

Northern Crops Institute Annual Update

2013

Northern Crops Institute supports regional agriculture and value-added processing by conducting educational and technical programs that expand and maintain domestic and international markets for northern-grown crops.



Connecting in the Global Marketplace



A Note from the NCC Chair

Karolyn Zurn, Callaway, Minn.
Minnesota Soybean Growers Association

The last few years have been a whirlwind of new educational course offerings presented at Northern Crops Institute. Cropping patterns have changed significantly in this four-state region and our NCI staff has responded.



Zurn

For the second year, NCI offered the Contracting for Wheat Value workshop, which was held for the first time in 2012. At the workshop, the staff shows international buyers what different protein levels will do to their baked products, and why it's really important to use high-protein spring wheat as opposed to any other wheat that they may be sourcing from other countries.

Another example is the pulse work done by Thunyaporn Naggie Jeradechachai, NCI's Crop Quality Specialist. She is promoting northern-grown pulses around the world, teaching a growing market of food processors about the quality and utilization of this crop. NCI hosted a course featuring the use of U.S. dry beans in extruded snacks in May. It attracted food processors from five Southeast Asian countries and the U.S.

The NCI also presented three courses this year pertaining to the soybean industry: Food-Grade Soybean Procurement Management for Importers and two Baking with Soy courses. We are excited to anticipate two additional soy courses in 2014—the Southeast Asia Commodity Price Risk Management Seminar hosted in Singapore in February, and a customized course at NCI in Feed Manufacturing Technology for a team from China.

The NCI continues to seek ways to extend its educational programming to a larger audience worldwide. We may need to take some of our programming overseas to reach a broader audience. The world has changed significantly since the NCI was established in 1983 and we will continue to respond in a positive way in order to meet these new challenges. The future for our producers in this region is very bright.

The Northern Crops Council and Industry Advisory Board along with the NCI staff have been great to work with and I see only good things happening in the future.

Director's Corner

Mark Weber
Director, Northern Crops Institute

At NCI, we continue to explore new avenues for program development to serve our customers around the world. NCI Feed Center Manager Kim Koch, Ph.D., and I spent two weeks in October in Southeast Asia. We assessed potential education and technical support needs for companies involved in the feed industry, ingredient buyers, and end-users in Singapore, Indonesia, Vietnam, Thailand, and the Philippines. The Southeast Asia office of the U. S. Soybean Export Council provided tremendous assistance in making in-country contacts for us. We also met with representatives of U.S. Wheat Associates and U.S.A. Dry Pea and Lentil Council.



Weber

The companies we visited varied in sophistication and size, ranging from privately-held commercial companies with one feed mill to commercial companies with multiple production sites spread across many countries. Several company executives had previously attended either the risk management or feed manufacturing courses at NCI, so this became an opportunity to renew old acquaintances and meet new companies looking for access to proven education and technical training programs offered by the NCI.

As we toured, Koch answered many questions on various aspects of feed manufacturing. He presented valuable hands-on demonstrations using their own equipment while offering solutions to their particular situation, all with an eye for improving factory efficiencies. Ingredient buyers who are purchasing U.S. corn, soymeal, and other feed grains had questions about how the U.S. markets work—hedging, basis, contracts, etc.

This was my first trip to the Southeast Asia region and it impacted my thinking. First, NCI's mission to provide educational programming and technical support is ongoing. Despite limited resources, we must seek ways to reach an even larger audience if we are to fully capitalize on our region's incredible productivity and ability to feed this hungry part of the world. There is a great need for hands-on training for the feed mill operators who may never have the chance to visit the U.S. to train at our world-class NCI facility. Thus we have to bring that training to them.

While this trip focused on the feed industry, there is need for similar additional technical support for the flour milling industry where many new flour mills are being built, not only in Asia but also in other parts of the world. It is a very competitive world and I believe the NCI needs a continuing presence in that region of the world where growing middle incomes are increasing the demand for the high quality crops that we grow in our region. See page 18 for more details about the trip.

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Valley City, ND
ND Wheat Commission

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Thank You to the Outgoing Northern Crops Council Members for Their Service to NCI



NCI Director Mark Weber (second from left) thanked the outgoing NCC board members for their service on the Northern Crops Council (NCC) by presenting each with an engraved clock at the June 2013 meeting. David Clough (far left), Fessenden, N.D., represented the North Dakota Wheat Commission for two terms and served as Chair for two years. Doyle Lentz (third from left), Rolla, N.D., finished two terms on the NCC where he filled the permanent NCC seat for the North Dakota Barley Council. Ryan Brooks (third from right), Bowman, N.D., represented the Northern Pulse Growers Association during his two NCC terms. Bob Sinner (second from right), Casselton, N.D., represented food processors during his two terms on the Council and will also continue to serve on the NCI Industry Advisory Board. Bob Majkrzak (far right) completed his term as NCC Chair and will complete his last term on the Council in 2014. He also continues to serve on the NCI Industry Advisory Board.

2013-2014 Industry Advisory Board

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- Vance Taylor
North Dakota Mill
- Jennifer Tesch
SK Food International

Highlights



NCI Hosts Tri-State Legislators During Grain Procurement Course

Legislator Day was held at NCI in September to familiarize legislators from North Dakota, South Dakota and Minnesota with NCI's work. The group toured the NCI facility and met some of the staff working in the labs. Many legislators attended the Recognition Dinner for the Grain Procurement Management for Importers Course. The dinner was a great opportunity for regional legislators and producers to meet the overseas buyers who import grain from our region.

Pictured at the event are (front row, l to r): MN State Representative Deb Kiel; Karolyn Zurn, MN Soybean Growers Association and NCC Chair; ND State Senator Carolyn Nelson; ND State Senator Ron Sorvaag; SD State Senator Jason Frerichs; Mike Hergert, Red River Farm Network; Randy Englund, SD Wheat Commission. (Back row, l to r): David Hahn, NCI Director of Technical Services and Business Development; Bill Zurn, MN soybean producer; Leo Warrington, SD Wheat Commission; Mark Weber, NCI Director; Keith Peltier, Proseed and NCC Vice Chair; Greg Svenningsen, ND Wheat Commission; MN State Representative Paul Anderson; MN State Senator LeRoy Stumpf; and Darrell Davis, SD Wheat Commission.



