

Green Plains

Investor Presentation

February 2022

Forward-Looking Statements

This presentation includes forward-looking statements that reflect management's current views of company performance, industry conditions and future economic environment. These statements are based on assumptions and various factors that are subject to risks and uncertainties. Green Plains has provided additional information about such risks and uncertainties that could cause actual results to differ materially from those expressed or implied in its reports filed with the Securities and Exchange Commission.

Forward-looking statements are made in accordance with safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements are based on current expectations which involve a number of risks and uncertainties and do not relate strictly to historical or current facts, but rather to plans and objectives for future operations. These statements include words such as "anticipate," "believe," "continue," "estimate," "expect," "intend," "outlook," "plan," "predict," "may," "could," "should," "will" and similar words and phrases as well as statements regarding future operating or financial performance or guidance, business strategy, environment, key trends and benefits of actual or planned acquisitions.

Factors that could cause actual results to differ from those expressed or implied are discussed in this report under "Risk Factors" or incorporated by reference. Specifically, we may experience fluctuations in future operating results due to a number of economic conditions, including: disruption caused by health epidemics, such as the COVID-19 outbreak; competition in the ethanol industry and other industries in which we operate; commodity market risks, including those that may result from weather conditions; financial market risks; counterparty risks; risks associated with changes to government policy or regulation, including changes to tax laws; risks related to acquisitions and disposition activities and achieving anticipated results; risks associated with merchant trading; risks related to our equity method investees and other factors detailed in reports filed with the SEC.

We believe our expectations regarding future events are based on reasonable assumptions; however, these assumptions may not be accurate or account for all risks and uncertainties. Consequently, forward-looking statements are not guaranteed. Actual results may vary materially from those expressed or implied in our forward-looking statements. In addition, we are not obligated and do not intend to update our forward-looking statements as a result of new information unless it is required by applicable securities laws. We caution investors not to place undue reliance on forward-looking statements, which represent management's views as of the date of this report or documents incorporated by reference.

This presentation also includes estimated projections of future operating results. This information is not fact and should not be relied upon as being necessarily indicative of future results; the projections were prepared in good faith by management and are based on numerous assumptions that may prove to be wrong. Important factors that may affect actual results and cause the projections to not be achieved include, but are not limited to, risks and uncertainties relating to the company and other factors described under "Risk Factors" sections of the Company's Annual Report on Form 10-K . Actual results may differ materially from those contained in the estimates. Accordingly, there can be no assurance that the estimates will be realized.

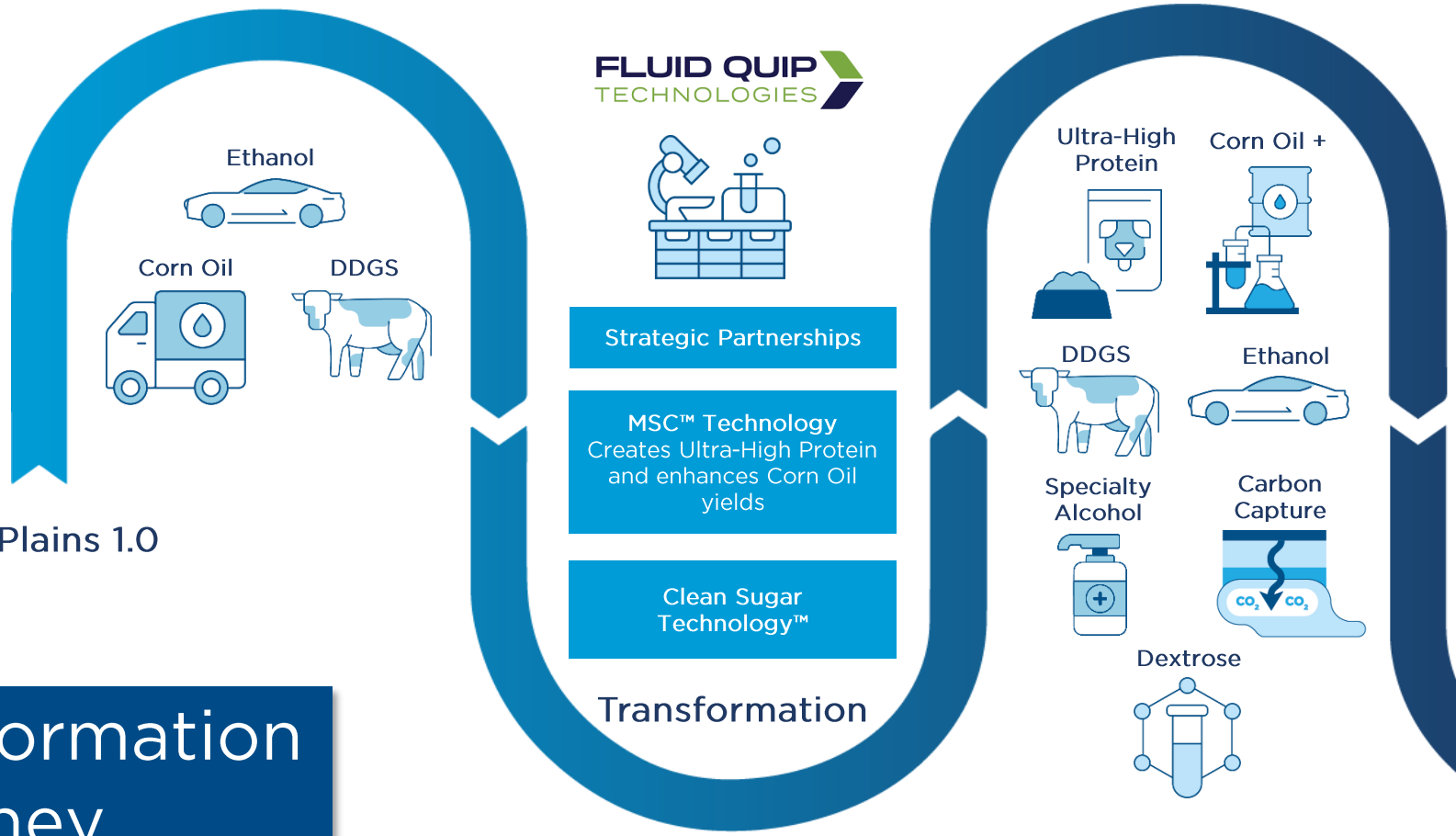
Neither the SEC nor any other regulatory body has passed upon the accuracy or adequacy of this presentation. Any representation to the contrary is a criminal offense. Except as otherwise indicated, this presentation speaks as of the date hereof. The delivery of this presentation shall not, under any circumstances, create any implication that there has been no change in the affairs of the company after the date hereof.

