



UNIVERSITY  
OF WYOMING  
EXTENSION

College of Agriculture and  
Natural Resources  
Northeast Extension Area  
Johnson County Office

762 W. Fetterman  
Buffalo, WY 82834  
Phone: 307-684-7522  
Fax: 307-684-7522 (call ahead)  
bhorn@uwyo.edu

## LAND & LIVESTOCK

Blaine E. Horn, Ph.D., C.P.R.M.  
University Senior Extension Educator  
Rangeland & Forage Management

### 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

Daly's: none in 2004, 100 on 19 Apr 2005, 19 May 2006, 9 May 2007, and 5 May 2008, 68 on 28 Apr 2009, 60 on 16 Apr 2010, and none in 2011;

Vignaroli's: none in 2004 and 2005, 30 on 12 May 2006, 100 on 1 May 2007, 7 May 2008, and 1 May 2009, none in 2010, and 100 on 28 Apr 2011.

##### Spring Irrigations (Years not listed none)

Daly's (side roll): late May 2004, early June 2006 and 2009;

Vignaroli's (flood): late May 2006, mid-May 2008 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](http://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.

Year	Day	Luna PWG <sup>1</sup>	Mandan PWG <sup>1</sup>	NewHy HWG <sup>1</sup>	Manchar SBG <sup>1</sup>	Regar MBG <sup>1</sup>	Yearly Averages
Ray Daly's:							
2004	23 Jun	2.5	2.5	2.2	2.1	2.0	2.3
2005	20 Jun	3.7	3.7	3.3	5.0	5.2	4.2
2006	21 Jun	2.8	2.7	2.6	3.3	2.6	2.8
2007	26 Jun	2.9	3.3	2.7	2.8	4.1	3.2
2008	26 Jun	1.3	1.2	1.3	2.1	1.8	1.5
2009	29 Jun	2.6	2.8	2.8	3.5	3.3	3.0
2010	29 Jun	2.3	2.2	1.6	2.6	3.1	2.4
2011	24 Jun	2.3	1.9	2.7	2.4	2.4	2.3
<i>Grass totals</i>		20.8	20.6	19.6	24.1	24.9	<b>22.0</b>
Larry Vignaroli's:							
2004	30 Jun	2.4	2.1	2.2	2.2	1.2	1.8
2005	30 Jun	2.8	2.4	2.5	2.5	2.5	2.1
2006	26 Jun	2.6	2.8	2.3	2.0	1.5	2.1
2007	21 Jun	4.1	4.8	3.6	3.8	3.6	3.6
2008	26 Jun	3.9	4.5	3.8	4.7	4.3	3.8
2009	24 Jun	3.1	3.6	2.6	3.7	4.1	3.2
2010	28 Jun	2.9	2.8	2.4	3.6	3.7	2.9
2011	24 Jun	4.1	4.7	4.2	4.7	3.8	4.2
<i>Grass totals</i>		26.3	27.7	22.3	27.1	25.0	<b>26.0</b>

<sup>1</sup>PWG = pubescent wheatgrass; HWG = hybrid wheatgrass; SBG = smooth brome grass; and MBG = meadow brome grass

Table 2: Maximum and minimum monthly temperatures (°F) at the Daly and Vignaroli sites in April, May, and June 2009, 2010, and 2011.

Period	Daly's			Vignaroli's		
	Maximum	Minimum	Average	Maximum	Minimum	Average
2009:						
Apr 14 – 30	56.7	32.0	44.4	59.0	33.1	46.0
May	69.0	34.9	51.9	70.5	37.1	53.8
June	69.6	42.9	56.3	70.7	44.6	57.6
<i>Period<sup>1</sup></i>	<i>74.4</i>	<i>41.8</i>	<i>58.1</i>	<i>70.6</i>	<i>39.9</i>	<i>55.2</i>
2010:						
Apr 14 – 30	61.7	31.4	46.5	62.8	32.6	47.7
May	60.8	34.2	47.5	61.7	36.2	49.0
June	73.1	44.3	58.7	73.9	47.2	60.5
<i>Period<sup>1</sup></i>	<i>69.3</i>	<i>36.2</i>	<i>52.8</i>	<i>70.3</i>	<i>38.5</i>	<i>54.4</i>
2011:						
Apr 14 – 30	52.6	25.4	39.0	53.9	26.0	39.9
May	57.7	35.9	46.8	59.1	36.9	48.0
June	74.6	43.1	58.9	77.0	44.0	60.5
<i>Period<sup>1</sup></i>	<i>70.3</i>	<i>36.3</i>	<i>52.9</i>	<i>72.0</i>	<i>37.8</i>	<i>54.6</i>

<sup>1</sup>Period: 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)

County	2004	2005	2006	2007	2008	2009	2010	Average
Johnson	1.8	2.3	1.9	3.1	2.8	2.7	2.8	2.5
Sheridan	2.5	3.4	2.5	3.2	3.1	3.0	3.1	3.0
<i>Average</i>	<i>2.2</i>	<i>2.9</i>	<i>2.2</i>	<i>3.2</i>	<i>3.0</i>	<i>2.9</i>	<i>3.0</i>	<i>2.8</i>

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).

Year	Daly's				Vignaroli's			
	April	May	June	Total	April	May	June	Total
2009	0.3	0.4	1.7	2.4	0.4	0.3	1.4	2.1
2010	1.0	4.9	1.7	7.6				
2011	1.6	8.8	1.4	11.8	1.3	8.1	2.5	11.9

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