Enogen corn helps farmers become enzyme suppliers to the ethanol industry, which continues to expand and innovate.

By Ryan Didsbury | Illustration by Ryan Etter
Syngenta developed Enogen® corn enzyme technology to help enhance ethanol production. For more than six years, this in-seed innovation also has helped growers earn greater returns on their corn acreage. That’s because Enogen gives them the opportunity to add value to their crop by supplying corn seed containing an alpha-amylase enzyme—a key ingredient in ethanol production—to local ethanol plants. For growers, this added revenue can be especially important when commodity prices are low.

Supply and Demand
In recent years, the ethanol industry has been on the rise. The U.S. Department of Agriculture reports that ethanol production uses approximately 40 percent of the U.S. corn crop. In 2015 alone, ethanol biorefineries produced a record 14.7 billion gallons of high-octane renewable fuel.¹

The outlook for ethanol remains bright for the 2017 planting season. In the first week of the year alone, the ethanol industry reported a record-setting production average of 1.049 billion barrels per day.²

Syngenta is helping to meet the growing demand for ethanol with Enogen corn. The alpha-amylase enzyme found in Enogen corn hybrids helps ethanol plants dramatically reduce the viscosity of their corn mash, eliminating the need to add a liquid form of the enzyme.

“Enogen corn provides growers with the opportunity to be enzyme suppliers for their local ethanol plants, because the enzyme is in the corn itself,” says Ron Wulfkuhle, head of Enogen at Syngenta. “In return, growers receive a per-bushel premium for Enogen corn delivered to participating plants.”

Licensed growers supply Enogen grain to ethanol plants with a combined capacity to produce nearly 2 billion gallons of ethanol. In 2017, Syngenta plans to continue expanding the footprint of Enogen and offering growers an advantage.

“We anticipate total premiums earned by Enogen growers to be approximately $32 million in 2017, creating real advantages for them and their rural economies,” says Marcos Castro, Enogen marketing manager at Syngenta.

Advantages for Growers
Since 2011, Enogen corn has emerged as a key benefit for Golden Harvest® and NK® Corn growers in ethanol communities. For Roger Unruh of Garden City, Kansas, the decision to plant Enogen corn was a no-brainer. As a Golden Harvest grower, Unruh says the transition to plant Enogen corn hybrids was easy.

“My Enogen hybrid E113N8-3000GT brand yielded up to 270 bushels per acre, while my E116K4-3000GT brand yielded up to 240 bushels per acre,” he says. “I was very pleased with both of my Enogen hybrids.”

Other growers have noted that the opportunity to support their local ethanol plants helped drive them to produce Enogen corn. Jeff Sack of Saint Paul, Nebraska, has been growing corn for ethanol for the past three years. “We decided to plant Enogen corn for the ethanol factor,” says Sack. “Rather than depending on overseas oil for fuel, we try to raise the raw material for fuel right here. And the per-bushel premium we receive helps a bunch with low commodity prices.”

To boost the potential for an even better return on investment, Syngenta offers the Ethanol Grower Advantage Program. It not only can help growers increase profitability, but it also can help plants produce more ethanol per bushel.

“The Ethanol Grower Advantage program incentivizes and rewards agronomic best practices, helping growers achieve consistently higher yields and earn premiums,” Castro says. “Participating growers are eligible to receive up to a 10-cent premium for each bushel of Golden Harvest, NK and/or Enogen corn delivered to a participating ethanol plant. This complements the existing premiums Enogen growers can earn.”

Industry Support
Syngenta understands the positive impact the renewable-fuels industry has on rural America. By supporting partnerships like the Prime the Pump Fund, Syngenta is helping high-volume, progressive-minded retailers fuel the market with higher ethanol blends, such as E15.

The Prime the Pump Fund helps make E15—a blend of 15 percent ethanol and 85 percent gasoline by volume—more accessible to consumers. Many steps have been taken to increase ethanol’s availability in the U.S. market. One of the most notable was in 2001, when the Environmental Protection Agency (EPA) allowed the use of gasoline blends containing as much as 15 percent ethanol in vehicle models from that year and newer. Following this initial step, Prime the Pump was formed to help advance the industry.

“Earth-friendly American ethanol has become an important success story,” says Kelly Manning, vice president for
SYNGENTA EXPANDS ENZYME TECHNOLOGY INTO FEED MARKET

While the alpha-amylase enzyme of Enogen® corn was originally developed for use in the ethanol production process, continued research in the animal feed market has indicated benefits in livestock production as well.

In livestock feed, grain or silage, the enzyme may improve the digestibility and ultimate value of corn as feed for dairy or beef cattle, by helping to break down starch more effectively, resulting in the potential for a more digestible feed ration.1

In 2017, producers in select geographies who grow and feed their own corn as grain or silage for beef or dairy production have planted Enogen Feed hybrids.

Enogen Feed hybrids offer strong agronomic characteristics in the field, including excellent yield potential across a variety of soil types, greater standability and genetic resistance to common corn diseases. Numerous trials have shown that Enogen corn hybrids perform equal to or better than other high-performing corn hybrids.2

“We’re excited about the potential benefits that Enogen Feed corn brings to the cattle livestock market,” says Duane Martin, Ph.D., Syngenta commercial traits product lead. “Enogen Feed corn offers producers excellent yield potential and standability, while providing the potential for enhanced feed digestibility for their beef or dairy cattle.”

For more information on Enogen Feed hybrids, please contact your Syngenta sales representative.

1. Research, which was conducted by recognized experts in ruminant nutrition at the University of Nebraska–Lincoln and a contractor for laboratory research, found benefits from Enogen corn when included as a component of beef cattle feed and dairy cattle silage, respectively. To learn more about the University of Nebraska research and read the reports on enhanced digestibility, refer to the finishing section of the 2016 Nebraska beef report and look for studies on Syngenta Enhanced Feed Corn.

2. Syngenta production data from more than 350,000 acres, 2012-2015.

devlopment at Growth Energy. “We have vehicles capable of using ethanol blends higher than E10, but consumers need greater access to stations capable of providing them. Retail partnerships like the Prime the Pump Fund are helping to make that access a reality.”

Earlier this year, Syngenta announced a donation of $340,000 to the Prime the Pump Fund to help make higher ethanol blends more widely available and grow demand for American ethanol. The Syngenta donation is part of a broader, ongoing commitment to support the ethanol industry, with contributions to ethanol groups totaling more than $700,000 to date.

The Next Move

“At the heart of our ongoing commitment to the ethanol industry is developing new technologies that will enhance ethanol production,” Wulfkuhle says.

Cellerate™ process technology, for example, is designed to give dry-grind ethanol plants the ability to convert corn-kernel fiber into cellulosic ethanol. When combined with Enogen corn, this technology can help processing plants produce more ethanol from the same kernel of corn, increase total yield of distillers corn oil and improve the protein content of feed coproducts. Trials at Quad County Corn Processors demonstrated as much as a 26 percent increase in production, when it used Cellerate process technology with Enogen corn.3

“Ethanol is helping reduce our country’s dependence on foreign oil,” says Wulfkuhle. “It’s also helping to lower prices at the pump, improve the environment with lower emissions and grow the economy with jobs that can’t be outsourced. We’re proud to partner with corn growers and the ethanol industry to help provide consumers with the choice to purchase a superior, higher-octane fuel at a lower cost.”

For more information on Enogen corn enzyme technology, visit www.enogencorn.com.

1. Renewable Fuels Association Study
2. U.S. Energy Information Administration
3. Based on third-party verification procedures performed by Christianson & Associates PLLP, a firm of certified public accountants and consultants