

Agricultural engineer suggests low-energy alternative to high-temperature grain drying

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A little-used grain-drying technique can help farmers control energy costs, according to an Ohio State University agricultural engineer.

Robert Hansen, of the Ohio Agricultural Research and Development Center, is reacquainting farmers with natural-air grain drying, a low-energy system that typically results in higher grain quality. In some circumstances, the technique has the potential to cut energy costs by as much as two-thirds, compared to more commonly used high-temperature drying systems.

"With today's high fuel prices, a natural-air drying system becomes doubly valuable and well worth considering," he says.

Hansen recently hosted a demonstration exhibit at Ohio State University's Farm Science Review to educate farmers on the equipment and the costs of setting up a natural-air grain drying system. Natural-air grain drying, he says, is a good option for farmers looking to store corn on their farm long-term either for livestock feed or to compete in the marketplace as a shelled corn supplier to an ethanol plant.

A natural-air grain drying system involves transferring wet corn (20 percent to 24 percent moisture) directly to bin storage that includes a perforated floor and letting natural-air drying fans dry the grain to an optimum 14 percent to 16 percent moisture over a 25- to 30-day period. By comparison, high-temperature drying involves drying wet grain at 200-220 degrees Fahrenheit to 15 percent to 16 percent moisture, and

transferring the hot grain to a bin for cooling and storage. Cooling can take 4 to 12 hours depending on the type of high-temperature drying system used. High-temperature drying is most suited for farmers growing corn for the harvest time marketplace.

The majority of farmers still have not embraced the technology. According to a study conducted by Hansen and his colleagues, 80 percent of Ohio's corn growers dry at least part of their corn directly on their farm, yet less than 10 percent use natural-air grain drying.

"Farmers tend to shy away from the system because there are restrictions on the magnitude of incoming moisture content and management requirements are high, but it is well worth it in the long run," says Hansen.

Nevertheless, several Ohio farmers have been using natural-air grain drying for years with proven results, says Hansen. The process minimizes or avoids the use of propane, and while the quantity of electrical energy used for natural-air drying is higher, overall energy consumption is lower, he says.

Source: American Society of Agricultural and Biological Engineers

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