

Northern Crops Institute Annual Update

2018

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



Director Report | Mark Jirik

2018 was a year of tremendous change both within the region, as well as within the Northern Crops Institute.

John Crabtree and Linda Briggs both retired during the course of the year. Betsy Armour departed NCI to pursue other opportunities. All of them are missed, but this has also allowed us to look at our structure to more quickly adapt to changes in the future.



Jirik

The need for more and better educational efforts continues to expand. Brian Sorenson and Jena Bjertness were hired as program managers to lead and grow our educational programs and offerings. In 2018, we added several new courses and several other new courses are already in the works for 2019.

Grant Christian was brought on as Communications and Marketing Manager, a role that was changed to place greater emphasis on the marketing component – making sure people know who we are and what we can do on both education and technical services.

There are also many things that didn't change. Our mission to support regional agriculture and value added processing by conducting educational and technical programs that expand and maintain domestic and international markets for northern grown crops has not changed. Our commitment to the region we serve, the growers, and our collaborators is as strong as ever. Our passion for the success of our regions growers and communities, and the impact we can have locally, regionally, and internationally continues to drive us.

Connect with us!

Did you know you can connect with NCI in more places than just northern-crops.com? Keep current with what is happening by following, liking and sharing NCI on Facebook, Twitter, YouTube and LinkedIn.



NCC Chair Report | Greg Kessel

Greg Kessel, a producer from Belfield, North Dakota, was re-elected as chair of the Northern Crops Council at the reorganizational meeting on June 26, 2018. Tregg Cronin, a producer from Gettysburg, South Dakota, was re-elected as the vice chair of the NCC.



Kessel

In March, the NCC heard from Kimberly Atkins, the Vice President and COO of the US Grains Council who reviewed the strategic plan and forward projections on feed grains exports, ethanol, and DDGS and program highlights for the next year. Atkins toured the NCI building, Feed Production Center, and the NDSU

Commodity Trading Room at the conclusion of the meeting.

In June, US Wheat Director of Programs, Erica Oakley joined the Northern Crops Council to review US Wheat's outlook for the future and US Wheat's focus on building relationships, and markets through education, training, and demonstrating value. Oakley also highlighted the long term relationship that US Wheat and NCI have shared.

"Hearing from our partner's and their vision of the future growth of the industry helps us form the NCI's future as well and helps us understand where our future directions will be headed," stated Kessel. "As the industry changes and with the changing trading situation, we have to be willing and able to change as well."

The Northern Crops Council, made up of producers, industry representatives, and administrators from the four state region to guide the path of the Northern Crops Institute and ensures it is carrying out its mission to support regional agriculture and value added processing by conducting educational and technical programs that expand and maintain domestic and international markets for northern grown crops.

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Retirements

John Crabtree retired in June after a thirty-three year career as the assistant director. John was responsible for NCI's short courses and also ended up being our international participant's main point of contact while they were here in Fargo. This ranged from airport pick up to handling any emergencies that happened along the way (of which there were a quite a few).

Linda Briggs retired in October after sixteen years as administrative assistant and office manager. Helping with the day-to-day running of the institute as well as making arrangements for the courses – she was the first point of contact for many at NCI.

We miss them both, but wish them well in retirement!



Assistant Director John Crabtree with a personalized gift for his retirement.

2019 COURSE SCHEDULE

January 22-24

Preventive Controls for Animal Food

April 30 - May 2

Pasta Production and Technology

May 14-17

Baking with Hard Red Spring Wheat

May 21-24

Soy Based Texturized Protein and Meat Analog

June 19-21

Preventive Controls for Animal Food (Brookings, SD)

June 24-26

Preventive Controls for Human Food

July 30 - August 2

Baking with Whole Wheat & Whole Grains

August 12-16

NCI-INTSOY

September 9-18

Grain Procurement Management for Importers

September 30 - October 3

Barley and Malt Quality:

October 7-11

Soybean Procurement Management for Importers

Other courses will be added to our schedule as the year progresses. Please check our website www.northern-crops.com for the most up-to-date information.

2018-19 Northern Crops Council (NCC)

Greg Kessel, Chair
Belfield, ND
ND Barley Council

Tregg Cronin, Vice Chair
Gettysburg, SD
SD Wheat Commission

Dean Bresciani, Ph.D.
Fargo, ND
President
North Dakota State University

Anthony Chavez
Minneapolis, MN
Buhler Inc.

Kris Folland
Halma, MN
MN Soybean R&P Council

Doug Goehring
Bismarck, ND
Commissioner of Agriculture
ND Department of Agriculture

Ken Grafton, Ph.D.
Fargo, ND
VP Agricultural Affairs
North Dakota State University

Justin Halvorson
Sheldon, ND
ND Corn Growers Association

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Chinook, MT
MT Wheat & Barley
Committee

