

Grain Quality Newsletter

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

Volume 24:2

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 December 20, 2004. 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.
- Recently, a "Call for Papers" was announced. As a reminder, any research within the scope of the objectives may be in the program. We are asking that presentations be submitted by September 30, 2004.
- The NC-213 Annual Meeting/Winter Technical Session will be held on February 23-24, 2005, in Kansas City, Missouri. For the complete program agenda, see the article in this issue.

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:



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The 2004 International Quality Grains Conference was held in Indianapolis, Indiana, July 19-22, 2004.

More than 200 individuals from 14 countries attended the Conference. The overall goal of the 2004 International Quality Grains Conference was to provide a global symposium on quality-assured, traceable, and biosecure grains and oilseeds. The specific objectives of this conference were to present current research-based knowledge on:

- Measurement technologies to quantify agronomic, quality, and end-use traits of cereals and oilseeds.
- Best management practices to assure the identity, purity, integrity, quality, and biosecurity of cereals and oilseeds through the supply chain from production through harvest, handling, post-harvest, and processing operations to final end use.
- Quality management system approaches for the identity preservation, certification, trace back, and biosecurity of cereals and oilseeds in the evolving global market place of differentiated products.



Participants and presenters at the 2004 International Quality Grains Conference included 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 were invited to participate. Twenty-two companies registered as Exhibitors.

Highlights from the Conference Program:

Tuesday Evening, July 20 - Keynote Address: Mark Mansour - Morgan, Lewis & Bockius, LLP, member of the State Department International Economic Policy Task Force on Biotechnology and the Food Industry Codex Coalition.

NC-213 Annual Meeting : "Management of Grain Quality and Security in World Markets"

Tentative program agenda for the upcoming NC-213 Annual Meeting.

Wednesday, February 23, 2005:
11:00 a.m. - 1:00 p.m. NC-213 Executive Committee Meeting.
1:00 - 5:00 p.m. NC-213 Registration.
1:00 - 5:00 p.m. NC-213 Technical Sessions.
Manager's Reception. Banquet. Presentation of The Andersons Research Award. Keynote Address.



Wednesday Evening, July 21 - Conference Reception at the NCAA Hall of Champions. This reception included appetizers and museum access.

Thursday afternoon, July 22 - Post-Harvest tour of Indiana/Illinois farm and commercial facilities specializing in food grain production, handling, and processing.



The organizing committee is comprised of the following individuals:

Dr. Dirk E. Maier, Purdue University, Conference Coordinator and Chair
Dr. Charles R. Hurburgh, Iowa State University, Conference Co-Chair and Objective 1 Chair
Dr. Marvin R. Paulsen, University of Illinois, Conference Co-Chair and Objective 2 Chair
Dr. Mike D. Montross, University of Kentucky, Commercial and Educational Exhibit Chair
Dr. Mark E. Casada, USDA-ARS-USGMPRC
Dr. Tim J. Herrman, Kansas State University
Dr. D. Demcey Johnson, USDA-ERS
Dr. Eluned Jones, Texas A&M University
Dr. Bill Ravlin, NC-213/The Ohio State University
Dr. Steven N. Tanner, USDA-FGIS

Thursday, February 24, 2005:

8:00 a.m. - 12:00 p.m. NC-213 Technical Sessions.
12:00 - 1:30 p.m. NC-213 Business Meeting.

The Program will include first-year reports on The Andersons Research Grants Program 2003 and second- (final) year report on The Andersons Research Grant Team Competition Program 2002.

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

Research Kernels, a quarterly flyer published by GMPRC (Grain Marketing and Production Research Center, Manhattan, Kansas) highlights research conducted by GMPRC scientists. NC-213 member research that appeared in the April and July flyers was contributed by:

