

Williston Research Extension Center

Program Highlights

- Foundation Seedstocks



- Irrigated Crop Research and Production



- Hightunnel Vegetable and Cut Flower Production



- UAV System Research



- Variety Trials/Cropping Systems



ND State University Williston Research
Extension Center
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DESCRIPTION

The Williston Research Extension Center (WREC), established in 1907 and relocated to the present site in 1954, is an 800-acre rain-fed farm located in northwest North Dakota near the city of Williston. In July 1998, an agricultural-based technology center was dedicated and named the Ernie French Center. A fund drive raised over \$650,000 for its construction and technology enhancements. In 2001, an additional 160 acres were purchased in the Nesson Valley 23 miles northeast of Williston and an irrigated research and development project was established. In 2012 an additional 1,100 acres of land were leased from the North Dakota Game and Fish Department for pure seed production and dryland research. In 2021 a new state-of-the-art seed conditioning facility was built to replace the seed conditioning plant built in 1956. WREC research studies are conducted on dryland and irrigated crops and crop varieties, herbicide performance, crop management research, plant diseases and control, cropping systems, soil and water conservation practices, pipeline and saline seep reclamation, and horticulture. WREC also produces and supplies foundation seed of new and popular varieties to area farmers. WREC research is intended to increase the producer's net profit, support crop diversification and encourage more intensive cropping and irrigation development.

WILLISTON RESEARCH EXTENSION CENTER IMPACTS

- WREC established a one-of-a-kind partnership with the Williams County Soil Conservation District (WCSCD) to construct a new WCSCD 60x100 ft. steel building at a cost of \$678,000 at WREC. The facility, completed in July 2017, has equipment storage space, and a 20x40 ft. cooler for storing tree and nursery stock for distribution of 50,000 tree seedlings in May to early June.
- Dr. Audrey Kalil, our new WREC Plant Pathologist, has established a new plant pathology program and plant pathology laboratory to evaluate the efficacy of fungicides, crop rotations, tillage practices and other IPM management techniques on reducing disease and pathogen populations. One area of focus will be the effect of different management practices on the naturally occurring beneficial organisms and the use of advanced molecular techniques to precisely quantify populations of soil-borne pathogens.
- Soil disturbance during the construction of pipelines, roadways, and well pads is a serious issue in western North Dakota. Within cropland, soil health and yields need to be restored during the reclamation process. During 2015, installation of a 36" water pipeline was completed at WREC. A long-term experiment with five annual crop rotations and two perennial covers in pipeline, roadway, and undisturbed (control) areas has been established to provide long-term management strategies for landowners to restore productivity to disturbed cropland from water, oil, and gas development.
- In 2005, WREC completed the development of the a 160-acre Nesson Valley irrigated site and is in its sixteenth year of research to identify improved irrigated cropping systems, tillage systems, and best crop varieties, and best management practices to improve water use efficiency, soil health, crop management systems, and economic and environmental sustainability. The Nesson Valley site consists of four- 40 acre fields each with overhead linear irrigation equipped with automated Variable Rate Irrigation (VRI).

WILLISTON RESEARCH EXTENSION CENTER IMPACTS (CONTINUED)

- Collaborating with the breeders of North Dakota State University, Montana State University, South Dakota State University, Minnesota State University, USDA-ARS, and ag companies, 50 variety trials are conducted each year to evaluate germplasms and varieties for biotic and abiotic stress tolerance and adaptation to the semi-arid dryland and irrigated conditions of the MonDak region. Trials include small grains (winter wheat, durum wheat, spring wheat, barley, and oat) and alternate crops (safflower, canola, flax, sunflower, corn, field pea, chickpea, soybean, lentil, dry bean, black gram, and industrial hemp) species.
- Drone based high throughput phenotyping research to support cereal breeding: Successfully generated RGB, NDVI, and NDRE of individual plots of barley and winter wheat nurseries.
- Determined optimum soybean plant population (90,000 PLS/a) and row spacing (71/2") for no-till soybean dryland production in northwest North Dakota.
- Conducted a saline seep reclamation research and demonstration project to reclaim saline seep area on WREC land in collaboration with the Montana Salinity Control Association and to evaluate salt-tolerance of alfalfa varieties and perennial grasses.
- The WREC Horticultural Research Program conducted research on haskaps production as a fruit wine and demonstrated the use of season extending high tunnels for vegetables and cut flowers production.
- A major capital campaign began in 2019 raised \$2 million in funds for a WREC state-of-the art seed conditioning facility/ seed cleaning equipment. The seed conditioning plant was completed in September, 2021 and is in operation conditioning foundation seed produced from the 2021 crop.

CRITICAL ISSUES

- The high turnover of technical support employees is negatively impacting WREC abilities to carry out our research programs. Higher competitive wages are needed to recruit and retain employees at WREC. The federal vaccine mandate for all NDSU employees is a grave concern that threatens the retention of WREC employees.
- The joint WREC/EARC Advisory Board has unanimously passed a resolution to request and document the need for an animal research/extension specialist at WREC. Our advisory board feels a livestock specialist will fill the missing key in our integrated cropping/livestock systems program for northwest North Dakota.
- A facility is needed for office/lab space, heated shop, and conference room at the Nesson Valley Irrigated site 27 miles from Williston. The irrigation research staff currently uses a small office in a storage/chemical handling building. The facility has been on the master plan since 2012. The facility would support irrigation conferences and grower meetings to support expansion of irrigation, food processing, and livestock industries in western North Dakota.
- An additional equipment storage building is needed to store high cost WREC farm and plot research equipment.
- Deferred maintenance funding continues to be a critical need for WREC to maintain its facilities and grounds.