Philippine Ambassador's Visit Sets Stage for NDTO Trade Mission

Philippine Ambassador Jose L. Cuisia, Jr., Commercial Attaché Maria Roseni M. Alvero and Agricultural Attaché Dr. Josyline C. Javelosa toured NCI in August. This visit to North Dakota is a stepping stone in the development of a Philippine Trade Mission in February 2014, led by the North Dakota Trade Office.

Thank You to:

- **North Dakota State Legislature**
 - **Minnesota State Legislature**
 - **South Dakota Department of Agriculture**
- for their generous funding of Northern Crops Institute during the past year's sessions.

Thank You to our Agribusiness Sponsors for their generous support in 2013:

American Crystal Sugar Company
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Brushvale Seed Inc.
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Dakota Specialty Milling, Inc.
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North Dakota Mill and Elevator
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Summit Brewing Company
United Pulse Trading
Weber Farms
Cargill Incorporated*

*Contribution was made in 2012 after the deadline for 2012 Annual Report.

Thank You to All Who Supported NCI Programs and Activities in 2013

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Minneapolis Grain Exchange
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North Dakota Mill, Grand Forks, N.D.
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Vance Taylor
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Northern Pulse Growers Association
Philadelphia Macaroni Company
Bill Stabert
Ralco Nutrition
Matt Frederking
SB&B Foods Inc.
Robert Sinner
Scott Sinner
Todd Sinner

A Special Thank You to Our 2012-2013 Funding Partners

Minnesota Department of Agriculture
Minnesota Soybean Research and Promotion
Council
Minnesota Wheat Research and Promotion
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Montana Wheat and Barley Committee
State of North Dakota
North Dakota Barley Council
North Dakota Soybean Council
North Dakota Wheat Commission
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Aaron Skyberg
Jennifer Tesch
South Dakota State University
SunOpta, Inc., Moorhead, Minn.
Mark Halvorson
Greg Svenningsen Farm, Valley City, N.D.
Technical Foods Consultants
Cincinnati, Ohio
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The Money Farm, Fargo, N.D.
Mike Krueger
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U.S. Dry Bean Council
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Sabetha, Kan.
Gerry Hertzal
Brian Plattner
Wheat Value Consulting
John Oades, Ph.D.

131st Nation Hosted at NCI's Annual Grain Procurement Course

Austria, Brazil, China, Egypt, Haiti, Iraq, Jordan, USA, and Vietnam • September 16-25, 2013



Bill Wilson, Ph.D., NDSU Distinguished Professor of Agribusiness and Applied Economics, discusses risk management strategies with the Grain Procurement class in NDSU's electronic Commodity Trading Room in Barry Hall.

Northern Crops Institute (NCI) hosted a new nation—Haiti—at the 2013 Grain Procurement Management for Importers course. This brings NCI's total visiting country count to 131 nations that have come to NCI for education and technical services since its beginning in 1983.

The grain buyer from Haiti joined 15 other grain buyers from Austria, Brazil, China, Egypt, Iraq, Jordan, USA, and Vietnam to learn how to make more effective purchases while decreasing their risk. U.S. Wheat Associates sponsored several participants in this class.

"This is our 30th annual Grain Procurement Management course," says John Crabtree, NCI Assistant Director, who coordinated the course. "This is the longest running course that we've had, and it's never been cancelled. In those 30 years, grain buying has gone from governmental purchasing agencies to almost exclusively private trading," he comments.

"Dr. Bill Wilson, the lead instructor for this course, developed the NDSU Commodity Trading Room (CTR) that allows students to learn about electronic trading. This is the first year that the NCI Grain Procurement class is actually doing electronic trading in the CTR classroom. All the information is presented simultaneously, so everyone receives the same information at the same time," Crabtree concludes.

Speakers for the course were: Joe Albrecht, Minneapolis Grain Exchange; David Bullock, Ph.D., AgriBank, FCB; Ryan Caffrey, CHS, Inc.; Dick Carlson, CHS, Inc.; Bradley Clow, Union Pacific Railroad; Austin Damiani, Frontier Futures, Inc.; Ron DeJongh, Columbia Grain; Ron Johnson, Duluth Seaway Port Authority; Mike Klein, CHS, Inc.; Wayne Koester, Cargill; Mike Krueger, The Money Farm; Randy Narloch, ADM-Benson Quinn; John Oades, Ph.D., Wheat Value Consulting; Greg Oberle,



2013 Grain Procurement Management for Importers Short Course participants and faculty

CHS, Inc.; Erica Olson, North Dakota Wheat Commission; Frayne Olson, Ph.D., NDSU Extension Service; Paul Skarnagel, Hunter Grain Company; Ed Stallman, USDA-GIPSA/FGIS; William Wilson, Ph.D., NDSU Distinguished Professor Agribusiness and Applied Economics; and Adele Yorde, Duluth Seaway Port Authority.

Highlights of the course were lectures by academic and commodity trade authorities, and grain merchandisers. On-site tours of the Bill Hejl farm, Amenia, N.D.; Hunter (N.D.) Grain Co.; Duluth (Minn.) Seaway Port Authority; CHS Export Grain Terminal, Superior, Wisc.; Minneapolis Grain Exchange; and CHS Barge Facility in Savage, Minn., rounded out the course.

First Food Soybean Procurement Course for Importers Presented

Japan, Malaysia, Philippines, South Korea, and Taiwan • October 14-18, 2013

Twelve food soybean buyers and processors from Japan, Malaysia, Philippines, South Korea, and Taiwan attended the Food Soybean Procurement Management for Importers course. The course was co-sponsored by the Northern Food Grade Soybean Association (NFGSA), North Dakota Soybean Council, and the Minnesota



Crabtree

says John Crabtree, NCI Assistant Director. "We have offered procurement courses for the past 30 years, but this particular course addresses food-grade soybeans. Farmers in this



Wilson

region of the Upper Midwest, particularly North Dakota, South Dakota and Minnesota, have been raising specialty soybeans since the early 1980s. We have a number of processors here in the three states who work very closely with the producers in contracting these specialty beans. The industry has done very well in developing relationships with overseas compa-

Soybean Research and Promotion Council.