- Solvent Retention Capacity (SRC) Test Results on Hard Winter Wheat Show Promise. Supercritical Fluid Extraction Method Can Segregate Non-polar and Polar Lipids. (Okkyung Kim Chung, telephone: 785-776-2703; e-mail: okchung@gmprc.ksu.edu)
- New Starch Isolation Method Developed for Sorghum Using Sonication. Waffles Made From Sorghum Flour Taste Great. (Scott Bean, telephone: 785-776-2725; e-mail: scott@gmprc.ksu.edu)
- Level of Commingling of Grain Measured in Commercial Grain Elevator. (Mark Casada, telephone: 785-776-2758; e-mail: casada@gmprc.ksu.edu)
- Engineering Research Unit Expands High-Speed Sorting Capabilities. (Floyd Dowell, telephone: 785-776-2753; e-mail: fdowell@gmprc.ksu.edu)
- Update on Center Renovation. (Donald Koeltzow, telephone: 785-776-2702; e-mail: dek@gmprc.ksu.edu)

The following Technical Report appeared in the Methyl Bromide Alternatives publication, Vol. 9, No. 2, Fall 2003.

Residual Products

Historically methyl bromide was not extensively used as a grain fumigant in the United States, and until the early to mid-1980s, there were several registered fumigants that could be used instead of methyl bromide. Today phosphine is the only other fumigant still labeled for raw stored grains, and it receives heavy use by the grain industry. Methyl bromide is more commonly used in mills, processing plants, and food warehouses.

The Methyl Bromide Technical Options Committee (MBTOC) has on several occasions listed a variety of control strategies that are considered as alternatives to methyl bromide for indoor and structural treatment. These alternatives are not limited to other fumigants; they include residual surface sprays, aerosol and fogging applications, sanitation and cleaning, targeted control for specific areas, and sampling and monitoring of insect populations to determine the need for insecticide application.

Several residual sprays are labeled for direct application to floors and walls of mills, warehouses, food-processing plants, and other indoor areas. One example of a residual spray is cyfluthrin (Tempo), a pyrethroid insecticide labeled as both a general surface spray and a crack-and-crevice spray. Another example is the insect growth regulator hydroprene, which is labeled as an aerosol and as a residual surface spray. Some organophosphates are still registered for use in mills and processing plants, but only as crack-and-crevice or spot applications or applications to outside perimeters around structures. Other pyrethroids are also labeled as surface or crack-and-crevice sprays, and the insecticide label will always give the specifications for use along with the application rates for specific areas or locations.

Current research with residual products encompasses several broad areas, including evaluation of new products for control of stored-product insects, improving the performance of existing products, and identifying the factors that can affect insecticide efficacy. The temperature at which insects are exposed to a particular insecticide often affects residual performance and actual persistence of the chemical. The presence of food material, either during or after the insects' exposure to residual chemicals, often leads to higher survival rates. Sanitation and cleaning in conjunction with pesticide applications is extremely important because trash and spilled material can compromise pesticide efficacy. Insect species vary in their response to particular insecticides: some species are simply more susceptible than others to a particular insecticide. Also, susceptibility can be different depending on the specific insecticide or class of insecticides used. Finally, the actual time that insects are directly exposed to a residual insecticide often affects mortality, and some insecticides kill at faster rates than others.

Movement of insects over and through a treated surface can be important, especially if they are repelled by the insecticide, or if they can avoid exposure or even move through the treated area without being affected by the insecticide. Insects exploit individual food patches or selected areas and may never come

into contact with the insecticide. Population dispersal from centers of infestation and how insects disperse from these centers can also affect control efforts, particularly when the centers of infestation are not located in the same areas that are being treated with insecticides.

One of the goals in pest-management programs is to identify the source of infestation and target control efforts toward that source or area of infestation. Certain areas within a facility may be more vulnerable to infestation, and efforts can be targeted to those sites. However, insects can still move from untreated areas, and populations may quickly rebound even after insecticide treatment. Researchers are employing several strategies for identifying and mapping the distribution of insect populations. Spatial mapping can be used to chart the dispersal and movement of insect populations, and it often can point out that the source of an infestation may be well away from any areas being treated with residual insecticides.

Residual insecticides can still be a viable part of modern pest-management programs for flour mills, processing plants, and food warehouses. Selected use of residuals may lead to less total insecticide use and could even eliminate some fumigations with methyl bromide. As pest management shifts from a chemical approach to a more knowledge-based strategy for insect pest management, selected use and management of insecticides will be included as a component of broader, more integrated approaches to insect control.

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