



NCI

Northern Crops Institute




ND HOUSE APPROPRIATIONS COMMITTEE

Representative David Monson, Chairman
Education and Environmental Division

11 a.m., Tuesday, March 7, 2017

SB 2020

NORTHERN CROPS INSTITUTE
Budget No. 638

- Mark F. Weber, Director
Northern Crops Institute
- Keith Peltier, Chairman
Northern Crops Council
- Dean L. Bresciani, Ph.D., President
North Dakota State University
- Ken Grafton, Ph.D., Vice Pres. of Agriculture
North Dakota State University

NORTH DAKOTA STATE UNIVERSITY

2017-2019 BIENNIAL BUDGET

www.ndsu.edu/legislators



Northern Crops Institute (NCI) is an international meeting and learning center that brings together customers, commodity traders, technical experts, agricultural producers, and food and industrial processors for education, discussion and technical services. A cooperative effort between North Dakota, Minnesota, Montana and South Dakota, we work to support the promotion, market development and expanded sales of crops grown in this four-state region.

Some of our accomplishments are highlighted in these materials. NCI continues to focus on education and technical services as mandated in the NDCC.

Prior to the 2015 legislative session we evaluated our current funding and found it to be adequate and therefore we did not request or receive any new general fund initiatives. The budget cuts approved by the August 2016 special emergency legislative session reduced NCI's state appropriations by \$137,691. We responded quickly with an ambitious marketing effort to generate more fee income from industry for our processing, baking, and analytical laboratory services that we provide. We did not raise our fee structure, but instead we brought in more business.

We also identified three areas to cut back expenditures including overseas travel to deliver educational programs and technical assistance, food and feed safety training programs, and new equipment purchases. Through aggressive marketing efforts of our technical services we hope to continue bringing in additional fee income to cover these areas and additional operating expenses.

At the conclusion of this biennium ending June 30, 2017, it is anticipated that the NCI will have a zero ending balance in general appropriations. The majority of general appropriations covers 10 FTE's with the remaining two FTE's covered from other funds.

Engrossed Senate Bill 2020 lowers state appropriations to the NCI further from the 2016 emergency legislative session and is reflective of the budget cuts as advocated by Governor Burgum. State appropriations to the NCI are \$1,888,994 under engrossed SB 2020, an additional drop of \$75,473 from the 2016 emergency session. Engrossed SB 2020 also includes a reduction from 12 FTE's to 11.8 FTE's. If engrossed SB 2020 is approved the NCI will make cuts in three areas previously mentioned: overseas travel, food and feed safety training programs and new equipment. With less state appropriations available we will rely on soft funding to pay for our part-time technical director consultant. For the 2017-19 biennium we are not seeking any one-time initiatives.

NCI continues to receive regional funding. However, without the support of the North Dakota Legislature, we would not be able to continue the level of work documented here. We appreciate your continued interest and support of the Northern Crops Institute.

Submitted by,
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AGENCY STATUTORY AUTHORITY

North Dakota Century Code Chapter 4-14.2.

AGENCY DESCRIPTION

The Northern Crops Institute (NCI) is a cooperative effort between North Dakota, Minnesota, Montana and South Dakota to support the promotion and market development of crops grown in this four-state region. NCI brings together customers, commodity traders, technical experts, agricultural producers, and food and industrial processors for education, discussion and technical services. NCI provides technical and marketing assistance through specialized training courses and technical services that facilitate domestic and international market development and expanded sales of northern grown crops. Representatives from more than 135 countries have visited NCI since its inception. Northern Crops Institute is located on the campus of North Dakota State University.

AGENCY MISSION STATEMENT

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.

AGENCY VISION STATEMENT

Northern Crops Institute will be the international meeting and learning center to promote the northern-grown crops of the United States.

AGENCY PERFORMANCE MEASURES

NCI provides status reports to the Northern Crops Council three times annually at Council meetings (per NDCC Section 4-14.2-02 and 4-14.2-03).

Minutes and financial reports of the following meetings of the Northern Crops Council for the 2015-2017 biennium are on file at the NCI office and with NCC members. The dates of the meetings are as follows:

June 23, 2015

November 19, 2015

March 22, 2016

June 21, 2016

November 22, 2016

Next scheduled meeting is tentatively set for March 21, 2017

Staff reports on educational courses, technical support of industry, future strategic plans, funding situation, and collaborative efforts with NCI's partners are given at each meeting.

The NCI also provides regular status reports on NCI accomplishments to other agencies and regional commodity groups that provide special (other) funds when requested. Those groups include: South Dakota and Minnesota Legislatures, Minnesota Department of Agriculture, and the commodity groups from the four-state region.

AGENCY FUTURE CRITICAL ISSUES

Since its inception, the Northern Crops Institute has achieved remarkable success by evolving into a first-class facility recognized throughout the world. Our region is exploding with opportunities where our farmers are in a strategic position to supply many world markets due to our logistics, climate, and crop quality characteristics. North Dakota has witnessed prolific growth in soybean, corn and pulse production the last two decades. Soybean production has increased ten-fold and corn has increased five-fold. While our farmers lead the nation in production of at least 12 crops, they are shifting to more alternative, specialty and identity-preserved crops. Buyers continue to seek northern-grown crops for their high quality and versatility, and the Northern Crops Institute is responding by providing increased services in quality evaluation, education, processing, and technical expertise.

Asia's exploding population, rising middle class incomes, and demand for more protein and better diets will dramatically change the current global food industry. It is predicted that Asian diets will adopt the U.S. trend of eating foods prepared outside the home, requiring a tremendous amount of education to the food industry in crop quality and utilization. The NCI will have the opportunity to demonstrate crop quality and functional characteristics as well as how to incorporate our crops into traditional and innovative products. The snack food market continues to grow in those markets and the NCI is increasing its efforts in teaching snack food extrusion processes.

We must communicate to our global audience that our producers not only are reliable suppliers, but we have the safest food supply on the planet. The NCI is committed to providing leadership in educating small regional companies on how to comply with the Food Safety Modernization Act (FSMA).

The dynamic commodity markets have renewed the interest from foreign buyers to better understand the latest in risk management tools so that they can become more efficient buyers of U.S. commodities. Incorporating NDSU's impressive new state-of-the-art electronic commodity trading room at Barry Hall into future NCI procurement courses is a tremendous learning experience for our customers.

Our farmers have relied on national commodity check-off groups, along with matching Foreign Agriculture Service funds, to promote our crops in overseas markets. Federal funding for those programs continues to decline and our region's producers can no longer rely on these traditional efforts. The market is increasing its demand for crops with very specific quality characteristics grown under certain climatic conditions. Showcasing our unique crop characteristics by increasing regional cooperative efforts with the ND Department of Agriculture and ND Trade Office and others will be necessary to expand future markets.

Cooperation is the key to any future success. The Northern Crops Institute is partnering up with the Wheat Marketing Center in Portland, Oregon, and the International Grains Program at Kansas State University to deliver educational programming in food safety, risk management, milling, and extrusion processing. An important partnership was formed in 2015 when NCI contracted with the Assistant Director of the International grains program at Kansas State University to train an NCI employee to be the flour mill manager. Because of this effort the NCI is seeing increased utilization of the flour mill. The NCI has also landed an important educational course for soybeans that has previously been held at the University of Illinois the past 25 years. The course will be held in June of 2017 and a portion of the course will be taught at South Dakota State University to take advantage of their expertise.

The Northern Crops Institute looks forward to meeting these challenges in cooperation with our valuable partners including the grower commodity check-off groups from the four-state region who provide significant funding for our programs, and the Departments of Cereal and Food Science, Plant Sciences, Agribusiness and Applied Economics and other departments at North Dakota State University, University of Minnesota, South Dakota State University, and Montana State University who provide valuable expertise to our educational programming. The Northern Crops Institute appreciates state funding support provided from the states of North Dakota, South Dakota, and Minnesota.

UPDATE ON NCI INITIATIVES IN 2015-2017

NCI did not seek any new initiatives in 2015-2017.

UPDATE ON NCI INITIATIVES FUNDED IN 2013-2015

Enhancing Feed Markets with Improved Services

\$100,000 (one-time request)

In 2014, Northern Crops Institute completed a major equipment upgrade to the NCI Feed Production Center. The upgrade includes the installation of a new mixer, a new automation system, and the facility's first micro-ingredient system. The nearly \$800,000 project was funded by a collaboration of funds from several sources, including the \$100,000 appropriation from the State of North Dakota, the feed industry, and the North Dakota soybean and corn commodity groups. Approximately 80% of the costs were donated.

The Feed Center hosts feed training courses for participants from around the world and serves as a training facility for regional undergraduate and graduate students. In addition, the center is a working feed mill, producing livestock feed for the university's animal units as well as research projects. With the upgrade, the feed center assumes an increased importance in NCI's programming. Expanding NCI's educational efforts in feed manufacturing will reap benefits for the region's farmers for many years to come.

