

Closing the gap between sustainability and profits in corn wet milling

Increased sustainability demands from consumers, FMCG companies and regulators put pressure on grain millers who are struggling to optimize starch production without losing profits. A new white paper shows how enzymes can provide a game-changing solution with significant impact on miller's profits and CO2 footprints.

COPENHAGEN, DENMARK – December, 2021 – Corn wet millers have spent decades trying to optimize the milling process and today, the traditional process of separating starch from corn kernels is broadly considered to be as efficient as it can be. Yet, it is still energy intensive, relying heavily on the production of steam and electricity based on fossil fuels and thus contributing to greenhouse gas emissions.

A new white paper based on a life-cycle assessment study of Novozymes Frontia® shows that adding enzymatic separation to the conventional process allows corn millers to reach higher starch yields from the same input of corn. This benefit can be either used to boost starch output or to cut the corn grinding by up to 2% while keeping the starch yield unchanged. Additionally, the study showed that when using Frontia®, substantially less steam was needed for fiber drying. The combined effects of adding Frontia® to conventional separation result in a potential reduction of 9 kg CO₂-eq per metric ton of commercial corn while at the same time improving profitability.

- “Frontia® has the clear advantage of adding to the sustainability profile of the plants while significantly improving profits. As an example, a plant in North America grinding 100,000 bushel per corn a day could save up to 8,000 Tons CO₂ per year and generate an annual gross benefit of up to \$ 3.5 million by using the enzyme,” says Hans Ole Klingenberg, Vice President, Marketing Industrial Biosolutions at Novozymes.

It's generally recognized by the industry that the conventional mechanical separation process leaves starch and protein bound in the fibrous cell walls, leading to yield losses and inefficiencies. Moreover, significant moisture levels are trapped in the corn fibers, meaning that the product must be dried. This is not only energy-intensive but can also create bottlenecks in the production. Frontia® uses fiber-modifying enzymes including cellulase and xylanase to break down the corn fiber network more completely and release more starch, protein and water from corn fibers.

A measurable impact

To quantify just how much corn millers can improve profits and reduce their CO₂ footprint Novozymes has developed a calculator. This online tool allows wet millers globally to calculate the yearly gross benefit and breaks down the amount into increased yields and energy savings. It also shows how many tons of CO₂ the millers can save per year.

- “Manufacturers shouldn't have to choose between sustainability and profits. Frontia® supercharges the separation process and allows millers to do good for the planet while doing well for their margins and our new calculator makes it clear how much each manufacturer can gain in terms of both financial and environmental impact,” says Hans Ole Klingenberg.

Press Release



Access the calculator for measurable savings in profits and CO2: [Frontia® Calculator](#).

Read the findings of the life-cycle assessment in the free white paper: [A Guide for Corn Wet Millers](#).

To learn more about Frontia® and calculate the quantifiable sustainability and profitability contributions, please visit [the Frontia® web site](#).

About Frontia® :

- Uses fiber-modifying enzymes including cellulase and xylanase to release more starch, protein and water from corn fibers
- Enables higher starch yields from the same input of commercial corn, allowing corn millers to cut their corn spend by up to 2% with the same yield – and avoid associated emissions
- Significantly improving dewatering, so the use of fossil-fuel-based steam for fiber drying – and associated emissions - can be reduced
- The combined impacts of adding Frontia® to conventional separation saves 9kg* CO2-eq per metric ton of commercial corn

About Novozymes

Novozymes is the world leader in biological solutions. Together with customers, partners, and the global community, we improve industrial performance while preserving the planet's resources and helping build better lives. As the world's largest provider of enzyme and microbial technologies, our bioinnovation enables higher agricultural yields, low-temperature washing, energy-efficient production, renewable fuel, and many other benefits that we rely on today and in the future. We call it Rethink Tomorrow. www.novozymes.com

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