"The NCI was delighted to offer our first Food Grade Soybean Procurement Management for Importers course,"



Bob Sinner, Vice President of the Northern Food Grade Soybean Association, leads a panel discussion by food processors on building customer relationships.

nies, especially in South Korea, Japan, Taiwan, and other Southeast Asian countries," Crabtree says.

"This program is designed to introduce new buyers who are unfamiliar with this region to the quality of our beans and how they are processed and packaged. The course also acquaints them with the industry and the Northern Food Grade Soybean Association (NFGSA). Pricing is another aspect that they will learn about. There is no futures market for food-grade soybeans, so the pricing is off the Chicago Board of Trade (CBOT) for conventional beans. They need to understand how the futures market works and how the price they pay for food-grade soybeans is established off the CBOT," he continues.

The class featured site visits to: Brushvale Seed, Inc., Breckenridge, Minn.; SK Food International, Fargo; SB&B Foods, Casselton, N.D.; and the BNSF Intermodal Facility, St. Paul.

"This is the first time we've offered a food soybean procurement class and we are very excited about the interest and attendance," says Bob Sinner, Vice President of the Northern Food Grade Soybean Association.

"Over the years, as food industries around the world have become more specialized and as they try to improve their food products and options for consumers, they have wanted to look more closely at identity preserved grains. Specifically, in the case of soy food manufacturers, this means non-GMO food-grade soybeans. Understanding how they are going to procure these crops from companies that are involved with NFGSA is important," he continues.

Speakers at the course included: Gene Griffin, Global Innovative Solutions; Mark Halverson, SunOpta Grains and Foods Group; Paul Holmen, Brushvale Seed, Inc.; Thunyanporn Naggie Jeradechachai, NCI Crop Quality Specialist; Mike Krueger, The Money Farm; Robert Maddock, Ph.D., NDSU Animal and Range Science Dept.; David Morken, Unity Seed Company; Frayne Olson, Ph.D., NDSU Extension Service; Joel Owen, SK Food International; David Saxowsky, Ph.D., NDSU Agribusiness and Applied Economics Dept.; Robert (Bob), Scott, and Todd Sinner, all SB&B Foods, Inc.; Jennifer Tesch, SK Food International; and William Wilson, Ph.D., NDSU Agribusiness and Applied Economics Department.



2013 Food Soybean Procurement Course participants and faculty

South Asia Wheat Workshop Strengthens Grower-to-Buyer Connections

Indonesia, Philippines and Vietnam • September 9-12, 2013

A team of six quality control and procurement managers from flour mills in Indonesia, Philippines and Vietnam attended the South Asia Contracting for Wheat Value Workshop from September 9-12. The workshop concluded with sessions at the U.S. Wheat Associates (USW) office in Portland, Ore.

The workshop, sponsored by U.S. Wheat Associates, was designed to teach the team how to better manage their supply chain challenges and how to write contracts that accurately specify the wheat they want to purchase.

Steve Wirsching, Vice President, U.S. Wheat Associates, West Coast office, says, "It is very important to bring buyers from Southeast Asia to the United States, and in particular to NCI, so that we can make those grower-to-buyer connections, which are very powerful in promoting U.S. wheat overseas. The person-to-person connections and the connections we make out at the farms, at the country elevator level, and here at NCI are very good and very long lasting."

He continues, "We are basically demonstrating how contract specifications will impact the end-uses in quality and functionality of their wheat. We will show them what different protein levels will do to their products, and why it's really important to use high-protein spring wheat as opposed to any



Mike Spier, (left), Regional Vice President for U.S. Wheat Associates Singapore, assists participants in evaluation of bread baked from several different varieties and sources.

other wheat that they may be sourcing from Australia or Canada. Lastly, we demonstrate how U.S. high protein spring wheat is the best fit for their markets as well as a superior product to wheat they may find elsewhere."

Participants learned about wheat quality testing and procurement through lectures and end product evaluation. Workshop topics included U.S. wheat market overview; world and U.S. wheat supply and demand overview; understanding analytical tests for flour and dough quality; functionality test demonstrations; inland logistics; end product

evaluations and relationships to physical, chemical, and functional lab tests; wheat class differences and similarities between U.S. and competitors; developing a wheat value matrix; and purchase quality specifications.

The group also toured Greg Svenningsen's farm near Valley City, N.D. They were hosted by Darren Bjornson as they toured the Columbia Grain Elevator, Valley City, N.D.

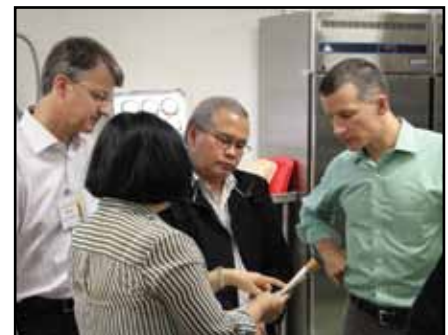
Mike Spier, Regional Vice President for U.S. Wheat Associates Singapore, says, "The milling and baking industries in Southeast Asia are thriving and



A participant compares four loaves of bread that were baked during the workshop.



2013 Contracting for Wheat Value Workshop participants and faculty.



Participants discuss merits of different wheat varieties with U.S. Wheat Associates staff.

creating excellent opportunities for exports of U.S. wheat classes. In the past five years, Southeast Asia's strong economic growth and increasing middle class is driving change in diets," he explains. "In Indonesia, around seven million people per year move into the middle class. Consumers are better off financially and are buying more high quality wheat-based foods. These fundamental factors are the driving force behind a remarkable increase in bakery sales and expansion in milling capacity in Southeast Asia."

"The person-to-person connections and the connections we make out at the farms, at the country elevator level, and here at NCI are very long lasting," says Steve Wirsching, Vice President, U.S. Wheat Associates.

"The Contracting for Value Workshop and other USW activities are important," Spier continues, "because they help to differentiate the baking quality of U.S. wheat classes versus the competition. Indonesia, the Philippines and Vietnam import 400 million bushels from all origins.

The three mills participating in the workshop import 150 million bushels from all origins and in 2012-13 imported 45 million bushels of HRS. Over the last decade, wheat imports by mills in the Southeast Asia region year-on-year average is 5%. Mills in the region buy based on price, value, quality and service," Spier concludes.