Dave Katzke
Minneapolis, MN
General Mills

Mark Martinson
Rolette, ND
U.S. Durum Growers
Association

John Swanson
Mentor, MN
MN Corn R & P Council

Todd Sinner
Casselton, ND
SB&B Foods

Greg Svenningsen
Valley City, ND
ND Wheat Commission

Vance Taylor
Grand Forks, ND
North Dakota Mill

Troy Uglem
Northwood, ND
ND Soybean Council

Ben Vig
Sharon, ND
ND Oilseed Council

Chris Westergard
Dagmar, MT
Northern Pulse Growers
Association

Chris Wiegert
Watertown, SD
Healthy Food Ingredients

Thank You

Thank You to All Who Supported NCI Programs and Activities in 2018

North Dakota State University	Anita Florido	Kevin Haas
Agribusiness and Applied Economics	Justin Friesz	Lindeman Farm, Brownton, MN
Frayne Olson, Ph.D.	Mike Klein	Maple River Grain & Agronomy, LLC
William Wilson, Ph.D.	Greg Oberle	Terry Johnson
David Bullock, Ph.D.	Colfax Farmers Elevator Inc.	Jeremy Rolf
Agricultural and Biosystems Engineering	Paul Sanderson	Minneapolis Grain Exchange
Kenneth Hellevang, Ph.D.	Columbia Grain	Joe Albrecht
Cereal and Food Sciences	Darren Bjornson	Mark Bagan
Clifford Hall, Ph.D.	Mike Brinda	Minnesota Barley Council
Plant Sciences	Ron DeJongh	Marvin Zutz
John Barr	CW Valley Coop	Minnesota Corn Growers Association
Paul Schwarz	Curt Bjertness	Adam Birr
Elias Elias, Ph.D.	Dakota Global	Minnesota Corn Research & Promotion Council
Rich Horsley, Ph.D.	Travis Maddock	Dwight Mork
Frank Manthey, Ph.D.	Dakota Growers Pasta Company Inc.	Minnesota Department of Agriculture
Senay Simsek, Ph.D.	Alexis Freier-Johnson	Ben Thomas
DeLane Olsen	David Hahn	Minnesota Soybean Growers Association
Kristin Whitney	Dakota Specialty Milling Inc.	Kyle Raguse
Adam's Family Farm, Grand Forks, ND	Robert Meyer	Minnesota Soybean Research & Promotion Council
ADM	De Mari Pasta Dies USA	Kim Nill
Ross Wyatt	Gabriele Cannata	Drew Parsley
AGT Foods U.S.A.	Demaco	Tom Sluneka
Eric Bartsch	Leonard De Francisci	Minnesota Wheat Research & Promotion Council
Alton Grain Terminal	Joseph De Francisci	Dave Torgerson
Scott Altoff	Al Lucia	Montana Department of Agriculture
Mark Wild	Duluth Seaway Port Authority	Ben Thomas
AmeriFlax	Kate Ferguson	Montana Wheat and Barley Committee
Sheri Coleman	Adele Yorde	Randy Hinebauch
Amity Technology LLC	Dupont	Collin Watters
Howard Dahl	David Sabbagh	National Sunflower Association
Ardent Mills	Grace Arney	John Sandbakken
Kurt Becker	Fargo Brewing Company	Natural Products Inc.
Askegaard Organic Farm, Fargo, ND	Chris Anderson	Paul Lang
Benson-Quinn Co.	Frontier Futures Inc.	Jon Stratford
Thomas Lahey	Adam Knosalla	North Dakota Agricultural Weather Network
BNSF Railway Inc.	General Mills	Daryl Ritchison
Jennie Hubert	Dave Katzke	North Dakota Barley Council
Darrell Faircloth	Genesis Feed Technologies	Steve Edwardson
Brandon Mortenson	Peter Schott	Greg Kessel
Briess Malt and Ingredients	Gillespie Family Farms, Johnson, MN	North Dakota Corn Growers Association
Cassie Poirier	Global Innovative Solutions	Justin Halvorson
Brushvale Seed Inc.	Gene Griffin	North Dakota Corn Utilization Council
Travis Meyer	Grain Millers Inc.	Dale Ihry
Buhler, Inc.	Roger Mortenson	North Dakota Department of Agriculture
Anthony Chavez	HC International, Inc.	Doug Goehring
Eugene Dust	Curt Petrich	North Dakota Farm Bureau
Michael Ehr	Healthy Food Ingredients	Jeff Missling
Aidin Milani	Jennifer Tesch	North Dakota Farmers Union
Rene Steiner	Chris Weigart	Mark Watne
Busch Agricultural Resources	Hunter Grain Company	North Dakota Grain Dealers Association
Alan Slater	Scott Murch	Stuart Letcher
Canadian Northern Railway	Insta-Pro International	North Dakota Grain Growers Association
Bryan Paskewicz	Dave Albin	Dan Wogsland
Cargill, Inc.	Katie Mayo	North Dakota Grain Inspection Service
Katie Jorgenson	Intelligent Malt	Mark Adams
April Morgan	Chris Anderson	North Dakota Mill & Elevator
Teresa Kurkowski	Katrina Christiansen, Ph.D.	Vance Taylor
Central Farm Service Elevator	Kansas State University	North Dakota Oilseed Council
Jim Schulz	Grain Science and Industry	Donna Ellison
CHS, Inc.	Shawn Thiele	Benjamin Vig
Brian Bleyl	Kelley Bean	North Dakota Soybean Council
Taylor Smalley	John Bartsch	Derik Pulvermacher
Yuxi Weng	Land O'Lakes	Stephanie Sinner
Ryan Caffrey	Scott Waldner	Harrison Weber
Dick Carlson	Legume Matrix	Nancy Johnson

Thank You

North Dakota Wheat Commission
Neal Fisher
Erica Olson
Jim Peterson
Greg Svenningsen
Northarvest Bean Growers Association
Tim Courneya
Northern Canola Growers
Barry Coleman
Northern Plains Potato Growers Association
Charles Gunnerson
Northern Pulse Growers Association
Shannon Berndt
Chris Westergard
O'Leary Farm, Danvers, MN
Prairie Aquatech
Dennis Harstad
ProSeed
Keith Peltier
Rahr Malting Co.
Jesse Theis
Curt Jacobson
Aaron Eernisse
Xiang Yin
Red River Commodities
Robert Majkrzak
Red River Valley Sugarbeet Growers Association
Duane Maatz
Richland IFC Inc.
Rick Brandenburger
Riverbend Malting
Brent Manning
SB&B Foods
Robert Sinner
Todd Sinner
South Dakota Corn Utilization Council
Lisa Richardson
South Dakota Department of Agriculture
Mike Jaspers
South Dakota Soybean Processors Inc.
Thomas Kersting

