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“Burn corn to dry corn”

Ag Bio-Power LC of Tama, Iowa recently completed a project that was funded by a grant from the Iowa Corn Promotion Board known as the Iowa Corn Value-Added Grant (ICVAG). The \$25,000 grant was used to “burn corn to dry corn.”

Starting in Oct. of 2005, Ag Bio-Power owners, Joe and Sam Thiessen, set up a corn gasification system on the rural Chelsea farm of their parents, Bud & Marlene Thiessen.

Marty Hoskey, a cousin who was storing grain on the Thiessen farm, had agreed to supply wet corn for the drying project, but because 2005 was a dry year for corn, it was difficult to conduct the project. Limited amounts of corn were dried at that time and Joe and Sam continued to improve the system for the 2006 corn harvest.

This year was a better year for the project because the moisture content of corn from the field was considerably higher than in 2005. But a problem occurred in August of this year during a test of the equipment, when a gearbox and motor failed on the corn dryer.

Not to be deterred, the Thiessen’s adapted a grain wagon donated by Stan Upham of USS Polaris of Toledo for the purpose of drying. A grain dryer floor was installed in the wagon and the corn gasifier used for the corn drying project was moved to the company’s facility in Tama.

“I was worried that we wouldn’t be able to finish the project on time,” said Sam Thiessen, “but Joe & Stan really came through by coming up with a solution.” Joe Thiessen pointed out that using a grain wagon for drying actually made conducting the tests more reliable because the batch process allowed better control of dryer input and output, although the capacity was less than half of the original system/s capability. Once set up for final testing, drying went forward without problem.

Werner Feed & Grain of Tama, Dolezal Farm Supply of Toledo, and Pioneer Hi-Bred of Toledo assisted in the project by testing the corn for moisture content. They also examined for excess odor that was thought might be a problem with

using corn gasification for drying. It proved not to be.

The project showed that corn can be a cost-effective fuel for the drying of corn, especially when low-value or no-value waste corn is used. Discarded seed corn was used for the project's test drying, so the cost of fuel was virtually zero. Given the known reliability of the gasification system and the fact that the tests showed the system could dry corn cleanly and efficiently.

Ag Bio-Power is considering expanding the system for use in 2007. Marty Hoskey expressed an interest in using the system if larger amounts could be dried. The Thiessens say a 500-bushel continuous-flow dryer can be used with their existing gasifiers, which would make the process practical. Gasification is a process that has been around for more than 100 years.

It is sometimes called partial or semi-combustion, where a gasifier is used to draw combustible gases off of hot solids that are denied sufficient oxygen to fully combust. The gases are then moved to a location where they can be burned. An advantage of gasification is that it greatly reduces tars and soot that occur in simple combustion.

Those who provided significant support to the project are:

Martin Hoskey is a farmer who provided several hundred bushels of corn for setup and drying in the project. He also provided useful advice and a significant amount of time. Martin Hoskey 2192 300th Street Toledo, Iowa 52342 (641) 750-1637

Doug Dolezal is the owner of Dolezal Farm Supply. He provided assessment of the odor contamination to the corn dried by burning of corn gas and tested for moisture content. Dolezal Farm Supply Highway 30 West Toledo, Iowa 52342 (641) 484-4606

Doug Sokol is a Lab Technician at Pioneer Hi-Bred in Toledo. He provided assessment of the odor contamination to the corn dried by burning of corn gas and tested for moisture content. Craig Fish is the Plant Agronomist and Beverly-Vore is an Administrative Assistant. They provided assessment of the odor contamination to the corn dried by burning corn gas. Pioneer Hi-Bred International S. County Road Toledo, Iowa 52342 (641) 484-2141

Richard Hala is the Manager of Werner Grain & Feed in Tama. He tested for moisture content and provided assessment of the odor contamination to the corn dried by burning of corn gas. Werner Grain & Feed 404 E. 3rd Street Tama, Iowa 52339 (641) 484-2621

Stan Upah is the Owner of USS Polaris in Toledo. He donated the use of his

wagon for conversion to a batch corn dryer. USS Polaris 408 N. County Road Toledo, Iowa 52342 (641) 484-2540

Margaret Babinat is the President of the Tama County Farm Bureau. She provided her organization's recommendation that Ag Bio-Power be award an Iowa Corn Value Added Grant. Tama County Farm Bureau 115 North Main Street Toledo, IA 52342 (641) 484-3361

Opportunity Appreciated: Ag Bio-Power truly appreciates the opportunity to have undertaken this project with the assistance of the ICVAG. "We had long discussed conducting such a test on our own, but with other competing opportunities presenting themselves, we could not get around to it. The ICVAG brought our focus on burning corn to dry corn and greatly helped us to make it happen. We thank the Iowa Corn Promotion Board for awarding us an ICVAG and helping to advance our business. We trust that the board will find this project of value as well."

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