Iowa Grain Quality Initiative  
Advisory Committee Meeting Minutes  
January 12, 2006

Present: Charles Brown Randy Dunn, Roger Ginder, Ray Hansen, Harold Hommes, Charles Hurburgh, Nick Huston, Larry Johnson, Brian Petersen, Dan Loy, Gerald Miller, Mike Owen, Rich Pope, Howard Shepherd

Guests: Connie Hardy, Chad Laux

Charles Hurburgh welcomed the group and introductions were made.

Dr. Miller shared updates from Agriculture and Natural Resources Extension:

1. Michael Ouart, ISU Associate Vice President for Extension accepted a position as Director of Extension at the University of Missouri in December 2006. Mary Holz-Clause, Director of ISU Extension Value Added Agriculture Program is serving as the Interim Associate Vice President for Extension and Ray Hansen is serving as the Interim Director of Extension Value Added Agriculture Program.

2. Kendall Lampke is serving as the interim Chair of the Department of Agronomy.

3. ISU President Geoffrey has focused attention on biofuels. The Biofuels Summit website contains several presentations and current research on biofuels. ISU is one of several research centers that were invited to submit proposals to the petroleum company, BP for $500 million in funding for biofuels research. The award is expected to be announced within the next few weeks. Another biofuels funding announcement is also pending.

4. Extension has prepared materials about biofuels that will go out to the county extension offices – Power Points and narratives – to use for presentations in their counties. Brian Petersen mentioned that the biofuels topic is of great interest in NW Iowa as several equity drives have recently taken place there.

Presentations:
Today’s presentations and related research publications will be posted on the iowagrain.org website.

Connie Hardy (ISU Value Added Agriculture Program) presented Sourcing Corn for Ethanol: Impacts of Local Processing

Interviews were conducted with managers of 20 of Iowa’s ethanol plants that are currently operating to determine how corn distribution patterns are changing because of the new local demand for corn and what infrastructure and training changes are needed to support this new industry. Iowa’s ethanol processors currently consume about 25% of Iowa’s corn crop, and new construction and expansions will demand nearly 75% of Iowa’s corn crop by mid-2008. An
additional 33 plants are planned in Iowa, which could move demand for Iowa corn to more than 2.6 billion bushels annually.

Ethanol plants plan to access, on average, 62% of their annual corn demand from farmers with scheduled delivery throughout the year. Plants have storage on-site for less than 5% of their annual corn consumption, so there is a much increased need for on-farm grain storage and long-term quality management of the grain. Plants have storage for 2.6% of annual distillers grains production. Dry distillers grains are shipped by truck and rail to cattle feedlots and dairies in California, New York, Texas, Arizona, and Mexico, and some are exported. Wet distillers grains are trucked within 50 miles of the individual plants. The abundance of distillers grains provide an opportunity to increase livestock production in Iowa, particularly for cattle. Other uses are being explored as well.

More trained employees are needed for management and supervisory positions in ethanol plants. Training was requested also to help livestock producers learn to use distillers grains in feed rations. IGQI is developing web-based training tools to assist grain producers, grain handlers, and ethanol plant managers in decisions related to grain storage and management.

Roger Ginder presented Fractionation of Corn for Ethanol Production
This project is intended to evaluate the economic benefits of corn pretreatment (degerming) for the dry grind ethanol industry so that plants might realize more value from corn fractions that the market demands (i.e., reducing fiber content, increasing protein content) Pretreatment can also increase plant efficiency.

Applications:
Specialty Corn with trait(s) in germ portion that are approved for food uses
Specialty Corn with trait(s) in germ portion that are not approved for food uses
Recapture of corn oil after fermentation for feed and food uses

To date, an economic model of the ethanol process has been developed, which includes the option for using “quick-germ” degerming method.

Discussion included the potential feed market uses for corn fractions, difficulty in getting cost data from firms, and the fact that favorable ethanol prices have skewed industry interest toward investment in plant capacity rather than in refining processes They are more concerned with expanding processing capacity and infrastructure for plant operation and transportation.