Certain of the information contained herein may be derived from information provided by industry sources. While the company believes that such information is accurate and that the sources from which it has been obtained are reliable, it has not independently verified data from these third-party sources.

Transforming to the Biorefinery Platform of the Future

Green Plains (GPRE) is transforming from traditional ethanol into a **sustainable biorefinery platform**, innovating through ag technology to produce higher-value products with stable cash flows, for tomorrow's sustainable economy

Investments in essential technology, infrastructure and strategic partnerships are creating our *AgTech platform for sustainable ingredients*



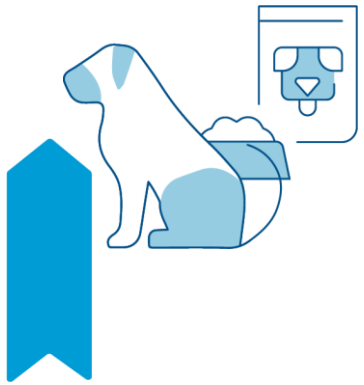
Our Transformation Journey

Strategic Growth Areas

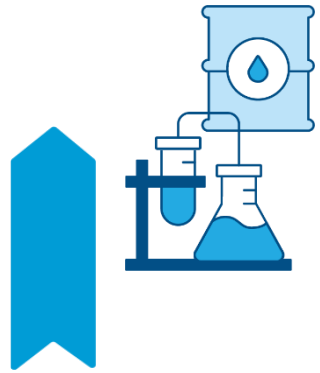
Positioned to capitalize on rapidly growing demand

- **Sustainable Ultra-High Protein** – sustainable ingredients for high-value global markets in pet, aquaculture, dairy and poultry industries
- **Renewable Corn Oil** – responsible low carbon feedstock for the high-growth renewable diesel industry
- **Clean Sugar Technology** – clean dextrose for a variety of biochem, bioplastics, synthetic biology, and food industries – with 'bio-revolution' driving growth
- **Carbon Capture & Sequestration** – participating in one of the largest carbon capture and storage (CCS) platforms in the world with Summit Carbon Solutions (SCS) – potential for direct injection systems at Obion, Mount Vernon and Madison locations

