

SPECIALTY CROP BLOCK GRANT PROGRAM

FISCAL YEAR 2022 AWARDED PROJECTS



Agriculture Commissioner
Doug Goehring

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A Letter from the Commissioner

Greetings,

The North Dakota Department of Agriculture is pleased to support the specialty crop industry in the state through specialty crop block grants.

The USDA defines specialty crops as “fruits and vegetables, tree nuts, dried fruits, horticulture and nursery crops.” Specialty crops grown commercially in North Dakota include dry beans, dry peas, lentils, potatoes, confection sunflowers, grapes, honey and various vegetables.

Projects that enhance the competitiveness of specialty crops in ND are eligible for these grants.

Eligible applications include enhancing food safety; pest and disease control; developing new and improved seed varieties and specialty crops; and increasing child and adult nutrition knowledge and consumption of specialty crops. Projects that directly benefit specific, commercial products or profit a single organization, institution or individual are not eligible.

North Dakota receives funds based on a grant allocation formula that is based on the average of specialty crop cash receipts and specialty crop acreage in the state.

The North Dakota Department of Agriculture has been administering the Specialty Crop Block Grant Program since 2007. Since then, we have administered a total of 256 grants and have received more than \$30 million in funding through the past 18 annual funding opportunities; and an additional 28 grants and \$4.3 million in additional one-time funding through H.R. 133, the Consolidated Appropriations Act of 2020.

We encourage organizations, institutions and individuals to submit proposals on their own or in partnerships during open application periods. Questions may be directed to Deanna Gierszewski at 701-328-2191 or scbg@nd.gov.

Thank you for your interest in specialty crop block grants.

Sincerely,



Doug Goehring
Agriculture Commissioner



Agriculture
Commissioner
DOUG GOEHRING

ABOUT PROGRAM

The purpose of the Specialty Crop Block Grant Program (SCBGP) is to enhance the competitiveness of specialty crops. Specialty crops are defined as “fruits, vegetables, tree nuts, dried fruits, horticulture, and nursery crops (including floriculture).”

The Food, Conservation, and Energy Act of 2008 (Farm Bill) amended the Specialty Crops Competitiveness Act of 2004. Under the amended Act, the Secretary of Agriculture is directed to make grants to states for each of the fiscal years 2008 through 2012 to be used by state departments of agriculture to enhance the competitiveness of specialty crops. The American Taxpayer Relief Act of 2012 provided funding for fiscal year 2013, section 10010 of the Agricultural Act of 2014 provided funding for fiscal years 2014 through 2018 and section 10107 of the Agriculture Improvement Act of 2018 will provide funding for fiscal years 2019 through 2023.

To be eligible for a grant, the project(s) must “enhance the competitiveness of U.S. or U.S. territory grown specialty crops in either domestic or foreign markets.” Projects must also benefit more than one commercial product (e.g., ABC Company brand), organization, or individual.

Examples of enhancing the competitiveness of specialty crops include, but are not limited to: research, promotion, marketing, nutrition, trade enhancement, food safety, food security, plant health programs, education, increased consumption, increased innovation, improved efficiency and reduced costs of distribution systems and environmental concerns and conservation.

Grant funds are not awarded to projects that solely benefit a specific commercial product. It will not benefit products that provide a profit to a single organization, institution, or individual. Grant funds cannot be put toward capital expenditures (equipment, buildings, land). They also may not

be used to make improvements to capital assets that materially increase their value or useful life. Each project funded through the Specialty Crop Block Grant Program will be carried out over a two-year timeframe. The Specialty Crop Block Grant Program is funded through the United States Department of Agriculture’s Agricultural Marketing Service.

Number of Grants Awarded to the North Dakota Department of Agriculture: 1
Number of Sub-Awarded Projects: 21
Amount of Funds Awarded: \$3,309,650.39

These following funding breakdowns are for annual funding:

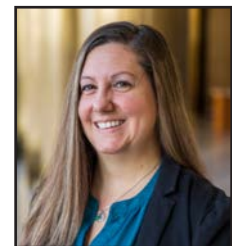
2022 Farm Bill funding (fiscal year 22-25):	
21 Projects	\$3,049,728.84
Direct	\$152,057.00
Indirect	<u>\$107,864.55</u>
Total	\$3,309,650.39

For more information, please visit the program’s website at <https://www.nd.gov/ndda/scbgp>.