Twenty participants from China attended the Feed Manufacturing Technology course in 2014, which was the first course to use the newly updated NCI Feed Center. The course was co-sponsored by the soybean commodity groups in Minnesota, North Dakota, and South Dakota.

We recently landed a very large educational course for soybeans previously held the past 25 years at the University of Illinois. The course is designed to teach practical processing methods and innovative applications of soybean ingredients in meat, beverages, baking, traditional soy foods, and animal feed products. Our enhanced feed mill will play a significant teaching role in this course. A major nutrition-based equipment company is installing a feed extruder for the NCI's use to assist in our teaching mission.

Ensuring NCI Expertise in the World's Changing Food Market

\$135,000 (1.25 FTE)

NCI interacts regularly with buyers and processors from all over the globe, and it is critical that our staff maintain the level of excellence that our customers have come to expect. Therefore, NCI requested permanent funding for 1.25 FTE current positions.

With this long-term commitment by the North Dakota Legislature, NCI now has less reliance on commodity groups for staff salaries. This also allows the commodity groups to use more of their funds on market development activities.

The Food Technologist Position (1 FTE) is a specialist in baking with wheat and other regional crops. This position regularly interacts with the international and domestic food industry, demonstrating crop quality and functional characteristics and how to incorporate crops into traditional and innovative products, conducting laboratory analyses on crops, and assisting with pilot-scale processing.

The Crop Quality Specialist (.25 FTE) promotes soybeans, pulses and other oilseed crops and provides technical solutions to food manufacturers when they have problems related to quality and utilization. This person conducts promotional activities, seminars, and courses throughout the world, helping food companies develop new information and products, thereby increasing utilization of these crops.

COMPARISON OF 2015-2017 APPROPRIATION AND ESTIMATED SPENDING

	2015-17 Original Appropriation	Current Appropriation	Expenditures	Remaining Appropriation
Total Expenditures	\$3,849,893	\$3,712,202	\$2,328,437	\$1,383,765
Expenditures by Funding Source				
General	\$2,102,158	\$1,964,467	\$1,328,768	\$635,699
Special	\$1,747,735	\$1,747,735	\$999,669	\$748,066
Total	\$3,849,893	\$3,712,202	\$2,328,437	\$1,383,765

Source: PeopleSoft through Nov. 30, 2016.

Note: NCI does not receive Federal Formula Funds. No change expected.

**North Dakota University System
Northern Crops Institute
Major Components for current base level**

Salaries	\$2,577,115
Operating	\$785,087
Equipment	\$350,000
Capital Projects	-
Total Budget	\$3,712,202

Funding:	
Federal Fund	-
General Fund	\$1,964,467
Special Fund	\$1,747,735
Total Funding	\$3,712,202

Source: IBARS 2015-17, Agency Submitted, less 6.55% allotment

2017-2019 Needs-Based Budget
"Reconciliation of 2015-17 Original General Fund Appropriation to 2017-19 SB 2020"

General Fund	NCI
2015-17 Original General Fund Appropriation	\$2,102,158
Reduction for 6.55% of allotment	<u>\$(137,691)</u>
2015-17 Adjusted GF Appropriation	1,964,467
Base Adjustments:	
Less reduction in Base Funding for Equipment over \$5000	(200,000)
Base Payroll adjustments	<u>26,399</u>
2015-17 Adjusted Appropriation, Less Base Adjustments	1,790,866
SB 2020 Base Increases (Decreases):	
Health Insurance premium increases	29,024
Reduces travel	(10,216)
3% reduction	(58,371)
Restores operating	<u>137,691</u>
2017-19 SB 2020 Base General Fund Increases(Decreases)	<u>98,128</u>
2017-19 SB 2020 Recommendation - General Fund	<u>1,888,994</u>
Increase (Decrease) From 2015-17 Adjusted	
Appropriation, Less Base Adjustments	<u>\$(75,473)</u>
Other Funds:	
2015-17 Original Other Fund Appropriation	\$1,747,735
Base Payroll adjustments	<u>3,160</u>
2017-19 Adjusted Other Fund Appropriation	<u>\$1,750,895</u>
Legislative Recommendation Base Increases (Decreases):	
Health Insurance premium increases	<u>5,320</u>
Total SB 2020 Increases	<u>5,320</u>
2017-19 SB 2020 - Other Funds	<u>\$1,756,215</u>

Impact

Crops produced on the Northern Great Plains of the U.S. are among the finest in the world. The mission of Northern Crops Institute (NCI) is to tell global crop buyers about our crops' quality characteristics through technical education and services. NCI is the prime source of technical education about the region's wheat, feed grains, soybeans, pulses and oilseeds, and their value-added products. Demand continues to increase for our programs and services. This is a reflection of the success of our activities to date and the credibility of the information provided through our programs.

Results from educational programs are long-term. We provide information on marketing and technical utilization of northern-grown commodities for both domestic and export markets. This service increases the possibilities of buyers using northern-grown commodities in the future. Often purchases occur several years after educational efforts when conditions become optimal for the buyers.

Crops grown in the northern tier of the U.S. are valued by discriminating customers around the globe. Since 1983, NCI has hosted crop buyers, technical experts, commodity traders, processors and producers from more than 132 nations. They come to learn more about crop quality and availability. NCI does not buy or sell crops. We teach people how to use our crops in their food and feed products and how to buy them through the U.S. grain marketing system.

In 2015 and 2016, NCI trained more than 395 professionals from 46 countries in our educational programs, with 24 scheduled short courses and customized courses. Another important part of our educational program is our activity with trade teams. In the last two years, NCI hosted 163 international visitors from 17 countries representing trade missions. The total number of countries visiting NCI in 2015 and 2016 was 63. In addition, NCI's staff often participates in domestic and overseas programs reaching more than 1000 buyers and processors in the last two years alone. Our website (www.northern-crops.com) lists information and photos on our recent programs and trade teams, and the 2016 Annual Update is included at the end of this report.

State and Regional Impact

Agriculture is the economic backbone in the states of North Dakota, Minnesota, Montana and South Dakota. NCI conducts programs that focus on building relationships and developing markets for our high quality crops and value added products. Agricultural exports are extremely important to the North Dakota economy with \$4.1 billion exported in 2015 (USDA ERS). Agricultural related jobs continue to be an important share of employment in all four states. The combined value of the four-state exports of agricultural products in 2015 was \$15.3 billion, accounting for 12% of the total U.S. exports. (<http://www.ers.usda.gov/Data-products/state-export-data>).

Success Story

In 2015, the NCI was informed that several feed companies in Canada using U.S. imported DDGs were experiencing reduced pellet production and pellet quality. Rather than blame the problem on poor DDGs quality and lose future U.S. sales into Canada, NCI responded quickly. NCI feed mill director Kim Koch personally visited those facilities and discovered some necessary equipment adjustments in the paddle mixer, steam pipes, and conditioner. As a result, feed production quality and output increased significantly in those feed mills and today they continue to import high quality U.S. DDGS!

The NCI's South Asia Contracting for Wheat Value course has been instrumental in changing the minds of buyers toward a preference for U.S. Hard Red Spring Wheat (HRSW). Some of the world's fastest growing wheat buyers attended the course where they learned the advantages of this region's HRSW. Vietnam Flour Mills verified that the course persuaded them to buy more HRSW. They increased HRSW purchases from 9,600 MT in 2012 to 78,000 MT in 2014, an estimated value of \$19 million according to their publically made purchase records.

Recent Facility Improvements and Capabilities

Major funding for these projects came from industry, regional commodity groups, technical service and education course fees.



Feed Mill

In 2014, a major system upgrade at the NCI Feed Production Center included the installation of a new mixer, automation system and the facility's first micro-ingredient system. The 2014 North Dakota Legislature provided the initial seed money for this effort with the majority of the funding coming from industry.



Twin Screw Extruder

In the summer of 2015, NCI upgraded the twin-screw extruder that added a loss-in weight feeder and changed the extrusion barrel to steam and cold water.



Fluid Bed Dryer

In November 2015, NCI completed installation of a state of the art Buhler fluid bed dryer to compliment NCI's Wenger twin-screw extruder. The combination extruder and fluid bed dryer replicates processing capabilities for commercial operations.



Soy milk and Tofu Production Equipment

In 2016, NCI installed a pilot scale soy milk and tofu production system. The system will have the capability to perform soy foods product development activities with commercial-grade technology.

NCI has also purchased oil cold press equipment, we have access to a hexane oil press and we have made improvements in our Baking Lab.