The workshop was coordinated by John Crabtree, NCI Assistant Director. Workshop speakers and technicians included: Rachel Carlson, NCI Food Technologist; Roy Chung, USW Baking

Consultant, Singapore; Mike Krueger, The Money Farm; Senay Simsek, Ph.D., NDSU Department of Plant Sciences; Joe Sowers, USW Assistant Regional Director, Singapore; Mike Spier, USW Regional Vice President, Singapore; Mark Weber, NCI Director; William Wilson, Ph.D., NDSU Department of Agribusiness and Applied Economics; and Steve Wirsching, USW Director, Portland office.

North Dakota Wheat Commission hosted a dinner for the visiting team.



Roy Chung, (center), Bakery Consultant for U.S. Wheat Associates Singapore, discusses wheat quality tests with participants.



Cookies made from three different types of flour are compared.



Roy Chung explains how wheat quality can affect finished cookies.



The team evaluates the bread products for consistent quality.

Participants Prepare to Troubleshoot for Customers with Scientific Methods

Canada, Guatemala, Senegal, and USA • June 11-13, 2013

Eleven participants from Canada, Guatemala, Senegal, and USA attended the Rheology of Wheat and Flour Quality course June 11-13 at NCI, where they learned about all aspects of quality analysis from kernel quality, milling, rheology analysis, and baking evaluation.

Each participant had the opportunity to gain hands-on experience with the rheological instruments. They focused on tests for gluten content, falling number, flour color, ash content, moisture, starch damage, and speck count.

Equipment training included the Buhler lab mill, Alveograph, Mixolab, RVA, Farinograph, Extensograph, TA-XT Plus, and C-Cell Technology.

Hands-on baking sessions help participants understand the impact of flour quality on baked products and baking performance, and how to perform tests to evaluate the baked product's quality.

"The underlying theme of this course is customer service as it relates to the baking industry," says John Crabtree, NCI Assistant Director and coordinator of the educational programs. "Baking professionals need to understand the differences in wheat and flour quality, and how those differences can affect baking



Two participants learn how to make tortillas in the NCI Baking Laboratory. Baked products that were prepared throughout the course are displayed on the counter.

performance. Six classes of wheat are produced in the U.S., and these six classes have different end-use properties. If a customer is asking about the performance of a particular flour, our course participants will be prepared to troubleshoot their ingredients with their customers through scientific methods," Crabtree concludes.

Topics of the course were an overview of the U.S. wheat classes; factors that define wheat and flour quality; impact of milling on wheat flour

quality; impact of protein and starch on end product quality; characterization of mixing, fermentation, and baking processes; and functional ingredients in flour and flour based products.

Speakers for the course were: Rachel Carlson, NCI Food Technologist; Natsuki Fujiwara, NCI Food Technologist; David Hahn, Ph.D., NCI Director of Technical Services and Business Development; Alyssa Hicks, NCI Milling Specialist; and Robert Meyer, Dakota Specialty Milling.



A participant learns to operate the Alveograph, which measures wheat gluten quality.



Rheology of Wheat and Flour Quality Short Course participants and faculty



Robert Meyer, Dakota Specialty Milling, discusses quality evaluation of the baked products.

NCI's Pasta Course Attracts 31 Participants from Five Nations

Canada, Guatemala, Iran, Nigeria, and USA • April 16-18, 2013

Thirty-one pasta manufacturers from the U.S., Canada, Guatemala, Iran, and Nigeria attended the Pasta Production and Technology Short Course that was held April 16-18. This course is designed to showcase the high quality durum wheat that is produced in the four-state region of North Dakota, Minnesota, Montana, and South Dakota. NCI has offered this course annually since 1984.



Hahn

Lectures were supplemented with hands-on activities in the laboratories and pilot-scale pasta processing, followed by a cooking exercise to evaluate the final product. Quality tests employed in

the evaluation of raw materials (wheat, semolina, flour) and finished products were also demonstrated.

Short course lecture topics included durum varieties, quality evaluation, durum milling and semolina quality, wheat quality tests, functional and alternative pasta ingredients, semolina physical and rheological tests, commercial pasta production, impact of protein and starch on pasta quality, pasta die design, pasta drying technology, equipment options for pasta extrusion, pasta color and cooking evaluation, quality



Morgan



Rilie Morgan, NCI Processing Specialist, demonstrates how the pilot-scale pasta processor extrudes long-goods pasta that is caught on rods to hang in the dryer.

assurance and control, specialty pasta technology, food safety and HACCP programs, and causes and solutions of pasta defects.

Group activities included an exercise in identifying pasta defects and processing causes, and a field trip to the Philadelphia Macaroni Company, Grand Forks, N.D.

Course speakers and technicians were: Gabriele Cannata, De Mari Pasta Dies USA; Rachel Carlson, NCI Food Technologist; Michael Ehr, Pasta & Extrusion Systems, Buhler, Inc.; Alexis

Freier, R & D/Quality Control, Dakota Growers Pasta Company; Natsuki Fujiwara, NCI Food Technologist; David Hahn, Ph.D., NCI Director of Technical Services & Business Development; Alyssa Hicks, NCI Milling Specialist; Thunyporn Naggie Jeradechachai, NCI Crop Quality Specialist; Al Lucia, Axor America, Inc.; Frank Manthey, Ph.D., NDSU Durum Wheat Quality and Pasta Processing Laboratory; Rilie Morgan, NCI Processing Specialist; Stan Stan-cyk, NDSU Dept. of Plant Sciences; and Mark Weber, NCI Director.



Each participant evaluates the causes and solutions of pasta defects.



Pasta Production and Technology Short Course participants and faculty



These students are performing a speck count to evaluate the quality of the semolina.

Asian Food Processors Are Introduced to Extruded Bean Snacks

Indonesia, Japan, Malaysia, Philippines, Thailand, and USA • May 13-17, 2013



During the course, the participants sampled more than 50 combinations of extruded bean snacks made by the NCI staff.

Fifteen food processors from Indonesia, Japan, Malaysia, Philippines, Thailand, and USA attended the Snack Food Opportunities for U.S. Dry Beans Course from May 13-17. The course was co-sponsored by the U.S. Dry Bean Council.

“At this course, we demonstrated the high quality of U.S. dry edible beans and teaching the participants how to incorporate beans into extruded snack food products,” explains Thunyaporn Naggie Jeradechachai, NCI Crop Quality Specialist.

