

Grain Quality Newsletter

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

Volume 23:3

Visit the NC-213 web site at: <http://www.oardc.ohio-state.edu/nc213>



Calendar items of interest ...

Upcoming events and issues:

● This year, submissions for the Annual Report of Progress are due Friday, December 19. If you are planning on presenting at the Annual Meeting - Winter Technical Session, you are encouraged to submit your presentation so that it can be included in the Annual Report of Progress. For assistance in formatting your Report, please visit the NC-213 web site, and scroll down to the "Formatting Instructions for your Annual Progress Report" section.

● The NC-213 Annual Meeting/Winter Technical Session - will be held on February 24-25, 2004 in Minneapolis. For the complete program agenda, see the NC-213 web site at: <http://www.oardc.ohio-state.edu/nc213>

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."

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INTERNATIONAL QUALITY GRAINS CONFERENCE

A Global Symposium on
Quality-Assured Grains and Oilseeds for the 21st Century

July 19 - 22, 2004
University Place Conference Center
Indianapolis, Indiana, USA

The objectives of this International Quality Grains Conference are to present current research-based knowledge on:

- 1) Measurement technologies to quantify agronomic, quality, and end use traits of cereals and oilseeds,
- 2) Best management practices to assure the identity/purity and integrity/quality of cereals and oilseeds during the production, harvest, handling, post-harvest, and processing operations, and
- 3) Management approaches to meet customer needs for the identity preservation, certification, and tracking of cereals and oilseeds in the evolving global market place of differentiated products.

Participants and presenters at this International Quality Grains Conference will include the leading scientists, engineers, economists, and professionals from academia, government, and the agricultural and food/feed industry involved in the production, handling and utilization of cereals and oilseeds, and the manufacturing of grain-based foods and feeds from throughout the world.

Representatives from the agricultural and food/feed industry (including equipment, biotechnology and service suppliers; grain producers, handlers and processors; and food and feed manufacturers), producer organizations, certification agencies, grain inspection services, universities, research institutes, and international trade policy groups from throughout the world are invited to participate.

PURPOSE

The need and timeliness of this International Quality Grains Conference exists because of the emergence of a global market place for differentiated products that requires the traditional commodity-based production, handling, and processing industry to adopt new practices that will ensure the purity and quality of cereals and oilseeds from seed to consumer. The importance of molecular biology in variety development has had a significant impact on the production, handling, marketing, and delivery of cereals and oilseeds. Continuing expansion of markets for value-added crops (developed through genetic

engineering as well as traditional breeding) requires rapid purity and quality detection technologies, and development and adoption of best management practices and quality management systems that are practically achievable, economically viable, and fully accepted in the global market place. This conference will present the newest research and knowledge that address these issues through keynote, oral and poster presentations, and special topic workshops. Commercial tabletop exhibits, and pre and post tours into the United States Grain Belt will also be organized.

BACKGROUND

In 1990 the University of Illinois together with NC-213 and several other organizations hosted *Uniformity by 2000 - An International Workshop on Maize and Soybean Quality*. More than 120 participants from 16 countries were in attendance. The objective of that workshop was to identify areas of international agreement on uniform definitions and measurement technologies of corn and soybean characteristics that determine quality. Since then many new scientific and technological advances in grain and oilseed production, handling, and delivery have been made and new issues related to the definitions, measurement technologies, segregated handling practices, certification, tracing, and identity preservation of conventional and transgenic grains and oilseeds have emerged. These changes form the basis to bring experts from around the world together to review advances, study the issues, and push the frontiers in the production, handling, and delivery of quality grains and oilseeds.

TIMELINE

September 31, 2002 1st Announcement - Establishment of the conference website
August 18, 2003 2nd Announcement - Abstract Submission - Registration Information
October 30, 2003 Deadline for abstracts for posters/papers
December 31, 2003 Deadline for advance registration
January 31, 2004 Notification of acceptance of papers/posters
March 31, 2004 Submission of final written papers
May 31, 2004 Final communication to conference delegates
July 19-22, 2004 Conference

Karen Bender Bids Farewell to NC-213

Karen Bender, University of Illinois at Urbana-Champaign, accepted a new position (Associate Director of Corporate and Foundation Relations) at the University of Illinois at Urbana-Champaign. While this new position will provide Karen with many challenges and opportunities, it also requires her to conclude participation with NC-213.

Karen's diverse involvement with NC-213 has spanned approximately 12 years. Here are some highlights from her involvement with NC-213:

Karen Bender began her participation with NC-213 in 1990. From 1998-2000, she pursued a Ph.D. in Agricultural Economics and her participation changed to that of a graduate student. She became an Official Station Representative for the University of Illinois at Urbana-Champaign in 2001.

Due to Karen's economic background, she was selected to serve as an Objective D Co-Chair - "Determine the economic impact of improving the quality of cereals and oilseeds." In addition to being an official station representative and objective co-chair, she was awarded funding from The Andersons

Research Grants program. Awarded research included:

- 1994-1996: *Meeting the soybean challenge from Brazil*. Karen Bender and Lowell Hill
- 1996-1998: *Price response to improved corn quality*. Karen Bender and Lowell Hill

Karen, in collaboration with Lowell Hill, Professor Emeritus, University of Illinois at Urbana-Champaign, was Coordinator of the International Grain Quality Conference: Uniformity by 2000. She was Chair - Section 3 of the International Grain Quality Conference: A Global Symposium on Quality-Assured Grains and Oilseeds for the 21st Century.