South Dakota State University
Dairy & Food Science Dept.
John Haberkorn
Dept. of Animal Science
Robert Thaler, Ph.D.
Keith Underwood
Dept. of Biology & Microbiology
Bill Gibbons
Dept. of Economics
Lisa Elliott, Ph.D.
South Dakota Wheat Commission
Reid Christopherson
Tregg Cronin
Stone Arch Commodities
Hunter Kaestner
Swenson Farms, Walcott, ND
The Money Farm, Fargo, ND
Mike Krueger
The Scoular Company
Walter Lanza
The Soyfoods Council
Linda Funk
USDA/GIPSA/ FGIS
Noah Brook
U.S. Durum Growers Association
Mark Martinson
Deana Wiese
U.S. Wheat Associates
Steve Wirsching
University of Illinois
Dept. of Agricultural & Consumer Economics
Craig Gundersen, Ph.D.
University of Minnesota
Dept. of Agronomy & Plant Genetics
Seth Naeve, Ph.D.
Jochum Wiersma, Ph.D.
Valley Malt
Andrea Stanley
Wenger Manufacturing Inc.
Brian Plattner

Thank You
2018 Agribusiness Sponsors!

AgCountry Farm Credit Services
AGT Foods
AmeriFlax
Arrow K Farms
Arthur Companies Inc.
Bay State Milling Co
Becky and Kim Koch
Buhler Inc.
Colfax Farmers Elevator Inc.
Columbia Grain International Inc.
Dakota Growers Pasta Company EO/AA
Healthy Food Ingredients
Iowa Corn
Minnesota Corn Growers Association
ND Corn Growers Association
ND Farmers Union Mutual Insurance
ND Grain Dealers Association
ND Grain Growers Association
ND Soybean Growers Association
North Dakota Trade Office Inc.
Northern Canola Growers Association
Northern Plains Potato Growers Association
Northern Pulse Growers Association
ProSeed
Red River Commodities
Richland IFC Inc.
RRV Sugarbeet Growers Association
Sinner Brothers & Bresnahan Farm
Sue and David Katzke
US Durum Growers

NCI Thanks Outgoing NCC Members for Their Service

The Northern Crops Council is the governing body for the Northern Crops Institute. They dedicate their time and talent to making sure NCI is focused on our mission and properly utilizing the time and resources of the institute.

We would like to thank the following outgoing council members for their service: Keith Peltier, ProSeed, who served as industry representative from West Fargo, ND. Dwight Mork, producer from Bellingham, MN who represented Minnesota Corn Research and Promotion Council; and Drew Parsley, producer from Warroad, MN who represented the Minnesota Soybean Research and Promotion Council.



Former NCI Director Mark Weber presents Keith Peltier, ProSeed, who served as industry representative from West Fargo, ND, a gavel plaque for his service.

A Special Thank You to Our 2018-2019 Funding Partners

Minnesota Department of Agriculture
Minnesota Soybean Research and Promotion Council
Minnesota Wheat Research and Promotion Council
Montana Wheat and Barley Council
State of North Dakota
North Dakota Soybean Council
Northarvest Bean Growers
North Dakota Wheat Commission
South Dakota Department of Agriculture
South Dakota Soybean Research and Promotion Council
South Dakota Wheat Commission

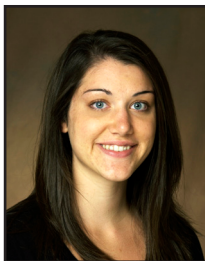
2018 Brings New Faces and Directions to NCI's Educational Efforts

NCI's 2018 educational programming got off to a great start in April with the "Pasta Production and Technology" course, and finished with the "Barley to Beer" and "Wheat to Bread" courses in November, for a total of 12 courses.

After 34 years at NCI, Assistant Director John Crabtree began a well-deserved retirement on June 29, 2018. In his role, John ran all of the educational courses at NCI, in addition to assisting in many of the day to day responsibilities under five directors.

In place of an assistant director, two program managers were hired to focus on increasing the number of educational programs that NCI offers, for both overseas as well as domestic markets, and increase the presence of NCI in the industry.

NCI welcomed Jena Bjertness and Brian Sorenson to the NCI team in July; Bjertness joined NCI from the Nutrition Lab in the Animal Science department at NDSU, and has an M.S. degree in Animal Science and a strong background in animal nutrition. NCI welcomed back Brian Sorenson who returns to NCI after seven years at Dakota Specialty Milling. He has an M.S. degree in Cereal Chemistry and a career focused on grain quality and food processing. Brian and Jena jumped right in to our busy course calendar in July, and completed the year in November.



Bjertness



Sorenson

At the request of industries, we added several new course offerings over the last year, most notably the Soybean Meal Procurement course directed to Southeast Asian buyers. In the process of organizing a number of procurement courses, NCI has looked at how we can consolidate some of our content and deliver it more effectively. In 2019, instead of having a soy procurement, food grade soy procurement, and soybean meal procurement, we will be having a general soy procurement with multiple tracks for embedded into the course for more specific requirements.

