Williston Research Extension Center

2019 SBARE Input Session

Program Highlights

- Foundation Seedstocks

Cropping Systems

- Disease Research
- Variety Trials

- Pipeline Reclamation
- Saline Seep Reclamation

Irrigated Crop Research and Production

- Hightunnel vegetable and Cut Flower Production

- Hops Research
- Extension Outreach

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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. 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. During the offseason, WREC may use the cooler for winter storage studies on potatoes and other vegetables.
- Dr. Audrey Kalil, our new WREC Plant Pathologist, has initiated a new plant pathology program 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. Audrey has assembled a new WREC plant pathology laboratory, and established collaborations with pathologists at the USDA-ARS, Montana State University, NDSU, and other REC's.
- 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. In addition to cropping sequence, ripping,/manure is being tested. This study aims 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 fourteenth 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). New studies include effects of sugarbeet spent lime on crop production and dry bean and soybean management of white mold.

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. This year, trials included 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. The agronomic data collected from these trials resulted into the release of the following crop varieties in 2017-19: North Dakota AES: Soybean (conventional) - ND Benson, ND Stutsman, and ND Rolette; Soybean (Glyphosate resistant) - ND17009GT and ND18008GT; Hard Red Spring Wheat - ND VitPro; Durum: ND Riveland and ND Grano; Lentil - ND Eagle; Flax - ND Hammond; Chickpeas - ND Crown; Peas - ND Hampton; Montana AES: Hard Red Winter Wheat - Ray, Four O Six; Hard Red Spring Wheat - Lanning; Minnesota AES: Hard Red Spring Wheat - Bolles-MN and Lang-MN; South Dakota AES: Hard Red Winter Wheat - Thompson; Pulse USA : forage peas - Fergie; STI: Safflower - STI1401.
- 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.
- Established 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 has initiated and conducted research on hops production and the use of season extending high tunnels to expand local specialty crop opportunities for vegetables and cut flowers and initiated research on haskaps.
- Our WREC Area Extension Specialist, Dr. Clair Keene, conducted trainings with northwest county extension agents to build their agronomic knowledge of crop varieties, conducted studies on kernza perennial wheatgrass, intercropping, organized and assisted with outreach programming opportunities in the region: National Hard Red Spring Wheat Show, Pulse Days, Weed Identification and Control, and Organic Certification Workshops, offstation trials, related tours, and field day events.

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 retain employees at WREC due to the high cost of living and high wages in our oil and gas producing countries (see attachment).
- 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 this position will fill the missing key in our integrated cropping/livestock systems program for northwest North Dakota.
- A capital campaign drive for a horizontal seed conditioning facility/equipment is underway and is expected to be completed in the next several months with the goal of building and completing the seed conditioning plant by fall of 2020.
- The fundraising for the greenhouse needed for the horticulture, plant pathology, and agronomy programs will become a major effort in 2020.
- An additional equipment storage building is needed to store high cost WREC farm and plot research equipment.
- Deferred maintenance funding continues to be an important need for WREC to maintain its facilities and grounds.

WREC Employee Turnover

	Start Date	End Date
Chelsey Penuel, Agronomy Research Specialist	08/15/2012	03/15/2014
Michael Cardillo, Agronomy Research Specialist II	04/28/2014	11/21/2014
Bubba Lamolinare, Irrigated Research Specialist	05/09/2014	09/09/2015
Kim Holloway, Horticulture Research Specialist	12/21/2012	02/17/2016
Scott Jenks, Irrigated Ag Technician	02/28/2014	03/25/2016
Diana Amiot, Research Specialist-Crop Production	01/03/2013	05/14/2016
David Schmidt, Irrigated Ag Technician	05/05/2014	06/10/2017
Austin Link, Agronomy Research Specialist II	03/30/2015	09/11/2018
Emma Link, Agronomy Research Specialist II	02/08/2016	09/29/2018
Dimitri Fonseka, Plant Pathology Research Specialist II	02/19/2016	12/19/2018
Ken Burback, Irrigation Ag Technician	02/26/2018	08/16/2019
Kyra Candee, Irrigation Technician	05/20/2016	11/09/2019

Williston Cost of Living Index

Index	Williston	North Dakota	National
Cost of living index	108	97	100
Housing index	115	85	100

Area Profile for North Dakota

Employment Wage Statistics Distribution Table

The table below shows counties with the highest average weekly wage in North Dakota for the first quarter of 2019.

