Evaluation of forage sorghum under irrigated and dryland conditions in Wyoming

**Investigators:** Anowar Islam, Dennis Ashilenje, and Michael Baidoo

**Issue:** Forage sorghum could potentially supply enough crude protein and energy to increase the performance of cattle. In areas with marginal rainfall for corn production in Wyoming and surrounding states, sorghum could potentially thrive because of its ability to withstand drought.

**Goal:** Identify cultivars of forage sorghum suitable for production under irrigated and dryland conditions in Wyoming.

**Objectives:** Determine dry matter yield and nutritive value of different cultivars of forage sorghum grown under irrigated and dryland conditions at the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC).

**Expected Impact:** Results from preliminary studies in 2017 indicate the potential for sorghum cultivars to produce similar forage yields in both dryland and irrigated conditions. Among these are Sweetleaf II, NK300, SP4555, and Nutri-King BMR (Fig. 1). These cultivars also had higher yields and similar crude protein as corn silage in both cropping systems. Trials will continue in 2018 to identify cultivars with consistently high yields and forage nutritive value. Well-adapted cultivars could be used to sustain cattle production when conditions are not favorable for other forage crops.

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**Keyword:** sorghum, yield, nutritive value

**PARP:** I:2,12,15, II:2,12,15, IV:3,4, VI:1,3

**Figure 1.** Dennis Ashilenje standing in sorghum cultivar Nutri-King BMR at milk stage in a dryland system at SAREC on September 7, 2017.

Flow meter and electric meter installation on SAREC irrigation pivots

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**Issue:** Irrigation systems are common in the major agricultural production areas of Wyoming to produce irrigated crops. Unlike some states including Nebraska, irrigation metering is not required in Wyoming; therefore, water use is assumed to be less than efficient in a production setting. The James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC), in collaboration with others, wants to better understand the electrical costs and water consumption associated with current pumping practices for future management consideration.

**Goal:** Install water flow and electric meters on the irrigation systems at SAREC to better understand and evaluate the center’s water use (Fig. 1); and collaborate with local producers and the University of Nebraska’s Panhandle Research and Extension Center (UNL-PREC) in this project.

**Objectives:** Become more efficient and accurate with water placement at SAREC, UNL-PREC, and cooperator fields.

**Expected Impact:** Disseminate results to producers across Wyoming and western Nebraska to help them better understand water usage, how to use water more efficiently, and how to lower irrigation costs, including electrical usage.

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**Keywords:** irrigation efficiency, flow meter, water use

**PARP:** I:1, IV:1,3,4

**Figure 1.** A center pivot at SAREC is being equipped with water flow and electric meters (photographed March 2018).