle)



Early maturing doubled haploid 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

Establishing Camelina as a Replenishable Reserve

Vision for Winter Camelina

- Enable the highest seed product value/acre
  - **Highest farmer 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"***)
- Developing elite herbicide tolerant Camelina varieties – what farmers want!
- Value-added PHA bioplastic trait – zero waste biodegradable packaging
  - Higher value crop, potential to allocate carbon allocation - savings from petroleum plastics to feedstock oil? – ***Negative CI feedstock[1]***

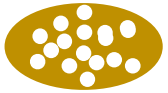
1. CI reduction is based on Yield10's internal estimates of carbon savings versus the production of either petroleum plastics or bioplastics from bio-fermentation See Yield10's white paper "*Biofuels and Bioplastics Commercial Development Plan*" for additional details.

Long-Term: PHA Trait for Significantly Increased Revenue

PHA: Biodegradable High-Performance, and High-Value ($2.50/lb) Bioplastics

Increase Photosynthesis to Capture more Carbon (CO_2) from the Air

Reprogram Camelina with genes from a PHA microbe, optimize PHA using GRAIN



Target Carbon to PHA Bioplastic in Seed

Seed Processing

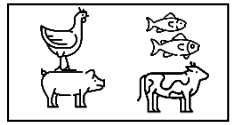
Feedstock Oils

+

PHA Bioplastics

+

Protein Feed



2020 - PHA Camelina plants at U.S. Field Test

2020	2021	2022	2023 ---
Field tests 6% PHA in seed Best lines selected	Seed scale up of best lines	Acre scale	Pilot scale production Product prototyping →
	2nd gen line development: increase seed Bioplastic >10-20% →		
	Develop and execute the regulatory strategy →		
	Business development (value chain partners) →		

Information for Contract Growing with Yield10

Winter Camelina as a Cover Crop

Winter Camelina line flowering in Idaho. May 2021

Winter Camelina line at maturity in Idaho. June 2021

Due to the extremely strong cold tolerance of winter Camelina, it is an excellent option as a cover crop as well as to provide additional cash flow to growers.

- Establishes quickly
- Winter hardy
- Early harvest timing
- After harvest crop residue is easy to manage

Growing Information for Winter Camelina

- Field Selection
  - Winter Camelina grows best on well drained soils. Due to limited in crop herbicide options for broadleaf weeds, growers should select fields with low weed pressure
  - Camelina is sensitive to Group 2 herbicide residues and should not be planted if fields that have had applications of these chemistries Canola plant back restrictions apply to Camelina.
- Equipment requirements – No special equipment requirements
  - Seeding - Camelina can be planted with conventional grain drills or broadcast on fields
  - Seeding Rate – 6 lb/acre
  - Harvest – has pod shatter resistance and can be straight cut using conventional combine.
    - Due to the small seed size care needs to be taken setting the combine to prevent losses

Growing Information for Winter Camelina

Winter Camelina line growing in Saskatchewan. June 2020

- Growing Season
  - We recommend planting winter camelina in early September so that the plants have approximately three weeks to establish before going into cooler winter temperatures
  - Expected harvest timing is late June to early July in Alberta, Montana, and Idaho depending on the geography and seasonal variation
- Fertility
  - Winter Camelina has lower fertilizer requirements than other brassicas like Canola and we recommend targeting 80% of recommended rates for area average Canola yields based on soil sample results

Growing Information for Winter Camelina

- Weed Control
  - If warranted, a pre-seed burn down application of glyphosate would be beneficial
  - Due to no current in crop broadleaf weed control it is recommended to apply a pre-emergent herbicide such as ethalfluralin or trifluralin
  - In-crop control options for grassy weeds
- Diseases
  - Resistant to most diseases but is susceptible to Downy Mildew and Sclerotinia
- Insects
  - At this time there has been no insect pressures identified as having economic impact on winter Camelina in Alberta, Montana or Idaho
- Harvest Information
  - Growers should target a harvest moisture of 8% or less (similar to other brassicas like Canola)

Winter Camelina Contracting with Yield10

https://www.yield10bio.com/camelina-production-contracts-for-farmers

- Yield10 Bioscience is offering growers 100% offtake production contracts with net returns similar to Canola
  - Expected average dry land yields around 1400 lb/ac
- No upfront seed costs
- Guaranteed minimum return on verified planted acres

For More Information Contact:

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Website: https://www.yield10bio.com/camelina-production-contracts-for-farmers
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