



Cool-season perennial

Situation:

Alfalfa is raised on approximately 64,000 irrigated acres in Johnson and Sheridan counties for hay production. Stand longevity is generally five to seven years. Exhausted fields have to be tilled and planted to a non-alfalfa crop for a year or two before the field can be returned to alfalfa.

Cool-season perennial forage grasses could produce comparable yields of good-quality forage over an extended number of years and reduce hay production costs. A study of potential grasses to replace alfalfa as a forage source for this region was initiated in 2003 at Victoria Station Ranch along Clear Creek in Johnson County and on the Neltje Ranch along lower Piney Creek in Sheridan County.

Nine grasses were seeded into replicated plots at the two ranch sites in May 2003. Landowners irrigated and fertilized, controlled weeds, and, following sample collection for hay yield estimates, harvested the plot areas.

Five presentations for area producers and range professionals reached 140 individuals. Ten written reports also provided dissemination of applied research results.

Impacts:

Regar meadow brome and Manchar smooth brome have produced the most hay over the seven years of the study averaging 3.1 tons per acre followed by Luna and Mandan pubescent (intermediate) wheatgrass at 2.8 tons per acre. These yields are comparable to the 2004-2009 average of 2.7 tons per acre for alfalfa hay in Johnson and Sheridan counties. These four grasses along with NewHy hybrid wheatgrass have maintained their stands whereas the stands of Bozoisky-select Russian wildrye, Hycrest crested wheatgrass, Rosana western wheatgrass, and Critana thickspike wheatgrass have all but been lost, especially Critana. A possible explanation as to why stands of these grasses have waned is that Bozoisky-select and Hycrest are bunch grasses that allow invasion by rhizoma-

tous introduced grasses. Although the two native grasses, Rosana and Critana, are themselves rhizomatous, they begin growth later in the spring than the introduced species and thus may have not have been as competitive.

Management practices gleaned from this study and now implemented by the producers are:

- Nitrogen fertilization needs to be done by the first of May to obtain maximum benefits;
- Irrigation needs to occur by mid- to late May if April and early May are drier than average; and
- One mid- to late-summer irrigation may have a high impact on next year's yields.

Some hay producers in the area have planted fields to meadow brome instead of smooth brome – the standard – because meadow brome has better late-spring regrowth for grazing. Also, if pubescent (intermediate) and hybrid wheatgrasses are grown for hay, they need to be harvested prior to anthesis, unlike the bromes; otherwise, they become rank, and livestock will not readily consume the hay.

Although these wheatgrasses mature later than the bromes, harvesting them for hay needs to occur by late June, whereas harvesting the bromes can be delayed until mid-July without sacrificing palatability, although quality is less than ideal. Bromes are more forgiving with regard to when harvested and the palatability compared to the pubescent and hybrid wheatgrasses, thus providing a longer harvest window.

This project will continue until 2013 providing 10 years of hay yield results, resultant stand longevity over that period of time, and an economic analysis.

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