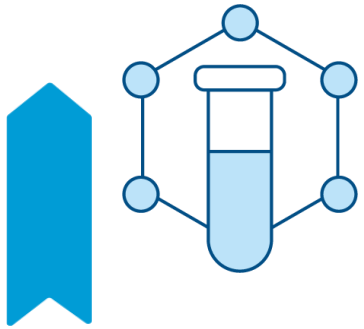
Ultra-High Protein



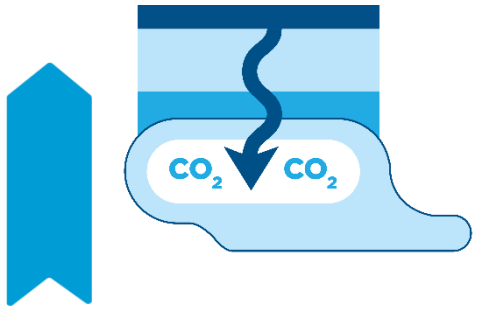
Renewable Corn Oil



Clean Sugar Technology

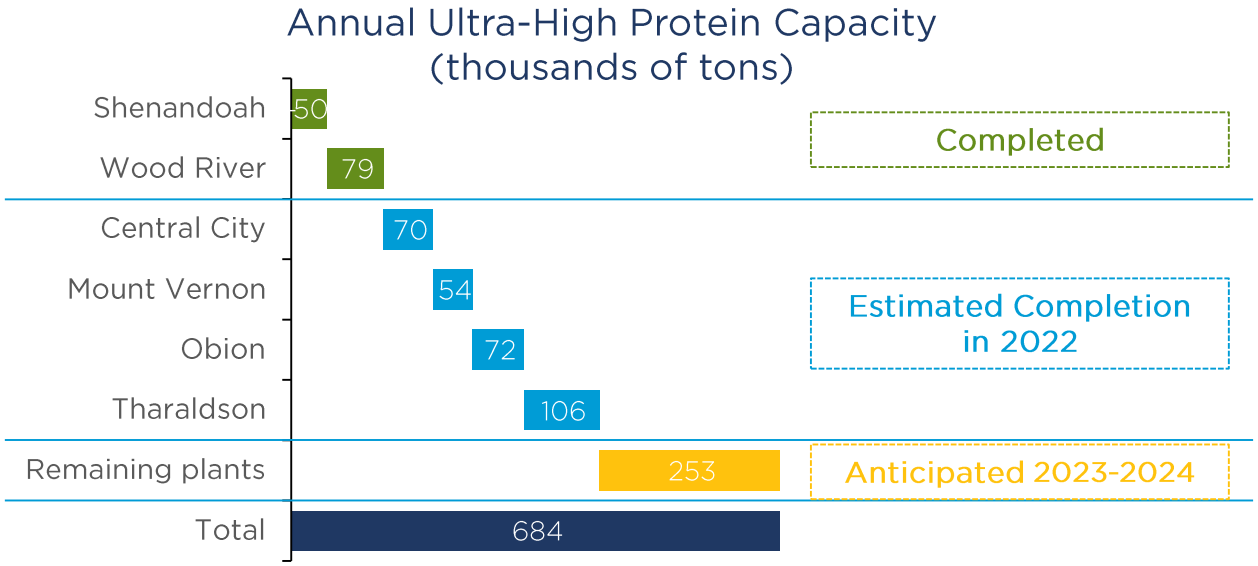


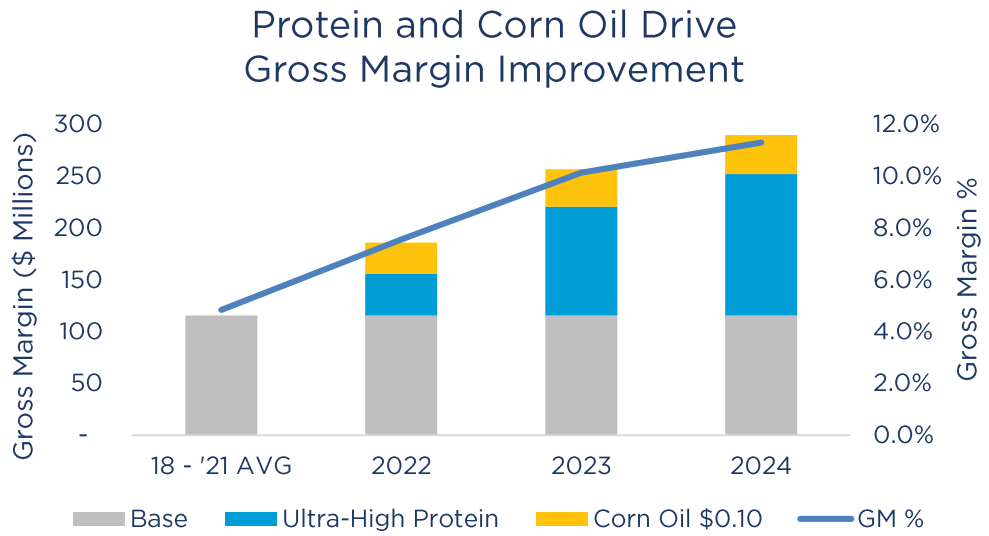
Carbon Capture & Sequestration



Protein Technology Drives an Inflection in

- Biorefinery economics see significant improvement through deployment of MSC™ technology
- **50% uplift in renewable corn oil yields** – the most valuable component of corn today
- **~20% of DDGS mechanically separated into high-value Ultra-High Protein**
- Over 50% of our platform is anticipated to be converted by mid 2022
- At capacity, Ultra-High Protein technology **could add over $150 million of additional earnings power by 2024**
- Potential uplift from higher protein values and additional growth initiatives could further enhance gross margins





