Present: Randy Dunn, Ray Hansen, Connie Hardy, Chad Hart, Charles Hurburgh (moderator), David Holm, Ed Kordick, Jerry Miller, Howard Shepherd, Tim Sullivan, Greg Tylka

Guests: Brittini Brown, Pete Lammers

Welcome and Introductions: Charles Hurburgh welcomed the group and distributed the Annual Work Plan for 2010. (handout) Charlie mentioned that Gary DeLong was planning to lead the “carbon footprinting” discussion today, but Gary had to attend another business meeting.

Morning presentations and discussion

ISU College of Agriculture and Life Sciences update: Jerry Miller, Associate Dean of Agriculture and Natural Resources Extension, gave the following report:

- ISU College of Agriculture student enrollment – Undergraduate student enrollment has grown to estimated 900 new undergraduate students in Fall 2009 from a low of 550 new undergrads in 2004. Dr. Miller credited the work of Eric Hoiberg, retired Associate Dean, for recruitment work that resulted in 2845 undergrads in Fall 2008 and more than 3000 undergrads in Fall 2009, the highest number of undergraduate students in ISU’s College of Agriculture in 30 years. (handout)

- Upcoming conference: Growing the Bioeconomy: Solutions for Sustainability on December 1, 2009 is being organized by ISU Bioeconomy Institute. This conference is being hosted by the 13-state North Central Bioeconomy Consortium and is offered electronically and on-site in Ames. Charlie mentioned that IGQI has been asked to organize two breakout sessions. (handout)

Budget reductions and Extension reorganization: ISU experienced a $41 million shortfall and the College of Agriculture had reductions totaling $2 million. ISU Extension’s reduction was over $4 million. To deal with the budget reduction, ISU Extension reorganized and the following actions were taken:

  - 105 field positions were eliminated (8 positions were currently not filled);
  - 21 new positions established for Regional Directors (handout);
  - Agriculture and Natural Resources Extension had to eliminate 3 vacant positions; 6 chose to retire from field; 4 on-campus faculty took retirement.
  - On-campus retirements were taken (200 campus-wide); P&S and Merit staff positions were eliminated.
  - ~38million in stimulus funds were available to ISU.
  - IGQI took a 9% reduction for 2010; this was handled by eliminating one project – Weed Management – for which there was no longer. Current Research Examples in Agriculture and Life Sciences (handout). Randy Dunn mentioned the Swine Flu reference and Jerry Miller reinforced that we all have a responsibility to use the “H1N1” name to correct the misperception that swine transfer the flu virus.
  - Charlie Hurburgh mentioned that, despite the budget reductions, requests for proposals by government were greater than ever. IGQI has 2-3 proposals being to be submitted.
**STORIES in Agriculture and Life Sciences** highlighting current projects within the College of Ag was distributed.

**Project presentations** - these will be made available at [www.iowagrain.org](http://www.iowagrain.org).

**Impacts of Local Processing: Update on Ethanol and Soybean Processing** – Connie Hardy, ISU Extension Value Added Agriculture Program, gave current numbers for biofuels plants in operation and under construction and an estimate of total vegetable oil available from Iowa corn and soybeans.

**Discussion:** What is the best way to make this information available and useful? Because trade organizations and journals use interactive WEB maps, we do not need to duplicate them. However, IGQI has considered working with Iowa DOT and IDALS to consolidate and publish the information. Suggestions for additional material include feed mills, animal fat designation for biodiesel plants, and RINS numbers for actual biofuels production.

Randy Dunn suggested that we state the assumptions we use when displaying the information, such as “What is minimum size of plants listed?”

We decided to contact trade and farm organizations to ask about needs for maintenance of this database. Ed Kordick stated that Farm Bureau had a ethanol plant map with corn draw areas and all the feed mills. It was also suggested to contact other land-grant universities and US Environmental Protection Agency.

**Fractionation** – Chad Hart, ISU Dept. of Economics reported data gathered for the current IGQI fractionation project. Because ethanol margins are less favorable right now, managers of ethanol plants are looking at ways to increase the value of corn they are processing. Funding is short, but ethanol companies are still interested in fractionation, which provides opportunities to sell fractions into food, feed and biodiesel industries. Fractionation involves either wet or dry processing. Several methods are available commercially that yield different product streams and capital costs, and promise payback within 5 years. Equipment and installation costs can be as high as $35 million.

With this data, Chad hopes to assemble a decision tool that characterizes each of the processes and estimates the production costs and relative values of the fractions. Though he has contacted a few plants regarding whether or not they are considering adding fractionation, he has found that this information is not readily available. On the Iowa Grain Flow survey recently completed for the 2007 crop, about half of the ethanol plants polled were investigating fractionation as an additional process.