Major Accomplishments

- **International business depends on personal relationships.** Offering courses at NCI remains the best means of connecting potential customers to our state and region. The hospitality displayed in our region by NCI staff, course lecturers, regional farmers and hosts for field trips to hotel, restaurant and retail personnel create positive connections to our state and region. For many international buyers of crops, developing a relationship with the producers and visiting their farms is essential.
- **Overseas seminars and service:** In 2015 and 2016, NCI staff attended twenty-three international seminars, events or provided technical support in Canada, China, Colombia, Costa Rica, Guatemala, India, Indonesia, Japan, Malaysia, Morocco, Myanmar, Philippines, Singapore, South Korea, Taiwan, Thailand, Turkey and Vietnam.
- **Wheat and soybean procurement training:** In 2015-16, NCI educated 211 crop buyers from 29 countries at four procurement courses. These courses teach grain merchandisers how to make more effective U.S. crop purchases while managing their risk. The Procurement Courses continue to utilize the NDSU electronic Commodity Trading Room (CTR), which is a high-technology room with live information feeds for financial information including equities and credit, plus commodity market information such as agriculture, energy and biofuels.
- **NCI is planning a wheat producers workshop in March 2017** for regional wheat commissioners from four states to learn more about the wheat quality characteristics that end-users need. The workshop is designed to enhance farmer leaders as international ambassadors for the wheat industry.
- **Technical services to processors and users of regional commodities:** Food companies, small to large, regional to multinational, use NCI's processing capabilities to develop new or modified food products and to evaluate ingredients and processing parameters under proprietary conditions. In 2016, NCI conducted in-house processing, baking investigations, and analytical testing projects for 40 food companies.
- **Continued demand for pasta courses:** NCI's pasta manufacturing courses are very unique. In fact, there are no other U.S. organization that offers pasta processing courses. Pasta courses remain in demand by U.S. and international pasta companies. In 2015 and 2016, three pasta courses were offered that attracted 38 participants from 11 countries.
- **NCI Feed Center activities:** In fiscal 2015, the NCI Feed Center made 1,579 tons of feed – 1,366 tons for teaching animals and 213 tons for research animals. In Fiscal 2016, the center made 1,649 tons – 1,425 for teaching animals and 224 for research animals. So far in Fiscal 2017, we have made 559 tons of feed – 537 tons for teaching animals and 22 for research animals.
- **Food and feed safety education:** Feed Production Center Manager Kim Koch, Ph.D., is a Trainer of Trainers and a Lead Instructor for Human and Animal Food Preventive Controls and serves on several national committees of the Food Safety Preventive Controls Alliance – the organization charged with the implementation of the training programs in support of the current Good Manufacturing Practice, Hazard Analysis and Risk Based Preventive Controls for Human Food 21 CFR 117 and Animal Food 21 CFR 507 set forward in the Food Safety Modernization Act. Trainings began in 2016 and Koch has provided training for five Human Food courses and two Animal Food courses.

Major Accomplishments (continued)

- **Overseas risk management courses:** To reach an even broader audience, NCI conducted four risk management courses in 2015-16 in Singapore, Jakarta, Bangkok, and Manila. The course is designed to help grain and oilseed buyers understand why risk management is essential to their business success when experiencing commodity price and margin volatility. There were 127 total number of participants.
- **Learning about nutritional benefits of soy and soy flour procurement.** Twenty participants from Thailand, Guatemala, Myanmar, Malaysia, Burkina Faso, Cote d'Ivoire, Senegal and Uganda, learned about using soy protein in baked products and how to buy soy flour in three soy courses in 2015-16. The World Initiative for Soy in Human Health (WISHH), co-sponsored the courses. WISHH is a program of the American Soybean Association that brings the nutritional benefits of U.S. soybeans protein to people in developing nations.
- **Teaching the HRSW quality advantage to foreign buyers:** Twenty-three foreign flour millers and bakers from six countries have attended the three contracting for wheat value courses at the NCI in 2015-16. At the NCI's Baking Laboratory they test their own flours procured from other countries against this region's hard red spring wheat (HRSW) varieties in breads, cakes and other baked goods for functionality and quality. In side by side comparative baking trials HRSW from this region wins every time.
- **Pulses: dry beans, peas, and lentils.** Production of these crops has seen tremendous growth. To promote these markets, NCI offered four courses in 2015-16 which addressed their utilization, functionality, and quality characteristics. NCI staff has also been featured speakers for the pulse crops at national and international seminars. Bean and lentil production continues to expand significantly in Western North Dakota and Eastern Montana.
- **Teaching the soy advantage:** The program, in addition to providing trade and technical information, emphasized the U.S. soybeans advantage to importers in terms of its sustainable production, efficient transportation, transparent prices, better consistency and quality and importance of valuing U.S. soybeans against South American soybeans in terms of protein quality as opposed to crude protein.
- **Barley craft malting initiatives:** According to the Brewers Association website, the growing U.S. craft malting industry accounted for 11% of the total domestic malt production in 2014. NCI collaborated with NDSU Plant Sciences and the Institute of Barley and Malt Sciences on two courses teaching craft malsters to understand malt processing and effectively interpreting barley and malt analyses. There were a total of 47 participants that attended the courses in the past two years.

Partnerships and Leadership

- Northern Crops Institute provides leadership in North Dakota and the nation, and in return receives collaborative assistance from many companies, regional universities, organizations and individuals. Without these partnerships, NCI could not do its work.
- Educational courses are offered in partnership with American Association of Cereal Chemists (AACC), American Feed Industry Association (AFIA), American Society for Brewing Chemists (ASBC), American Soybean Association International Marketing (ASAIM), Ameriflax, Association of Oil Chemists Society (AOCS), International Association of Operative Millers (IAOM), National Grain and Feed Association (NGFA), NDSU Extension Service, U.S. Grains Council (USGC), U.S. Soybean Export Council (USSEC), World Initiative for Soy in Human Health (WISHH), U.S. Wheat Associates (USW), USA Dry Pea and Lentil Council (USADPLC), U.S. Dry Bean Council (USDDBC), the USDA/FAS Cochran Program, and others. These groups assist in identifying possible participants and often provide other resources.
- Regional universities, particularly North Dakota State University, South Dakota State University, University of Minnesota, and Montana State University, make important contributions to NCI's programs through technical, scientific, and practical applications for the use of crops in food and feed processing. Significant contributions by the NDSU Departments of Agribusiness and Applied Economics, Agricultural and Biosystems Engineering, Cereal and Food Sciences, Plant Sciences, and the use of the electronic Commodity Trading Room in NDSU's Barry Hall allow NCI to offer programs with the most sophisticated information and research.
- Commodity check-off groups and their producer members in North Dakota, South Dakota, Minnesota, and Montana continue to be major partners and supporters of Northern Crops Institute. NCI staff identify new market opportunities for regional producers and design courses to focus on wheat, soybeans, corn, barley, pulses and other specialty crops.
- The Northern Crops Council, NCI's governing board of directors, continues to provide regional four-state leadership for NCI's programs and strategic planning. NCI's Industry Advisory Board, drawn from the four-state agricultural supply and processing industries and the grain trade, provides advice, lecturers, tours, and resources for NCI programs and initiatives.

63 Nations Learn More About Northern-Grown Crops

In 2015 and 2016, NCI staff taught short course participants, hosted trade teams and visitors, and consulted with companies from the following 63 countries.

Algeria	Egypt	Kuwait	Singapore
Angola	El Salvador	Lebanon	South Africa
Argentina	France	Malta	South Korea
Belgium	Germany	Malaysia	Spain
Bolivia	Ghana	Mexico	Switzerland
Brazil	Guyana	Morocco	Taiwan
Bulgaria	Guatemala	Myanmar	Thailand
Burkina Faso	Haiti	Netherlands	Trinidad
Canada	Honduras	Nigeria	Tunisia
Chile	India	Panama	Uganda
China	Indonesia	Peru	UAE
Colombia	Italy	Philippines	UK
Costa Rica	Israel	Poland	USA
Cote d'Ivoire	Jamaica	St. Vincent	Venezuela
Dominican Republic	Japan	Saudi Arabia	Vietnam
Ecuador	Jordan	Senegal	

Sixty-fifth
Legislative Assembly
of North Dakota

ENGROSSED SENATE BILL NO. 2020

Introduced by

Appropriations Committee

1 A BILL for an Act to provide an appropriation for defraying the expenses of the North Dakota
2 state university extension service, northern crops institute, upper great plains transportation
3 institute, main research center, branch research centers, and agronomy seed farm; to amend
4 and reenact sections 4-05.1-05 and 4-08-10 of the North Dakota Century Code, relating to main
5 research center experiment station and extension service position adjustments; and to provide
6 an exemption.