“During the course, extrusion experts provided hands-on experience in

extruding beans. The participants tried more than 50 combinations of extruded bean snacks made in-house. This helps the participants make informed decisions about new products for their companies. Instead of making starchy-based snacks that do not have much nutritional value, we are introducing them to high quality nutritious bean snacks,” she says.

According to Jeradechachai, bean snacks are popular with consumers in Southeast Asia. Beans are very



Jeradechachai

nutritious with low allergens, gluten-free, and containing high quality protein, high fiber, high anti-oxidants, and high micronutrients.

“The U.S. Dry Bean Council is pleased to support the snack course offered through NCI. USDABC participates in promotional and educational programs in Southeast Asia, Europe, Japan, Mexico, South and Central America, and the Caribbean,” says Jeane Wharton, Executive Director of the U.S. Dry Bean Council (USDABC).

The class also toured the NDSU AES Greenhouse, NDSU edible bean breeding field plots, and the SK Food Specialty Processing Facility in Moorhead, Minn.

Speakers and technicians for the course included: Rachel Carlson, NCI Food Technologist; Natsuki Fujiwara, NCI Food Technologist; David Hahn, Ph.D., NCI Director of Technical Services and Business Development; Clifford Hall, Ph.D., NDSU School of Food Systems; Gerry Hertzler, Wenger Manufacturing; Alyssa Hicks, NCI Milling Specialist; Thunyaporn Naggie Jeradechachai, NCI Crop Quality Specialist; Rilie Morgan, NCI Processing Specialist; Juan Osorno, Ph.D., NDSU Plant Sciences Dept.; Brian Plattner, Wenger Manufacturing; Mark Weber, NCI Director; and Jeane Wharton, USDABC.

The North Dakota and Minnesota region is the largest producing area of U.S. dry edible beans, ranking first and third in U.S. production. Michigan ranks second.



Course participants observe as Rilie Morgan, NCI Processing Specialist, starts up the extruder.



2013 Snack Food Opportunities for U.S. Dry Bean Course participants and faculty



Gerry Hertzler, a lecturer from Wenger Company, assists at the twin-screw extruder.

Local Feed Industry Trains for Food and Feed Safety Planning

Eighteen people from the Minnesota and North Dakota feed industry attended the Development of a HACCP Plan Workshop at Willmar, Minn., in June.

The workshop was co-sponsored by NCI and the Minnesota Grain and Feed Association. Lead instructor was Matt Frederking, International HACCP Alliance Lead Instructor and Vice President, Regulatory Affairs and Operations at Ralco Nutrition, Marshall, Minn. Kim Koch, Ph.D., NCI Feed Center Manager, coordinated the workshop.

With the passage of the Food Safety Modernization Act (FSMA), the feed and food industries continue to initiate programs to provide consumers with an abundant supply of safe food. This workshop focuses on the development of a voluntary Hazard Analysis Critical Control Point (HACCP) plan.



Matt Frederking, International HACCP Alliance Lead Instructor and Vice President, Regulatory Affairs and Operations at Ralco Nutrition, Marshall, Minn., led the HACCP course.

NCI Educates Next Generation of Feed Manufacturing Professionals

Fourteen graduate students from the University of Minnesota and South Dakota State University attended a three-day workshop at the NCI Feed Production Center in May. The Feed Manufacturing Technology Workshop was led by Kim Koch, Ph.D., NCI Feed Center Manager.

Topics for the workshop included introduction to the livestock feed industry with a general overview of complete feeds, base mixes, and premixes; storage, use and tracking; regulatory oversight and compliance; size reduction; mixing including design and operation, and defining and measuring adequacy of mix; and pelleting, expanding and extrusion.

Class participants had several opportunities for hands-on processing experience at the NCI Feed Center.



Kim Koch, (left), NCI Feed Center Manager, explains pelleting techniques to the graduate students during class in the Feed Center Classroom.



2013 Development of a HACCP Plan Workshop participants and faculty



Graduate students observe a demonstration of the pellet mill at the NCI Feed Center.



2013 Feed Manufacturing Technology Workshop participants and faculty

African Bakers Learn About Benefits of Soy at NCI Baking Courses



Thunyporn Naggie Jeradechachai, (center left), NCI Crop Quality Specialist, assists participants during one of the Baking with Soy courses.

The benefits of soy protein were highlighted at two Baking with Soy courses this year at NCI.

The first course, August 5-9, was attended by twelve bakers and food scientists, ingredient suppliers, and supply chain managers from Nigeria, Senegal, South Africa, and Uganda.

During the week of October 21-25, seven bakery managers and consultants from Burkina Faso, Cote d'Ivoire (formerly Ivory Coast), and Senegal attended a similar course.

WISHH, The World Initiative for Soy in Human Health, co-sponsored the courses. WISHH is a program of the American Soybean Association that

brings the nutritional benefits of U.S. soy protein to people in developing countries.

WISHH was created in 2000 by U.S. soybean growers to demonstrate their concern for the undernourished around the globe and to promote new markets for U.S. soybeans. All of the top 10 export countries for U.S. soy are a current or former recipient of U.S. foreign aid assistance, according to the WISHH website.

NCI Director Mark Weber says, "We are happy to work again with WISHH in promoting the use of soy flour in bread and other baked products. By incorporating soy flour



Rachel Carlson, NCI Food Technologist, removes the mandazi (fried pastry) from the deep fryer.

into their daily diets, we hope that undernourished people can improve their nutritional status through increased protein and other benefits.

"The participants at this course are from West Africa, specifically Burkina Faso, Cote d'Ivoire, and Senegal," says Kim Rochette, West Africa Project Manager for Project Management Professionals, Senegal, who accompanied the group.

"These countries are still developing, and there is malnutrition and a need for protein. One of WISHH's main objectives is to address



A Baking with Soy course participant and Clyde Stauffer show off a soy baguette made in class.



2013 Baking with Soy course participants and faculty (August class)



Participants observe as another member of their class rolls out the dough.

Nigeria, Senegal, South Africa, and Uganda • August 5-9, 2013
Burkina Faso, Cote d'Ivoire, and Senegal • October 21-25, 2013

these protein deficiencies by promoting soy. These countries are also huge



Fujiwara

bread consumers so soy flour in bread is an ideal application for soy and a way to increase protein and the quality of the protein in daily diets," she concludes.