This information will help as the biofuels industry grows to determine how the fractions play in food, feed, and fuel. Marketing to help fractionation appear “green, renewable, etc.” will be important to its acceptance.

Chad added that fractionation may help reduce the carbon footprint of ethanol processing. Chad is currently working on a calculation of the carbon footprint of various ethanol processes. A question was asked about whether a conventional ethanol plant with fractionation qualifies as “advanced biofuels” in terms of funding opportunities? Chad replied “no” because it is still corn-based ethanol. What is value of butanol? Chad says at least $1 more.
Feed Usage- Pete Lammers
Several diets with reduced corn and soybean meal in preference to DDGS and glycerin have been tested with favorable results except that the texture of the feed changes, creating problems for current feed handling systems designed for dry, low oil products. Glycerin addition mitigated the natural tendency for pig fat to get softer with increased ddgs inclusion (offset the unsaturated fats of corn oil). The next thing to test is increasing inclusion of various fractionation projects. The first step in this is to connect the analysis of the various fractionation processes with a least cost ration balancing analysis driven by amino acids.

In Iowa, 28% of corn goes to export markets, 40% is processed, and 32% is fed, with 60% of the feed going to pigs. 21% to beef. 10% to poultry, 8% to dairy and, 2% to other. ISU has a new animal nutritionist, Dr. John Patience, in the Animal Science Dept.

Questions:
What about glycerine in swine feed? Pete replied that glycerine is liquid except at sub-zero temperatures. It is an excellent feed for pigs, but likely has higher value uses in other industries.

Will fractionation provide a better feed for pigs than distillers grains? With pre-processing, more of the corn’s net weight goes back into the corn. The amino acid profile of corn is not sufficient for pigs, but corn is fed mainly for starch. When pigs are on germ meal, it is essentially like putting them on the Adkins diet – they will eventually grow but there will be more nitrogen in the waste.

Analytical Support for the Grain Processing Industry – Connie Hardy summarized the various applications of Near-Infrared grain and grain products analysis that has been one on a fee-for-service basis through Extension Value Added Agriculture and the Grain Quality Lab. Funds from IGQI have been used to supplement developmental work associated with these projects. Though the results of this work are mostly confidential, developments that have come out of the projects benefit the industry in general and have scientific significance. Examples: developing NIR calibrations to measure methionine and lysine in corn; reducing variability in reference chemistry; improving sample identification protocol.

Traceability comments – Charlie Hurburgh summarized IQGI’s involvement in food traceability with the following list:

- Conference CD and Followup
  - Traceability Conference, Des Moines, IA June 2009 – Bulk materials tracking was addressed as well as unit traceability. European participants from the TRACE project enhanced the discussion with their applications in bulk traceability of fish and other commodities.
- Student Exchanges - EU
- Project: Facilitating the Marketing of Incompletely Approved GM Crops.
- Cost/Benefit Analysis for FDA Good Practices
- Supply Chain Analysis Procedures
- Bulk Grain Tracking
- Carbon Footprinting
Maize to Milk – An Analysis of the Traceability System of Bulk Commodities- Brittini Brown, MS candidate in Agricultural and Biosystems Engineering- Standards and regulations in USA, European Union, Canada, and internationally were described. This project analyzes the supply chain of corn to feed to milk, providing a description of an Iowa dairy processing plant’s external traceability system and now communication strategies that might enhance both internal and external traceability for the plant.

Comment: Many traceability software products are available, but they don’t really fulfill the practical requirements of a traceability system.

Carbon footprint discussion – Chad Hart was asked to comment on strategies for measuring carbon footprints in grain-related industries.

A carbon footprint, in concept, is the amount of energy used to get from Point A to Point B. A traceability map could be readily adapted to the calculation of carbon. Implications of the Waxman-Markey bill will be very tight. Chad thinks that the application of carbon footprinting will begin with industry categories and will eventually become a requirement of individual industries asked to prove their carbon footprint. At this time, there is not a standard protocol for measuring carbon within a process. Biofuels is a target of carbon footprinting. Randy Dunn commented that AAI has given initial consideration of how this will impact Iowa’s agricultural operations, and a recent presentation by FCStone indicated that there would be a substantial impact.

Proposed action: IGQI should propose a calculation format that EPA could use for the grain industry. Evaluations would be designed to identify areas that could be improved in terms of carbon credits. The calculation. Some of the background information is already captured in Ag Decisionmaker (ISU Extension) and Mike Duffy’s (ISU Dept. of Economics) farming practice evaluations.

Winter meeting:

Next IGQI Advisory Committee meeting will be on Friday, January 8, 2010.

Respectfully submitted,

Connie Hardy
ISU Extension
Value Added Agriculture Program