



Panhandle Research and Extension Center



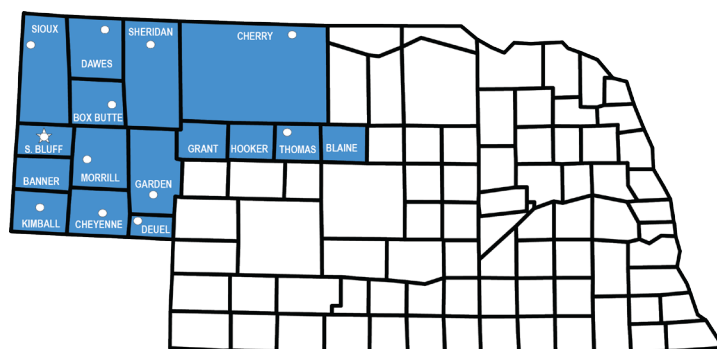
4502 Avenue I
Scottsbluff, NE 69361

The Panhandle Research and Extension Center is the home base for approximately 15 faculty members who hold appointments in UNL's Institute of Agriculture and Natural Resources. Interdisciplinary teamwork always has been a key strategy of the Panhandle Research and Extension Center.

Academic disciplines represented on the faculty are entomology, plant pathology, integrated weed management, irrigation water management, dryland cropping systems, alternative crops breeding, dry edible bean breeding, soil fertility/nutrient management, crop physiology, feedlot nutrition/management, cow-calf production/range management, rangeland ecology, agricultural economics, and community vitality.

The Panhandle Center is also the administrative headquarters for the Panhandle Extension District, a 16-county region extending over the Nebraska Panhandle and Sand Hills (see map). Extension programming is delivered from 12 county-based offices, as well as the Panhandle Center, by 28 Extension professionals.

The Panhandle Extension District With County Office Locations



The Panhandle Center traces its origins to 1910, when the Scotts Bluff Experimental Substation was established 5 miles east of Mitchell, NE, to conduct research in irrigated crop production. The original location is still in use, although the headquarters and more plots are now located 5 miles to the south, on the outskirts of Scottsbluff. Other satellite units have been added over the years, including the Experimental Range in Sioux County and the High Plains Ag Lab at Sidney, NE, where the focus is on rain-fed agriculture and pastures.



Dryland Crop Research in the Panhandle

Our facilities include several hundred acres of research plots, irrigation systems and other equipment, well-equipped greenhouses, and laboratories. In addition to the specialists, staff includes nearly 40 administrative and support personnel for management and clerical and technical assistance. Research is focused on crops and conditions specific to the High Plains of western Nebraska, such as corn, dry edible beans, sugarbeets, potatoes, and specialty crops or alternative crops.

The Scotts Bluff Ag Lab, surrounding the Panhandle R&E Center, comprises 156 acres of irrigated cropland. The Mitchell Ag Lab, 5 miles to the north (the original experimental station site), has 269 acres of irrigated cropland. The plots range from less than 1 acre to nearly 20 acres. Smaller plots typically are used for concentrated research, and larger plots allow the specialists to approximate the scale of production in “real world” farming, or conduct field days and demonstrations.

Dryland research:

Dryland crops research is conducted at the High Plains Agricultural Laboratory (HPAL) 6 miles northwest of Sidney, NE. Located on 2,400 acres, HPAL research and extension focuses on crops and cattle grazing studies emphasizing dryland production systems. Current research includes:

- Testing wheat varieties
- Alternative crops (millet, sunflower, etc.)
- Novel cropping systems with new crops
- Management of wheat pests
- Bioenergy crops studies



The headquarters, the 70,000-square-foot Elliott Building, houses faculty offices, research laboratories, meeting rooms, greenhouses, and multimedia development center. Communication technology includes ethernet and wireless networks, extensive server capacity, interactive videoconferencing technology, and a large-format printer.

Laboratories:

- Weed science
- Entomology
- Plant pathology
- Soil sciences
- Crop physiology
- Equipment/irrigation
- Potatoes and range ecology
- Plant breeding, genetics, genomics and biotechnology for dry edible bean
- Plant breeding, genetics, genomics and biotechnol-



High Plains Ag Lab
Aerial View



Dryland Crop Research in the Panhandle



ogy for alternative crops (esp. proso and foxtail millets)

Examples of Specialized Research:

- Variety trials
- Pathology studies
- Field equipment studies
- Fertility studies
- Planting date studies
- Alternative crops trials
- Breeding, genetics, and genomics of proso millet
- Crop rotation and tillage studies, including no-till
- Plant growth and development studies
- Irrigation practices
- Dry bean breeding nurseries and trials
- Screening of exotic germplasm
- Regional dry bean and chickpea trials
- Breeding nurseries

- Entomology studies
- Weed control studies

Relationship with UNL, industry and stakeholders

Research projects are conceived, planned and supervised by UNL faculty based in the Panhandle. Collaborators sometimes include colleagues from other UNL campuses, other universities, or state or federal agencies. Research needs are identified in cooperating with producer/commodity groups, food processors, chemical companies, or other agri-businesses. Funding often comes from these sources, as well as federal, state and local government sources.

Cooperating landowners frequently agree to host agonomic trials or test new farming methods.





Irrigated Crop Research in the Panhandle

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Research is focused on crops and conditions specific to the High Plains of western Nebraska, such as corn, dry edible beans, sugarbeets, potatoes, and specialty crops or alternative crops that show potential.

The Scotts Bluff Ag Lab, surrounding the Panhandle R&E Center, comprises 156 acres of irrigated cropland. The Mitchell Ag Lab, 5 miles to the north (the original experimental station site), has 269 acres of irrigated cropland.

