Grain Quality Newsletter

News and Highlights from NC-213: Marketing and Delivery of Quality Cereals and Oilseeds

Volume 20:2

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

Calendar items of interest …

Upcoming events-

- **The Anderson Research Grant Program** will provide research funding within the scope of the multistate research project NC-213 - "Marketing and Delivery of Quality Cereals and Oilseeds". For this competition, one team proposal will be funded and will receive up to $50,000 per year for two years (total $100,000). To be eligible for the Anderson Research Grant Program principal investigators must be current members of Multistate Research Project NC-213, "Marketing and Delivery of Quality Cereals and Oilseeds". The request for proposals can be obtained from the NC-213 web site *www.oardc.ohio-state.edu/nc213.* The project will be selected based on proposals submitted to:

The Anderson Research Grant Program
c/o Dr. F. W. Ravlin, Assistant Director
OARDC, The Ohio State University
1680 Madison Avenue
209 Research Services Building
Wooster, OH 44691

Proposals must be submitted by:
September 1, 2000.

- **Annual Progress Reports** for 2000 are due in December.

- **The NC-213 Annual Meeting** - Winter Technical Meeting is scheduled for February 21 - 23, 2001, to be held in Kansas City, Missouri.

Previous events-

- **The 41st Annual Corn Dry Milling Conference** was held June 1 – 2, 2000 in Peoria, Illinois. During this Conference, Don Wicklow gave a presentation titled "Elimination of *Aflatoxin* Contaminated B.G.Y.E. Corn Kernels through Conventional Breeding".

The *Grain Quality Newsletter* is published and distributed at no charge to NC-213 (formerly NC-151) participants and supporters of research on "Marketing and Delivery of Quality Cereals and Oilseeds."

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

F. William Ravlin, Editor
Grain Quality Newsletter
Ohio Agricultural Research and Development Center
The Ohio State University
1680 Madison Avenue
Wooster, Ohio 44691-4096
Telephone: 330-263-3705
Facsimile: 330-263-3688
e-mail: ravlin.1@osu.edu

Charles Hurburgh Named Anderson Research Award Recipient

Charles Hurburgh, Agricultural and Biosystems Engineering Department, Iowa State University, was named the recipient of the Year 2000 *Anderson Research Award* in recognition for outstanding accomplishments in the marketing and delivery of quality cereals and oilseeds. Dr. Hurburgh is nationally and internationally known for his work in the development of standard corn moisture meter calibrations, the refinement of sampling methods used by grain elevators, publication of estimates of shrinkage in corn drying and handling, development of grain composition testing for market application, calculation of benefits for marketing grain with less foreign material, estimation of costs and benefits for grain marketing by composition, networking of near-infrared analyzers in marketing situations and calibrations for various electronic measurement technologies. He also maintains extremely active research and extension programs in grain sampling, grain moisture measurement and shrinkage, energy consumption and quality losses in grain shipments, end-use value related quality measurements at the country elevator, restructuring of grain markets to reflect more specific quality needs, ISO 9000 application to grain handling, grain standards changes, country elevator management practices, and advanced chemometrics. Recently, he has been heavily involved with numerous informational programs associated with genetically modified crops. Since 1978 he has published over 200 technical and general articles, received over $3 million in funds to support his program, and has advised over thirty masters and doctoral students. Dr. Hurburgh is also the Manager of the Iowa State University, Grain Quality Research Laboratory. In 1996 he developed the Iowa Grain Quality Initiative and now serves as the Professor-in-charge of this program. In 1998 he was named the Iowa Pro Farmer Man of the Year.

NC-213 Partners Collaborate to Submit Proposal to IFAFS

Fifteen universities and USDA laboratories collaborated to submit a proposal to the USDA, Initiative for Future Agriculture and Food Systems grant competition. The proposal entitled "Capacity Building in the United States Value-Enhanced Cereal and Oilseed System" is designed to capitalize on the existing structure of scientists, engineers, and economists that work together under the NC-213 multistate research project. Outputs of this project will include creation and delivery of new management and educational tools based on systems research. The delivery of these products will occur through an active web-based information service, outreach meetings, distance learning venues including satellite downlinks, and case studies for agriculture business classes.

Special thanks go to Tim Herrman (KSU) who put the extra effort into the project concept and writing the proposal. Tim has put his heart and sole into NC-213 and this is one more example of that level of commitment. Charlie Hurburgh (ISU) also worked closely with Tim.