Rank	Area	Number of Employees	Average Hourly Wage†	Average Weekly Wage	Average Annual Wage†
1	Unclassified	689	$39.35	$1,574	$81,848
2	Williams County	28,951	$39.03	$1,561	$81,172
3	McKenzie County	11,590	$38.93	$1,557	$80,964
4	Multi-County Locations (no primary county designated)	1,671	$38.78	$1,551	$80,652
5	Dunn County	2,056	$38.03	$1,521	$79,092
6	Oliver County	675	$37.75	$1,510	$78,520
7	Mercer County	4,069	$36.58	$1,463	$76,076
8	Mountrail County	6,045	$33.93	$1,357	$70,564
9	Slope County	133	$33.20	$1,328	$69,056
10	Stark County	19,564	$30.50	$1,220	$63,440

† Assumes a 40-hour week worked the year round.

Source: Labor Market Information Center, Job Service North Dakota, QCEW Unit
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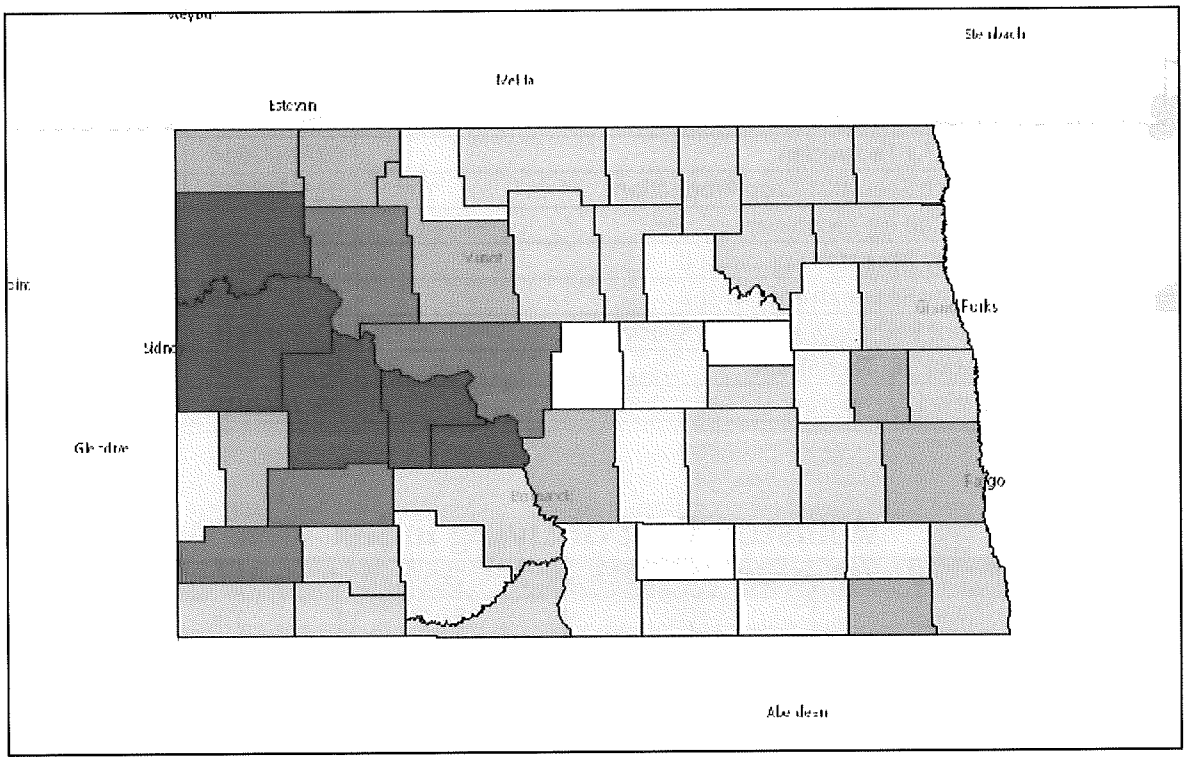
Average Weekly Wage Map



November 8, 2019

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Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Source: Labor Market Information Center, Job Service North Dakota, QCEW Unit

Area Profile for North Dakota

Employment Wage Statistics Table

The table below shows estimated average wage information for the first quarter of 2019.

Area	Number of Employees	Average Hourly Wage†	Average Weekly Wage	Average Annual Wage†
North Dakota	413,228	$25.53	$1,021	$53,092

† Assumes a 40-hour week worked the year round. Source: Labor Market Information Center, Job Service North Dakota, QCEW Unit
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