SCBGP STAFF



KARA HAFF
Ag Marketing &
Business Development
Coordinator



DEANNA GIERSZEWSKI
Grant Administrator

2022 FARM BILL FUNDING



Research being done at the National Agricultural Genotyping Center

SUPPORTING SEED POTATO EXPORTS TO CANADA

North Dakota Department of Agriculture
Charles Elhard, Fargo

Project Budget: \$79,925

The North Dakota Department of Agriculture (NDDA) will support exports of seed potatoes grown in North Dakota to Canada by conducting a survey of Potato Cyst Nematodes or PCN (*Globodera pallida* and *G. rostochiensis*). A survey showing field specific negative results for PCN is required for shipments of seed potatoes into Canada. Results will be disseminated to participating potato growers. NDDA will partner with North Dakota State Seed Department (NDSSD) to complete this project.

INCREASING THE AVAILABILITY OF SSR GENOTYPING FOR VARIETY IDENTIFICATION IN CHICKPEA AND FIELD PEA

National Agricultural Genotyping Center
Zachary Bateson, Fargo

Project Budget: \$322,497

The National Agricultural Genotyping Center will develop two genotyping panels for variety identification in chickpea and field pea for the seed industry. Certification of field peas in North Dakota requires variety confirmation by genotyping, but upgrades to the existing diagnostic technology are needed to increase the efficiency and accuracy of variety identification.

HIGH-THROUGHPUT SCREENING FOR THE GENETIC MARKERS OF AFRICANIZED HONEYBEE COLONIES

National Agricultural Genotyping Center
Zachary Bateson, Fargo

Project Budget: \$118,426

The National Agricultural Genotyping Center (NAGC) will develop a high-throughput genetic test to survey colonies for a common marker associated with Africanized honeybees (AHB). The test will help apiary inspectors and beekeepers identify AHB and limit the further spread of aggressive colonies and AHB traits associated with reduced honey production.

INTERNATIONAL EXPORT EXPANSION OF ND SPECIALTY CROPS

North Dakota Trade Office
Amanda Nordick, Fargo

Project Budget: \$307,706

The North Dakota Trade Office (NDTO) seeks to increase the market share of North Dakota specialty crops by strategically expanding internationally. We plan to do this by providing up to six North Dakota companies the opportunity to exhibit at SIAL Paris, France, in 2022; Increasing the exposure of pulse crops for up to four North Dakota companies to the Middle East and North African Region by exhibiting at Gulfood 2023 in Dubai; United Arab Emirates; and executing an NDTO lead trade mission to India based on the market research to a promising region where up to five companies will meet with prescreened buyers and develop relationships for lasting success.

SCREENING FOR PEA ROOT ROT DISEASE RESISTANCE IN NEWLY-DEVELOPED NDSU BREEDING LINES AND GERmplasm

NDSU
Audrey Kalil, Williston

Project Budget: \$84,438

North Dakota State University Williston Research Extension Center will maintain *Aphanomyces* and *Fusarium* root rot breeding nurseries by infesting the soil with pathogen inoculum and growing susceptible host crops and screen North Dakota State University pea breeding lines for resistance to *Fusarium* and *Aphanomyces* root rot. Maintaining these nurseries will serve as a resource to the pulse breeding community for many years to come and screening NDSU breeding lines will aid in the development of root rot resistant varieties adapted to the North Dakota growing region.

NORTH DAKOTA SPECIALTY CROP EDUCATION SERIES

North Dakota Department of Agriculture
Kristine Kostuck, Bismarck

Project Budget: \$73,625.84

The North Dakota Department of Agriculture (NDDA) will offer a series of workshops around the state to educate producers in growing, preparing, marketing, and selling specialty crops. At the conclusion of these events, attendees will have gained knowledge about food safety and will learn new business practices to improve specialty crop production and distribution.