The course was coordinated by John Crabtree, NCI Assistant Director.



Carlson

Clyde Stauffer, Ph.D., Technical Foods Consultants, Cincinnati, Ohio, was the lead instructor for both courses. His lectures focused on helping the

team develop a better understanding of the various functional properties of adding soy to baked products. Stauffer also led sessions on calculating calories, using cost spreadsheets, and the various kinds of wheat and their flour characteristics.

The hands-on baking laboratories were led by Rachel Carlson and Natsuki Fujiwara, both NCI Food Technologists, and Thunyaporn Naggie Jeradechachai, NCI Crop Quality Specialist. During the course's baking sessions, the team made and evaluated soy-enhanced mandazi (fried pastry), croissants, brioche bread, hamburger buns, multigrain bread, and 100% whole wheat bread.



Clyde Stauffer, Ph.D., (left), the course lead instructor, and Natsuki Fujiwara (right), NCI Food Technologist, demonstrate how to roll and cut the croissants.

During the first course, Stephanie Sinner, Director of Marketing, welcomed the group on behalf of the North Dakota Soybean Council (NDSC). Participants were hosted by NCI Director Mark Weber during a tour of the Weber family farm near Wheatland, N.D.

During the October course, Suzanne Wolf, NDSC Communications Director, welcomed the group on behalf of the North Dakota Soybean Council (NDSC). They visited the farm of Bill and Karolyn Zurn near Callaway, Minn.



Bakers weigh the soy-enhanced dough into uniform pieces before shaping and baking it.



2013 Baking with Soy course participants and faculty (October class)



Two class participants explore the combine during the Zurn Farm tour.



President David Hahn presides at the general session of the AACCI Annual Meeting in Albuquerque, New Mexico, U.S.

Hahn Becomes Chair of AACCI Board

NCI Technical Director David Hahn finished up a successful year as the President of the American Association of Cereal Chemists International (AACCI), and is stepping up to chair the AACCI Board of Directors. He transitioned roles during the AACCI's Annual Meeting in Albuquerque, New Mexico Sept. 29 to Oct. 3. More than 1,000 members attended, including most of the NCI technical staff. AACCI is a global, nonprofit association of scientists and food industry professionals from throughout the world, working to advance the understanding and knowledge of cereal grain science and its product development applications through research, leadership, education, superior technical service, and advocacy.



The NCI technical staff had a booth at the AACCI trade show, where they promoted the educational courses and technical services that NCI provides. Left to right: Thunyporn Naggie Jeradechachai, NCI Crop Quality Specialist; Natuski Fujiwara and Rachel Carlson, both NCI Food Technologists.



Jeradechachai Teaches About Pulse Flour at California's Culinary Institute of America

Thunyporn Naggie Jeradechachai, (right), NCI Crop Quality Specialist, spoke on pulse flour applications at the "Legumes: Wholesome Ingredients for Value-Added Foods" short course at the Culinary Institute of America in Greystone, Napa Valley, California in September. She also was instructor of the hands-on session about the pulse formulas developed at NCI. Course attendees were food scientists, chefs, and dietitians. The course was sponsored by the USA Dry Pea and Lentil Council. Jeradechachai is pictured here with Kaye Effertz, (left), Marketing Director for the Northern Pulse Growers.



Linda Briggs, NCI Office Manager, confers with Karolyn Zurn, NCC Chair, before the November NCC meeting.

2014 COURSE SCHEDULE

February 18-20	SE Asia Commodity Price Risk Management Seminar (in Singapore)
April 7-9	Durum Wheat Milling*
April 9-11	Pasta Production and Technology
May 19-23	Advanced Grain Procurement Strategies*
June 2-5	Extruded Snacks with Pulse Ingredients
July 15-17	Rheology of Wheat and Flour Quality
August 12-15	Barley Malt Quality Evaluation
September 15-24	Grain Procurement Management for Importers

*A cooperative effort with the International Grains Program, Kansas State University
Please check our website for the most up-to-date information.

www.northern-crops.com

NCI Feed Center Maintains Vital Presence in Feed Industry

The NCI Feed Production Center continues its mission of providing education and technical service to domestic and international clients; supplying the NDSU Animal Units with quality feed products; and exploring how to better use the resources available to the region's livestock producers.



Koch

This year, we witnessed the start of a major equipment upgrade program for the Feed Center to keep it current with industry 'state-of-the-art'. This came about through the efforts of longtime Feed Center friend Gerry Leukam of T.E. Ibberson Company, Hopkins, Minn., who played a pivotal role in securing donations of equipment and project planning. The equipment donations include a new twin-shaft mixer, automated premix batching system, liquid pumps and meters, conveyor, testing instruments and automated control system. Equipment installation is pending final authorization and approval by the North Dakota Joint Legislative Budget Committee set to meet December 11, 2013.

Relationships forged over 25 years of interaction with feed equipment suppliers by attending the International Production and Process Expo in Atlanta, Georgia, played a key role in the NCI Feed Center being recognized and chosen for equipment donations. Attending and participating in industry leadership roles at national and international levels keeps NCI visible.

Attending VIV Asia in Bangkok, Thailand, reaffirmed that if NCI intends to have an active role in Southeast Asia, it needs a presence in these types of expositions that attract upwards of 25-30,000 attendees. Participation in the annual meetings of the U.S. Grains Council (USGC) and the U.S. Soy Export Council (USSEC) strengthens interaction and encourages engagement leading to increased opportunities for programming.

In addition to teaching NDSU Animal Science 466, education programming was provided to South Dakota



NCI Feed Production Center

State and University of Minnesota graduate students; guest lectures for Cereal Science 450/650; NCI's HACCP development program for regional businesses; feed manufacturing technology workshops and technical assistance to the Myanmar Livestock and Fisheries sector (sponsored by U.S. Grains Council); seminars and technical assistance to feed companies during a two week trip through Singapore, Indonesia, Vietnam, Thailand and Philippines for NCI; and finally providing an equipment review and procedural audit for Prolesa Dairy Coop in Uruguay, in partnership with U.S. Grains Council.

Weber and Koch Travel to Southeast Asia to Assess Customer Needs

NCI Director Mark Weber and NCI Feed Center Manager Kim Koch traveled to Singapore, Indonesia, Vietnam, Thailand and Philippines to visit with food and feed companies. They went to assess future education and technical service opportunities for NCI, based upon feedback from country directors and individual company representatives.