Our Transformation is on Track


Central City, February 2022

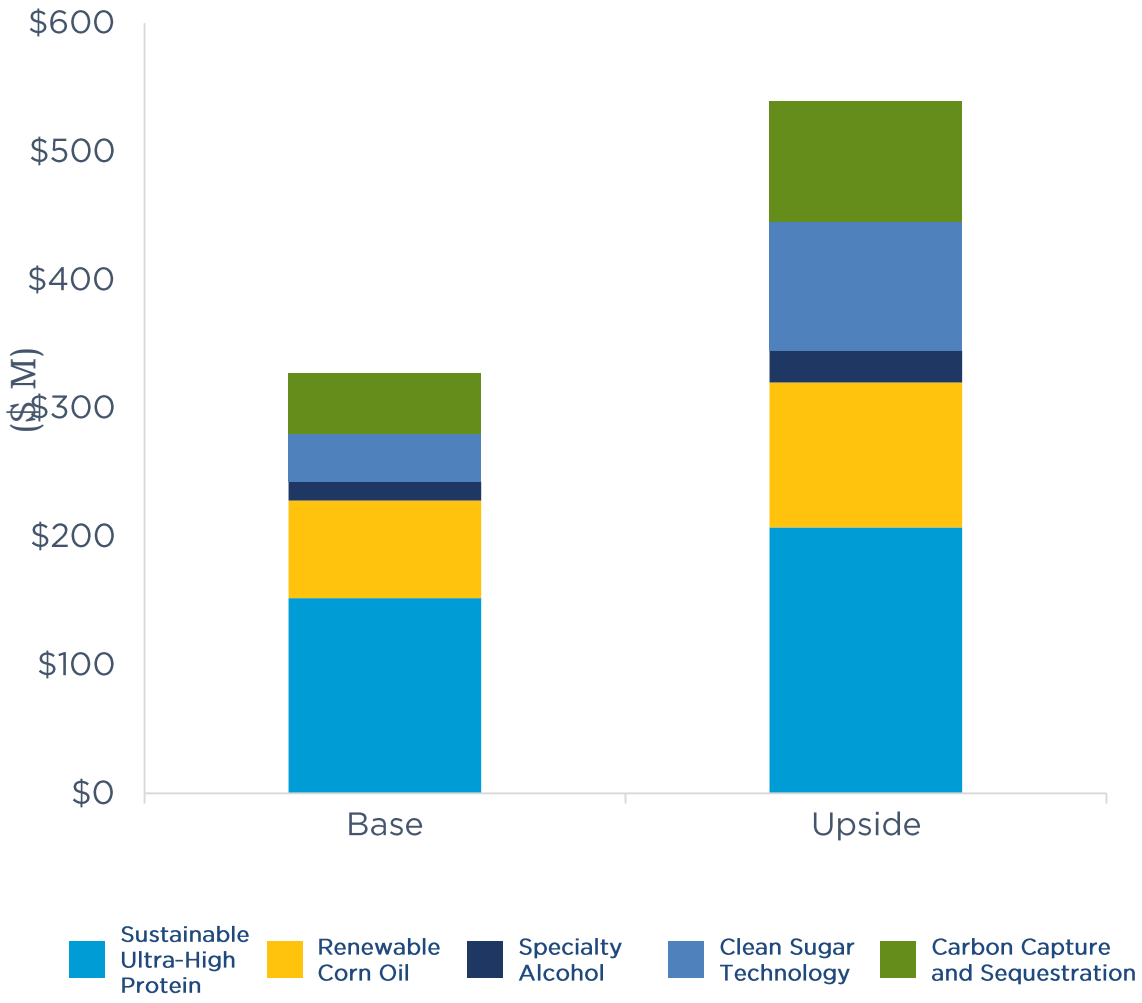

Mount Vernon, February 2022

Groundbreaking
- Central City - July, 2021
- Mount Vernon - August, 2021
- Obion - November, 2021


Obion, February 2022

"This past year was transformative for the company, firmly placing us on our path toward our 2024-25 strategic goals."
-Todd Becker, CEO

Assumptions for 2024E* Run-Rate EBITDA



Assumptions

- Assets produce at 95% of capacity on 958 MGY of capacity
- Potential contributions from fuel ethanol business, ancillary businesses and corporate overhead are excluded

Sustainable Ultra-High Protein and Turnkey Initiatives

- Remaining protein capital investment of ~ $380M to achieve ~ 680k tons of capacity including Tharaldson JV
- Protein crush margin uplift of $0.15 to $0.21 per gallon
- Higher renewable corn oil yields at historical pricing is part of structural advantage of MSC technology and included in protein uplift