The North Dakota Department of Agriculture presents a seed-growing activity at a local farmers market

PROJECT SPOTLIGHT: POTATO



Russet skin potatoes from the variety trials

The North Dakota Department of Agriculture has long supported potato research through the Specialty Crop Block Grant Program. Here are a few interesting projects on potato that have been done in past years:

Potato Blight App

Potato blight is a devastating disease, so researchers at North Dakota State University (NDSU) developed an app for a potato blight model. The app allows North Dakota growers to put in their individual field locations and uses the nearest weather data from the North Dakota Agriculture Weather Network (NDAWN) to help predict when conditions are right for late and early blight. The app takes into account the temperature, humidity and other factors. Growers get notifications on their phone when severity levels are close to threshold and allow them to apply the appropriate protection at the right time, helping to decrease pesticide use, improve prevention and control of blight and make the best management decisions. There are approximately 200 potato growers in state and the app has been downloaded at least 400 times.

Yellow Potato Variety Trials

Demand has been increasing for yellow potatoes due to their good flavor. NDSU conducted variety trials on 30-40 varieties of yellow potatoes to find some that grow well in the Red River Valley, store well and pack well to help growers know where to place their money. Some examples of favorable varieties include: Melody, Musica, Paroli, Actrice and Columba.

Russet Potato Variety Trials

NDSU looked at russet skin potato varieties that fit our North Dakota environment better, use less nitrogen and are more sustainable from an environmental aspect as consumers demand these qualities and growers can spend less on inputs.

IMPROVING MANAGEMENT OF TWO IMPORTANT FOLIAR LEAF SPOTTING DISEASES OF POTATOES

NDSU

Julie Pasche, Fargo

Project Budget: \$197,715

Plant pathologists from North Dakota State University will conduct research to improve management recommendations for early blight and brown leaf spot of potato caused by *Alternaria* pathogens. Results from pathogen aggressiveness trials, fungicide efficacy evaluations and pathogen sequencing will increase our understanding of the brown leaf spot pathogen complex including the levels of SDHI fungicide resistance.

DEFINING VERTICILLIUM ON TUBERS WITH IMAGE ANALYSIS DURING BULKING

NDSU

Andrew Robinson, Fargo

Project Budget: \$141,392

North Dakota State University will develop improved grower recommendations, earlier diagnosis for *Verticillium dahliae*, and increase economic return by determining bulking rate of three russet potatoes. The purpose of this study is to understand the effects of planting dates on the develop of bulking rates and to define *V. dahliae* accumulation of Dakota Russet, Bannock Russet and Russet Burbank utilizing traditional laboratory methods and developing a new imaging analysis.



Andrew Robinson, NDSU, in a field of potatoes during the harvest portion of variety trials.

WEED CONTROL IN DRY PEA, LENTIL, AND CHICKPEA USING FALL COVER CROP AND HERBICIDES

NDSU

Brian Jenks, Minot

Project Budget: \$57,311

North Dakota State University will evaluate using a winter rye (*Secale cereale*) cover crop combined with fall-applied herbicides to control winter annual weeds and early spring-emerging weeds like kochia and Russian thistle. The project goal is to utilize the competitive shading ability of winter rye combined with fall-applied herbicides to reduce the density and size of weeds that compete with pulse crops.

IDENTIFYING DRY BEAN GERMLASM AND GENOMIC REGIONS WITH RESISTANCE TO NEW SOYBEAN CYST NEMATODE POPULATIONS

NDSU
Guiping Yan, Fargo

Project Budget: \$126,062

The Department of Plant Pathology at North Dakota State University (NDSU) will evaluate 250 dry bean cultivars, germplasm, and breeding lines for their resistance to the new virulent soybean cyst nematode (SCN) populations HG type 2.5.7 and HG type 1.2.5.7 detected in North Dakota and perform a genome wide association study (GWAS) for identifying genomic regions and genes associated with resistance to SCN in dry bean in cooperation with the Dry Bean Breeding Program at NDSU.