They also visited seven course participants who attended NCI procurement courses in 2012, and three who attended NCI feedmilling courses in 2012.

A big thank you to U.S. Soybean Export Council, U.S. Wheat Associates, U.S. Grains Council, and USA Dry Pea and Lentil Council representatives for arranging the meetings.

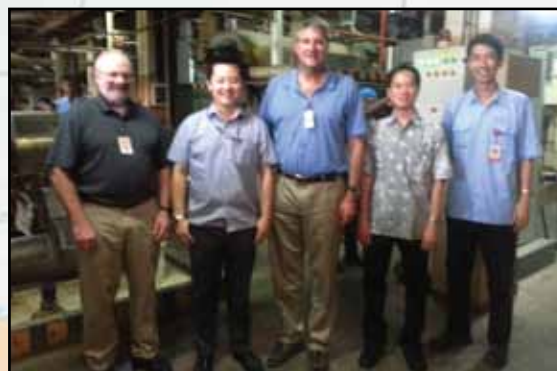
Please read Mark Weber's column on page 2 for his reflections on the trip.



Koch (right) assists a feedmill crew in Vietnam.



Koch, (second from left), troubleshoots a feed manufacturing problem at the Anhdung Co., Ltd., outside Hanoi, Vietnam. He was helping them improve pellet quality and production rate.



Koch, (left), and Weber, (middle), visit with the staff of the PT. Sinta Prims Feedmill outside Jakarta, Indonesia.

Hahn and Jeradechachai Present at U.S.-China Food Ingredient Workshop



Thunyporn Naggie Jeradechachai, (left), NCI Crop Quality Specialist, and David Hahn, (third from left), NCI Director of Technical Services and Business Development, traveled to China for the Chinese Institute of Food Science and Technology (CIFST) Convenience Food Expo at the China National Convention Center in Beijing, China, in early September. They both presented at the U.S.-China Food Ingredients Workshop, sponsored by CIFST, USDA FAS Agricultural Trade Office, and the United States Department of Agriculture.



Belgium, Brazil, Mexico, Portugal, and South Africa... Seventeen dry bean buyers and traders from Portugal, Mexico, Brazil, Belgium, and South Africa came to NCI in September to learn more about NCI's work with U.S. dry beans. The team was sponsored by the U.S. Dry Bean Council. David Hahn, NCI Director of Technical Services and Business Development, gave an overview of NCI's history and hosted the group on a tour of the NCI laboratories. Thunyakorn Naggie Jeradechachai, NCI Crop Quality Specialist, reviewed a number of experimental projects based on beans and bean flour that she has conducted to develop snacks, confectionaries, and baking ingredients.



Chicago, USA... Thunyakorn Naggie Jeradechachai, NCI Crop Quality Specialist, spoke for the USA Dry Pea and Lentil Council (USADPLC) at the "Trend Tour and Culinary Workshop" in Chicago, IL, in July. She presented "Value-Added Products 101," where different value-added applications of pea, lentils, and chickpeas were discussed. Following the workshop, she assisted the USADPLC staff at the Institute of Food Technologists Food Expo at the McCormick Place, Chicago.

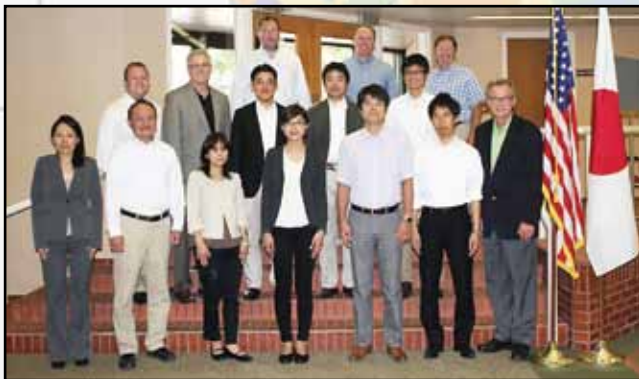
Trade Teams and International Consulting



Japan... A five-member Japanese Millers Executive Team visited NCI in May to learn more about the region's wheat production and crop trends. The millers represent Showa Sangyo Company, Riken Nosan Kako Company, Seko Milling Company, and the Japanese Flour Mills Association. They heard from NDSU experts on wheat breeding, quality, biotechnology, economics, and the U.S. elevator system. They were accompanied by Wataru "Charlie" Utsunomiya, Country Director for U.S. Wheat Associates, Tokyo, Japan, and hosted by Erica Olson, Marketing Specialist for North Dakota Wheat Commission.



Japan... A four-member team of mid-level flour milling managers from Japan visited NCI in August to learn more about U.S. wheat breeding, production, handling and marketing systems and hear an overview of this year's hard red spring (HRS) wheat and durum crops. The team was escorted by Wataru Charlie Utsunomiya, USW Japan, and Erica Olson, NDWC. Japan imports nearly 120 million bushels of U.S. wheat on an annual basis, with nearly 50 million bushels of that being HRS. While Japan imports primarily HRS, white and hard red winter wheat classes, they also import small amounts of durum.



Japan... A Japanese Barley Trade Team visited NCI in June to learn more about the region's barley industry. The team was sponsored by the U.S. Grains Council (USGC). They were accompanied by Tommy Hamamoto, USGC Japan Director; Michiyo Hoshizawa, USGC Japan Administrative Manager; and Kevin Roepke, USGC/WDC Manager of Global Trade. The team was hosted by Steven Edwardson, North Dakota Barley Council. While at NCI, the team met with barley experts and toured the NDSU Barley Variety Development Greenhouse where they were briefed on the barley variety trials. Natsuki Fujiwara, NCI Food Technologist, outlined the new trends in food ingredient applications for barley.



Australia... Dean Gorder, (left), Executive Director of the North Dakota Trade Office, accompanied a trade delegation from Australia during a visit to Northern Crops Institute in May. They were interested in agriculture and trade in the region. NCI Director Mark Weber, (right), hosted the group.

Each year, many milling teams visit Northern Crops Institute to learn more about the current year's crops. Here are some of this year's teams.



