



Novozymes Fortiva® Hemi

Supercharge your liquefaction

Novozymes has expanded its portfolio of innovative liquefaction enzyme solutions for the bioenergy industry with the launch of Fortiva® Hemi. The unique new product brings novel enzymes to liquefaction that enable unmatched substrate conversion to deliver the highest corn oil and ethanol yields possible. Effective across the broadest pH and temperature ranges, it's also the most flexible liquefaction solution available to ethanol producers.

Fortiva® Hemi acts upon the fiber matrix during liquefaction, creating the potential for improved fat and starch conversion leading to oil and ethanol yield previously inaccessible. This newly freed substrate is then converted using Novozymes' highest yielding enzyme blends to again raise the bar in ethanol production efficiency, without creating undesirable sugars that can cause fouling.

The Fortiva® Hemi suite of alpha amylase products offers a wide range of liquefaction protease blends to meet your specific

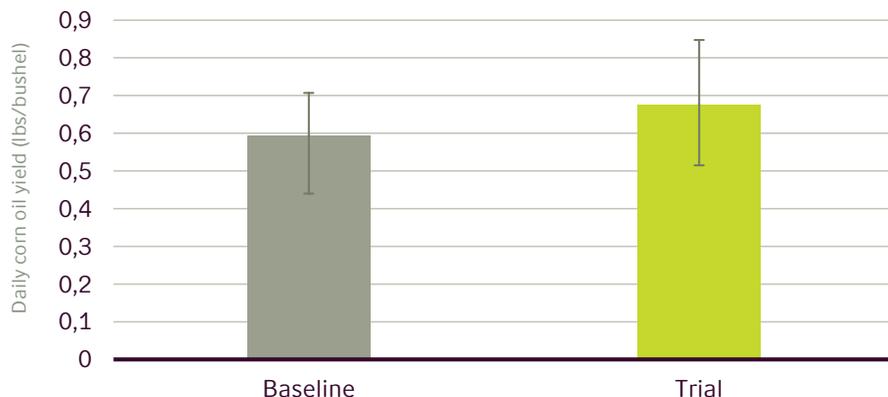
operational needs. Liquefaction protease is proven to reduce chemical inputs, eliminate other inefficient enzymes, increase oil yields, and create a healthier fermentation for improved ethanol yields.

Benefits

- Residual crude fat reduction in liquefaction and coproducts
- Residual starch reduction in liquefaction and coproducts
- Fortiva® Hemi allows plants to run at higher DP4+ and thin stillage solids than before. Adjustments may be required to run optimally.
- Fortiva® Hemi suite of products is available with varying amounts of liquefaction protease to match your operational goals without negative side effects
- Greater than 10% oil yield increase versus Fortiva® Revo liquefaction enzymes
- Up to 1% ethanol yield increase versus Fortiva® Revo liquefaction enzymes

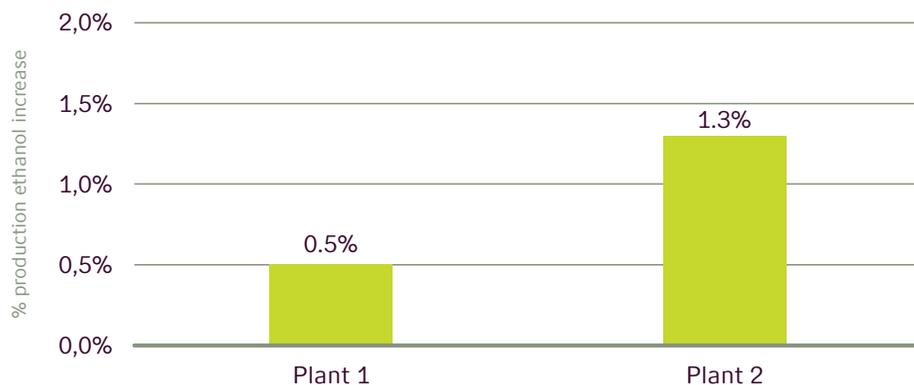
Higher oil yields

Greater than 10% oil yield gain in an early plant trial



Potential for higher production ethanol yields

Increases in production ethanol vs baseline in early plant trials



Fortiva® Hemi shows up to 1% production yield improvement versus baseline liquefaction technologies, including Fortiva® Revo.

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.

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