7 **BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:**

8 **SECTION 1. APPROPRIATION.** The funds provided in this section, or so much of the funds
9 as may be necessary, are appropriated out of any moneys in the general fund in the state
10 treasury, not otherwise appropriated, and from special funds derived from federal funds and
11 other income, to the North Dakota state university extension service, the northern crops
12 institute, the upper great plains transportation institute, the main research center, branch
13 research centers, and agronomy seed farm, for the purpose of defraying the expenses of the
14 North Dakota state university extension service, the northern crops institute, the upper great
15 plains transportation institute, the main research center, branch research centers, and
16 agronomy seed farm, for the biennium beginning July 1, 2017, and ending June 30, 2019, as
17 follows:

18 Subdivision 1.

19 NORTH DAKOTA STATE UNIVERSITY EXTENSION SERVICE

	<u>Base Level</u>	<u>Adjustments or Enhancements</u>	<u>Appropriation</u>	
20				
21				
22	Extension service	\$52,517,908	(\$961,158)	\$51,556,750
23	Soil conservation committee	1,133,362	(41,842)	1,091,520
24	Total all funds	\$53,651,270	(\$1,003,000)	\$52,648,270

Sixty-fifth
Legislative Assembly

1	Less estimated income	<u>25,826,708</u>	<u>847,676</u>	<u>26,674,384</u>
2	Total general fund	\$27,824,562	(\$1,850,676)	\$25,973,886
3	Full-time equivalent positions	263.91	(10.93)	252.98

4 Subdivision 2.

5 NORTHERN CROPS INSTITUTE

6			Adjustments or	
7		<u>Base Level</u>	<u>Enhancements</u>	<u>Appropriation</u>
8	Northern crops institute	<u>\$3,712,202</u>	<u>(\$66,993)</u>	<u>\$3,645,209</u>
9	Total all funds	\$3,712,202	(\$66,993)	\$3,645,209
10	Less estimated income	<u>1,747,735</u>	<u>8,480</u>	<u>1,756,215</u>
11	Total general fund	\$1,964,467	(\$75,473)	\$1,888,994
12	Full-time equivalent positions	12.00	(0.20)	11.80

13 Subdivision 3.

14 UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

15			Adjustments or	
16		<u>Base Level</u>	<u>Enhancements</u>	<u>Appropriation</u>
17	Upper great plains transportation	<u>\$22,076,448</u>	<u>(\$7,704)</u>	<u>\$22,068,744</u>
18	institute			
19	Total all funds	\$22,076,448	(\$7,704)	\$22,068,744
20	Less estimated income	<u>18,175,657</u>	<u>447,773</u>	<u>18,623,430</u>
21	Total general fund	\$3,900,791	(\$455,477)	\$3,445,314
22	Full-time equivalent positions	54.98	(11.10)	43.88

23 Subdivision 4.

24 MAIN RESEARCH CENTER

25			Adjustments or	
26		<u>Base Level</u>	<u>Enhancements</u>	<u>Appropriation</u>
27	Main research center	<u>\$110,529,780</u>	<u>(\$1,812,588)</u>	<u>\$108,717,192</u>
28	Total all funds	\$110,529,780	(\$1,812,588)	\$108,717,192
29	Less estimated income	<u>56,948,525</u>	<u>2,162,877</u>	<u>59,111,402</u>
30	Total general fund	\$53,581,255	(\$3,975,465)	\$49,605,790
31	Full-time equivalent positions	353.85	(17.73)	336.12

1 Subdivision 5.

2 BRANCH RESEARCH CENTERS

3			Adjustments or	
4		<u>Base Level</u>	<u>Enhancements</u>	<u>Appropriation</u>
5	Dickinson research extension center	\$6,996,678	(\$167,861)	\$6,828,817
6	Central grasslands research	3,531,779	(105,667)	3,426,112
7	extension center			
8	Hettinger research extension center	5,086,767	(108,523)	4,978,244
9	Langdon research extension center	3,045,836	(79,363)	2,966,473
10	North central research extension center	5,044,213	(87,451)	4,956,762
11	Williston research extension center	5,267,400	(145,037)	5,122,363
12	Carrington research extension center	<u>9,328,093</u>	<u>(145,655)</u>	<u>9,182,438</u>
13	Total all funds	\$38,300,766	(\$839,557)	\$37,461,209
14	Less estimated income	<u>19,817,130</u>	<u>471,108</u>	<u>20,288,238</u>
15	Total general fund	\$18,483,636	(\$1,310,665)	\$17,172,971
16	Full-time equivalent positions	113.94	(3.65)	110.29

17 Subdivision 6.

18 AGRONOMY SEED FARM

19			Adjustments or	
20		<u>Base Level</u>	<u>Enhancements</u>	<u>Appropriation</u>
21	Agromony seed farm	<u>\$1,521,007</u>	<u>\$15,744</u>	<u>\$1,536,751</u>
22	Total special funds	\$1,521,007	\$15,744	\$1,536,751
23	Full-time equivalent positions	3.00	0.00	3.00

24 Subdivision 7.

25 BILL TOTAL

26			Adjustments or	
27		<u>Base Level</u>	<u>Enhancements</u>	<u>Appropriation</u>
28	Grand total general fund	\$105,754,711	(\$7,667,756)	\$98,086,955
29	Grand total other funds	<u>124,036,762</u>	<u>3,953,658</u>	<u>127,990,420</u>
30	Grand total all funds	\$229,791,473	(\$3,714,098)	\$226,077,375

1 **SECTION 2. ONE-TIME FUNDING.** The following amounts reflect the one-time funding
2 items approved by the sixty-fourth legislative assembly as adjusted for the 2015-17 biennium:

3	<u>One-Time Funding Description</u>	<u>2015-17</u>	<u>2017-19</u>
4	Agronomy laboratories	\$150,000	\$0
5	Rural leadership project	141,252	0
6	Seed cleaning plants	4,408,224	0
7	Upper great plains transportation institute road study	628,823	0
8	Junior master gardener program	12,500	0
9	Veterinary diagnostic laboratory	18,000,000	0
10	Dust issues technical support	100,000	0
11	Land purchase - Langdon	350,000	0
12	Flooded lands study	<u>67,952</u>	<u>0</u>
13	Total all funds	\$23,858,751	\$0
14	Total other funds	<u>21,325,000</u>	<u>0</u>
15	Total general fund	\$2,533,751	\$0

16 **SECTION 3. ADDITIONAL INCOME - APPROPRIATION.** In addition to the amount
17 included in the grand total other funds appropriation line item in section 1 of this Act, any other
18 income, including funds from federal acts, private grants, gifts, and donations, or from other
19 sources received by the North Dakota state university extension service, the northern crops
20 institute, the upper great plains transportation institute, the main research center, branch
21 research centers, and agronomy seed farm, except as otherwise provided by law, is
22 appropriated for the purpose designated in the act, grant, gift, or donation, for the biennium
23 beginning July 1, 2017, and ending June 30, 2019.

24 **SECTION 4. AMENDMENT.** Section 4-05.1-05 of the North Dakota Century Code is
25 amended and reenacted as follows:

26 **4-05.1-05. North Dakota state university main research center position adjustments -**
27 **Budget section report.**

28 The North Dakota state university main research center must be located on the campus of
29 North Dakota state university of agriculture and applied science. The center is the administrative
30 location of the agricultural experiment station. The center shall conduct research and coordinate
31 all research activities of the agricultural experiment station. The research must have, as a

1 purpose, the development and dissemination of technology important to the production and
2 utilization of food, feed, fiber, and fuel from crop and livestock enterprises. The research must
3 provide for an enhancement of the quality of life, sustainability of production, and protection of
4 the environment. Subject to the availability of funds, the station director may adjust or increase
5 full-time equivalent positions in order to carry out activities to accomplish the mission of the
6 agricultural experiment station. Twelve-month employees whose employment is not limited in
7 duration must accrue leave pursuant to provisions of section 54-06-14. All full or partial
8 positions must be separate from North Dakota state university. Annually, the station director
9 shall report to the office of management and budget and to the budget section any adjustments
10 or increases made pursuant to this section. The center may conduct baseline research,
11 including production and processing in conjunction with the research and extension centers of
12 the state, regarding industrial hemp and other alternative industrial use crops. The center may
13 collect feral hemp seed stock and develop appropriate adapted strains of industrial hemp which
14 contain less than three-tenths of one percent tetrahydrocannabinol in the dried flowering tops.
15 The agriculture commissioner shall monitor the collection of feral hemp seed stock and
16 industrial hemp strain development and shall certify appropriate stocks for licensed commercial
17 cultivation.

18 **SECTION 5. AMENDMENT.** Section 4-08-10 of the North Dakota Century Code is amended
19 and reenacted as follows:

20 **4-08-10. Extension agent to submit monthly account of expenditures - Position**
21 **adjustments - Budget section report.**

22 The extension agent shall submit monthly an accurate itemized account of all expenditures
23 incurred by the agent in the regular conduct of duties to the North Dakota state university
24 extension service for examination and audit. When charges are made by an extension agent for
25 money expended in the performance of official duties, all items of one dollar or more expended
26 and charged for must be covered by a subvoucher or receipt that must be signed by the person
27 to whom the money was paid. The subvoucher or receipt must show at what place, on what
28 date, and for what the money expended was paid. The extension agent shall forward the
29 subvouchers or receipts with the bill, claim, account, or demand against the county. When
30 charges are made for transportation expenses, they may not exceed the amounts provided by
31 section 11-10-15, and must be in itemized form showing the mileage traveled, the days when

1 and how traveled, and the purpose thereof, verified by affidavit. The account must be
2 transmitted and recommended for payment by the North Dakota state university extension
3 service which shall audit the same and which may approve or disallow any expense item
4 therein. The state board of agricultural research and education and the president of North
5 Dakota state university shall control and administer the North Dakota state university extension
6 service subject to the supervision of the state board of higher education. Funds appropriated to
7 the North Dakota state university extension service may not be commingled with funds
8 appropriated to North Dakota state university. An appropriation request to defray expenses of
9 the North Dakota state university extension service must be separate from an appropriation
10 request to defray expenses of North Dakota state university. Subject to the availability of funds,
11 the director of the North Dakota state university extension service may adjust or increase
12 full-time equivalent positions in order to carry out activities to accomplish the mission of the
13 extension service. Twelve-month employees whose employment is not limited in duration must
14 accrue leave pursuant to provisions of section 54-06-14. All full- or part-time positions must be
15 separate from North Dakota state university. Annually, the director of the North Dakota state
16 university extension service shall report to the office of management and budget and to the
17 budget section any adjustments or increases made pursuant to this section.