Several of our partner organizations asked that we conduct training for those farmers and partners that talk directly to customers and policy both domestically and worldwide. As one of them said, "Most people know barley goes into beer, but most don't know how it got there." As a result, we added two new courses, targeted towards our farmer board members and industry partners called, "Barley to Beer" and "Wheat to Bread."

The fast changing trade relationships highlight the need for NCI to be nimble and adjust with the needs of the industry. NCI will continue to work with our international partners such as USSEC, WISHH, US Wheat Associates, and USGC to ensure we are working hand in hand with them helping grow markets and value for our crops beyond our borders.

A key part of our mission is focusing on the domestic markets and growing value added agriculture. Going forward, we will be developing courses and programs designed for our region and serving our domestic consumers.

Part of that will be in evaluating how we can be in front of emerging trends in the market place, part of that will be working with our partners on bringing new value added products to the marketplace. An example of this is in 2019 we will be holding our first high oleic soybean oil course.

NCI will continue to leverage the strengths that we have at our disposal including a food and animal food safety experts, pilot scale processing equipment, training feed mill, and regional expertise.

NCI Hosts Resiliency Expert Dennis Hoiberg

In late November through Mid-December, the Northern Crops Institute hosted Dennis Hoiberg of Lessons Learnt Consulting, Melbourne, Australia.

Dennis is an expert in resiliency, stress management, and dealing with change in rural and farm economies.

Dennis has over thirty years working in rural environments in Australia, New Zealand and South Africa, places that are no strangers to extreme weather, market, and financial risks.

Building resilient communities with the ability to manage change is an important component of building strong agricultural communities with a value added mindset.

Dennis had the chance to visit with over one thousand individuals and conducted over twenty different presentations; spreading his message of HOPE (Habits, Optimism, Planning, Enacting) with a blend of science, humor, and real life experience.

In early 2019, NCI will be releasing short video clips on social media highlighting the key messages that Dennis shared with the audiences.

"The receptiveness of the people, the willingness of people to listen to my message, and the willingness of people to share their experience, highlighted the need for the message." Said Hoiberg.

Dennis' trip was made possible with financial help from AgCountry Farm Credit Services, Minnesota Wheat, Minnesota Corn, and the Minnesota Department of Agriculture.



Hoiberg

NCI's Wenger TX-52 Twin-Screw Extruder Capabilities

The four-state region that the Northern Crops Institute serves produces a wide range of grain, pulse, and oilseed crops. Most of those crops can be utilized either solely or in combination to produce an array of food, feed, and industrial products through the use of extrusion technology. The Northern Crops Institute utilizes a Wenger Model TX-52 twin-screw, co-rotating extruder to convert northern crops into useful and nutritious food and feed as well as interesting industrial products. The Northern Crops Institute hosts visitors from around the globe to view Wenger Model TX-52 twin-screw demonstrations, attend educational courses and training seminars, and conduct product development to improve existing products or develop new products.

In recent years, twin screw extruders have seen increased utilization for new products with intricate shapes, novel ingredients, and unique sizes, which are beyond the capabilities of single-screw extrusion systems. Twin-screw extruders can fill many of these food, feed, and industrial needs. The term "twin-screw" applies to extruders with two screws of equal length, placed next to each other inside an extrusion barrel. Twin-screw extruders are much more complex than single-screw extruders, however, twin-screw extruders provide much more flexibility and better control.

The Northern Crops Institute has three extrusion experts on staff. The three staff members compliment each other in their respective areas of expertise so that a broad range of extrusion-related expertise can be provided to industry clients. Dr. Kim Koch, Feed Production Center Manager, has experience in feed and food extrusion technology theory and application throughout his career. Mr. Rilie Morgan, Process Manager, has over a dozen years of experience operating the Institute's Wenger TX-52 twin-screw extruder and has utilized many of the crops produced in the four-state region. Dr. Zach Liu, Food Scientist, has expertise in understanding chemical and physical interactions of ingredients that are processed with twin-screw extrusion technology.

The Northern Crops Institute staff employs twin-screw technology to provide client-



Wenger TX-52 Twin-Screw Extruder

Products Range

- * Expanded Snacks (Baked/Fried)
- * Breakfast Cereals
- * Snack Pellets (Half Products)
- * Pasta

* Pet food

- * Animal Feed - Specialty
- * Texturized Vegetable Protein
- * Meat Analogs
- * Pregelatinized Flours and Meal
- * Industrial Ingredients and more

based product development services and to provide instructional demonstrations for the Institute's educational courses. The food industry is continuously demanding new innovations and new products. Twin-screw extruders were adopted by the food industry about 30 years ago to provide new products for the food industry. Originally developed for the plastics industry, twin-screw extruders were first used by candy manufacturers for hard to extrude soft candies, but have become very popular with food, feed, and industrial products manufacturers to produce many highly specialized products.

The Institute's Wenger TX-52 twin-screw extruder system consists of several sub-components that include a live bin, a feeding screw, a preconditioning chamber, an extruder barrel, jacketed heads, rotating screws, and a cutting die head. The Institute's twin-screw has three primary processing zones: feeding, kneading, and final processing zone involving the device's twin-screws. The Institute's Wenger twin-screw extruder has greater ability and flexibility for controlling both product and process parameters than conventional single screw extruders. The twin-screw's design, allows for easy cleaning and rapid product changeover. The twin-screw extruder has more control over process and product variability due to the ability to more closely match desired shear during extruder operation. Products produced on

the Wenger TX-52 twin-screw extruder can be dried by either the Institute's Buhler OTW-50 Fluid Bed Dryer or Lincoln Air Impingement Oven/Toaster.