Renewable Corn Oil

- Incremental $0.20 to $0.30 per pound over historical base business; gross price of $0.55 to $0.65 per pound
- Renewable corn oil capacity increased by 50% to ~396 million pounds

Specialty Alcohol

- Premiums to fuel ethanol of ~ $0.25 to $0.40 per gallon on ~ 65 MGY of specialty alcohol capacity

Clean Sugar Technology

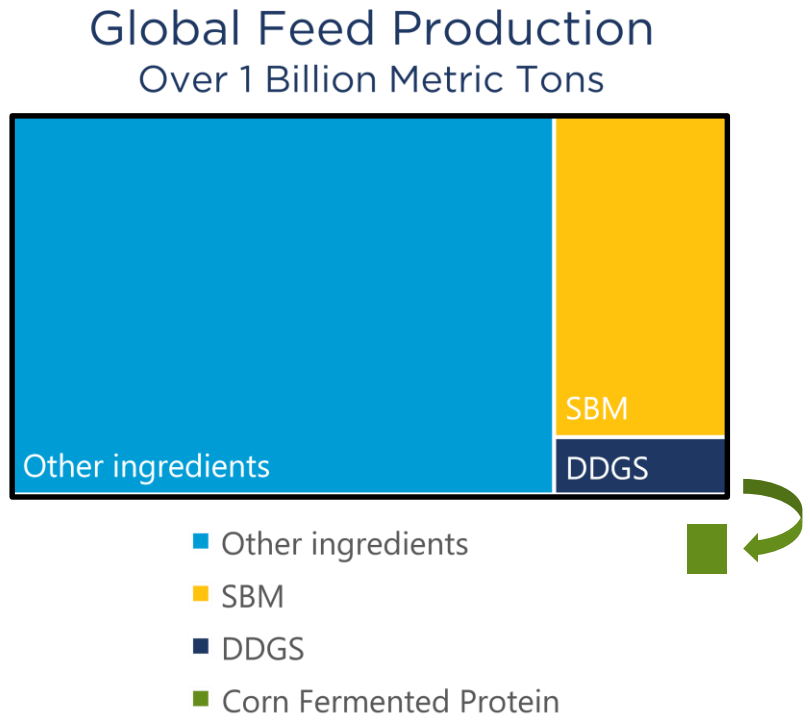
- Capital investment of ~ $1.00 per gallon of capacity converted
- 55 MGY to 150 MGY converted to CST with $0.67 per gallon margin uplift

Carbon Capture and Sequestration

- *Assumed to begin in 2025, CO_2 offtake of 658 MGY of capacity with SCS lowering carbon footprint of facilities; potential margin of $0.15 per gallon, net, due to lower CI
- Base assumes 50% online by end of 2024
- Excludes potential direct injection opportunities and option to invest in SCS

Significant Opportunity to Commercialize Value-added Ingredients

- Strong commercial sales team with deep industry experience building a robust customer pipeline
- Numerous ongoing customer dialogues including recent **MOU in pet space through 2023**
- Innovation Centers drive further product development
- Targeting aqua, swine, poultry, dairy and pet segments
- **~14 MMT total opportunity driven by conservative inclusion rates** – our total capacity represents less than 5% of the opportunity
- Total dry mill industry has only ~ 8 MMT of corn fermented protein capacity which would reduce DDGS capacity by an equivalent amount
- Green Plains platform capacity of ~ 0.6 MMT