18 **SECTION 6. DICKINSON RESEARCH EXTENSION CENTER - MINERAL RIGHTS**

19 **INCOME.** The Dickinson research extension center may spend up to \$755,000 of revenues
20 received during the 2017-19 biennium from mineral royalties, leases, or easements for ongoing
21 operational expenses. Any revenues received in excess of \$755,000 may be spent only for
22 one-time expenditures for the biennium beginning July 1, 2017, and ending June 30, 2019.

23 **SECTION 7. WILLISTON RESEARCH EXTENSION CENTER - MINERAL RIGHTS**

24 **INCOME - REPORT.** The Williston research extension center shall report to the sixty-sixth
25 legislative assembly on amounts received and spent from mineral royalties, leases, or
26 easements in the biennium beginning July 1, 2015, and ending June 30, 2017, and the
27 biennium beginning July 1, 2017, and ending June 30, 2019.

28 **SECTION 8. TRANSFER AUTHORITY.** Upon approval of the state board of agricultural

29 research and education and appropriate branch research center directors, the director of the
30 main research center may transfer appropriation authority within subdivisions 1, 2, 4, and 5 of

1 section 1 of this Act. Any amounts transferred must be reported to the director of the office of
2 management and budget.

3 **SECTION 9. FULL-TIME EQUIVALENT POSITION ADJUSTMENTS.** The state board of
4 higher education may adjust or increase full-time equivalent positions as needed for the entities
5 in section 1 of this Act, subject to availability of funds. All full-time or part-time positions must be
6 separate from North Dakota state university. Annually, the board shall report to the office of
7 management and budget and to the budget section any adjustments made pursuant to this
8 section.

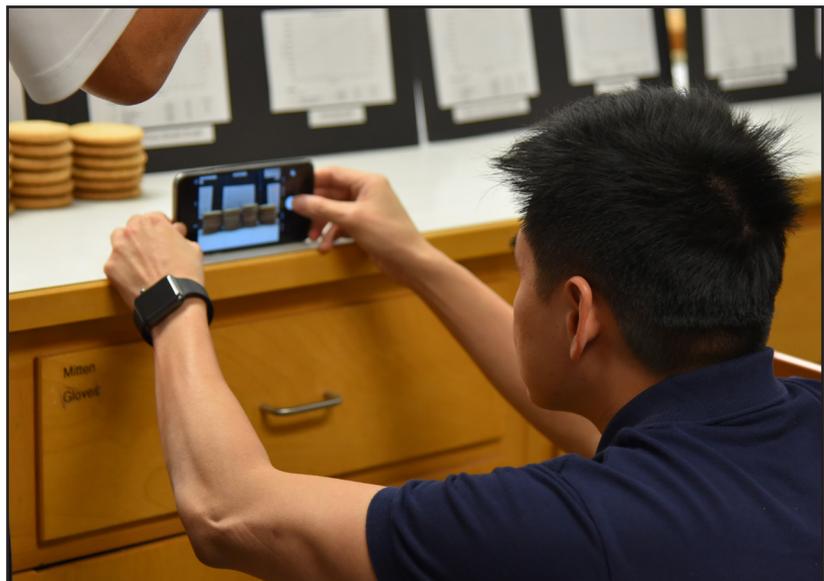
9 **SECTION 10. UNEXPENDED GENERAL FUND - EXCESS INCOME.** Any unexpended
10 general fund appropriation authority to and any excess income received by entities listed in
11 section 1 of this Act are not subject to the provisions of section 54-44.1-11, and any
12 unexpended funds from these appropriations or revenues are available and may be expended
13 by those entities, during the biennium beginning July 1, 2019, and ending June 30, 2021.

14 **SECTION 11. EXEMPTION.** The amounts appropriated for the veterinary diagnostic
15 laboratory and the seed cleaning plants contained in subdivision 4 of section 1 of chapter 20 of
16 the 2015 Session Laws, are not subject to the provisions of section 54-44.1-11, and any
17 unexpended funds from these appropriations or related revenues are available and may be
18 expended during the biennium beginning July 1, 2017, and ending June 30, 2019.

Northern Crops Institute Annual Update

2016

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 Weber

We are positioning NCI for the future and we have engaged some of this region’s leading agri-business leaders to help us lay out a strategic plan that capitalizes on our strengths while increasing future marketing opportunities for our high quality crops. They include:



Weber

NCI Chairman Keith Peltier of the Arthur Companies and Proseed, West Fargo, N.D.; Roger Hipwell, MGI Grain Processing, East Grand Forks, Minn.; Mike Krueger, The Money Farm, Fargo, N.D.; Vance Taylor, North Dakota State Mill, Grand Forks, N.D.; Eric Bartsch, AGT Foods, Bismarck, N.D.; Bob Sinner, SB & B Foods, Casselton, N.D.;

Bob Majkrzak, Red River Commodities, West Fargo, N.D.; Dave Katzke, General Mills, Minneapolis, Minn.; John Crabtree, assistant NCI director; and myself.

We have identified several opportunities that we will build on in the near future. Understanding that there is growing uncertainty in future legislative budgets, we will continue to reach out to industry to generate additional fee income for flour milling, food extrusion and processing, baking, analytical, and other technical services that our energetic and experienced team of food technicians and scientists provide.

We have built an aggressive industry marketing effort promoting our technical services. The effort is paying off as we see demand for those services escalating.

We continue to expand our breadth of educational short course offerings teaching customers world-wide how to utilize our northern grown crops in their food and feed products. Even as these opportunities intensify, we have not added any new staff in six years. Future staff retirements will require different skill sets in response to changing demand for services from our customers. As we look into the future we see a need for additional expertise in the areas of risk management, animal nutrition and food processing.

Any business that expects to survive and prosper must embrace change and respond to market conditions quickly. We are responding to new challenges and opportunities in the same way through the help of those dedicated individuals volunteering their time away from their own business in serving the NCI and our mission.

An Interview with the NCC Chair

Keith Peltier, West Fargo, N.D. — Proseed

How do you anticipate NCI will continue to promote crops while commodity prices are low and with the current state of over supply?

NCI is committed to promoting crops grown in our region. When prices are low that is when promotion is the most important. NCI will encourage more use in current situations along with advocating and testing for new uses of our northern crops.



Peltier

How will NCI strengthen partnerships with organizations such as USSEC, U.S. Grains Council, U.S. Wheat Associates and four state commodity organizations etc. to promote our crops?

We are reaching out to our partners to seek new courses to promote our crops and to see if we can encourage new people to attend our courses. We are actively seeking new testing parameters that would promote new uses of the crops we promote.

What are some new and innovative ways, from both an educational and technical services standpoint, that NCI will be able to promote our crops?

We have been utilizing the Commodity Trading room in our classes. This is one of the premiere teaching tools in the country if not the world. We have been able to leverage our relationship with NDSU to be able to offer this opportunity. In addition, our equipment for testing is state of the art and mirrors the latest in technological developments.

Do you believe diversity in our crops along with their unique traits will help with long-term goals? If so, how?

The diversity of our crops in this region is one of our strengths. Just the fact that the farmer can have so many choices is good for everybody in the long run.

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NCI Thanks Outgoing NCC Members for Their Service



NCC Chairman Keith Peltier (left) and NCI Director Mark Weber (right) thanked outgoing NCC board members for their service on the Northern Crops Council (NCC) by presenting them with an engraved clock at the June 2016 meeting. Roger Hipwell (middle), Golden Valley, Minn., represented the MGI Grain Processing LLC, serving one term. Beau Anderson (not pictured), Williston, N.D., finished one term on the NCC by representing the Northern Pulse Growers. Thank you for your service!

2017 COURSE SCHEDULE

April 18-20
Pasta Production and Technology

June 5-10
NCI-INTSOY

September 11-20
Grain 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.

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 and YouTube.



2016-17 Northern Crops Council (NCC)

Keith Peltier, Chair
West Fargo, N.D.
Proseed

John Bartsch
Maple Grove, Minn.
Kelley Bean

Dean Bresciani, Ph.D.
Fargo, N.D.
North Dakota State University

Anthony Chavez
Minneapolis, Minn.
Buhler Inc.

