

# Grain Quality Newsletter

News and Highlights from NC-213: Management of Grain Quality and Security in World Markets.

Volume 27:3

NC-213 The U.S. Quality Grains Research Consortium



## Calendar items of interest ...

Upcoming deadlines and events

- NC-213 Annual Meeting 2008: Our next annual meeting will take place in February 2008 in Omaha, Nebraska, at the Omaha Hilton. Our meeting dates coincide with GEAPS 2008, and we will enjoy a joint banquet on the evening of Tuesday, February 26, 2008. Please visit our web site for updated information and watch your e-mail for meeting details.
- Andersons Research Grant Program — Team Competition 2008: Projected announcement date is June 2008 for a projected due date for RFP on September 1, 2008.
- NC-213 Re-write: The writing committee leader is Dr. Michael D. Montross, Biosystems and Agricultural Engineering, University of Kentucky. Mike and his committee will create a proposal that will take NC-213 into the next five-year term (October 2008–September 2013). The first portion of the Re-write was completed — Issue(s) and Justification — in September. The Re-write is to be reviewed by the NCAC in February 2008.

The Grain Quality Newsletter is published and distributed at no charge to NC-213 (formerly NC-151) participants and supporters of research on "Management of Grain Quality and Security in World Markets."

Send your contributions, comments, suggestions, and subscription requests to:



F. William Ravlin  
Grain Quality Newsletter  
The Ohio State University  
OARDC  
1680 Madison Avenue  
Wooster, OH 44691-4096  
e-mail: ravlin.1@osu.edu

## NC-213 Annual Meeting Is Coming in February 2008

The NC-213 Annual Meeting/Technical Session is approaching. The annual meeting is scheduled for February 26–27, 2008, in Omaha, Nebraska. We will be enjoying a joint banquet with the GEAPS 2008 conference. NC-213's current executive committee is excited to offer a program that will include many informative presentations.

### NC-213 Annual Meeting/Technical Session Program

Hilton Omaha

1001 Cass Street, Omaha, NE United States 68102

Telephone: 402-998-3400

Here is listing of program events:

#### NC-213 Business Meeting

For all NC-213 Participants, Executive Board, and Industry Advisory Committee. NC-213 Participants may also register at this time.

#### 6:30 – 8:30 PM: GEAPS Reception/Banquet

The President's Banquet will be a plated meal. Part of the program will include The Andersons Research Award Recipient for 2008 presentation. GEAPS is planning a post-Banquet event. For a complete look at the program schedule, please refer to the GEAPS materials/web site at <http://www.geaps.com/> for complete details.

#### NC-213 Executive Committee Meeting

Closed to all except the Executive Board.

#### Presentations by recipients of The Andersons Research Grant Programs

#### Presentations by researchers dealing with our three Objectives:

Objective A: This session will explore the practices and technologies to support quality management systems for production, distribution, processing, and utilization of quality grains and oilseeds. Papers will address, in part, the practices and technologies to support quality management systems for production, distribution, processing, and utilization of grains and oilseeds. Pre-harvest production will also be covered.

Objective B: This session will explore basic knowledge, science-based standards, and technologies that promote crop quality, food security, and food safety in grain markets. Papers will address grain quality and food safety during production, storage, and processing for feed, food, or industrial use.

In addition, this session will include the evaluation and development of standards and technologies based on sound science. Research areas include identity preservation; pest control; microbiological indicators of safety and quality; physical, chemical, and biological means of ensuring grain safety and quality; and trace-back technologies.

Objective C: This session will explore the creation of and dissemination of scientific knowledge that will enhance public confidence in market-driven quality management systems for grain. Papers will address methods of measuring ingredients, methods of evaluating biochemical components, and methods for identifying quality traits of ingredients.



## International Grain Quality and Technology Congress

Chicago Illinois, USA July 15-18, 2008



Leading scientists, engineers, economists, and professionals from academia, government, and the agricultural and food/feed/fiber/fuel industry will make presentations and participate in the 2008 International Grain Quality and Technology Conference to be held July 15–18, 2008, in Chicago, Illinois. These individuals are involved in the production, handling, and utilization of cereals, oilseeds, and co-products, and the manufacturing of grain-based foods, feeds, fiber, and fuel from throughout the world.

This conference is timely because of emerging global competition for grain to supply the rapidly increasing demand for food, feed, fiber, and fuel. The demand for corn-based fuel ethanol has sharply increased in the United States since 2004, causing a sudden expansion in corn production and the associated post-harvest handling, storage, transportation, and marketing system.

The conference's goal is to provide a global symposium on the technical, scientific, and economic opportunities and challenges involved in creating and capturing value in the grain-based food, feed, fiber, and fuel supply chains.