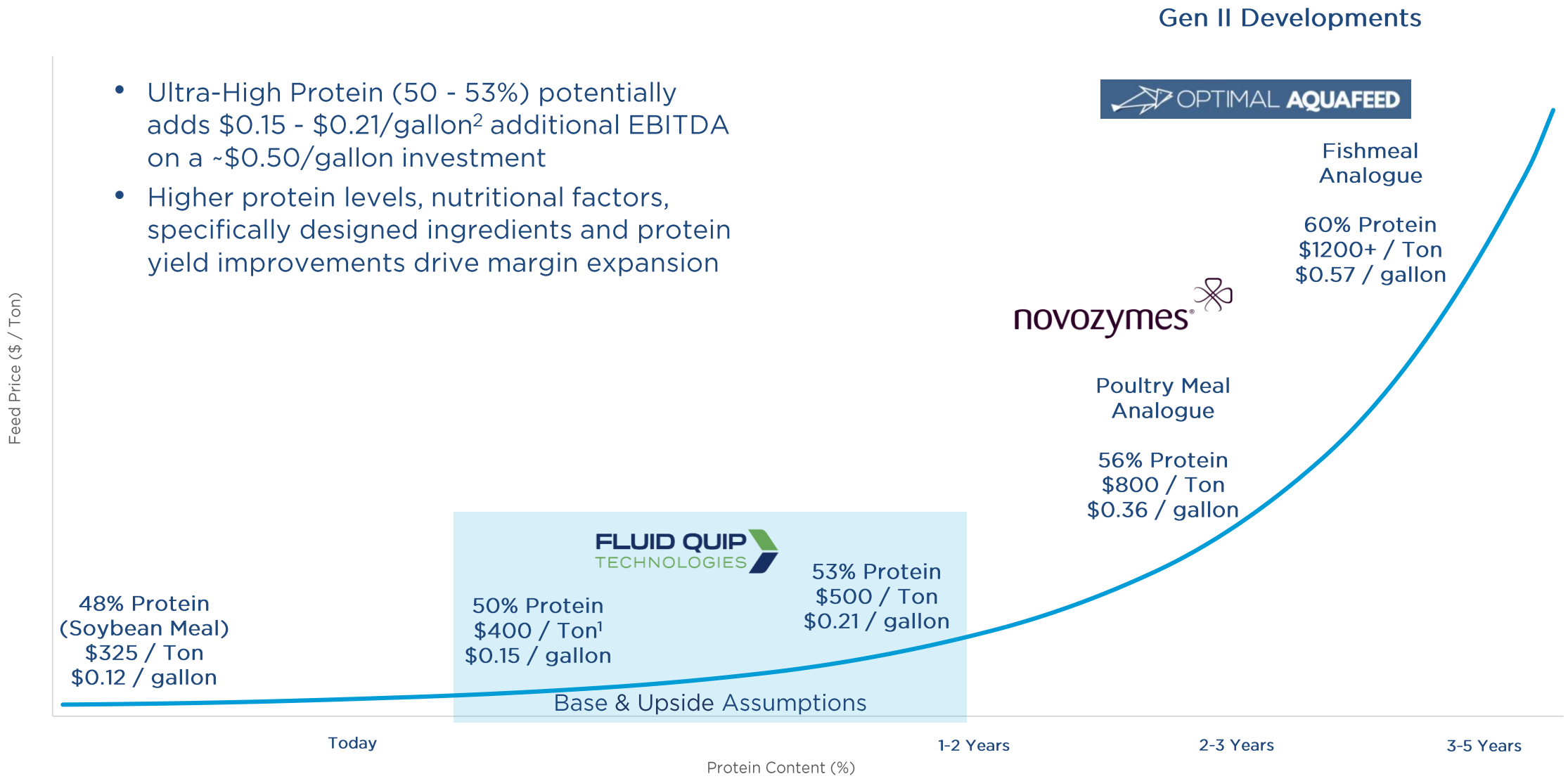


Source: 2021 Alltech Global Feed Survey, USDA, Company analysis

Creating Value Through Innovation in Ingredients

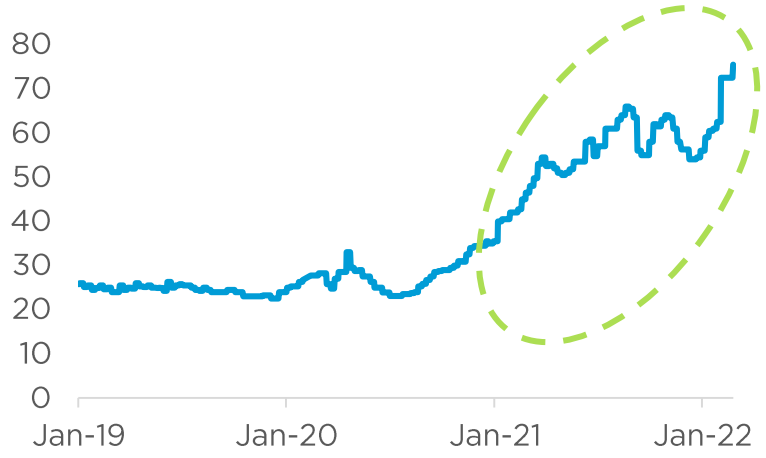
J-Curve of Protein Opportunity

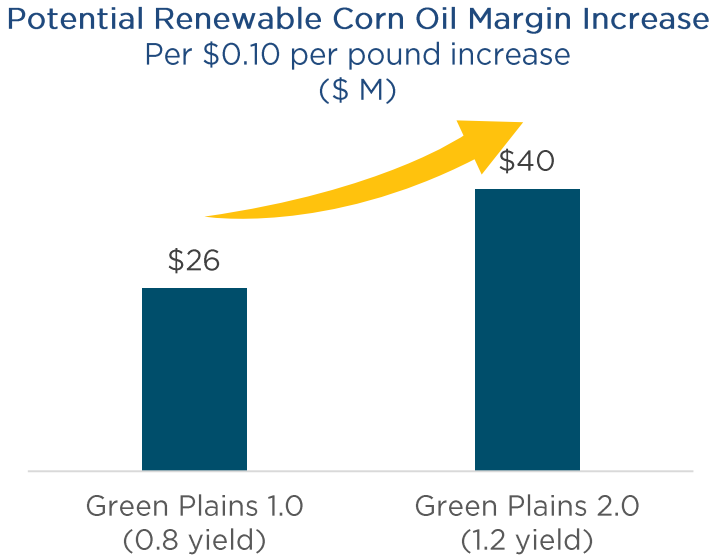
- Ultra-High Protein (50 - 53%) potentially adds $0.15 - $0.21/gallon[2] additional EBITDA on a ~$0.50/gallon investment
- Higher protein levels, nutritional factors, specifically designed ingredients and protein yield improvements drive margin expansion

