



Green Plains

Ingredients that matter

Investor Presentation

February 2021

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.



Reinventing Green Plains

Refining our Platform – Building for Growth



2007 – 2017 Expansion

- Expanded from 4 to 17 biorefineries
- Vertically integrated up and down the value chain
- Expanded into Cattle and Vinegar

2018 – 2020 Optimization

- Deleveraged B/S by ~\$1B
- Monetized four biorefineries, Fleischmann's Vinegar, Cattle company and JGP Terminal
- Began Project 24
- Shenandoah's Ultra-High Protein facility opened in 2020

2021 & Beyond Transformation

- Acquired Fluid Quip Technologies, Ag Tech cornerstone of transformation strategy
- Leveraging technology and strategic partnerships to reduce expenses, lower carbon footprint and meet rising global demand for protein, corn oil, high-purity alcohol and clean sugars

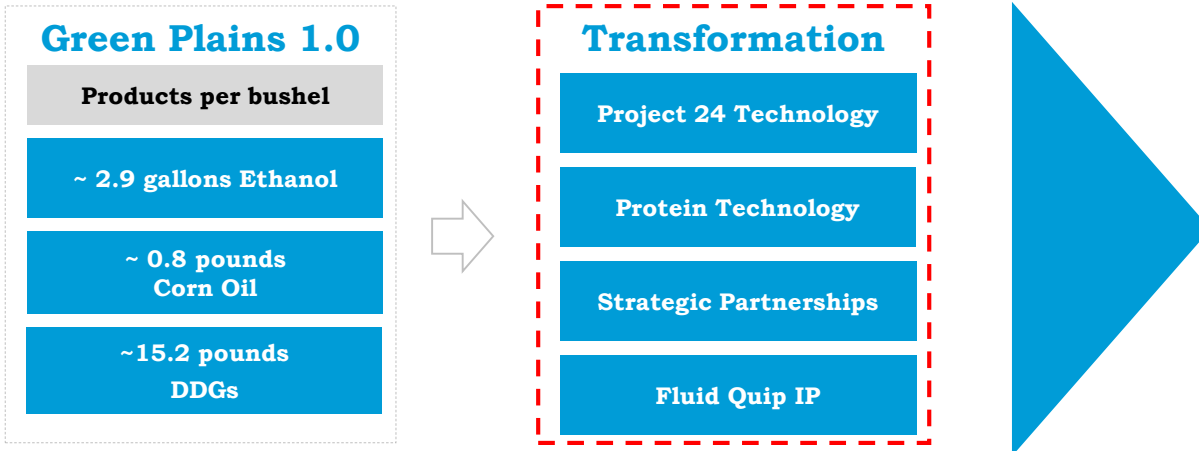


Reinventing Green Plains

Refining our Platform – Building for Growth

Our biorefineries' role in transforming the corn kernel

- We use mechanical and enzymatic processes to “crack” a commodity into its most valuable components
- Aligned with key technology players through exclusive partnerships to drive a collaborative transformation of our business



Extracting more value every day

- Lower operating costs
- Reduced carbon footprint
- Production of higher protein
- Better corn oil yields
- Improved distillers grains
- Optimizing valued components



Who is Fluid Quip Technologies?

- Founded in 2012 and based in Cedar Rapids, Iowa
- Custom fully integrated engineering and technology firm for dry/wet corn milling and biochemical facilities
- Full plant design, process optimization, yield improvement technologies, new co-product technologies and turnkey capital projects.
- Full engineering process design and technology development
- Pilot and lab scale development of technology solutions
- Market development and integration capabilities
 - Animal feed, BioChemical, Industrial and Food grade sugars
- Biorefinery plant optimization and design
- 7 new ag technology systems launched over the last 7 years