#### Conference Timeline:

October 31, 2007	Abstract Submission Information
December 31, 2007	Deadline for abstracts for scientific posters/papers
February 15, 2008	Notification of acceptance of scientific papers/posters
April 30, 2008	Deadline for early registration
April 30, 2008	Submission of final written papers
June 30, 2008	Deadline for commercial and educational exhibit reservations
July 15–18, 2008	Conference





## NC-213 Engineers, Scientists, Economists Share Their Research...

### Efficacy of Chlorfenapyr Against *Tribolium castaneum* and *Tribolium confusum* (Coleoptera: Tenebrionidae) Adults Exposed on Concrete, Vinyl Tile, and Plywood Surfaces

Phantom® is a new insecticide that specifically targets insect metabolism and is registered to control termites, cockroaches, and ants. If this chemical could be registered to control stored-product insects inside facilities where processed food is stored, it would enable the use of an insecticide that would be of limited danger to humans. Since there are no published data for stored-product insects, adult red flour beetles and confused flour beetles were exposed on concrete, tile, and plywood surfaces treated with Phantom®. The insecticide was more effective on concrete compared to tile and plywood, and the red flour beetle was more susceptible than the confused flour beetle. Most beetles died within one to seven days after they were exposed on the treated surfaces. Results show that this insecticide can be incorporated into management plans for stored-product insects in food-processing facilities, and the insecticide label is being amended to include control of these insects.

Frank Arthur: 785-776-2783; e-mail: frank.arthur@gmprc.ksu.edu

### Relationship of Bread Quality to Kernel, Flour, and Dough Properties

It is difficult to examine wheat kernels, or the flour or dough from those kernels, and determine if they can be used to make a good loaf of bread. However, breeders need to know if their breeding lines will bake well, and millers and bakers need to know if grain or flour they buy will result in good quality bread. We worked with the Federal Grain Inspection Service to select commercial samples on which we measured some 50 different grain, flour, and dough attributes. We then developed models to predict bread quality including loaf volume, bake mix time, and water absorption. Resulting models showed that these quality indicators could be predicted with accuracies sufficient for screening samples. These results will help breeders develop lines with good bread quality and help millers and bakers adjust their processes to maximize profits and give domestic and international consumers a consistently high-quality product.

Floyd Dowell: 785-776-2753; e-mail: floyd.dowell@gmprc.ksu.edu

### Design and Testing of an Instrument to Measure Equilibrium Moisture Content of Grain

An instrument probe was developed to measure the equilibrium moisture content (EMC) of grain using a relative humidity (RH) and temperature (T) sensor. The probe was designed for insertion into the top of grain bulks. Advantages of this method of moisture measurement are that the sensor is inexpensive and is interchangeable. Disadvantages are that moisture measurements rely on the accuracy of ERH and T predictions of moisture and the response time of the sensors which are slow to equilibrate to the grain environment. Instrument response time was substantially improved by forcing airflow over the sensor and using prediction models to determine the equilibrium value of the sensor. Measurement time was reduced to approximately five minutes or less.

Paul Armstrong: 785-776-2728; e-mail: paul.armstrong@gmprc.ksu.edu

### Comparison of Three NIR Spectrophotometers for Infestation Detection in Wild Blueberries Using Multivariate Calibration Models

Consumers are more interested in fresh and processed blueberry products because of their potential health benefits, particularly as a good source of antioxidants. The blueberry maggot fly is the most important pest of commercially grown lowbush and highbush blueberries in eastern North America and can infest a significant amount of the blueberry crop. Domestic and international markets for fresh, canned, and frozen fruit have a near zero to zero tolerance for infested fruit. There is a potential to change the way in which this fly is managed on-farm by developing technologies that rely upon detection of the fly within the fruit at the processing plant using optical detection systems such as near-infrared spectroscopy (NIRS). We studied the application of three NIRS instruments for detecting internal larvae and showed infested blueberries could be detected with accuracies up to 80 percent. This technology could be used to detect infested blueberries online and lead to an automated means of detecting and removing defective berries. This technology will help the blueberry industry meet the needs of domestic and foreign markets and thus lead to expanded markets for their product.

Floyd Dowell: 785-776-2753; e-mail: floyd.dowell@ars.usda.gov

Reprinted from the GMPRC Research Kernels, July 2007 and August 2007 Issues. Used with permission.

## GEAPS, Purdue Unveil Distance-Ed Course Schedule

After getting the green light last month from GEAPS' Distance-Education Program Oversight Committee (DEPOC), member-volunteers and partners at Purdue University officially scheduled several new and repeat courses and continued efforts to get them ready.

The new courses include:

- *Fuel Ethanol Production: Fundamentals, Operation, and Management*, scheduled for January and February 2008
- *Safety Management of Grain and Processing Facilities*, scheduled for June and July 2008.

Registration for the ethanol course — the first in a series of ethanol-production courses planned by the committee — will open in December. Registration for Safety Management is likely to open next May. To accommodate anticipated demand, both courses will be repeated later.

All GEAPS-Purdue courses limit the number of students to 50, in order to preserve class quality and maximize opportunities for student participation.

The GEAPS-Purdue program offers five-week CD- and internet-based courses that closely follow GEAPS' core priorities for educational programming. Course topics are selected by the oversight committee — all GEAPS members. Members also have a hand in selecting faculty, developing the presentations, and making sure that the presentations meet goals and industry standards.

GEAPS members are entitled to a substantial discount on the enrollment fees.

Dr. Dirk Maier, the program director, and new Program Manager Matt Roberts, both of Purdue, lead the effort. Roberts was hired on a full-time basis recently in response to strong industry interest in additional distance-ed programming. Mike Kiel of The Andersons heads DEPOC.