Chet Edinger
Mitchell, S.D.
S.D. Wheat Commission

Doug Goehring
Commissioner of Agriculture
N.D. Department of Agriculture

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

Justin Halvorson
Sheldon, N.D.
N.D. Corn Growers

Randy Hinebauch
Chinook, Mont.
Mont. Wheat & Barley
Committee

Dave Katzke
Minneapolis, Minn.
General Mills

Greg Kessel, Vice Chair
Belfield, N.D.
N.D. Barley Council

Dwight Mork
Bellingham, Minn.
Minn. Corn Research and
Promotion Council

Perry Ostmo
Sharon, N.D.
N.D. Soybean Council

Drew Parsley
Warroad, Minn.
Minn. Soybean R&P Council

Todd Sinner
Casselton, N.D.
SB&B Foods

Greg Svenningsen
Valley City, N.D.
N.D. Wheat Commission

Vance Taylor
Grand Forks, N.D.
North Dakota Mill
and Elevator

Chris Westergard
Dagmar, Mont.
Northern Pulse Growers
Association

Arnold Woodbury
Wyndmere, N.D.
N.D. Oilseed Council

Thank You

Thank You to All Who Supported NCI Programs and Activities in 2016

North Dakota State University	Alexis Freier-Johnson	Port of Grays Harbor
Agribusiness and Applied Economics	Dakota Specialty Milling	Leonard Barnes
Frayne Olson, Ph.D.	Robert Meyer	Kayla Dunlap
William Wilson, Ph.D.	Austin Damiani, Commodity Trader	Rahr Malting Co.
Cereal and Food Sciences	De Mari Pasta Dies	Jesse Theis
Clifford Hall, Ph.D.	Gabriele Cannata	Ryan Richard Farm, Horace, N.D.
Plant Sciences	Duluth Seaway Port Authority	Richland Organics Inc.
John Barr	Kate Ferguson	Matt Bohn
Paul Schwarz	Adele Yorde	Rick Brandenburger
Elias Elias, Ph.D.	EGT, LLC	SB&B Foods Inc.
Rich Horsley, Ph.D.	Matt Kerrigan	Robert Sinner
Frank Manthey, Ph.D.	Fargo Brewing Company	Scott Sinner
Juan Osorno, Ph.D.	Chris Anderson	Todd Sinner
Senay Simsek, Ph.D.	Global Innovative Solutions	SK Food International
DeLane Olsen	Gene Griffin	Aaron Skyberg
Kristin Whitney	Bill Hejl Farm, Amenia, N.D.	Joel Owen
Abbiamo Pasta Company	Hunter Grain Company	South Dakota Soybean Processors
Jim Gibbens	Paul Skarnagel	Rodney Fenske
Alton Grain Terminal	Radwan Ibrahim, Consultant	South Dakota State University
Cory Tryan	InfraReady Products Ltd.	Department of Economics
Mark Wild	Mark Pickard	Lisa Elliot, Ph.D.
Ag Processing, Inc. (AGP)	Kansas State University	SunOpta, Inc.
Chris Schaffer	International Grains Program	Mark Halvorson
AGT Foods U.S.A.	Jay O'Neil	Greg Svenningsen Farm, Valley City, N.D.
Mehmet Tulbek	Kelly Bean	The Money Farm, Fargo, N.D.
Eric Bartsch	John Bartsch	Mike Krueger
Axor America, Inc.	Malteurop North America	Luke Swenson
Al Lucia	Mary-Jane Maurice	USA Dry Pea and Lentil Council
Benson-Quinn Co.	Martinson Ag Risk Management	USDA FAS Cochran Fellowship Program
Thomas Lahey	Randy Martinson	USDA/GIPSA/ FGIS
Brushvale Seed Inc.	Minneapolis Grain Exchange	Noah Brook
Paul Holmen	Joe Albrecht	U.S. Dry Bean Council
Jon Miller	Montana State University	Rebecca Bratter
BNSF Railway Inc.	North Dakota Barley Council	Randy Duckworth
Brandon Mortensen	Steve Edwardson	U.S. Grains Council
Buhler, Inc.	North Dakota Grain Inspection Service	U.S. Soybean Export Council
Michael Ehr	Pat Kehoe	Budi Tangendjaja, Ph.D.
Aidin Milani	North Dakota Mill	Basalisa Reas, DVM
Jenni Harrington	Travis Devlin	Tim Loh
Bush Brothers	Vance Taylor	Ratan Sharma
Nathan Kuenkel	North Dakota Soybean Council	U.S. Wheat Associates
Cargill, Inc.	Diana Beitelspacher	Roy Chung
Wayne Koester	Kendall Nichols	Matt Weimar
Katie Jorgenson	Stephanie Sinner	Joe Sowers
CHS, Inc.	North Dakota Wheat Commission	Steve Wirsching
Ryan Caffrey	Neal Fisher	University of Illinois
Mike Klein	Erica Olson	Dept. of Animal Sciences
Greg Oberle	Jim Peterson	Hans Stein, Ph.D.
Dick Carlson	Northarvest Bean Growers	University of Minnesota
Columbia Grain	Northern Pulse Growers Association	Wenger Manufacturing
Darren Bjornson	Shannon Berndt	Gerry Hertzal
Mike Brinda	Philadelphia Macaroni Company	Wheat Value Consulting
Dakota Growers Pasta	Tony Pierce	John Oades, Ph.D.

The NCI-INTSOY Course - June 5-10, 2017

The Northern Crops Institute (NCI) announces that it will host the 2017 NCI-INTSOY course at its facilities located on the campus of North Dakota State University during the week of June 5-10, 2017. National Soybean Research Laboratory (NSRL) at the University of Illinois has organized and hosted this successful course for many years and is pleased to cooperate with NCI as we take on this new role. NCI will utilize NSRL's expertise as part of the program. The course's educational mission will also essentially remain the same — to expand soybeans in the international marketplace.

Participants can expect to begin the week long course in Minneapolis, Minnesota. They will travel through farm country and visit commercial soymilk and livestock feed processing facilities. Participants will also visit a soybean farm on their trip to NCI and after two days of hands-on labs and lectures at NCI, the group will travel to South Dakota State University in Brookings, South Dakota for an additional day and a half of training and demonstrations. Also included are tours of an innovative aqua-feed research center and a soybean crushing plant. The program concludes with a drive through Minnesota's heartland including an overnight stay and additional site visits on the way back to Minneapolis where participants will depart.

More information including course fee and recommendations will be announced on our website at northern-crops.com in January 2017.

Thank You

2016 Agribusiness Sponsors!

AGT Foods USA
Ameriflax
Askegaard Organic Farm
Bay State Milling Company
Brushvale Seed Inc.
Colfax Farmers Elevator
Columbia Grain
Dakota Growers Pasta Co., Inc.
Dakota Specialty Milling
Sue and Dave Katzke
Minnesota Corn Growers Association
North Dakota Corn Utilization Council
North Dakota Farmers Union
North Dakota Grain Dealers Association
North Dakota Grain Growers Association
North Dakota Mill and Elevator
Northern Plains Potato Growers Association
Northern Pulse Growers Association
Proseed
Red River Commodities
Red River Valley Sugarbeet Growers Association
Richland IFC, Inc.
SB&B Foods, Inc.
SK Food International
Summit Brewing Company
U.S. Durum Growers Association
Weber Farms



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A Special Thank You to Our 2016-2017 Funding Partners

Minnesota Department of Agriculture
Minnesota Soybean Research and Promotion Council
Minnesota Wheat Research and Promotion Council
Montana Wheat and Barley Committee
State of North Dakota
North Dakota Barley Council
North Dakota Soybean Council
North Dakota Wheat Commission
Northharvest Bean Growers
Northern Food Grade Soybean Association
Northern Pulse Growers Association
State of South Dakota
South Dakota Soybean Research and Promotion Council
South Dakota Wheat Commission

Food Safety Modernization Act (FSMA)



Koch

FSMA was enacted to enable the FDA to better protect public health by strengthening the nation's food safety system. Implementation of FSMA regulations

for the nation's food and feed production systems have begun and are continuing with greater frequency as 2016 wraps up and 2017 begins.

The tables, to the right, are broken into Small Business, General and Very Small Business compliance dates. These are FSMA's compliance dates as of June 2016 for animal/human food facilities that manufacture, process, package or hold food intended for consumption by animals or humans in the U.S.

For more information and updates on FSMA, please go to www.fda.gov/Food/GuidanceRegulation/FSMA/.



