

The Andersons Research Grant Program

Proposal No. _____

Proposal Number: 2005-3RC

The Andersons Research Grant Program

Project Title: *Investigation of Methods to Improve the Flowability of Distillers Dried Grains with Solubles (DDGS) during Processing, Handling, Storage and Transport*

Principal Investigator(s):

Name	Institution/Agency/Other
Dr. Klein E. Ileleji	Purdue University (Bio-Feedstock Utilization)
Dr. Dirk E. Maier	Purdue University (Grain Quality)
Dr. Richard Stroshine	Purdue University (Biomaterial Properties)

Project Contact:

Name	Klein E. Ileleji
Address	Ag. & Biological Engineering Department
	Purdue University
	225 South University Street
	West Lafayette, IN 47907
Phone:	765-494-1198
Fax:	765-496-1115
Email:	ileleji@purdue.edu

Period of Proposed Project Dates:

Beginning: January 1, 2006

Ending: September 30, 2008

Amount Requested (Maximum \$20,000 per year for two years)

Year 1: \$20,000

Year 2: \$20,000

Problem Identification and Related Research:

The Flowability Problem of Distillers Dried Grains with Solubles

Ethanol production has grown more than 570 percent over the past 20 years, and today represents the third largest market for U.S. corn, constituting approximating 10 percent of the annual U.S. corn production (USAD-GIPSA, 2004). The National Corn Growers Association estimated that the capacity for ethanol production will double by 2005 to about 4 billion gallons, potentially creating 7 million tons of distillers dried grains with solubles (DDGS). Dry grind ethanol plants represent the fastest growing segment of the fuel ethanol industry in the U.S., and accounted for 75% of U.S. ethanol production in 2004 (RFA, 2005). In dry grind processing of corn to ethanol, an average of 2.7 gallons of ethanol, 18 pounds of DDGS, and 18 pounds of CO₂ are produced per bushel of corn. DDGS is a high-protein, high-energy animal feed that is mostly sold to local feedlots and is essential to the profit margin of dry grind ethanol plants. It is projected that the increasing supply of DDGS will eventually glut local markets and prompt ethanol plants to market their DDGS outside domestic livestock feed market. This means that DDGS will be transported longer distances and even be in storage for longer periods. Effective transportation, marketing, and certification of co-products, such as DDGS, are integral to maintaining the efficiency and profitability of ethanol facilities (USDA-GIPSA, 2004).

Flowability of DDGS has been cited as one of the major hurdles to expanding existing markets and developing new markets for DDGS (Cooper, 2005). Recently, the two remaining Class A carriers, Burlington Northern and Union Pacific that were allowing DDGS transport in their cars will no longer accept DDGS (Ethanol Producer Magazine, 2005). In addition, exporters in the Pacific Northwest have refused to handle DDGS because of flowability issues, leaving