STRATEGIC MANAGEMENT OF DRY BEAN RUST: PATHOGEN SURVEILLANCE, HOST GENETICS, AND ECONOMICS OF RESISTANCE

NDSU
Upinder Gill, Fargo

Project Budget: \$192,347

North Dakota State University researchers propose a multifaceted rust management strategy that includes rust surveillance, evaluation of genetic resistance, and determination of the economic impact of that resistance when used by growers. Surveillance activities will involve identifying and characterizing rust races in North Dakota using traditional and genomics approaches. The newly released rust-resistant bean cultivars and new breeding lines from the NDSU dry bean breeding program will be screened against those pathogen races to determine the efficacy of genetic resistance and identify potential threats of resistance breakdown.

IDENTIFYING DRY BEANS AND RHIZOBIA THAT CAN WITHSTAND SOIL SALINITY AND WATERLOGGING

NDSU
Thomas DeSutter, Fargo

Project Budget: \$160,380

North Dakota State University aims to improve cultivar selection of dry beans for waterlogged and saline soil conditions, and to also determine how these conditions influence efficiency of BNF. The goals of this project will be accomplished by conducting waterlogging and salinity tolerance field and greenhouse experiments to isolate conditions, dry bean cultivars and breeding lines, to assess inoperable conditions for existing inoculum and to identify rhizobia within the nodules of bean plants growing under these two soil conditions and evaluate their potential for development as salinity and flooding-tolerant inoculants.



Bean research being conducted at NDSU Carrington Research Extension Center

PROJECT SPOTLIGHT: COMPOST



The DCB greenhouse manager prepares compost tea

Maintaining and improving soil health is important, but research has been limited on specialty cropping systems. Dakota College at Bottineau's (DCB) goal for the project was to research and demonstrate innovative and sustainable composting methods using biochar and wood chip from forestry waste as well as compost tea to improve specialty crop yield and enhance soil health with minimal chemical input.

Compost bays were created to test the different types of compost and composting techniques were disseminated and demonstrated to producers during two field days. After the field days, one producer was inspired to try a new technique not covered in the session which involved composting inside a high tunnel during the winter months to keep the compost active nearly year round.

Results of the composting were that biochar charged with compost tea resulted in less production than other composts. It is believed that biochar acts like a nutrient sponge and soaks and holds nutrients. DCB will continue the study to see what happens with production in biochar next year. Economical and environmental advantages to using compost were realized as DCB was able to use plant material waste from their gardens, high tunnels, greenhouse and lawns. They were also able to use food waste, mainly fruits and vegetables, as a soil nutrient. This reduced the cost of fertilizer needing to be applied to gardens and high tunnels. It also kept plant waste from going to the landfill. Overall the most significant result was to be able to utilize their own resources for improving soil health and increased plant production. Using their plant waste and materials as a resource was a good move toward sustainability.

While commercial fertilizers have high salt content, using compost and mitigating salt during the composting process reduced salt and improved soil health. After the field days, a number of producers have switched or are switching to compost. The project helped to show North Dakota small farm and specialty crop farmers how to compost effectively in their farming operations.

MOLECULAR APPROACHES TO IDENTIFY ASCOCHYTA RESISTANCE IN CHICKPEA

NDSU

Malaika Ebert, Fargo

Project Budget: \$312,883

Plant breeders and plant pathologists of North Dakota State University will work together to unravel the molecular aspects of *Ascochyta rabiei* – chickpea interaction and use this data to identify durable resistance of chickpea to the devastating disease *Ascochyta* blight.

NORTH DAKOTA GARLIC FROM FIELD TO FORK

NDSU

Julie Garden-Robinson, Fargo

Project Budget: \$86,019

North Dakota State University will establish an agreement relationship with the State Department of Agriculture to lead and execute the project that will work toward the increased

production of garlic in North Dakota and encourage consumers to use more garlic on their menus, especially to encourage vegetable and specialty crop consumption. We propose to conduct a garlic variety trial to evaluate garlic cultivars transplanted at three intervals for growth, development, yield, and quality when all other production variables remain constant.