**Engineering
Solutions**

**Process
Optimization**

Full Project Support

**Continuous
Innovation**

**Value-Added
Technologies**

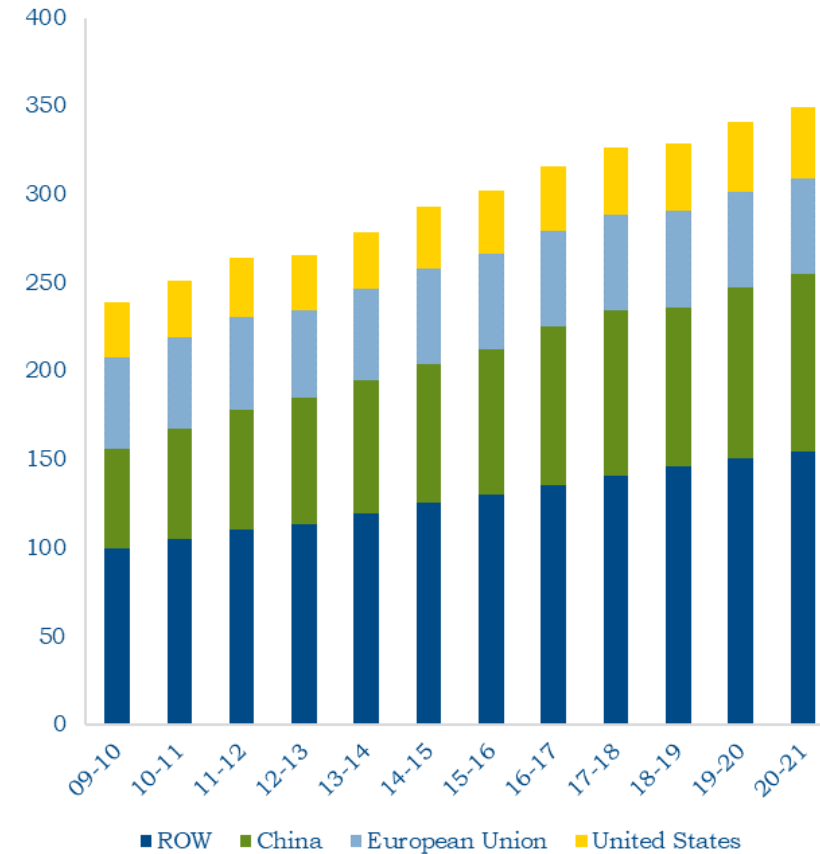
Dedicated Engineers



Global Protein Demand is Growing

- World demand in protein is growing across every major sector driven by population growth, economics and availability
- Fluid Quip helps feed the world with better proteins in both the US and Brazil
- Increase protein production without acreage expansion
- Produces 50+% protein animal feed ingredients from at least 20% of distillers grains produced today

Geographic World Protein Consumption (MMT)



Source – USDA World Protein Report
MMT is defined as million metric tons



High Protein Technology, High Value, High Quality



Strategic ingredient in use today

- Ultra-High Protein is a proven 50%+ protein co-product
- Ultra-High Protein is an optimal ingredient for aquaculture, dairy, poultry, swine and companion animal diets
- Currently being used in the pet, dairy, poultry and aquafeed diet/rations
- Robust QA / QC program is a critical
- Adds baseline \$0.15 - \$0.20/gallon additional EBITDA on a ~\$0.40/gallon investment
- Greater than 50% renewable corn oil yield increase – an important feedstock for the growing renewable diesel industry



Proteins & Ingredients

Product Advantages

- Flexible protein concentration starting at 50%
- Animal free source: vegetable (75%) and fungal (25%)
- Cornerstone ingredient for developing new feed rations, freedom of formulation
- High digestibility and additional species specific benefits improving animal health and performance