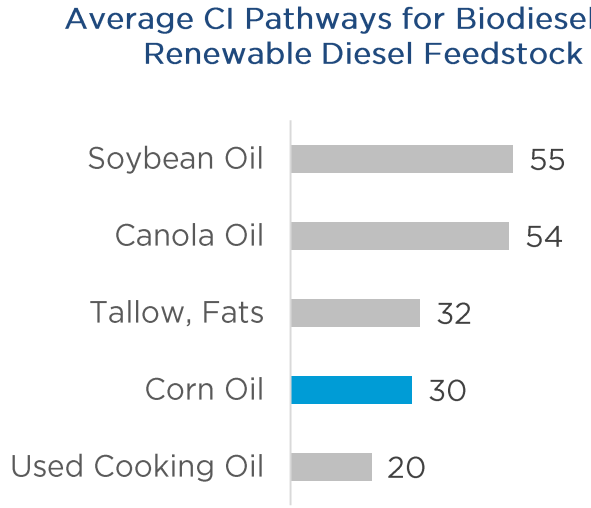


[1]Value per ton of protein is based on underlying Dried Distiller's Grain (DDG) of $150 per ton and should be adjusted based on current DDG values.
[2]Upon reaching redundant scale and moving through commercial contracting year and inclusive of 50% improvement in corn oil yields at historical pricing.

Taking Advantage of the Unique Drivers in Renewable Corn Oil



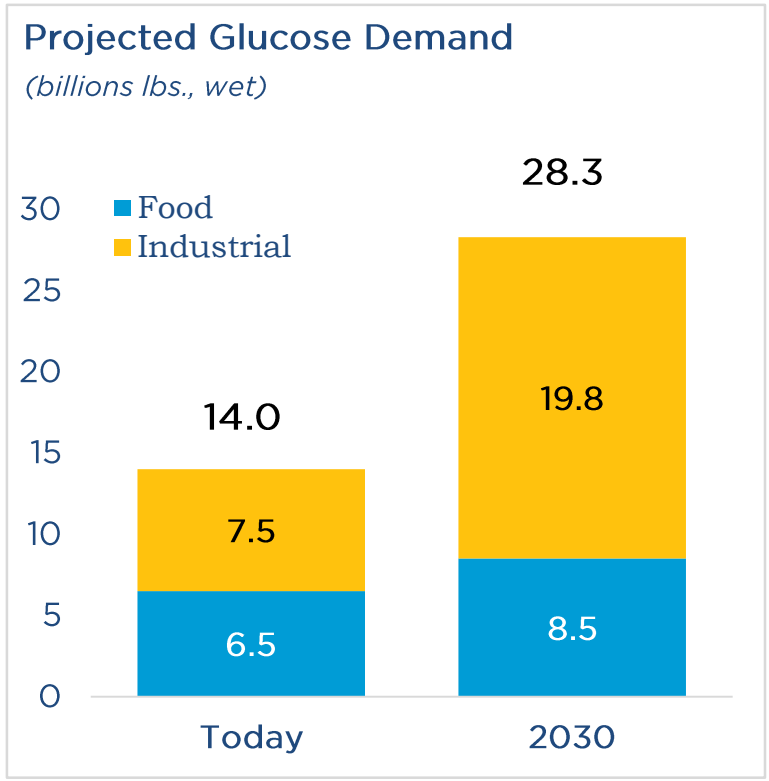




- MSC™ technology delivers a **sustainable structural advantage** in corn oil yields over Green Plains 1.0
- Assuming Renewable Diesel continues to expand in LCFS markets, we believe the low CI value of corn oil will translate into a premium to competing veg oils
- Each $0.10 per lb. increase in renewable corn oil price represents a lockstep ~$40M renewable corn oil EBITDA increase with planned production capacity expansion to 1.2 lbs. / bu.

