

# Capital Improvement and One-time Requests North Dakota Agricultural Experiment Station

Final Ranking by SBARE – March 2, 2022

**NDSU** NORTH DAKOTA AGRICULTURAL  
EXPERIMENT STATION

## Capital Improvement Requests

### 1. Field Lab Facility

Field agronomic, plant disease and soils research address the pressing questions and important issues needed by state producers. Unfortunately, the current field facilities used by scientists are no longer adequate to address these critical research needs. Waldron Hall, Widakas Laboratory, the Potato Research Laboratory, and the Horticulture laboratory were all built between the 1940s and 1960s prior to the advent of personal computers and other modern equipment commonly used in field research, and at a time when field crop production yields in North Dakota were much lower and consisted largely of small grains. The future of North Dakota's successful agriculture depends on modern field facilities that will allow researchers to address the needs of the industry with improved access to varieties that are adapted to the climate of North Dakota, better fertility recommendations, improved weed control, and improved responses to plant disease challenges.

A modern field laboratory requires space that facilitates collaborations between scientists and their teams, is safe, eliminates contamination from soilborne and insect pests, and provides better processing, cleaning and storing of seed. Additionally, this facility must support research in tuber and root crops, such as potato, and horticulture, including controlled-environment growing rooms that allow precise environments for plant development.

**Request:** \$97,000,000



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## 2. AES Equipment Storage Sheds

Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment such as tractors, planters and combines outdoors reduces the life of the equipment and can compromise the sophisticated electronics typically used on such equipment.

**Request:** Seven sheds (\$475,000 per shed)

**Total:** \$3,325,000

## 3. Nesson Valley Facility

A facility is needed for office and lab space, a heated shop, and a conference room at the Nesson Valley Irrigation site located 27 miles from Williston. The irrigation research staff currently uses a small office in a building used to store chemicals and other equipment and operating items. This facility would support ongoing educational efforts for growers related to irrigation and high value crops as well as meetings to support expansion of irrigation, food processing and livestock industries in western North Dakota.

**Request:** \$1,700,000

## 4. Precision Agriculture Facility

A facility that would support precision agriculture activities across the entire North Dakota Agricultural Experiment Station is needed to integrate advanced research in precision and advanced agriculture. A modern facility would provide the workspace scientists need to develop synergistic activities across disciplines that are required to address the complicated challenges facing producers of North Dakota. A new facility would include industrial high bay research space, co-worker space to enhance interdisciplinary research, and other specialty spaces that include a dynamometer bay, a fabrication laboratory and a soil laboratory.

**Request:** \$55,000,000

## 5. Dairy Barn

The last time the 1940s era NDSU dairy barn was updated was in 1978, when cows were producing 11,000 pounds of milk. Today the average dairy cow produces over 23,000 pounds of milk (over 2,600 gallons) in one year. The North Dakota State University dairy herd is recognized consistently by the Holstein association of the United States as one of the top university herds in the country. The current unit needs substantial renovation to the cow barn to modernize it with robotic milking and automatic calf feeding, improve worker safety, and increase animal welfare. This renovation would support the state's dairy industry and help it grow.

**Request:** \$1,700,000

## One-time Requests

### Deferred Maintenance

**Request:** \$1,440,465

### Equipment for an Ag Biotech Innovation Core

Microbiological sciences can best contribute to the future of North Dakota agriculture through the development of microbial inoculants and the microbial valorization of agricultural residues. Broader research interests exist across the NDAES surrounding the microbial transformation of agrifood products and bioproducts. NDAES scientists engaging in this research would benefit from a core facility where they could access specialized equipment and skilled technical support.

Funding would be used to purchase laboratory equipment needed to establish a core biotech facility. Equipment needed includes an array of bioreactors to support high throughput and scale-up experiments and metabolomics equipment including a GC MS/MS mass spectrometer.

**Request:** \$1,000,000