The Institute's Wenger TX-52 twin-screw extruder has such flexibility that it allows the production of a wide variety of high-value products at low processing volumes. Product and process parameters derived from the twin-screw extruder can closely match large scale production extruders. This fact encourages food and feed manufacturers to undergo process and product development with confidence at the Northern Crops Institute and obtain real-world information on their quest to develop new products, introduce innovation, optimize processes, introduce new ingredients in exiting products, or simply fine-tune exiting products.

The Northern Crops Institute's Wenger TX-52 Twin-screw Extruder provides an opportunity to educate food industry professionals on twin-screw extrusion technologies, to explore new ideas, to develop new processing methods, and to produce new experimental products. The Northern Crops Institute's staff has expertise to educate interested parties on twin-screw processing, to analyze unique twin-screw extrusion industry needs and apply the most pertinent and effective twin-screw technology to satisfy those needs.

Educational Courses

Pasta Production and Technology

Ecuador, Canada, USA • April 17-19, 2018



This course provided participants with good basic knowledge of Durum wheat, from breeding to production and quality, as well as the milling of Durum into semolina and quality analysis. Industry professionals lectured on all aspects of the equipment and commercial production of pasta from Durum and non-traditional crops. The participants received hands-on experience in the production and quality testing of pasta in NCI's pilot-scale processing and analytical laboratories.

Tunisian Feed Manufacturing

Tunisia • July 16-20, 2018



In conjunction with the U.S. Grains Council, NCI, along with Iowa State University hosted a group of 15 feed millers for a "train the trainer" course. These individuals were tasked with managing feed milling operations installed in Tunisia with the help of the U.S. Grains Council. The group started with one week of coursework in Iowa, where they covered basic nutritional needs of animals and some feed milling techniques, along with feed mill tours. They traveled to Fargo to spend a week at the NCI feed mill with Dr. Kim Koch to cover in depth feed mill management, and enjoyed visiting a farm in Hillsboro with the help of the ND Corn Growers Association.

The course was sponsored by:

- U.S. Grains Council

Southeast Asia Contracting for Wheat Value

Indonesia, Philippines, Vietnam • August 8-10, 2018



Quality control and purchasing personnel from South Asia attended the course. At the course, wheat buyers learned how to better manage supply chains and how to write contracts that accurately specify the wheat they want to purchase. The participants learned about wheat quality testing and procurement through lectures and end-product evaluations.

The course was sponsored by:

- U.S. Wheat Associates

Commodity Soybean Meal Procurement Mgmt. for Importers

Myanmar, Cambodia, China • August 13-17, 2018

Participants from Myanmar, Cambodia, and China arrived at NCI in Fargo to learn about risk management in procuring U.S. soybean meal. We worked with the United States Soybean Export Council and World Initiative for Soy in Human Health to recruit participants for this course. The group started with classroom work in Fargo, and traveled to Minneapolis with a farm tour in Danvers, MN along the way; MN Soybean Research and Promotion Council assisted in arranging this farm tour. In Minneapolis, participants were able to meet with traders to discuss trade relationships, and visit a transloader and container yard to learn more about how the soybean meal gets from the field to their countries. Thanks to the North Dakota Soybean Council, the Minnesota Soybean Research and Promotion Council, and the South Dakota Soybean Research and Promotion Council for sponsoring this course.

The course was sponsored by:

- North Dakota Soybean Council
- Minnesota Soybean Research and Promotion Council
- South Dakota Soybean Research and Promotion Council



NCI-INTSOY

Ghana, Indonesia, Myanmar, Philippines, Senegal, Sri Lanka, Japan, USA • August 19-25, 2018

NCI brought in many experts from across the grain and food industry to educate participants with a fundamental knowledge on the production and quality of soybeans, and the processing of many different food and feed products made from soy. The team assembled in Minneapolis for an opening reception, and toured Buhler's plant in Plymouth and Gillespie Farms near Johnson, MN on their way to Fargo for one day of lectures and laboratory demonstrations before traveling to South Dakota State University for additional lectures and demonstrations related to the food and feed uses of soy, including Prairie Aquatech's pilot-scale feed processing plant and fish farm. The team traveled to Mankato to visit the CHS soybean crush plant, followed by the graduation dinner with producers and staff with the Minnesota Soybean Research and Promotion Council. The team also visited the Central Farm Service shuttle-train loading facility in Randolph, MN before the conclusion of the course in Minneapolis.

The course was sponsored by:

- American Soybean Association (WISHH Program)
- Minnesota Soybean Research and Promotion Council
- North Dakota Soybean Council
- Northern Food Grade Soybean Association
- U.S. Soybean Export Council



Grain Procurement Management for Importers

UAE, Algeria, Costa Rica, Italy, Japan, Morocco, Netherlands, Panama, Philippines, Spain, USA • September 10-19, 2018

This year's course was a wonderful opportunity to bring together 19 people from 11 countries to learn about the production, quality, storage and handling of grains produced in the four-state region that NCI represents. Professors from NDSU Department of Agribusiness and Applied Economics and industry consultants covered topics related to grain procurement and risk management, including hedging, futures, and options. Industry experts gave presentations on rail transportation, grain sampling and inspection, as well as the economic opportunities caused by weather. NCI led the class on tours at Hunter Grain Cooperative; Richtsmeier Farm (near Hunter, ND), Alton Grain Terminal Elevator, CHS Terminal Elevator in Superior, WI, and the CHS Barge Loading Facility in Savage, MN. The participants met with the Duluth Seaway Port Authority, and nine representatives of the grain trade at the Minneapolis Grain Exchange in Minneapolis. The team also enjoyed time at Itasca State Park (MN) and a charter-boat tour of the Duluth Harbor.