Continuous Product Development and Partnership Advantages

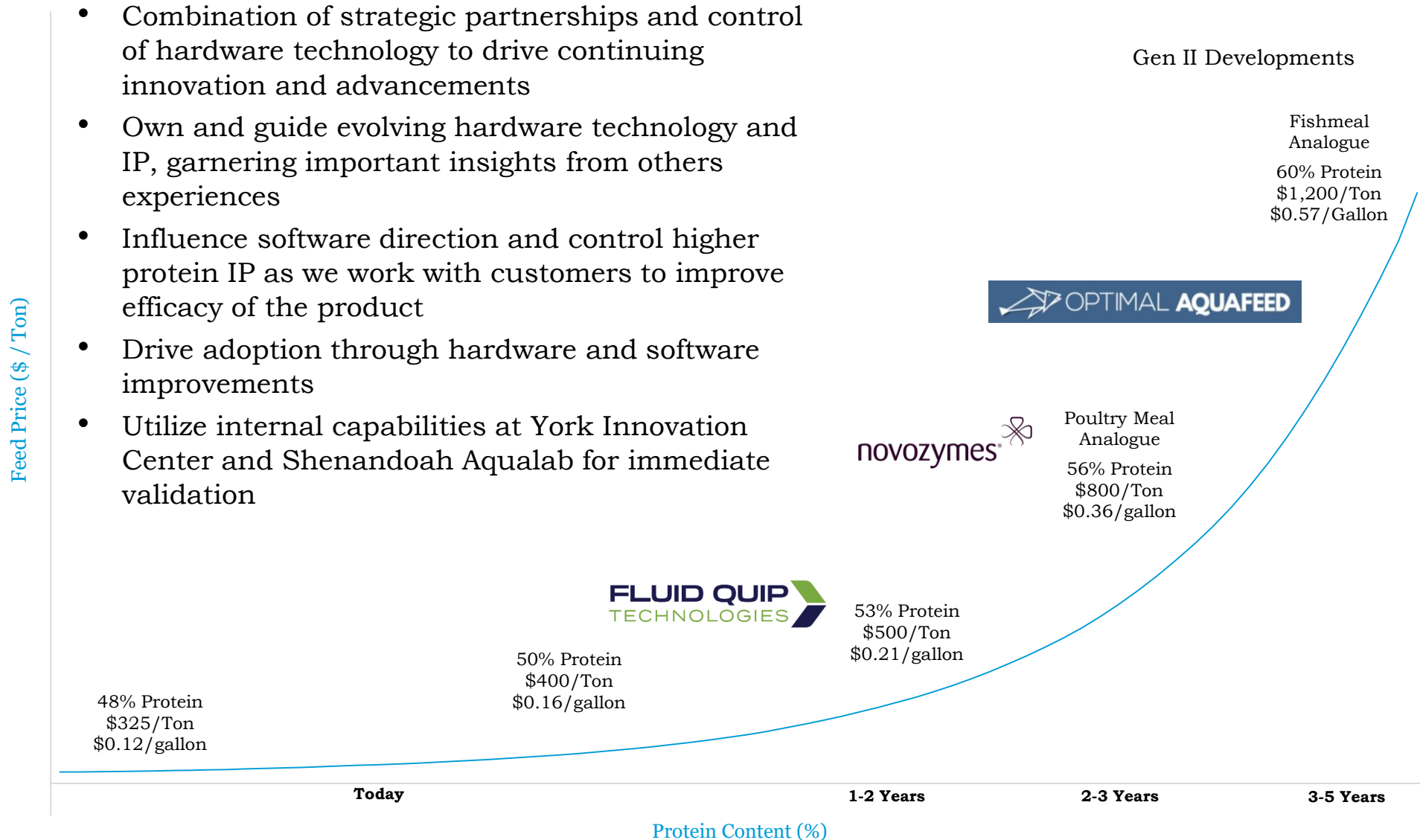
- Improved product characteristics through yeast enhancement
- Ongoing targeted removal of anti-nutritional factors
- Direct application into specialty feeds and premixes through innovative aquafeed solutions
- Value multiplier through combinations with other proprietary technologies and partners through Optimal Aquafeed and Hayashikane



Protein Opportunity with Fluid Quip Ag Tech

J-Curve of Protein Opportunity

- Combination of strategic partnerships and control of hardware technology to drive continuing innovation and advancements
- Own and guide evolving hardware technology and IP, garnering important insights from others experiences
- Influence software direction and control higher protein IP as we work with customers to improve efficacy of the product
- Drive adoption through hardware and software improvements
- Utilize internal capabilities at York Innovation Center and Shenandoah Aqualab for immediate validation



Clean Sugar Technology™ – Disruptive Ag Tech

- Game changer for the Green Plains portfolio
- Produce low cost, high quality glucose/dextrose from a dry grind process
- Pull slip stream off base ethanol plant or fully convert whole plant to glucose/dextrose production to significantly diversify revenue stream
- Significantly lower carbon intensity than glucose/dextrose produced at a wet mill
- Industrial and food grade capabilities
- Customer interest and sample requests have outpaced our current lab capabilities
- Increased penetration of bio-based processes translates into additional sugar needs of 7-14 billion pounds



150+
Target
customers
identified

50+
Clean sugar
samples sent
to customers

40+
Active
customer
dialogues

250+
Pounds of lab
samples provided
for customer trials



Strategic Opportunities Across Multiple Products

- Ultra-High Protein - high value sustainable ingredient for pet, aquaculture and additional industries
- Corn oil - low carbon feedstock for production of renewable diesel
- USP & GNS Alcohol – high purity alcohol for use in sanitizers, disinfectants and beverage industries
- Clean Sugar Technology – clean, low cost glucose/dextrose with biochem market opportunities