Howard Shepherd presented a new training module on Grain Storage and Management Practices
Bioterrorism Act and FDA’s compliance rules are becoming more applicable to storage of grain for local processing. Traceability becomes a piece of the puzzle in terms of recording source of the grain, and the measurement of mycotoxins and other irregularities are important. Quality issues are becoming much more important, so producers cannot continue to bring grain into a facility which, in turn, stores it on the ground. Farmers are not accustomed to managing grain for as long as is required by local processing, and so maintaining corn quality over several months of storage may require new practices. By 2008, it is estimated that Iowa will need 115% of its corn production, yet we do not have enough covered storage for all of the corn that we need to store.

Howard showed the IGQI Grain Storage and Management Team’s training model that helps farmers, elevators, and ethanol plants evaluate their present storage facilities and systems and make appropriate decisions in terms of future storage.

Discussion included questions about how certain corn varieties, such as highly-fermentable starch corn, need to be maintained, stored, and delivered for ethanol processing. At what level is the premium for specialty corn worth it for the extra work involved? Charlie Hurburgh suggested that the commodity price for corn might change overall to accommodate the extra requirements. Randy Dunn mentioned the benefits of “forward marketing,” and that the cost of recently built grain storage has increased 17% over last year. Will producers, if they making more money, want to manage more grain storage or raise livestock? How will farmers who move south for the winter manage grain stored on their farms? Perhaps this is an opportunity for new and beginning farmers. Brian suggested that, as farms get bigger, business plans are to deliver grain immediately to the elevator and not to handle it more than once. This would possibly limit building and managing on-farm storage.

Mike Owen reported on Management of Glyphosate Resistance

At the Glyphosate Stewardship Forum in St. Louis, cotton producers, corn producers, and soy producers said resistance to glyphosate was not of much concern. Yet, glyphosate resistance is increasing at an increasing rate. It was decided to have a National Glyphosate Forum Redux. IGQI is supporting this work.

Information on Mike’s current studies can be found at www.weeds.iastate.edu

Following are some of the points shared in Mike’s presentation:

A particular crop trait imparts selection pressure upon the pest complex for which it was designed. Though the trait itself does nothing to the pest complex, the producers’ management decisions to use a certain herbicide will, in turn, impart the selection pressure. Mike has been evaluating weeds with variable responses
to glyphosate, and also looking at low lin beans, high oil corn, white corn that respond differently to weed management practices. No quality traits have been related to weed resistance. These efforts will help develop less risky weed management practices with specialty crops. Mike is also including time management tips for farmers for weed control.

Considerable effort is going into providing information about the evolution of herbicide resistance, but these efforts have been marginally effective (e.g. ALS resistance.) Sixty-six percent of Indiana growers expressed only a low to moderate concern about glyphosate resistance, even though they are in an area that has significant weed resistance to glyphosate. Only 38% of growers recognized the role of repeat methods of application on selection pressure. Adoption of glyphosate resistant crops continues to rise.

The move to less aggressive tillage or no till systems has had some effective on weed resistance. Some of the weeds that become resistant to glyphosate are also those that are favored under reduced till system. In Iowa, we still have other options to control these weeds, such as using older herbicides.

The target audience for information about weed resistance is the agronomists who guide producers on weed management, not necessarily the producers themselves.

Chad Laux (PhD graduate student with Charlie Hurburgh) presented *The Impact of an Auditable Quality Management System (QMS) in a Grain Elevator Application*

Chad’s report was based on Farmer’s Cooperative (FC) in Farnhamville, IA. This is a northwest Iowa company with over $400 million in sales, 50 locations, and 350 employees. FC has the following departments: Grain, Agronomy, Feed, Seed, Administration, and Accounting.