The course was sponsored by:

- U.S. Wheat Associates
- U.S. Grains Council



Educational Courses

Soy Feed Course

Nigeria, Cambodia • September 24-28, 2018



In conjunction with the World Initiative for Soy in Human Health sector of the American Soybean Association, NCI hosted eight participants from Nigeria and Cambodia to come to the Midwest and learn more about how soybean products can be used in livestock feeds. The group had some risk management and economics coursework at NCI, and then spent a few days at the feed mill with Dr. Kim Koch for some hands-on training. The group then traveled to Brookings, SD to tour their hog facility and discuss swine nutrition, they also delved in to aquaculture feeds and toured Prairie Aquatech to learn more about their process and soy product. The group then traveled to Minneapolis, with a stop in New Ulm to hear from a poultry nutritionist and a farm tour in Brownton, MN arranged by MN Soybean Research and Promotion Council. In Minneapolis, the group met with traders to discuss trade relationships, and toured the International Feed and Grain container loading facility to see how the product reaches their country.

The course was sponsored by:

- World Initiative for Soy in Human Health, American Soybean Association

Barley & Malt Quality: Field to Brewhouse Perspective

USA • October 1-4, 2018



This year's course was held at NCI. NDSU Plant Sciences and the Institute of Barley and Malt Sciences coordinated the course. There were lectures, discussion sessions and laboratory demonstrations that provided participants with knowledge to understand malt processing and to effectively interpret barley and malt analysis.

Food Grade Soybean Procurement Management for Importers

South Korea, Thailand, Myanmar, China, India • October 8-12, 2018



Northern Food Grade Soybean Association sponsored a Food Grade Soybean Procurement course for eight participants at NCI this fall. The participants spent most of their time learning about risk management practices, and were able to meet with food grade soybean suppliers to discuss issues that are important to both suppliers and buyers. The participants also got to tour a food grade soybean processing facility, see a demonstration on how to make soymilk, and tour American grocery stores to see what food grade soy products are available to American consumers. Finally, both suppliers and buyers of food grade soybeans presented information about their companies to help foster future trade relationships.

The course was sponsored by:

- North Dakota Soybean Council
- Minnesota Soybean Research and Promotion Council
- Northern Food Grade Soybean Association

Barley to Beer

USA • November 14, 2018

NCI hosted an inaugural course showing farmers and people involved in various sectors of the barley industry how barley becomes beer. The group learned some basics about barley and malt production, and spent the better part of a day with a local brewer learning about the brewing industry. This course facilitated thought-provoking and productive conversations between people from all segments of the barley industry – from farmers, to elevator personnel, to industry people charged with producing beer as the end product for consumption.

The course was sponsored by:

- MN Barley
- MT Wheat and Barley
- ND Barley Council



Wheat to Bread

USA • November 15, 2018

With the help of many commodity groups in the four state region (MN Barley, MT Wheat and Barley, ND Barley Council, MN Wheat, ND Wheat Commission, and SD Wheat), NCI hosted an inaugural set of courses showing farmers and people involved in the agriculture industry how the commodity they work with becomes a consumable – in this case, how barley becomes beer and how wheat becomes bread. The barley to beer group learned some basics about barley and malt production, and spent the better part of a day with a local brewer learning about the brewing industry. The wheat to bread group discussed wheat production basics, and spent the rest of their day working with several bakers both from industry and NCI to learn the basics of bread making and dough quality. These courses facilitated thought-provoking and productive conversations between people from all segments of their industries – from farmers, to elevator personnel, to industry people charged with producing an end product for consumption.

The course was sponsored by:

- MN Wheat
- MT Wheat and Barley
- ND Wheat Commission
- SD Wheat



Private Courses

In addition to doing technical services, NCI hosts privately sponsored courses for companies and individuals that want to gain both the technical and scientific knowledge and the hands on processing experience. The courses can be customized to fit the needs and desires of the customers for as few as one or two people, and as many as forty. For cost of these programs, please reach out to NCI staff.

PRIVATE COURSES AVAILABLE

PLEASE INQUIRE TO LEARN MORE

Algeria...Cambodia...Canada...China

Costa Rica...Ecuador...Ghana

India...Indonesia...Italy...Japan

Morocco...Myanmar...Netherlands...Nigeria

Buyers from 27 Nations Educated by NCI in 2018

Panama...Philippines...Senegal...Singapore

South Korea...Spain...Sri Lanka...Thailand

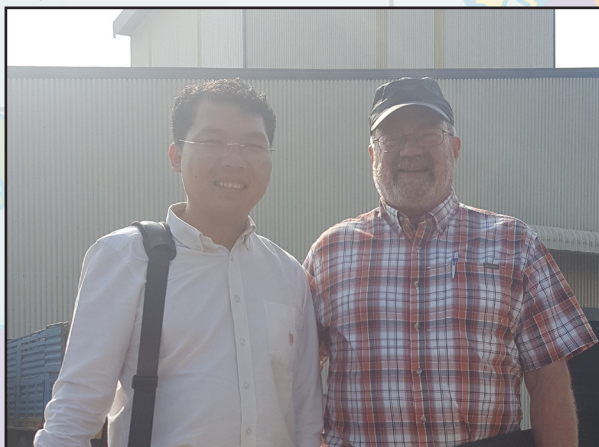
Tunisia...United Arab Emirates...

United States of America...Vietnam



Prior Lake, MN USA | March 5-7

MN Grain and Feed held a Preventive Controls for Animal Food Safety, PCQA, course. Feed Production Center Manager Kim Koch, David Fairfield of National Grain and Feed Association (NGFA), and Doug Mancini of the MN Dept. Ag, were the instructors.



