ShREC Intro

Introduction to the Sheridan Research and Extension Center

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Introduction
The mission of the Sheridan Research and Extension Center (ShREC) is to serve Wyoming’s applied research, education, and extension needs in horticulture, rangeland restoration, and forage science. Our team (Fig. 1) seeks to continually improve our performance in all aspects of this mission. Our extension and outreach efforts have significantly increased over the past few years and have included target-specific field days, intensive multi-day workshops, and one-on-one consultations with local producers, land managers, and those who live on small acreages and in the city. With two field locations (Wyarno, east of Sheridan, and the Adams Ranch, just south of Sheridan College), a research greenhouse, two high tunnels (Fig. 2) and state-of-the-art laboratory space, we are able to facilitate studies ranging from highly technical to very applied. While a lot of research occurs on these sites, ShREC also serves as home base for additional research and educational endeavors around the state and region.

Highlights
Our research approach spans a broad range of methods, ranging from purely basic science to strongly applied science that is directly related to clientele needs. The use of precision breeding, biotechnology, molecular genetics, and conventional plant propagation facilitate the exploration of genetic diversity and novel combinations to enhance performance or diversity of plant materials. Greenhouse evaluations of growth, competitive ability, stress tolerance, and other characteristics further refine our understanding of how plant materials may perform under controlled conditions. Field evaluations of plant materials, management methods, water regimes, agricultural practices, harvest approaches, and other ways in which plants interact with their environment further advance development of management recommendations for our region.

The research enterprise at ShREC continued to mature and diversify in 2017. As you will see from other articles in this section of the Field Days Bulletin, research topics spanned grass, alfalfa and mixed hay production, native plant production for reclamation, precision breeding of grapes, cover crops for soil health and grazing, and projects related to weed science.

The first grape harvest from the research vineyard took place in 2017. Although birds found the grapes to their liking before harvesting was complete, more than 100 pounds of grapes from 18 varieties were collected and evaluated for various quality characteristics. Sadanand Dhekney’s team cooperated with University of Wyoming Extension’s Kentz Willis and Lori Dickinson to prepare grape jelly. Taste and color varied widely across jellies depending on the variety of grape.

Thanks to a partnership with the Laramie Research and Extension Center, sheep made their return to the Wyarno farm in 2017 as part of a cover crop project. The last record we could locate of sheep grazing research at ShREC was in the 1950s. The small flock helped with ground maintenance in the orchard and among the windbreaks when they were grazing cover crops. They also spent some time at Adams Ranch managing vegetation along a portion of the irrigation system.

As part of our commitment to providing research experience for undergraduate students, we expanded our internship program in 2017 to explore a pilot project that will allow undergraduate interns to seamlessly transition into a master’s of science degree program with UW. After spending a year experiencing hands-on research opportunities as an undergraduate intern, they can return for multiple years as interns to work on a specified research program or topic. Those summer projects will aggregate over several years into the core of an M.S. thesis. This program, in cooperation with the UW Department of Plant Sciences, will provide research-minded students an efficient and effective way to further their education in an increasingly competitive job market.

Resource Stewardship
The Adams Ranch is a direct result of partnership among UW, Sheridan College, and Whitney Benefits. While Whitney Benefits owns the real estate, we conduct research and educational activities within the terms of a multi-year lease. As part of our ongoing stewardship of the property, we made significant improvements to the irrigation infrastructure in 2017. We installed flow meters on all three center-pivot irrigation systems and a side-roll irrigation system to allow for better accounting of water use on both research and production fields. In preparation

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for the pending widening of Coffeen Avenue (on the west boundary of Adams Ranch south of Sheridan), we modified the controls and sprinkler system on one of the center pivots—a change that will allow us to minimize watering over future rights of way and walking paths. Additionally, our 2017 summer interns waged a campaign against Russian olives, a state-designated noxious weed species, by using cut-stump herbicide treatments on almost every tree on the Adams Ranch.

Acknowledgments
Members of the ShREC team strive to provide a setting where faculty and staff members, students, and other partners have access to high-quality research and learning opportunities. Our partnerships with Whitney Benefits, Sheridan College, UW Extension, the ShREC Advisory Board, and others expand our ability to serve the needs of stakeholders in Sheridan County and north-central and northeast Wyoming. We also thank other entities that have provided direct support in multiple forms over the past year: Monsanto Co., Wilbur-Ellis, Plank Stewardship Initiative, Sheridan County CattleWomen, Alfores™ Seeds, Allied Seed LLC, Granite Seed Company, Corteva™ Agriscience, Bayer Crop Science, Bureau of Land Management, and others.

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