**ULTRA-HIGH
PROTEIN**



CORN OIL



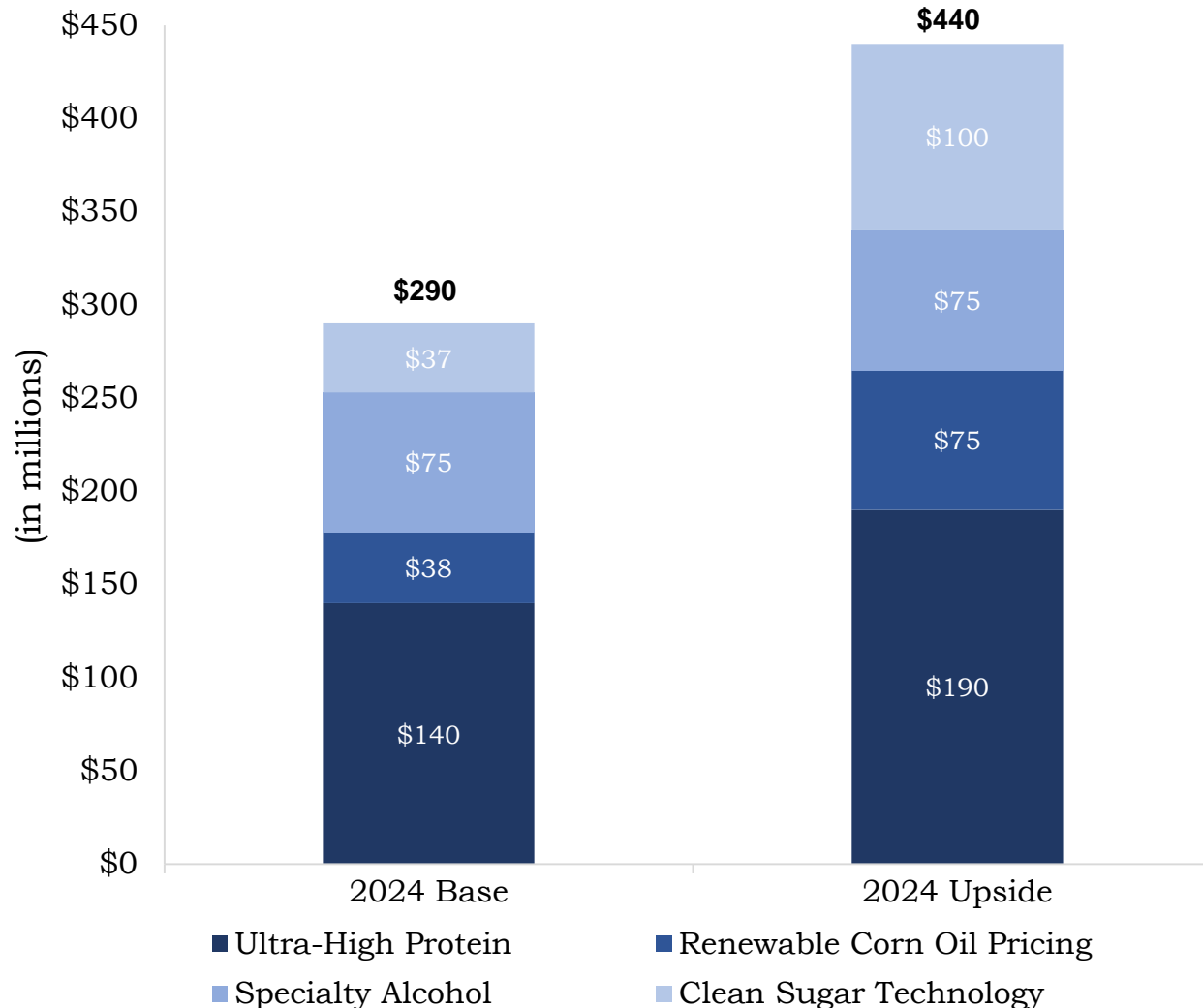
**USP / GNS
ALCOHOLS**



CLEAN SUGARS



Transformation Plan Drives Path to 2024 EBITDA



Assumptions

- Assets produce at 95% of capacity on 958 million gallons of capacity
- Potential contributions from fuel ethanol business excluded