Cambodia | April 2-11

Feed Production Center Manager Kim Koch attended the International Food Technology Program in Cambodia. The event was sponsored by World Initiative for Soy in Human Health (WISHH) which is a subsidiary of the U.S. Soybean Export Council (USSEC) as they branch out into animal food production. He had meetings with representatives of five animal food companies, visited three production sites and delivered a two day seminar to Agri-Master Ltd., the largest animal food producer in Cambodia.



China | April 12-14

Food Scientist, Zhisheng (Zach) Liu, attended the China International Soyfood Processing Technology and Equipment Exhibition. NCI had an exhibit during the meeting. Zach was also invited by the North Dakota Trade Office to deliver a presentation titled "Introduction of North Dakota IP Soybeans" to attendees.



Hutchinson, MN USA | April 28

Feed Production Center Manager Kim Koch, attended a one day seminar sponsored by Form-A-Feed for their personnel to share with them the latest developments in pelleting equipment, production techniques, and to allow them to ask questions. He and Alan Vering of California Pellet Mill were the presenters.

2018 AOCs Annual Meeting & Expo May 6-9

Minneapolis, Minnesota, USA



Minneapolis, MN USA | May 6-9

Neil, Zach and Kim attended the American Association of Oil Chemists Annual Meeting & Expo. The expo is a premier international science and business forum on fats, oils, surfactants, proteins and related materials. It was also a good opportunity to learn and connect with other professionals in industry and academia.



Cambodia, Myanmar | June 11-23

Food Scientist, Zhisheng (Zach) Liu, was invited by ASA WISHH to take a trip to Cambodia and Myanmar. This trip was funded by the North Dakota Soybean Council. During the trip, Zach visited 8 soy foods companies in three cities. These companies received US food grade soybean samples and are interested in buying US soybeans because of quality and price. Through each technical problem/question Zach always validated the necessity of using/purchasing U.S. food grade identity preserved soybeans.



Ecuador, Chili | June 29

Northern Crops Institute welcomed trade teams from Ecuador and Chili. The North Dakota Wheat Commission hosted the team.

Global Marketing



Ames, IA USA | July 9-20

Feed Production Center Manager Kim Koch attended a program that was sponsored by U.S. Grains Council (USGC) using funding from a USDA grant to prepare a group of Tunisia feed industry professionals to become instructors in the “new” feed technology training center that is being created in Tunis. The program was split between Iowa State University and Northern Crops Institute; with ISU doing theory of feed technology and NCI doing practical application using the NCI feed center for “hands-on” training.



Mexico | July 10

Northern Crops Institute welcomed the trade team from Mexico. The North Dakota Barley Council hosted the team.



Chicago, IL USA | July 15-18

Food Scientist, Zhisheng (Zach) Liu, attended the IFT Annual Meeting & Expo. This event showcases products like food ingredients, equipment, processing, and packaging suppliers etc. in the food & beverage industry. It was a good opportunity to learn and connect with other professionals in industry and academia.



Japan | July 27

Northern Crops Institute welcomed the trade team from Japan. The North Dakota Wheat Commission hosted the team.



Kansas City, MO USA | August 28-30

Neil, Zach and Brian attended the 2018 U.S. Soy Global Trade Exchange & Midwest Specialty Grains Conference & Tradeshow. NCI was an exhibitor at the Expo, allowing us to make new connections and re-connect with many of the key people in the various industries. Of special note, the team of ten Indonesian participants of the NCI-INTSOY course also attended the GTE, and NCI held an award ceremony to mark their completion of a two-week collaborative program by NCI and Midwest Shippers Association that was sponsored by the USDA-Cochran Fellowship program (August 19-25).



Philippines, Vietnam | Aug 31-Sept 9

Feed Production Center Manager Kim Koch, presented on the current status of animal food manufacturing processes and trends (including the production and use of "fullfat" soybean meal) at a Feed Technology and Nutrition program in Manila, Tagbilaran and Ho Chi Minh.



New Ulm, MN USA | September 24-29

Feed Production Center Manager Kim Koch, presented at a WISHH/USSEC animal food technology and nutrition program with participants from Cambodia and West Africa. Participants did "hands-on" exercises using the NCI feed center and traveled to SDSU for presentations on swine and aquaculture nutrition and a visit to Prairie Aquatech and poultry nutrition in New Ulm, MN.



St. Louis, MO USA | October 12-18

Natsuki Barber, Food Scientist, assisted the US Dry Bean Council to put together a roasting and frying bean snack course along with Buhler Inc. and Heat and Control. 24 participants from Southeast Asia learned how to make roasted and fried snacks with the US dry beans.



Indonesia | October 18-19

Director Mark Jirik attended the International Conference on Science, Technology, and Humanities hosted by Udayana University in Badung, Bali, Indonesia. The focus of the conference was on global partnerships for advancing innovation. His presentation was focused on the collaboration done at NCI in both showing the value of the commodities grown in northern region of the US, as well as helping educate global consumers in how they can use those commodities to improve lives around the world.



England | October 21-23

Kim, Natsuki and Rachel attended the Cereal and Grains Association meeting. Kim presented on the importance of cereal and grains in animal nutrition (pet and food animal) and a “crystal ball” look at how the demand for animal food products (meat, milk and eggs) will continue to grow and how cereal and grains production must increase to meet the challenge. He is also the chair of the Scientific Advisory Committee which helps guide association planning.