Proposal Contributors:

F. Wm. Ravlin, Admin. Principal Investigator	*Ohio State University*
Timothy J. Herrman, Project Director	*Kansas State University*
Charles Hurburgh, Project Director	*Iowa State University*
Terry Arbogast, Co-Principal Investigator	*CMAV, ARS, USDA*
Patricia Berglund, Co-Principal Investigator	*North Dakota State University*
Michael Boland, Co-Principal Investigator	*Kansas State University*
Lloyd Bullerman, Co-Principal Investigator	*University of Nebraska*
Mark Casada, Co-Principal Investigator	*GMPRC, ARS, USDA*
Floyd Dowell, Co-Principal Investigator	*GMPRC, ARS, USDA*
Florence Dunkel, Co-Principal Investigator	*Montana State University*
Nancy Epsky, Co-Principal Investigator	*CMAV, ARS, USDA*
Sundaram Gunasekaran, Co-Principal Investigator	*University of Wisconsin*
David E. Hahn, Co-Principal Investigator	*Ohio State University*
David Jackson, Co-Principal Investigator	*University of Nebraska*
Donald W. Larson, Co-Principal Investigator	*Ohio State University*
Dirk Maier, Co-Principal Investigator	*Purdue University*
Linda Mason, Co-Principal Investigator	*Purdue University*
Richard Pratt, Co-Principal Investigator	*Ohio State University*
Marvin Paulsen, Co-Principal Investigator	*University of Illinois*
John Sedlacek, Co-Principal Investigator	*Kentucky State University*
Dennis Shuman, Co-Principal Investigator	*CMAV, ARS, USDA*
Peter R. Thomison, Co-Principal Investigator	*Ohio State University*
William F. Wilcke, Co-Principal Investigator	*University of Minnesota*

GMPRC Scientist to Head New APHIS Project

Alan Dowdy has been selected as the National Science Program Leader for Agricultural Quarantine Inspection and Port Technology Development for the Animal and Plant Health Inspection Service. This is the first appointment of a permanent National Science Program Leader in the Center for Plant Health Science and Technology (CPHST). Dr. Dowdy will be responsible for directing and assigning resources to research projects within CPHST. He will report for duty at APHIS headquarters in Raleigh, North Carolina, on June 18.

While at GMPRC, Dr. Dowdy conducted research on monitoring and movement of stored-product insects using spatial mapping techniques and genetic population markers. His most recent work involved the use of heat and diatomaceous earth as an alternative to methyl bromide fumigation for controlling insects in food processing plants. His current position in the Biological Research Unit will not be filled due to a lack of funds.

Alan was highlighted in the August 1999 *GQN* issue regarding his research and the impact it has on NC-213 science. This article outlined his research on minimizing insecticide use in food warehouses and grocery stores by identifying the specific location of insect populations. Alan is on the NC-213 Executive Committee.

You can visit Alan's web site at:
http://bru.usgmrl.ksu.edu/dowdy/dowdy.html

Graduate Students Play a Vital Role in NC-213 Research

Students play an essential role in conducting NC-213 research and represent the cereal and oilseeds scientists of tomorrow.

This Newsletter highlights some of the graduate students who are working with NC-213 members.

ALEXANDER BEKRIC
Advisor: Lowell D. Hill, University of Illinois

Bio: Aleksandar is a Ph.D. candidate and graduate research assistant in the Department of Agricultural and Consumer Economics at the University of Illinois, Urbana-Champaign. Prior to that, Alexander worked ten years as a production and market analyst at The Maize Research Institute "Zemun Polje", Yugoslavia, where he developed marketing strategies for seed export. Alexander specialized in seed corn markets in Eastern Europe. His recent research interests include quality issues in commodity markets, such as grain quality in international trade and food safety in the hog industry.

Ph.D. Dissertation: "A Parametric and Semiparametric Regression Estimation of the Effect of the U.S. Soybean Quality Attributes on Export Price." This research builds on the soybean processors data described by Glen Bode and others. The analysis resolves many of the theoretical and statistical problems encountered by previous attempts to analyze these detailed data. As a result the conclusions are very consistent with theoretical expectations, including the statistical significance of oil and protein and most grade factors in determining prices paid by importers. Price effects differ among importing countries.

Funding:
-The Andersons, Inc.
-Grant from the Federal/State Marketing Improvement Program
-USDA
-Campus Research Board

GLEN BODE
Advisor: Lowell D. Hill, University of Illinois

Bio: Glen is currently self-employed developing a new firm and facilities to better serve the needs of the Korean tofu processors. He served in The Peace Corps, in Africa, conducted research in Thailand under Lowell Hill's direction, and worked for Lowell Hill as a graduate research assistant for several years.

MS Thesis – 1998: "A Hedonic Price Model for Japanese Soybean Imports." This study used a data set from soybean processors in Europe and Japan. Processors provided vessel-by-vessel data on all important quality attributes for five years. The results demonstrated that end use value was having an influence on prices and the U.S. competitive position in world markets.

Funding:
-The Andersons, Inc.
-Grant from the Federal/State Marketing Improvement Program

JEFF REIMER
Advisor: Lowell D. Hill, University of Illinois

Bio: Jeff is currently a Ph.D. student at Purdue University. His previous experience includes two years in The Peace Corps, in Bangladesh. He holds a B.S. degree from the University of Illinois.

MS Thesis – 1999: "The Implicit Prices of Corn Quality Characteristics in U.S. Exports to Japan." This study and his publication were based on data collected from Japanese wet millers for individual vessels to analyze the effect of quality and country of origin on yield of starch in three major wet corn milling plants in Japan. Research included a comparison of quality at origin and destination and a comparison of U.S. and South African origins based on three years of data on individual vessels and FGIS export certificates.

