ANR CAMPUS SUCCESS STORY
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Title of Success Story: Impacts of Local Processing: Sourcing Corn for Ethanol
(Project of the Iowa Grain Quality Initiative)

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Situation: Rapid growth of ethanol production continues to generate many questions related to future analysis, shifts in existing businesses and policy development. In Iowa, new dry-grind ethanol processing plant construction is announced frequently, financed by either local or remote investor groups. New dry-grind ethanol plants are also being added to existing wet milling operations. As of June 2007, there were 124 ethanol refineries operating in the USA with 29 of them located in Iowa. These plants are capable of producing nearly 2 billion gallons of ethanol per year. In addition, 20 new Iowa refineries were in the construction/expansion phase and 28 had been announced.

As these new local processing markets develop, there will be innovation in contracts, price discovery and market information. There will also be changes to supplier interaction and service aspects as well. One of the growing concerns is the balance of corn supplies between new ethanol demand and existing feed/export demand. The logistics of more or less uniform constant use over the year are also a departure from the shipping-based export chain. Access to approximately one billion bushels of “mobile storage” in trains, barges, export elevators and river elevators is essentially cut off by the need to retain the entire crop within the state, most often very near where it was produced. Processing uses require sufficient local storage to provide a steady flow through the year.

Distillers grains, co-products of dry-grind ethanol production, are rapidly increasing, putting strain on marketing infrastructure and transportation. Depending on the size of local markets for wet distillers grains, plant managers decide how much of the distillers grains to dry, an important decision in terms of operating costs. Expansion of dairy and beef production is encouraged to use a large portion of distillers grains, and inclusion of distillers dried grains (DDG) in swine, poultry feed, pet food and human foods is being studied. As production of DDG increases to rival soybean meal production, shifts in prices and substitutions will occur.
Project Objectives:

1. Create an objective data set to define the scope and variation involved in the current industry activities surrounding grain origination methods, impact on grain storage and coproduct handling/marketing.
2. Update data to track changes in corn processing capacities and estimate corn production and storage needs.

Activities and Output: Representatives of 20 dry-grind ethanol plants were interviewed regarding processing capacities, corn acquisition and quality, transportation and storage, and markets of distillers grains. Data from the interviews suggested that ethanol plant managers expected to acquire most of their corn directly from farmers, although 5 plants had arrangements with nearby elevators for storage and delivery. Plants accepted USDA #2 Yellow Corn, but set limits on moisture and damage beyond which loads would be rejected. On average, ethanol plants had storage for 1 million bushels of corn, enough for 7-10 days of processing; however, many plant managers stated that they were adding more storage that would hold enough corn for 14-21 days of processing. Farmers and elevator managers who are selling corn to ethanol plants must expect to store corn for up to 12 months in good condition. The quality limits are important for the efficiency of the ethanol production process and the quality of the distillers grains coproduct. Corn acquisition for ethanol processing represents a change in grain storage and management practices that are the subject of IGQI educational programming for Summer 2007.

Impact and Outcomes:
Data was compiled and included in a November 2006 report entitled “Sourcing Corn for Ethanol – Effects of Local Processing”. The report was made available via the Iowa Grain Quality Initiative website www.iowagrain.org, the Value Added Agriculture Program website www.extension.iastate.edu/valueaddedag, and the Agricultural Marketing Resources Center website www.agmrc.org. A keyword search shows that it is linked or included within other ISU Extension websites (Agronext and Natural Resources) and is referenced by Iowa Farmer Today, Rural Transporation, and AgNet – Food Safety Network on their respective websites.

This report was presented formally to approximately 700 people at the following meetings: 2006 Integrated Crop Management Conference; 2007 Women in Agriculture Conference; the 2007 USDA Warehousing Examiners Conference; and the Annual Meeting of the International Oil Mill Superintendents Association. Presentations were also made to sales representatives of Conrad-American, an Iowa-based builder of grain storage and handling equipment, and it has been presented at regional chapter meetings of the Grain Elevator and Processing Society.

The report prompted interviews that resulted in articles in the Wall Street Journal and in Iowa Farmer Today. Hardy, Shepherd, and Hurburgh were also interviewed by a reporter for Japanese Public Television.

Data gathered in the study served as a reference for the IGQI Grain Storage and Management Team as they assembled educational tools and information for farmers, grain handlers, and processors. Three major grain bin manufacturers agreed to sponsor (total of $10,000) the development and presentation of these educational materials. The grain storage and management interactive model was presented at a series of workshops in August 2007.