Irrigated Perennial Cool Season Grass Hay Trial

Eighth year of trial conducted at Ray Daly’s along lower Piney Creek in southern Sheridan County and Larry Vignaroli’s along Clear Creek near Ucross in northern Johnson County. See December 2008 Land & Livestock newsletter for purpose of trial. If you do not have a copy of this newsletter you can obtain one by contacting me at the Johnson County Extension office.

Management Practices

Nitrogen fertilizer – actual lb N/ac


Spring Irrigations (Years not listed none)
Daly’s (side roll): late May 2004, early June 2006 and 2009;


Hay Yields: Differences between Grasses
Over the eight years ‘Manchar’ smooth bromegrass and ‘Regar’ meadow bromegrass have produced yearly averages of 3.2 and 3.1 T/ac, respectively, between the two sites followed by ‘Mandan’ and ‘Luna’ pubescent wheatgrass at 2.9 T/ac, and ‘NewHy’ hybrid wheatgrass at 2.6 T/ac (Table 1).

‘Rosana’ western wheatgrass, ‘Bozoisky’ Russian wildrye, and ‘Hycrest’ crested wheatgrass were no longer present in sufficient amounts to warrant sampling. For past yields see the December 2010 newsletter.
If you do not have a copy of this newsletter you can obtain one by contacting me or accessing the below website.
www.uwyo.edu/ces/county/johnson/newsletters.html

**Differences between 2010 and 2011**

Why grass hay yields averaged 1.3 T/ac more in 2011 compared to 2010 at Vignaroli’s (Table 1) was probably due to the plots receiving 100 lb N/ac in 2011. This may also be why grass hay yields averaged 1.9 T/ac more at Vignaroli’s compared to at Daly’s. However, in addition to the grasses at Vignaroli’s receiving N fertilizer, May and June maximum daily temperatures averaged two degrees warmer and minimum temperatures a degree warmer compared to at Daly’s (Table 2) which could have resulted in more grass growth.

**Grass Hay Yields compared to Alfalfa**

Irrigated alfalfa hay yields averaged 2.8 T/ac between 2004 and 2010 for Johnson and Sheridan counties (Table 3). The grasses have averaged between 2.4 (‘NewHy’ @ Daly’s) to 3.5 (‘Mandan’ @ Vignaroli’s) T/ac over the eight years (Table 1) from a single late June harvest. However, for the grasses to consistently yield 2.5 – 3.0 T/ac they would most likely require nitrogen fertilizer applied by early May.

Table 1: Grass hay yields in tons per acre at Ray Daly’s along lower Piney Creek, southern Sheridan County, and at Larry Vignaroli’s along lower Clear Creek, northern Johnson County.

<table>
<thead>
<tr>
<th>Year</th>
<th>Day</th>
<th>Luna PWG¹</th>
<th>Mandan PWG¹</th>
<th>NewHy HWG¹</th>
<th>Manchar SBG¹</th>
<th>Regar MBG¹</th>
<th>Yearly Averages</th>
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<tr>
<td></td>
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<td>29 Jun</td>
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¹PWG = pubescent wheatgrass; HWG = hybrid wheatgrass; SBG = smooth bromegrass; and MBG = meadow bromegrass
Table 2: Maximum and minimum monthly temperatures (°F) at the Daly and Vignaroli sites in April, May, and June 2009, 2010, and 2011.

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<tr>
<th>Period</th>
<th>Daly’s Maximum</th>
<th>Daly’s Minimum</th>
<th>Daly’s Average</th>
<th>Vignaroli’s Maximum</th>
<th>Vignaroli’s Minimum</th>
<th>Vignaroli’s Average</th>
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1Period: 2009 Apr 14 to 29 Jun (Daly’s) to 24 Jun (Vignaroli); 2010 Apr 14 to 29 Jun (Daly’s) to 28 Jun (Vignaroli’s); 2011 Apr 14 to 24 Jun (Both)

Table 3: Irrigated alfalfa hay yields (Tons/acre) 2004 through 2010 for Johnson and Sheridan counties (Wyoming Agricultural Statistics 2011, pp. 83)

<table>
<thead>
<tr>
<th>County</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Average</th>
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<tbody>
<tr>
<td>Johnson</td>
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<td>1.9</td>
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<tr>
<td>Average</td>
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<td>2.9</td>
<td>3.0</td>
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Appendix Table 1: Precipitation (inches) recorded at the Daly and Vignaroli sites in April, May, and June 2009 and 2011, and at Daly’s in 2010 (Gauge did not work at Vignaroli’s in 2010).

<table>
<thead>
<tr>
<th>Year</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>Total</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>Total</th>
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<tr>
<td>2010</td>
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<td>8.8</td>
<td>1.4</td>
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<td>1.3</td>
<td>8.1</td>
<td>2.5</td>
<td>11.9</td>
</tr>
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</table>

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