Ultra-High Protein

- Protein capital investment of ~\$400 million based on 11 ethanol plants, with ~\$345 million remaining to be spent
- Protein crush margin uplift for base of \$0.15 per gallon for 50% pro and upside of \$0.21 per gallon for 53% pro, with potential to go higher

Renewable Corn Oil Pricing

- Pricing increase for base of \$0.10 per pound and upside of \$0.20 per pound, with potential to go higher

Specialty Alcohol

- Premiums to fuel ethanol of ~ \$1.00 per gallon for base and upside with potential to be higher on 75 million gallons of combined USP and GNS

Clean Sugar Technology

- Clean Sugar Technology capital investment of ~ \$1.00 per gallon of capacity converted
- Base assumes 55 million gallons of capacity converted to CST with \$0.70 per gallon uplift
- Upside assumes 150 million gallons converted to CST with \$0.70 per gallon uplift





Green Plains

Ingredients that matter

**Focused on
Sustainability**

Improved Sustainability and ESG Impact

MSC Technology

- **Lower Carbon** - Increased Distillers Corn Oil (DCO) recovery –feedstock for production of biodiesel and renewable diesel
- **Lower Transportation Costs** - Shipping a concentrated corn protein end product vs whole kernel or traditional DDGS reduces shipping costs and carbon footprint
- **Lower Land Use** - Corn-based protein solutions reduces deforestation – no need to plant additional acres
- **Reduce Stress of Oceans** - Reduce reliance on fishmeal in aquaculture diets, lowering stress on ocean ecosystems
- **Lower Emissions** - Reduced BTUs per gallon of ethanol produced
- **Further Sustainability** - Zero Carbon Intensity (CI) high protein production possible by reclaiming ring dryer vapors

CST

- **Lower Carbon** - Reduced CI to produce sugar from dry mill relative to a wet mill
- **Lower GHG** - Sugars can be used in protein production such as plant-based burgers, eliminating GHG impact of livestock production
- **Sustainable and Renewable** - Carbon used in green chemical production is derived from sustainable corn sugars vs carbon from petroleum



Our Sustainable Approach for Tomorrow

Measuring Our Global Impact



Provide less expensive, renewable biofuel alternatives to regular gasoline for consumers



Meet the world's growing food and dietary protein demands with ultra-high protein, plant-based feeds



Reduce the need to feed animals to animals and overfish our oceans



Improve the food system to be more secure with healthier livestock and aquacultures



Reduce need to further deforest land for agricultural purposes by using corn sustainably farmed and sourced locally



Why Green Plains?

Proven Track Record	<ul style="list-style-type: none">• Tremendous asset base developed over the past 13 years which serves as the foundation for building Green Plains 2.0• Seasoned management team with proven track record of managing risk and allocating capital in various cycles
Financial Flexibility	<ul style="list-style-type: none">• Strong balance sheet with ample liquidity and levers available to execute our strategy• Implementing Project 24 across platform to drive operating costs to at or below \$0.24 per gallon, while reducing our carbon footprint
Significant IP	<ul style="list-style-type: none">• Fluid Quip owns a significant disruptive IP portfolio to add value to several ag processing disciplines• Fluid Quips' technology in higher value proteins and clean sugar are "game changers" for Green Plains' portfolio
ESG Focused	<ul style="list-style-type: none">• World class provider of sustainable, Ultra-High Protein and novel feed ingredients, and low carbon, closed loop and sustainable biofuels
Value Added Opportunities	<ul style="list-style-type: none">• Impact of Ultra-High Protein using Fluid Quip's MSC™ technology is a baseline \$0.15 - \$0.20 per gallon of capacity, with upside• Control of technology enables development and monetization of high value, on trend technologies• Cultivating strategic partnerships to drive additional value across our platform
Innovation and Advantages	<ul style="list-style-type: none">• Diversify products into more stable and valuable margin streams• York Innovation Center and Shenandoah Aquaculture Center allow for development and validation of new solutions• Further opportunities to expand renewable corn oil production• Enhancements to Ultra-High Protein and Clean Sugar Technology – CST™ create future opportunities to diversify Green Plains' platform





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www.gpreinc.com