This study focused on company processes which directly affect grain preservation and handling within the ISO definition of “processes that transform the end product in ISO structure”. FC already had a database on grain grading by in-house inspector and by an official inspector. This allowed them to set precision specifications for their employees. In the study, corn moisture measurement (based on instrumental measurement) and corn damage measurement (based on visual evaluation) were selected to determine if the difference between the “house” measurement and “official” measurement could be minimized by using QMS procedures. Using AIB/QSE (American Institute of Baking/Quality Systems Evaluation) and QMS, corn moisture instrument measurement was not significantly affected; however, significant changes were seen in corn damage measurement. So, those processes that are dependent on human evaluation showed less discrepancy between the “house” and “official” measurement after QMS training.
ISO procedures can facilitate traceability in grain handling, which would enable elevators to meet FDA Bioterrorism Act guidelines in tracking commodity grain. Chad studied whether QMS training would facilitate traceability. Mock recalls were conducted at 21 locations to measure the effectiveness of QMS training. Results showed that all locations could meet the “one up and one down” requirement of FDA within the time requirement. Typical response time was 4 hours and longest time at a location was 24 hours. The FBI is going to use the Odebolt facility as a national biosecurity test case in a week-long training exercise this summer.

This process allows a traceability system from the grain’s origin. FDA must, on a recall, trace backwards from the problem. Documentation is key to successful traceability as long as records are honestly maintained. One factor still to be determined is lot size – what is smallest or largest size that can be isolated and possibly disposed of?

Charlie Hurburgh gave the Advanced Corn-to-Ethanol Platform statement (coordinated by Larry Johnson) and how the IGQI fits into this platform. Goals are to improve operational efficiency and reduce costs of producing ethanol from corn and to introduce alternative feedstocks such as corn grain fiber and corn stover.

Three project areas of Corn-to-Ethanol Platform are:

1. Advancing dry-grind corn ethanol production
   Reduce energy consumption

2. Increasing the value of co-products
   Reduce fat for ruminant feeds
   Improve protein quality to compete with soy
   Reduce fiber for non-ruminant feeds
   Modify traits
   Find uses for distillers grains

3. Raw material supply management
   Ease the shortage of local grain storage (presently 0.5-0.8 billion bu)
   Shift of raw material transportation to short hauls by truck
   Measure and manage key raw material factors
   (e.g. fermentable starch, germ size, fiber, moisture content, hardness)
   Facilitate supply chain organization
   Develop traceability protocol for raw materials through processes
   Identify food safety factors affecting production (e.g., mycotoxins, unapproved GMO)
   Segregate unfit materials for other purposes

Topic areas of IGQI are:

1. Grain storage and its impact on ethanol process
2. Management operations for raw materials that impact efficiency, output
quantity and quality
3. Certified quality management systems and supply chain management

Other discussion:
Larry Johnson asked the group to discuss what IGQI might do that it isn’t already doing to support the bioeconomy. A suggestion was made to look at factors to help calculate an export tax to recoup costs on the system. What’s the right number to recoup the total cost of producing a gallon of ethanol? This would be a good reason to re-do the Grain Flow Survey.

Another suggestion was made that IGQI be a proactive source of the information that can lead to policy for environmental issues such as water quality, weed resistance. This would allow the agricultural community to face these issues up front. Iowa has no policy in place to deal with surface water issues such as the Western states have developed.

Larry Johnson commented that biorenewables programs have only recently reached a level where the sponsors who can fund the research necessary have actually noticed. Some topics mentioned were:

- How to deal with waste material from the ethanol process that might be used as fertilizer if it contains concentrations of toxic metals, etc. in it.
- How to change the focus from specialty grain market, which will likely be livestock feed, to efficiency.
- What will be the effect on soybeans in terms of quality, storage, and handling?
- How is the soybean processing focus affecting the maintenance of an export market? Is this affected by relative price of protein from soy vs. distiller grains? How do we keep enough of high quality protein on the market for livestock producers? If we become an oil importer, then we compete on against other world food markets.
- Is there a danger of ethanol plants in the Western US outbidding Iowa ethanol plants for corn?
- What could be done to keep producers abreast of these changes so they can make informed decisions in their own operations?

After this discussion, the meeting adjourned at 2:45pm. The next meeting will be scheduled in July, as a planning discussion for the specific activities to be done in FY2008.

Respectfully submitted,

Connie L. Hardy