Introduction to the James C. Hageman Sustainable Agriculture Research and Extension Center

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Introduction
The James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) near Lingle was established in 2002, and research activities began fully in 2006. SAREC has 349 acres of irrigated cropland using a combination of three center pivots, a lateral-move sprinkler, and furrow irrigation. SAREC also has (1) 1,523 acres of dryland crops, primarily in wheat and corn; (2) 1,880 acres of rangeland; and (3) a 400-head feedlot. Additionally, there are 320 acres of forested land at the Rogers Research Site near Laramie Peak.

We have had some employee changes in the past year. Assistant Professor Carrie Eberle started as a systems agronomist in the University of Wyoming’s Department of Plant Sciences. Jerry Nachtman retired at the end of last summer (Figure 1), Bob Baumgartner resigned in early fall, and Jim Freeburn decided to go full-time with the Western Sustainable Agriculture Research and Education (SARE) program and moved to an office in Torrington. John Tanaka started as director of SAREC in spring 2015. Others located at SAREC include Steve Paisley (Department of Animal Science), Brian Lee (Department of Agricultural and Applied Economics), Jeff Edwards and Lori Schafer (UW Extension), assistant farm managers Larry Howe, Larry Miller, Al Unverzagt, and Troy Cecil, and administrative assistant Kelly Greenwald.

We work as a team to provide the best possible research and extension activities serving six eastern Wyoming counties (Albany, Converse, Goshen, Laramie, Niobrara, and Platte), the state as a whole, and other regions with similar crop and livestock production issues. Our research includes small to large plots on cropland, rangeland restoration, pasture and rangeland grazing, and feeding primarily cattle in the feedlot. We are also heavily involved in extension activities throughout the year by providing a place for hands-on demonstrations and talks and by writing articles of interest to a wide range of constituents. We are highly committed to conducting research and extension activities that help solve issues for farmers, ranchers, and agricultural organizations such as the Wyoming Wheat Growers Association, Wyoming Stock Growers Association, Wyoming Farm Bureau Federation, Wyoming Bean Commission, and others.

The new Wyoming Restoration Challenge got off to a great start last year with teams from throughout the region establishing their treatments. The event was designed to allow citizens, students, and professionals to come up with innovative solutions to controlling cheatgrass, a troublesome weed across Wyoming, the West, and other areas of the country. Groups such as the Nebraska Section of the Society for Range Management toured the challenge (Figure 2).

Facility Improvements
While there were no major changes in our facilities over the past year, we have been focusing on upgrading and maintaining what we currently have. We are learning

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1Director, James C. Hageman Sustainable Agriculture Research and Extension Center.
to use the variable-rate irrigation systems installed on a center pivot and on the lateral-move sprinkler. Both of these have enabled us to more precisely control water use and, in the case of the lateral-move sprinkler, establish plots of different crops and studies with different water requirements. We also made infrastructure improvements to our office and housing with higher speed Internet and cell phone boosters, which allow our employees, visiting scientists, and the public to better use our facilities.

We planted pubescent wheatgrass on a highly erodible piece of dryland cropland (Figure 3). The intent was to establish permanent cover and prevent wind erosion. This area can be used for grazing research in the future.

The UW-owned and SAREC-managed Rogers Research Site near Laramie Peak had several forest restoration treatments established following the 2012 forest fire (Figures 4–5). Trees were removed by different methods in established plots in burned areas, and reestablishment of trees was done by planting one-year-old tublings (seedlings grown in small tubes), using seed, and allowing natural regeneration. These plots will be available to researchers trying to answer different forest restoration questions. Grasses (mountain brome, Idaho fescue, green needlegrass, and slender wheatgrass) were planted for erosion control. In addition, treatments of removing all burned saw wood and slash, removing only the saw wood and leaving the slash, and untreated controls were established.

Figure 2. Tour of the Wyoming Restoration Challenge.

Figure 3. Highly erodible cropland was planted to permanent cover.

Figure 4. The burned forest in 2015 following the 2012 Arapahoe Fire on Laramie Peak.

Figure 5. Establishing a forest restoration treatment on the Rogers Research Site.
2015 at SAREC
From a production standpoint, 2015 was a bit of a challenge. Rain came in the spring (4.78 inches above average for April and May) affecting planting and then again in the fall affecting harvest. Winds and hail also returned during harvest creating more challenges. We lost some research plot results because of all this. Generally, precipitation measured at SAREC was 18.53 inches—4.69 inches over the 30-year average.

Acknowledgments
SAREC was formed to be a place where applied research will be conducted to help agricultural production become more sustainable. Its mission is to serve the citizens of Wyoming, region, and nation by facilitating innovative discovery, dissemination, and engagement of integrated agricultural systems that are ecologically sound, economically viable, and socially acceptable. The success of SAREC depends wholly upon the staff, faculty, and students. Their efforts are the reason SAREC can provide a quality location for faculty, staff, and students from UW and elsewhere to conduct research and extension activities.

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