Karen had a research article appear in the May 1990, Vol. 11, No. 1 Issue of *Grain Quality Newsletter* - Quality preferences of soybean processors surveyed by Karen Bender and Lowell Hill. In addition, she was a member of the NC-213 5-year rewrite team.

All participants of NC-213 will miss Karen and her many contributions and wish her well in her new position.

Grain Marketing and Production Research Center (GMPRC), Manhattan, Kansas

Floyd Dowell's Research Highlighted...

Research Kernels, a quarterly flyer published by GMPRC (Grain Marketing and Production Research Center, Manhattan, Kansas) highlights research conducted by GMPRC scientists. One scientist and NC-213 participant, Floyd Dowell, has seen his share of research highlighted. His work has consistently appeared since March 1998. His latest research highlighted appears in this edition of the *Grain Quality Newsletter*.

How Badly Damaged is That Soybean? Damage is an important quality factor for grading, marketing, and end-use of soybeans. Seed damage can be caused by weather, fungi, insects, artificial drying, and mechanical damage during harvesting, storage, and handling. The current method for assessing soybean damage is a visual assessment of the seed discoloration. An NIR instrument was used to collect single seed spectra in the wavelength region from 490 to 1,690 nm. Classification accuracies were 100% for sound seeds, 98% for weather damaged seeds, 97% for frost damaged seeds, 64% for sprout damaged seeds, 97% for heat damaged seeds, and 83% for mold damaged seeds. This work was done in cooperation with Dr. Donghai Wang from the Biological and Agricultural Engineering Department at Kansas State University. (Floyd Dowell, telephone 785-776-2753, email: fdowell@gmprc.ksu.edu).

Can First-Break Rollers in a Flour Mill be Gap Adjusted Automatically? Some 140 samples of tempered wheat representing the six major classes were ground in an experimental roller mill using five roll gap settings (0.38, 0.51, 0.63, 0.75, and 0.88 mm). Grinding energy was measured in terms of energy units per mass and the flour produced was sieved into different sized fractions. Additional Hard Red Winter and Soft Red Winter samples were also milled in order to develop NIR prediction models specifically for these two wheat classes. NIR spectra were taken of all ground samples. Prediction models were developed from NIR data and could accurately predict the amounts of material obtained in each of the different particle size fractions with r^2 value in the .9 range for the best models. As a result, it may be possible to use NIR analysis of the flour to automatically adjust the roll gap settings so that the desired particle sizes are produced. (Floyd Dowell, telephone 785-776-2753, email: fdowell@gmprc.ksu.edu).

NC-213 participants involved with ESA meeting

NC-213 participants gave Symposiums at The 51st Annual Meeting of the Entomological Society of America in October. The Annual Meeting was held October 26-29, 2003 at the Albert B. Sabin Cincinnati Convention Center, Cincinnati, Ohio.

The theme for the 2003 meeting was, "From Many Disciplines, A Great Science." One of the great strengths of the Society is the breadth of disciplines represented by members. This theme highlighted Entomology as a Science focused on the study of insects for the advancement of science and society. Numerous disciplines are essential components of entomological studies; systematics, genetics, evolution, behavior, ecology, biochemistry, biotechnology, physiology, toxicology, and others. Many of the world's great discoveries occur at or across the interface of disciplines. Working together, the great diversity of the science is one of the true strengths which enable ESA to improve the understanding of insects, as well as to solve practical problems and benefit society.

NC-213 participants involved in this year's ESA Annual Meeting included:

Frank Arthur, USDA, ARS, GMPRC – Manhattan, Kansas.
"Stored product pest management: past, present, and future."

Florence Dunkel, Montana State University, "What do we mean by 'human food insects?'"

Linda Mason, Purdue University. "Influence of sanitation level on flour beetle pheromone trap catch."



And the winners are...

Since 1978, The Andersons Agricultural Research Fund has been providing funding for research related to, and addressing one or more of, current Plan of Work objectives for NC-213 (formerly NC-151).

Recipients of funding complete an annual (Year 1) progress report and a final (Year 2) written report. Successful investigators are eligible to receive future funding from The Andersons Grants Program only if they have completed previous projects and submitted acceptable final reports. In addition to written reports, grant recipients present project results during NC-213 Annual Meetings.

A large measure of the success of the NC-213 Committee over its 25-year existence is due to the research funds made available on a recurring basis by this funding opportunity.

The Andersons Grant Program this year yielded seven proposals. Approved proposals for two year funding are:

- Lloyd B. Bullerman, Dojin Ryu
University of Nebraska Lincoln
"Biological evaluation of reduction of Fumonisin B₁ Toxicity in corn grits by extrusion processing."
- Dirk Maier
Purdue University
"Development and optimization of a high-capacity continuous-flow dryeration process."
- Bhadriraju Subramanyam, Sajid Alavi, Fangneng Huang
Kansas State University
"Development and implementation of a thermal death kinetic model for management of Indianmeal moth and red flour beetle in food processing environments."
- Charlene Wolf-Hall, Frank Manthey, Monisha Chakraborty
North Dakota State University
"Survey of the microbiological quality of the wheat crop from the northern Plains and evaluation of ozone for reducing microbial loads and mycotoxin content in the wheat."

Congratulations to all winners.