Irrigation systems and methods reflect those used throughout western Nebraska:

- Four linear-move systems
- Subsurface drip irrigation system
- Sideroll system
- Center pivot irrigation system
- Surge irrigation
- Conventional furrow irrigation.

The plots range from less than 1 acre to nearly 20 acres. Smaller plots typically are used for concentrated research, and larger plots allow the specialists to approximate the scale of production in “real world” farming, or conduct field days and demonstrations.

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- Potatoes and range ecology
- Plant breeding, genetics, genomics and biotechnology for dry edible bean
- Plant breeding, genetics, genomics and biotechnology for alternative crops (esp. proso and foxtail millets)





Examples of Specialized Research:

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- Pathology studies
- Field equipment studies
- Fertility studies
- Planting date studies
- Alternative crops trials
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Beef Research in the Panhandle

Livestock production has long been the biggest sector of the agricultural economy in western Nebraska, accounting for approximately 70 percent of total agricultural revenue in the Panhandle Extension District. Research conducted at the UNL Panhandle Research and Extension Center is aimed at addressing the challenges facing producers, answering their questions, and improving their net return.

As the livestock industry has changed, so has our program emphasis. In times past, livestock production was a side-light common to the many smaller family farms, in which many farmers kept several types of livestock. It has evolved into a specialized sector of Panhandle agriculture, encompassing a number of even more specialized types of operations.

In past decades, UNL conducted research in the Panhandle on lamb feeding, dairy, swine production, and cattle. Today we concentrate on cattle feeding and nutrition, cow-calf production, range management, and rangeland ecology.

Panhandle Research Feedlot:

Following a series of expansions and improvements, the Panhandle Research Feedlot north of Scottsbluff is able to conduct precision, bias-free research in topics vital to the industry, in the same climactic conditions that producers face in the real world.

A \$1-million-plus expansion, funded mainly by private donations, was dedicated in 2007 that added 61 new feedlot pens to enlarge the total facility to 105 pens. The project represents the fruits of a vital partnership between the University and the cattle feeding industry, including feeders and animal health and nutrition companies. The feedlot has the capacity to conduct precision research into the most



important questions facing the industry.

New pens and other facilities allow UNL specialists to carry out research that is as precise and accurate as possible, free from factors that could bias results, and always on the cutting edge of the cattle-feeding industry. The expansion allows us to conduct research that will yield results applicable to the High Plains and Intermountain area. The new pens are of uniform size, shape and slope. Feed bunk space and availability are uniform, to improve the consistency from pen to pen. In addition, improvements were made to the cattle handling facilities, including a pen scale, micro-nutrient machine, additional grain storage and cattle handling facility.

A unique feature of the Panhandle Research Feedlot is that water intake to each pen can be measured independently. UNL's Panhandle Research Feedlot may be the nation's largest research feedlot with capabilities for individual pen water intake measurements.





Beef Research in the Panhandle



In addition to a feedlot nutrition and management specialist, the staff includes three research technicians.

Examples of research:

- Cost of gain
- Use of locally produced feeds (sugarbeet pulp, ethanol coproducts)
- Nutritional supplements
- Implants
- Herd health products

Cow-calf and range management studies:

Profitability and sustainability of the range beef cattle industry have benefitted from research conducted at the Panhandle Center. Grazing studies look at the effects of different stocking rates on rangeland, response to drought, and pasture evaluation.

Examples of research:

- Forage production
- Stocking rate

- Weaning date
- Implant trials

High Plains Ag Lab:

Pasture accounts for two-thirds of the 2,400 acres that make up the High Plains Ag Lab near Sidney. Cattle graze crested wheatgrass pastures to assess supplementation, feed additives or health measurements on performance.

Research trials include:

- Using alternative crops for supplementation
- Forage cocktail trials

Sioux County Experimental Range:

The 800-acre Sioux County Experimental Range currently is used for weed-control research and has the potential for a range restoration project.





ABOUT THE COMMUNITY:

The Twin Cities of Scottsbluff and Gering (total population about 24,000) are located in Scotts Bluff County (population about 40,000), a three-hour drive north of Denver and the Front Range of Colorado, and the same distance south of the Black Hills and Mount Rushmore. The Scottsbluff/Gering United Chamber of Commerce has a wealth of information about the community. Here are some of the highlights:

Business and industry: Major employers include education, healthcare, financial institutions and agricultural producers, including Regional West Medical Center, Western Sugar, Panhandle Coop Systems, Platte Valley Companies, and Kelley Bean Company.

Arts and Entertainment: West Nebraska Arts Center, the Historic Midwest Theater, Theatre West Summer Repertory Company, and a six-screen theater at Monument Mall are among many options.

Education: Scottsbluff/Gering has excellent public school systems, Western Nebraska Community College (WNCC), the University of Nebraska Medical College School of Nursing, and others. WNCC provides distance-learning opportunities in cooperation with Chadron State College, a four-year institution.

Health Care: Regional West Medical Center is the most comprehensive health care facility in western Nebraska and rivals many urban medical centers.

Recreation and tourism: Scottsbluff/Gering is situated on the Western Trails Scenic and Historic Byway. Notable scenic and geologic sites within two hours' drive or less include Wildcat Hills State Recreation Area, Fort Robinson State Park, and Chadron State Park. There are three golf courses, an outstanding YMCA, and public parks, lakes, and rivers. Exceptional youth recreational programs are offered.

History: The area has a rich historical heritage, with Scotts Bluff National Monument, Chimney Rock, Agate Fossil Beds, Fort Laramie National Historic Site, Hudson-Meng Bison Kill Site, the Oregon/Mormon Trails, and the Legacy of the Plains Museum nearby.