EVALUATION OF WOODY ORNAMENTAL SHRUBS FOR NORTH DAKOTA

NDSU

Todd West, Fargo

Project Budget: \$71,635

North Dakota State University will conduct this project to provide information to growers and users (landscape companies and homeowners) for new ornamental woody shrubs for North Dakota landscapes. Increasing woody plant species for use in landscaping applications would have a significant impact on residents' specifically in North Dakota and throughout the region.

EVALUATING ARONIA FOR ORNAMENTAL AND EDIBLE USE FOR NORTH DAKOTA

NDSU

Todd West, Fargo

Project Budget: \$58,919

North Dakota State University will evaluate 21 different cultivars/unreleased accessions of Aronia and provide information to commercial small fruit growers and the North Dakota Greenhouse, Nursery and Landscape Association on cultivar use for edible and ornamental use. Recommendations will be made available through websites, newsletter articles and field day presentations.



Aronia research

FUMIGATION EFFECTS ON CARRYOVER OF HERBICIDES IN POTATO PRODUCTION

NDSU

Andrew Robinson, Fargo

Project Budget: \$132,368

North Dakota State University will determine the effects of fumigation on herbicide carryover in potato production systems. This project will determine the breakdown rate of herbicides when fumigated the fall after summer herbicide application. Research plots will be established to include different herbicides with and without fumigation. Soil samples will be taken and evaluated for herbicide residues to determine what effects fumigation has on the availability of these herbicides. Plants growth will be monitored and yield taken to be associated with soil samples.

ADDING PRE-BIOTICS TO PRO-BIOTICS: CHEMOATTRACTANTS SUPPORT RHIZOSPHERE BACTERIA, ENHANCING PLANT GROWTH AND DISEASE RESISTANCE

NDSU

Birgit Pruess, Fargo

Project Budget: \$190,007

Researchers at North Dakota State University are proposing the use of pre-biotic plant root exudates to support the pro-biotic inoculant rhizosphere bacteria that are currently being used for peas but are still in the research state for tomatoes and cucumbers. There is a growing body of evidence that plant beneficial pro-biotic bacteria use these substances to chemotax and swim through the soil towards the plant roots. The resulting symbiosis between plant and bacteria enhances plant growth and health, as well as disease resistance.



North Dakota field peas

OPTIMIZING THE DEPLOYMENT OF FUNGICIDES FOR MANAGEMENT OF FOLIAR DISEASES IN FIELD PEAS

NDSU

Michael Wunsch, Carrington

Project Budget: \$128,884

The North Dakota State University Carrington Research Extension Center, in cooperation with the NDSU North Central and Langdon Research Extension Centers, will conduct multi-location field trials to develop rigorous disease management recommendations for optimizing the deployment of fungicides for improved management of *Ascochyta* blight and powdery mildew in field peas.

**EVALUATING NEW BRASSICA CULTIVARS
YIELDS AND HEALTH ATTRIBUTES TO
INCREASE OPPORTUNITIES FOR LOCAL
FOODS**

NDSU
Harlene Hatterman-Valenti

Project Budget: \$105,095

North Dakota State University Agriculture Experiment Station will establish an agreement relationship with the State Department of Agriculture to lead and execute the project to evaluate new broccoli (*Brassica oleracea* var. *italica*), and cauliflower (*Brassica oleracea* var. *botritis*) cultivars for floret yield, quality, composition, and health benefit attributes compared to commonly grown broccoli and cauliflower cultivars.



North Dakota bees

**HONEYBEE VIRUS AND PATHOGEN SURVEY
AND RESEARCH PUBLICATION**

North Dakota Department of Agriculture
Samantha Brunner, Bismarck

Project Budget: \$102,094

The North Dakota Department of Agriculture (NDDA) will document the presence or absence of various honeybee pests and pathogens through a comprehensive survey and provide outreach and education to the beekeeping industry and the general public. NDDA will also publish a booklet with all the previously funded research projects funded by various grant programs that NDDA administers.



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