Japan...Two teams from the Nippon Flour Mills



Japan...Showa Sangyo Milling Team



Japan...Mitsui and Torigoe Wheat Team



Japan...Nisshin Mills Wheat Team

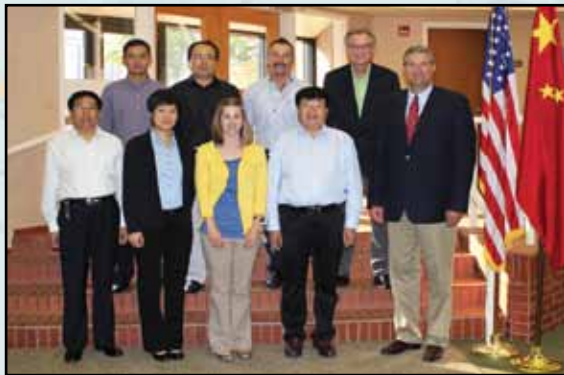
Central America...Thunyaporn Naggie

Jeradechchai, NCI Crop Quality Specialist, was part of the Crop Quality Seminar Tour in Central America for U.S. Wheat Associates. She presented the 2013 quality data on Hard Red Spring Wheat and Durum Wheat to the flour millers in Dominican Republic, Honduras, El Salvador, Costa Rica, Nicaragua, and Guatemala. The customers are particularly interested in the hard red spring wheat this year because of the price and the quality.



Jeradechchai

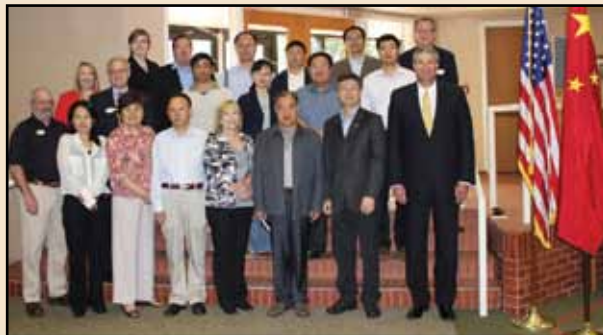
Trade Teams and International Consulting



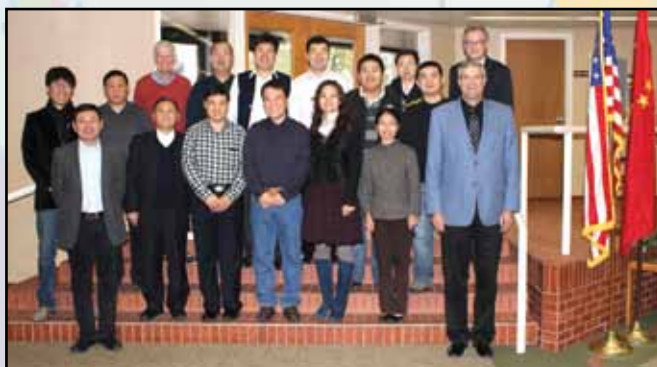
China...Four Chinese mill and purchasing executives came to NCI in August to meet with wheat experts who gave them a look at the current HRS crop, growing conditions, price outlook, and the NDSU wheat breeding and quality programs. The team was escorted by Matt Weimar, Regional Vice President, and Shirley Lu, Marketing Specialist, both with U.S. Wheat Associates, Hong Kong. They were hosted by Erica Olson, NDWC.



Mexico...Thunyporn Naggie Jeradechachai presented on Pulse Nutrition and Product Applications for the U.S. Dry Bean Council at the Bean Congress in Los Cabos, Mexico in February. Pulse importers from throughout Latin America attended the meeting.



China...A delegation from the Chinese Soybean Industry Association (CSIA) visited NCI this summer, hosted by the U.S. Soybean Export Council (USSEC). The CSIA is a China government-created association of soy-related industries and academic institutions. The team was escorted by Paul Burke, USSEC North Asia Regional Director; Xiaoping Zhang, China Country Director; and Yantian Zeng, Program Assistant, all with the U.S. Soybean Export Council.



China...The food soybean section of a North Dakota-China Reverse Trade Mission, sponsored by the North Dakota Trade Office (NDTO), visited NCI in October. The reverse trade missions are part of an ongoing effort to promote North Dakota's high-quality agricultural commodities and food products throughout China.



China...Chinese value-added food importers and R&D specialists visited NCI in September to meet with experts in cereal and pulse crops. This visit was part of the initiative to educate Chinese food processors and importers about North Dakota's healthy food ingredients and was hosted by the North Dakota Trade Office.

Trade Teams and International Consulting



China... Four Chinese wheat and rice breeders toured NCI in July. The two rice breeders were from Tianjin Academy of Agricultural Sciences and the two wheat breeders were from Jiangsu Academy of Agricultural Sciences, Tianjin. They were accompanied by Steven Xu, Ph.D., Research Geneticist with the USDA-ARS Cereal Crops Research Unit at NDSU. Mark Weber, NCI Director, hosted them during their visit.



Malaysia, Philippines, Thailand...

Thunyaporn Naggie Jeradechachai, NCI Crop Quality Specialist, traveled to Southeast Asia to present seminars for the U.S. Dry Bean Council (USDDB) in early June. The project was organized by Agrisource, the SE Asian representative of USDDB. The team met with 20 companies in total to provide technical consultation, and gave seminar presentations on U.S. dry bean and meat canning. Jeradechachai provided information on types of U.S. beans and applications, dry bean nutrition, and FAQ on dry bean storage and canning characteristics.



Myanmar... Kim Koch, Ph.D., (right), NCI Feed Production Center Manager, traveled to Myanmar (formerly Burma) in June, where he presented seminars to the livestock, poultry and aquaculture sectors of the Myanmar feed industry. The trip, sponsored by the U.S. Grains Council, was designed to assist the Myanmar feed industry as it prepares to meet the increased demand for domestic and export consumption.



China... Thunyaporn Naggie Jeradechachai, NCI Crop Quality Specialist, went to Beijing, China, in September, to conduct the "2013 Pea Flour Processing Training Program." It was sponsored by the USA Dry Pea and Lentil Council. She trained food ingredient manufacturers on pea flour production and technology, pea flour applications, and nutrition. Many companies are interested in producing pea flour due to its nutritional benefits and versatile food applications.



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 Rachel Carlson, Food Technologist
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Sally Backman
 Update Editor

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