

Pioneer Genetics and DuPont Crop Protection Products

Improving ethanol yield through seed technology and crop protection

For more than 80 years, Pioneer Hi-Bred, a DuPont business, has been focused on increasing the productivity and profitability of agriculture through improved seed products and agronomic services. That focus on productivity is critical as agriculture plays a leading role in delivering a new generation of fuels.

Pioneer is committed to enhancing the productivity of the ethanol industry. We are taking a holistic approach that focuses on increasing ethanol yield and co-product value per bushel, and increasing overall corn grain yield per acre.

Understanding Grain Performance in Ethanol Production

Pioneer developed the first grain assay to accurately predict ethanol yield in corn. Given the 7 percent variation in ethanol yield potential among existing corn hybrids, there is opportunity to manage this variation in grain production systems that serve the ethanol industry.

Using a Near Infrared (NIR) calibration model developed by Pioneer, all commercial Pioneer® brand corn hybrids have been characterized for ethanol yield potential. For 2009, more than 170 Pioneer brand ethanol hybrids have been identified as High Total Fermentables (HTF) ethanol hybrids. HTF ethanol hybrids are part of our Pioneer IndustrySelect® program designed to match our seed products with the needs of the grain end-user. HTF ethanol hybrids are those that are above average for ethanol yield potential.

Enhancing the Value of Feed Co-Products

Nearly one-third of the grain that is used to produce ethanol enters the animal feed stream as distiller's grain. To maximize productivity and quality of this important ethanol feed co-product, Pioneer is working to improve grain quality. Pioneer is offering specialized grain traits that help growers meet the needs of ethanol processors. Many hybrids contain the Herculex® insect protection traits to help maximize grain yields and quality by reducing insect damage to grain and helping prevent molds and mycotoxins. This helps ensure a consistent supply of quality grain.

Developing Products for the Future

Looking ahead, Pioneer researchers are targeting discovery research efforts to increase the amount of fermentable starch in corn, as well as increase the feed value of distiller's grain. We are also working with ethanol processors and input suppliers such as enzyme companies, to better understand ways to improve overall process efficiencies by matching our product development targets with processing technologies of the future.

Yield in the Field is Still Critical

Grain demand by the ethanol market will require increased corn production and even more efficient utilization of resources used to produce corn. Pioneer is working to improve nitrogen utilization efficiency and drought tolerance to help ensure that corn will continue to be in abundant supply to meet the market needs of the future. When these and other production traits are combined with Pioneer's leadership in the development of base genetics, farmers and ethanol processors will see continued improvement in overall ethanol yield per acre.

DuPont Crop Protection provides pest management solutions to help farmers increase their productivity and deliver more ethanol per acre. DuPont is a leading provider of crop protection products to the grain and specialty crop sectors, forestry, vegetation management, and the professional pest control market. Principal products are herbicides, fungicides, insect control products and plant growth regulators.

For more information, contact your local Pioneer sales professional or visit us at www.pioneer.com/ethanol.



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