Small Business Compliance Dates

Rule	Small Business Definition	Compliance Date
Preventative Controls for Human Food 21-CFR 117	<500 full-time equivalent (FTE) employees	9-18-17
Preventative Controls for Animal Feed 21-CFR 507	<500 FTE employees	9-18-17 for cGMPs and 9-17-18 for PCs
Foreign Supplier Verification Program	N/A	1-26-19
Sanitary Transportation	<500 FTE employees, except that for certain motor vehicle carriers the definition is less than \$27,500,000 in annual receipts	4-6-18

General Compliance Dates

Rule	Compliance Date
Preventative Controls for Human Food 21-CFR 117	9-19-16 (and 3-17-17 for supply chain program)
Preventative Controls for Animal Feed 21-CFR 507	9-19-16 for cGMPs, 9-18-17 for PCs (except for some suppliers under the supply chain program)
Foreign Supplier Verification Program	Implementation will occur after issuance of Model Accreditation Standards
Sanitary Transportation	4-6-17

Very Small Business Compliance Dates

Rule	Very Small Business Definition	Compliance Date
Preventative Controls for Human Food 21-CFR 117	<\$1M in sales+market value of food manufactured/processed/packed/held without sale	9-17-15
Preventative Controls for Animal Feed 21-CFR 507	<2.5M in sales+market value of food manufactured/processed/packed/held without sale.	9-17-18 for cGMPs and 9-17-19 for PCs
Foreign Supplier Verification Program	<\$1M	1-26-19

NCI Technical Staff Attended Baking Courses in Bangkok, Thailand

NCI's Food Technologist Sam Briss and Food Scientist Natsuki Fujiwara attended separate courses at the UFM Baking and Cooking School in Bangkok, Thailand.

Briss attended and completed the six week Baking Science & Technology Course, No. 38. The coursework consisted of group lab practical, exams and dough doctoring workshops in which the instructor created scenarios that could occur in a manufacturing setting and participants found the solution to the baking issue.

Fujiwara attended and completed a two week U.S. Wheat Frozen Dough Course. Participants learned how to produce different types of frozen dough for different bakery products.



Briss holds a recently baked loaf of bread with another participant from the six week Baking Science & Technology Course, No. 38.



Fujiwara (far right) shows recently baked goods with other participants from the two week U.S. Wheat Frozen Dough Course.

New MASE Soymilk and Tofu Production Equipment Will Assist in the Promotion of Northern Grown Soybeans Worldwide



Zach Liu, Ph.D., CFS

Soy milk and tofu are widely consumed in the Orient and are the most recognized soy foods in western countries. North Dakota is a global leader in producing top-quality food-grade soybeans for the world market. Recently, Northern Crops Institute (NCI) installed a pilot-scale soymilk and tofu processing system to promote northern grown soybeans by demonstrating their versatility and quality to international course participants. The system, designed by NCI, consists of several pieces of equipment which are made in Japan, China, India and the U.S. This state-of-the-art system is flexible in its ability to produce soymilk and tofu which are compatible with the differing tastes and cultures from Japan, China and other areas around the world.

The new soymilk and tofu production equipment is best described as a scaled down mimic of large commercial production equipment. It requires only 2 kilograms of soybeans for making tofu and 1.5 kilograms of soybeans for making soymilk. This system will be used for evaluating soybean quality and demonstrating soymilk and tofu production to visitors and international short-course participants. The system will also be used to develop new products and processes for assisting customers of northern grown soybeans.

Soybean foods (including beverages) are becoming popular because of their well-known health benefits. These benefits include, but are not limited to, preventing heart disease, reducing cancer risk, helping

with obesity, aiding bone density and alleviating menopausal symptoms.

Due to these well-known health benefits, global soymilk production has grown rapidly. Traditional soymilk has been described as having a beany flavor. In China, Korea and most Southeast Asian countries, people prefer this flavor. But, in other countries such as India and Japan this beany flavor is a big barrier to consumer acceptance of soymilk. With the new processing equipment, our food scientists now have the capability to make both beany-flavor soymilk and non-beany flavor soymilk.

To explain exactly what soymilk is and how it is processed, it is best to start with the simple definition of what soymilk is. It is a water extract of soybeans. To process soybeans into soymilk the procedure is quite simple. First, dried soybeans need to be soaked in water for several hours. Then, the soaked soybeans are ground with water and the resultant slurry is cooked. Finally, the slurry is filtered to get cooked soymilk.

Tofu is a product based on soymilk. To make tofu, the cooked

soymilk needs to be coagulated by mixing with coagulant or curdling agent such as calcium sulfate. The resultant curd can be directly consumed as pudding or silken tofu. To make regular and firm tofu, the curd needs to be broken and then transferred to a forming box where tofu is firmed and shaped by pressing. Tofu-making was first recorded in the Chinese Han dynasty some 2,000 years ago. There are many different types of tofu and tofu-derived products. With NCI's new system, their food scientists will now have the capability to make all types of tofu products.

NCI and its staff would like to thank the North Dakota Soybean Council and Northern Food Grade Soybean Association for their generous financial and overall support for the purchase and installation of the system. This collaborative effort will assist in expanding northern grown soybeans in the international marketplace.



In September, the North Dakota Soybean Council visited and toured the NCI. On the tour, Zach Liu, Ph.D., demonstrated the new soymilk and tofu machine.

Pasta Production and Technology

Canada, USA • April 12-14, 2016



This short course introduces the fundamental and applied aspects of manufacturing extruded and sheeted pasta products. Participants had the opportunity to process pasta on a hands-on pilot-scale and then they took part in cooking the processed pasta to evaluate the final product. Group activities included an exercise in identifying pasta defects and processing causes and they also had a field trip to a local pasta manufacturer.

U.S. Agribusiness Partnership Program

Indonesia, Philippines, Thailand, Vietnam • June 13-17, 2016



The program, in addition to providing trade and technical information, emphasized the U.S. Soy Advantage to importers in terms of its sustainable production, efficient and reliable logistic and transportation system, transparent and reliable trade practices, better consistency and quality of product, better value for the dollar, and importance of valuing soy against amino acid and metabolizable energy values as opposed to crude protein.

The course was sponsored by:

- USSEC
- United Soybean Board
- American Soybean Association
- Qualified State Soybean Boards - Minnesota, North Dakota, South Dakota and Kentucky

Utilization of U.S. Wheat Classes in Pasta Production

Angola, Cote d'Ivoire, Ecuador, Haiti, Honduras, Mexico, Nigeria, Panama, Peru, South Africa, USA • July 18-22, 2016



NCI's customized pasta production course assisted pasta processors in creating the right blend of wheat to meet their pasta specifications. Hands-on pasta processing and cooking quality evaluations supplemented course lecture topics which included U.S. wheat supply and price outlook, wheat quality evaluation, and quality tests for flour and semolina.

The seminar was sponsored by:

- U.S. Wheat Associates

South Asian Contracting for Wheat Value

Philippines, Singapore, Thailand, Vietnam • August 1-5, 2016

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



Grain Procurement Management for Importers

Algeria, China, Ecuador, Egypt, Italy, Kuwait, Morocco, Panama, Peru, Philippines, Poland, Saudi Arabia, Singapore, United Arab Emirates, USA, Venezuela • September 12-21, 2016

NCI welcomed 25 participants from 16 countries to the Grain Procurement Management for Importers Course. The course highlights how companies can make effective purchases while managing their financial risk.

The course was sponsored by:

- U.S. Wheat Associates
- U.S. Grains Council
- U.S. Department of Agriculture FAS Cochran Fellowship Program



Dry Edible Beans as Food Ingredients

Argentina, Brazil, India, Indonesia, Italy, Malaysia, Philippines, Singapore, Thailand, Vietnam • September 19-20, 2016

NCI welcomed 22 participants from 10 countries for the Dry Edible Beans as Food Ingredients Course in mid-September. There was a broad range of course topics including industrial processing of canned beans and processing beans into flour to enhance pulse snack extrusion, baking and pasta applications.

The course was sponsored by:

- U.S. Dry Bean Council



Barley & Malt Quality: Field to Brewhouse Perspective

United States • October 3-6, 2016



Barley and Malt Quality: Field to Brewhouse Perspective course was held at NCI in October. NDSU Plant Sciences and 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 analyses.

Soybean Procurement Management for Importers

India, South Korea • October 10-14, 2016



NCI hosted the Soybean Procurement Management for Importers Course to provide food grade soybean buyers with the latest risk management tools for procuring food grade soybeans from this region, and a better understanding of food grade soybeans as it relates to handling, storage, transportation and quality characteristics.

The course was sponsored by:

- Minnesota Soybean Research and Promotion Council
- North Dakota Soybean Council
- Northern Food Grade Soybean Association
- U.S. Soybean Export Council

Applications of U.S. Pulse Ingredients

United States • October 17-21, 2016



This customized course focused on major applications of using pulses as an ingredient. Emphasis was placed on bakery products, pasta and both extruded and fried snacks. Nutritional properties were also highlighted during the course.

The course was sponsored by:

- USA Dry Pea & Lentil Council

Algeria...Angola
 Argentina...Brazil...Canada
 China...Colombia...Cote d'Ivoire...Ecuador
 Egypt...Honduras...India...Indonesia...Italy...Japan
 Kuwait...Malaysia...Mexico...Morocco
**Buyers from 37 Nations
 Educated by NCI in 2016**
 Myanmar...Nigeria...Panama...Peru
 Philippines...Poland...Saudi Arabia...Singapore
 South Africa...South Korea...Taiwan...Thailand
 United Arab Emirates...United States
 Venezuela...Vietnam



Morocco | March 6-11, 2016

Feed Production Center Manager Kim Koch, Ph.D. was in Morocco to attend the "Third USSEC Poultry Round Table for the Feed Industry of the Maghreb (North Africa)." There were approximately 60 people that attended the meeting. The picture above is of Kim Koch, Ph.D. and Khalid Benabdeljelil, contractor, North Africa for the U.S. Soybean Export Council (USSEC).