Source: California Air Resources Board,
Company Analysis of CARB pathways

Clean Sugar Technology (CST) Opportunities



Source: SynBioBeta, FQT analysis

Technology Acquired with Fluid Quip

- Fully scalable commercial CST production facility operating at the Innovation Center at York
- CST produces an equivalent sugar quality to that of a wet corn mill process, with a production cost advantage and up to ~50% reduction in the carbon footprint

Opportunity Update

- 'Bio-revolution' use of fermentation to produce a variety of products without petroleum additives requires dextrose/glucose, driving potential growth of 7-14 billion pounds in demand
- Entering commercial discussions for potential co-location opportunities
- Focused on enhancing full and continuous operation of the Innovation Center at York pilot facility
- Engineering and site selection underway for 30,000 bushel per day capacity CST system anticipated to break ground in 2022

Carbon Capture and Sequestration Initiatives

*Opportunity to **increase margins by $0.15 / gallon** with **no capital required** from the ethanol facilities, **in addition to potential for carbon credits, 45Q tax incentives and direct returns** on investments in the pipeline and Summit Carbon Solutions (SCS)*

Current Status

- CCS lowers green gas emissions, resulting in attractive low CI ingredients
- Green Plains has committed to provide biogenic CO_2 to SCS from 8 facilities for 12 years, representing 658 MGY of capacity
- Annual commitment is estimated to be ~1.9 million metric tons of carbon dioxide, equivalent to the amount of carbon sequestered by 2.3 million acres of U.S. forests in a year (Source: EPA)
- SCS is responsible for pipeline construction and operation, with operations expected to begin in late 2024
- Green Plains is finalizing due diligence regarding option to invest in the development company

Direct Injection Opportunity

- Green Plains has engaged with an experienced CCS developer to perform a feasibility study and assess the opportunity at 3 Eastern plants for standalone direct injection projects

ESG Embedded in our DNA

Environmental

Low-carbon transportation fuels

- *46% reduction in GHG* – lower emissions compared to a gallon of traditional gasoline, reducing use of toxic aromatics in liquid fuels
- *Lower Energy* - Project 24 technology reduces gas use by 20% and power use by 20%
- *Higher Efficiency* - Lowers overall operating cost in terms of chemical use by 15%, water requirements by 10%, and increases renewable corn oil recovery by 10%

Carbon Capture and Sequestration (CCS)

- *Lower CI Scores* – Biofuels from plants with CCS comparable to other low CI fuels such as renewable diesel and Brazilian sugar cane ethanol
- *LCFS Programs* – Expanded market opportunity as LCFS programs spread to other states and countries, demand for low CI fuels can be supplied by Green Plains
- Potential SAF Opportunities – The future of Sustainable Aviation Fuels will require plentiful low-CI feedstocks benefiting from CCS

Low-carbon Ingredients Technology

- *Lower Carbon* – Extracting more clean energy from the same amount of renewable resources, increasing renewable corn oil yields by 50%
- *Reduce Stress of Oceans* - Reduce reliance on fishmeal in aquaculture diets, lowering stress on ocean ecosystems
- *Lower Carbon* - Reduced CI to produce sugar from dry mill relative to a wet mill

Social

Focused on Safety

- *Adopted Cardinal Rules of Environmental, Health, Safety and Security*

Giving back to our communities

- *Donated specialty alcohol during the pandemic*
- *100% of corn locally sourced*
- *Community sponsorships* – such as annually promoting the American Lung Association Corporate Cup to promote air quality and lung disease research

Governance

- *Board refreshment and diversity initiative*
- *Adopted new Board Governance guidelines*
- *Rotated chairs of key committees*
- *Appointed Lead Independent Director*
- *Announced intention to declassify Board of Directors*



SUSTAINABLE DEVELOPMENT GOALS

SASB STANDARDS BOARD

GRI

Why Green Plains?

Game-changing ag-technology, diversifying product offering of higher-margin ingredients into high-growth markets

- Implementing MSC™ protein technology across the platform to create diverse, non-cyclical, high margin products
- 50% uplift in corn oil yields, a low-CI feedstock for the growing renewable diesel industry
- Clean Sugar Technology™ provides competitive advantage in $450 billion specialty chemical and material markets requiring glucose / dextrose

Commercialization well underway

- Signed an MOU in the pet food vertical for sales of Ultra-High Protein through 2023, with higher volumes in 2022
- Negotiating and executing commercial agreements in dairy, swine and aquaculture; growing interest across species

Focused on sustainability with ESG embedded in our DNA

- Transition into highly specialized production aims to meet the world's demand for sustainably sourced products, low carbon ingredients and cleaner technologies
- CCS project supports lower carbon intensity for biorefinery platform
- Investing in efficiency of our plants to lower the consumption of natural resources and our carbon footprint

Strong balance sheet and ample liquidity to drive growth

- MSC commercialization fully funded, with over 50% of our platform converted by mid-2022

Strategic partnerships and innovation to drive value-creation across our platform

- Ultra-High Protein with a "J-curve" opportunity for higher margins
- Turnkey initiative to expand access to protein capacity without adding ethanol


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Transforming Green Plains