Funding:
-The Andersons, Inc.
-Various Grain Quality Projects

TOD BRAMBLE
Advisor: Timothy J. Herrman, Kansas State University

Bio: Tod is from northern California and is working on his Master's degree in Grain Science. Tod earned a B.S. in Biology from the University of California in Santa Barbara. Before coming to Kansas State University, he worked at the American Institute of Baking in Manhattan, Kansas and Standard Baking Company in Portland, Maine. Tod is married and has one son.

Summary of M.S. Thesis: Tod is quantifying the sources of wheat variation in the Kansas wheat crop by performing a variance component analysis of a hierarchial design using the single kernel characterization system. These results will enable Tod to identify sampling and segregation strategies, which best quantify and control variability respectively.

Funding:
-USDA
-Kansas Ag. Exp. Station

BENJAMIN ARIZMENDI SHO
Advisor: Timothy J. Herrman, Kansas State University

Bio: Benjamin is the Director of Operations for Trimex Milling Company in Mexico City, Mexico. He is completing his Master's degree in Gain Science at Kansas State University. Benjamin earned a B.S. degree on Food Engineering in August 1985 from the University of Mexico.

Summary of MS Thesis: Benjamin is investigating commercial optimization of Kansas identity preserved wheat in two commercial flour mills in Mexico.

Funding:
-Kansas Wheat Commission
-Trimex

ROBERT P. COGDILL
Advisor: Charles R. Hurburgh, Jr., Iowa State

Bio: Robert worked as an undergraduate lab assistant for Dr. Carl Bern. After which, Robert joined Dr. Charlie Hurburgh as a dual-enrolled graduate/undergraduate in the fall of 1998. Robert received his undergraduate degree in December of 1999 and is on track to graduate with his master's degree in May of 2001. Robert is interested in the combination of machine vision, spectroscopy, and artificial intelligence. Robert has a background in PC and microcontroller based automation.

MS Thesis - 2000: To build a NIR imaging system for analyzing single kernels of corn with the intent of rapidly predicting constituent values.

Funding:
-Soybean Research & Development Council
-Various Grain Quality Projects

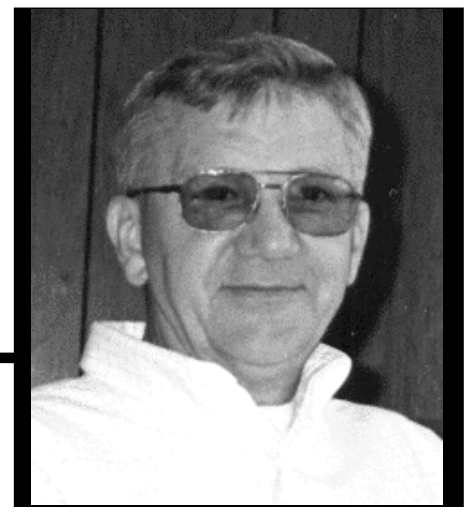
SAFIR MOIZUDDIN
Advisor: Charles R. Hurburgh, Jr., Iowa State

Bio: Safir is from Bangladesh and holds a B.S. in Food Science Technology from Iowa State University. Safir has expertise in the utilization of soybean for food use. In addition, he has a strong background in soymilk and tofu production.

MS Thesis: To investigate the relationship of soybean meal quality and soybean quality.

Summary of Work: Safir is currently analyzing the annual soybean quality survey data to estimate inbound new crop quality to the 70 U.S. soybean processing plants. To further enhance the research, Safir is also reviewing meal samples provided by the FBA sampling program. Safir is working with the FBA in the comparison of soybean quality to meal quality.

Funding:
-Frazier Barnes & Associates
-Soybean Research & Development Council



The Impact of NC-213 Science

ISSUE: The continued elimination of chemical pesticides that are suitable for application to stored commodities has left few effective alternatives for insect control. Insect growth regulators, especially juvenile hormone agonists, are effective alternatives to conventional pesticides.

WHAT'S BEEN DONE: The development and reproduction of the Indianmeal moth is adversely affected by the juvenile hormone agonists fenoxycarb and pyriproxyphen. NC-213 scientists have developed and tested a method that allows treatment of the early stages of flour moth and requires lower doses of the agonist to interfere with flour moth development and minimize grain damage.

We have formulated and tested in small warehouses, an approach that protects packaged commodities from flour moth infestation during storage. We found that flour moths lay infertile eggs when the vertical surfaces in a warehouse are treated with either fenoxycarb or pyriproxyphen. Treated warehouse walls greatly reduce the indigenous moth population prior to commodity storage; in addition to the wall treatment, treating the outer case material that encloses packaged commodities prevents commodity infestation during warehouse storage. This treatment was effective for six months in preventing infestations by Indianmeal moths, Almond moths and Mediterranean flour moths.

THE SCIENTIST: Don Silhacek, USDA ARS CMAVE, Gainesville, FL

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Ohio Agricultural Research and Development Center, The Ohio State University
1680 Madison Avenue
Wooster, Ohio 44691