Minneapolis, MN USA | Oct 22-24

Program Manager, Jena Bjertness, attended the U.S. Grains Council’s Global Trade Exchange in Minneapolis. This event provided an opportunity for global customers to network with suppliers, and for trade relationships to be established. Current U.S. trade policies were addressed in detail, along with issues facing the various corn and coarse grains markets.



Tampa, FL USA | Oct 31 - Nov 2

Mark Jirik and Brian Sorenson attended the USW/ NAWG Joint Fall Meeting, in Tampa, Florida. Jirik gave a presentation to the USWA Grain Quality Subcommittee, updating them on the personnel changes and NCI’s commitment to wheat-based educational programs.



Taiwan, China, Japan | Nov 12-20

Program Manager, Brian Sorenson, participated in the 2018 USW Crop Quality Seminars in Taiwan, China and Japan in November, presenting the quality data on the 2018 Hard Red Spring wheat crop to grain buyers, millers, bakers and government officials. Greg Svenningsen, representing the North Dakota Wheat Commission on the Northern Crops Council, also participated in the USW CQ Tour, with a presentation highlighting his family farm and passion for producing wheat.



Brazil | Nov 30 - Dec 7

Feed Production Center Manager Kim Koch, presented at a Preventive Controls for Animal Food course, delivered for Inter-American Institute for Cooperation on Agriculture (IICA) in Campinas, Brazil. This was a three day PCQI course followed by a two day Lead Instructor course for those who qualified.



St. Louis, MO USA | December 4-6

Program Managers Brian Sorenson and Jena Bjertness attended meetings for the various national soy groups: United States Soybean Export Council (USSEC), American Soybean Association (ASA), and United Soybean Board (USB). These meetings highlighted the missions and areas of concentration for the groups in the coming year, and progress that has been made on the missions of the past year. Areas of concentration included soy foods and oils, soybean meal, and sustainability for the future.

NCI Product and Process Development

NCI's technical staff has worked with food processors and ingredient suppliers, large to small, established to start-up from all over the globe.

Our technical staff has experience in extrusion, post-extrusion, pasta manufacturing, milling and baking. We can assist in developing fresh/pre-cooked/frozen pasta, noodles, couscous, expanded snacks, texturized foods, imitation extruded foods, ready-to-eat cereals (expanded and flaked), expanded snack foods, and industrial products from food grade materials.

We offer:

- Cost effective service fees
- Confidentiality
- Complete services, including purchase of ingredients (specialty ingredients are supplied by client — other ingredients provided at cost)
- Laboratory for proprietary use (upon approval).

For more information about our technical services, go to: <http://bit.ly/NCIProductDevelopment>



PASTA PRODUCTION AND TECHNOLOGY COURSE
April 30-May 2, 2019
Northern Crops Institute | Fargo, ND



COURSE OVERVIEW

This course introduces participants to the fundamental and applied aspects of pasta production and quality through lectures, laboratory demonstrations and hands-on processing in NCI's pilot-scale pasta processing laboratory. Grain and ingredient quality, specifications and processing variables and their impact on final pasta product quality are presented in detail. The course focuses primarily on traditional dry durum-based pasta; however, non-traditional ingredients and fresh pasta are also covered through lectures and demonstrations.

OBJECTIVES

- Learn from industry professionals about the fundamentals of pasta production, quality assurance, die manufacturing and maintenance
 - Gain important understanding of ingredient quality and how it impacts pasta processing and quality
 - Learn how to evaluate the quality of durum wheat, semolina, and pasta
- Experience the commercial production of pasta with a field-trip to a state-of-the-art pasta manufacturing plant

REGISTRATION DEADLINE

Monday, April 8th, 2019

Learn more and register at:

northern-crops.com






NCI-INTSOY COURSE
 August 12-16, 2019
 Northern Crops Institute | Fargo, ND



COURSE OVERVIEW

This course will provide an overview of many aspects of the soy industry. The course will explore new ideas for soy-based foods and snack foods, soy as a supplement to fortify foods, soy as animal nutrition, and an overview of soy production in the U.S.

OBJECTIVES

- Learn from industry professionals about the potential uses for soy in food products, including baking, snack foods, meat alternatives, beverages, and more!
 - Participate in the hands-on processing of soy foods and feeds
- Learn about the current status and future potential of the global soy foods industry
 - Learn about the soy industry in the United States

REGISTRATION DEADLINE

Monday, July 1st, 2019

Learn more and register at:

northern-crops.com





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2018 Annual Update

Offering Technical Services and Educational Opportunities

Educational Courses:

- Value-enhanced uses
- Grain standards and inspection
- Procurement, risk management
- Quality, processing and milling
- Extrusion technology
- Pasta processing
- Feed milling and manufacturing
- Customized seminars
- Soyfoods

Technical Services:

- Pilot-Scale Processing
- Milling
- Baking
- Pasta processing
- Oilseed cold pressing
- Extrusion
- Post-extrusion
- Feed
- Industrial

NCI Provides:

- Skilled staff
- Up-to-date information
- Fully-equipped labs
- Hands-on experience
- Extrusion
- Confidential environment
- Network of resources

NCI Staff

Mark Jirik, director
 Brian Sorenson, program manager
 Jena Bjertness, program manager
 Grant Christian, communications & marketing manager
 Janel Brooks, account technician
 Neil C. Doty, Ph.D., technical director (consultant)
 Kim Koch, Ph.D., feed production center manager
 Natsuki Barber, food scientist
 Rachel Carlson, food technologist
 Rilie Morgan, process project manager
 Zhisheng (Zach) Liu, Ph.D., CFS, food scientist
 Vanessa Johansen, processing technologist

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