China | April 11-15, 2016

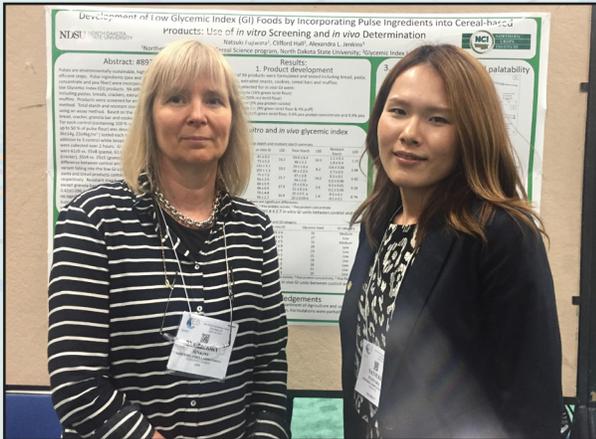
Food Scientist Zach Liu, Ph.D., CFS attended the 6th Annual China International Exhibition for Soyfood Processing Technology and Equipment and also the 4th Annual China International Soyfood Industry Development Conference held in Shanghai, China. During the conference Dr. Liu successfully delivered a one hour presentation titled "Importance of Soy Characteristics in Soyfood Processing - Introduction of North Dakota IP Soybeans." Dr. Liu represented NCI through the 2016 China Trade Mission group organized by the North Dakota Trade Office.



Guatemala | April 18-22, 2016

Natsuki Fujiwara attended a "Value-Added Foods with Bean Derivatives" seminar along with a hands-on baking demonstration in Guatemala City on April 19-20. It was hosted by the US Dry Bean Council. Participants from Central America learned about value-added applications of beans and also spent a day in the kitchen making products with bean flour.

Global Marketing



USA | April 2-6, 2016

Natsuki Fujiwara attended the Experimental Biology Conference 2016 in San Diego, Calif. The conference brought together approximately 20,000 professionals and exhibitors. Fujiwara presented her poster, "Development of low glycemic index foods by incorporating pulse Ingredients into cereal-based products: Use of in vitro screening and in vivo determination." Alexandra Jenkins from Glycemic Index Laboratory, Inc., is listed as a coauthor and was also at the conference.



USA | April 21, 2016

Feed Production Center Manager Kim Koch, Ph.D. was in Kansas City, Missouri at the Pet Food Forum. He assisted the Northern Pulse Growers Association in their booth with technical questions. There were a record number of attendees and exhibitors at the Forum and the exhibition space sold out for the third year in a row.



Myanmar | May 14-21, 2016

Food Scientist Zach Liu, Ph.D., CFS traveled to Myanmar to promote the use of U.S. food grade soybean protein ingredients. During the trip he visited three local companies that are currently producing or interested in producing soy-based beverages. Dr. Liu also delivered a 90 minute presentation at the Food Science Technology Association of Myanmar (FOSTA). The trip was organized by World Initiative for Soy in Human Health (WISHH/American Soybean Association) and was also financially supported by the North Dakota Soybean Council.



Southeast Asia | May 23-31, 2016

Dr. Frayne Olson, NDSU Department of Agribusiness & Applied Economics Crops Economist & Marketing Specialist was in Jakarta, Indonesia, Bangkok, Thailand and Manila, Philippines as part of the "Managing Risk and Profitability from Field to Food" meeting series. The meeting series was sponsored in part by NCI, Minnesota Soybean and the North Dakota Soybean Council. The program participants were buyers of U.S. soybeans and soybean meal. Most were soybean processors, feed millers and feed merchandisers. The meeting series focused on understanding the U.S. grain marketing system, with special emphasis on price risk management (i.e. futures markets, hedging and options).



Africa | June 20, 2016

NCI welcomed the Regional African Trade and U.S. Quality Assessment Team to NCI in June. Participants were from Ghana, Nigeria and South Africa. The team was hosted by the North Dakota Wheat Commission and Minnesota Association of Wheat Growers. They were at NCI to hear presentations and then the next day they toured a country elevator (the North Dakota Mill and Elevator) and they also toured the Alton Grain Terminal near Hillsboro, N.D.



Colombia | July 25, 2016

In July, NCI welcomed a Colombian Wheat Trade Mission Team. The team members were comprised of high level executives of the major flour, cookie and pasta groups from Colombia. The team was sponsored by U.S. Wheat Associates and USDA's Foreign Agricultural Service (FAS) and in cooperation with the North Dakota Wheat Commission along with many other state's wheat groups.



Singapore | August 13-20, 2016

NCI's Food Scientist Zach Liu, Ph.D., CFS presented at the South East Asia Soymilk Workshop organized by U.S. Soybean Export Council (USSEC) in Singapore. Zach presented on soybean variety, composition and storage. There were approximately 40 attendants who were from soymilk and tofu manufacturers in South East Asia. Dr. Liu's successful presentation and consultation lasted approximately 100 minutes and there many questions from the participants of the workshop.



Indonesia | August 18, 2016

In August, NCI welcomed the Indonesian Trade Team. The team was sponsored by U.S. Wheat Associates and hosted by North Dakota Wheat Commission.

Global Marketing



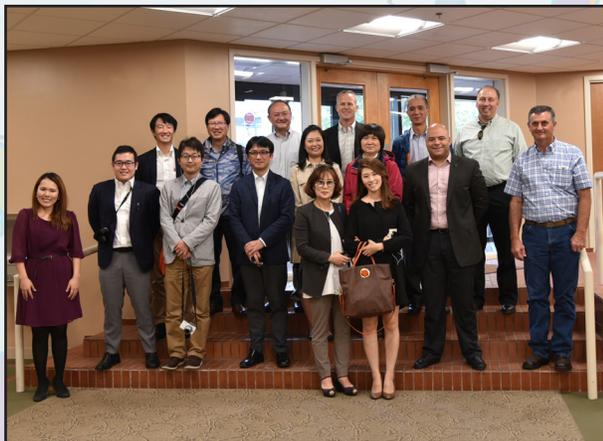
Myanmar | August 25, 2016

At the end of August, NCI welcomed the Myanmar Trade Team sponsored by the American Soybean Association and WISHH. The team consisted mainly of oilseed processors. They also visited a soybean farm and a grain elevator, attended a session at NCI and also participated in the Global Trade Exchange in Indianapolis, Indiana.



India | August 25 - September 2, 2016

Feed Production Center Manager Kim Koch, Ph.D. was one of three lead instructors for the Center for Executive Education's "FSPCA Preventative Controls for Human Food Course" sponsored by Cornell University - College of Agriculture and Life Sciences. Dr. Koch reported that it was well attended with 21 participants in the first part of the week and 30 participants towards the end of the week.



Japan, South Korea, Taiwan | September 12, 2016

In September, NCI welcomed the Food Barley Trade Team. The trade team was from Japan, South Korea and Taiwan. They were hosted by the North Dakota Barley Council.



Tunisia | September 26, 2016

We had a group of agriculture officials sponsored by the University of Minnesota Extension that were visiting from Tunisia. They took a tour of NCI and then they also visited other agricultural places of interest in the Fargo, N.D. area.



Philippines | October 4, 2016

The North Dakota Wheat Commission brought the Philippine Foremost Team to NCI for a tour of the facility. After the tour, the team headed to the Bagg Bonanza Farm in Mooreton, N.D. and also had a farm visit and tour.



Japan | October 26, 2016

NCI welcomed the Japanese Trade Team Showa Sangyo to our facility at the end of October. The trade team was sponsored by the North Dakota Wheat Commission.



Japan, South Korea,

Taiwan | November 7-11, 2016

Food Scientist Natsuki Fujiwara traveled to Japan, South Korea and Taiwan in the beginning of November to assess the market potential for food barley. The team met with key staff in each company.



Colombia | November 14-18, 2016

Food Scientist Natsuki Fujiwara spoke at educational seminars for health professionals as a means to increase bean consumption in Bogota, Colombia. Fujiwara also had a technical seminar in Medellin, Colombia for culinary and technical professionals.



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2016 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

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 Weber, director
 John Crabtree, assistant director
 Linda Briggs, office manager
 Betsy Armour, communications/public relations manager
 Janel Brooks, account technician
 Neil C. Doty, Ph.D., technical director (consultant)
 Kim Koch, Ph.D., feed production center manager
 Natsuki Fujiwara, food scientist
 Rachel Carlson, food technologist
 Sam Briss, food technologist
 Rilie Morgan, process project manager
 Zhisheng (Zach) Liu, Ph.D., CFS, food scientist

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