

## ALFALFA VARIETY TRIAL

### SDSU SOUTHEAST RESEARCH FARM – BERESFORD, SOUTH DAKOTA – 2016

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#### Introduction

The following is a report on yields observed in the establishment year of an alfalfa variety trial conducted at the SDSU Southeast Research Farm in the 2016 season. The year was marked by an unusually wet spring, followed by a period of moderate drought stress in late July to mid August; (weather data is at the end of this report; Tables 2 and 3). Leafhopper pressure developed over time, and the plots were sprayed for leafhoppers on 20 July, 2016. This trial will be continued for two more years.

#### Methods

Design: RCBD with four replications

Plot size: 4 by 25' (end-trimmed to 20' before harvest)

Seed rate: 15 lb/acre

Planting method: small-plot Brillion Seeder

Herbicide applications: Pursuit was applied at 4 oz/ac on 7 June, 2016; Butyrac 200 was applied at 2 qt/ac on 6 August, 2016

Insecticide application: Mustang Maxx applied at 4 oz/ac on 20 July, 2016

Harvest: plots were end-trimmed to a 20' length immediately before harvest and then whole plot yields were taken using a forage harvester (Model SMW-SCH-48; Swift Machine & Welding, Swift Current, Saskatchewan, Canada). Subsamples of fresh material were weighed and dried at 140° F to determine percent moisture. All yield data are presented on a dry weight basis.

Statistics: standard ANOVA using SAS statistical software.

## Results

Yield data for each cutting and summed over the course of the season is given in Table 1. These plots will be maintained and yield data collected for the next two growing seasons.

**Table 1.** Forage yield on a dry matter basis during the establishment year for 21 lines of alfalfa evaluated at the SDSU Southeast Research Farm in the 2016 season. Data are based on whole plot (4 by 20') yields in a replicated trial. The leafhopper rating is on a 0 to 10 scale, with 10 being no damage and 0 being extreme damage. The leafhopper rating was made on 22 June, 2016. The plots were planted on 14 April, and harvest dates were on 22 June, 28 July, and 25 August, 2016.

<u>Line</u>	<u>Source</u>	<u>First Cut</u>	<u>Second Cut</u>	<u>Third Cut</u>	<u>Total</u>	<u>Leafhopper Rating</u>
		(lb/ac)	(lb/ac)	(lb/ac)	(lb/ac)	(0 to 10)
144109	Dairyland	2045	1690	1430	5164	7.5
8420	Wilbur Ellis Company	1951	1790	1376	5118	7.3
CW 054004	Mycogen	1974	1531	1413	4919	8.0
FSG 423ST	Farm Science Genetics	2039	1516	1328	4883	7.0
143146	Dairyland	2047	1492	1331	4869	7.8
GA-409	Preferred Alfalfa Genetics	1910	1662	1261	4834	7.5
GA-497 HD	Preferred Alfalfa Genetics	1810	1607	1384	4802	7.0
Leyenda	Legend Seeds	1808	1465	1494	4766	6.5
144110	Dairyland	1573	1595	1558	4727	8.0
FSG 415 BR	Farm Science Genetics	1753	1410	1556	4719	7.5
8450	Wilbur Ellis Company	1553	1550	1502	4604	7.5
<b>Bobolink</b>	<b>Blue River Hybrids</b>	1719	1563	1296	4578	7.8
<b>Robin</b>	<b>Blue River Hybrids</b>	1307	1642	1619	4569	7.5
FSG 426	Farm Science Genetics	1285	1638	1563	4486	6.8
Mustang 420+	Mustang Seeds	1702	1492	1144	4338	7.5
FSG 403LR	Farm Science Genetics	1538	1448	1327	4313	7.3
8444R	Wilbur Ellis Company	1553	1464	1482	4284	6.8
<b>Roadrunner</b>	<b>Blue River Hybrids</b>	1718	1281	1180	4179	6.8
143147	Dairyland	1664	1341	1157	4161	6.8
DG 4210	Dyna-Gro	1220	1465	1232	3916	7.0
Mustang 620 Aph 2	Mustang Seeds	<u>1266</u>	<u>1412</u>	<u>1274</u>	<u>3899</u>	<u>7.3</u>
<i>Mean</i>		1694	1526	1377	4589	7.3
<i>CV (%)</i>		20.7	13.9	16.4	10.5	11.1
<i>LSD (0.05)</i>		496	NS	NS	683	NS
<i>LSD (0.10)</i>		415	NS	266	570	NS

**Table 2. Precipitation at the Southeast Research Farm – 2016\***

Month	Precipitation 2016 (inches)	64-year Average (inches)	Departure from Avg. (inches)
April	4.16	2.55	+1.61
May	6.49	3.49	+3.00
June	1.12	4.19	-3.07
July	1.84	3.10	-1.26
August	2.82	2.98	-0.14
September	7.26	2.77	+4.49
Totals	23.71	19.08	+4.63

**Table 3. Temperatures<sup>a</sup> at the Southeast Research Farm – 2016\***

	2016 Average Air Temps. (°F)		64-year Average Air Temps. (°F)		Departure from 64-year Average	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
April	58.9	36.9	60.2	35.2	-1.3	+1.7
May	70.6	47.7	72.0	47.3	-1.4	+0.4
June	85.5	60.9	81.4	57.7	+4.1	+3.2
July	85.8	61.5	86.0	62.0	-0.2	-0.5
August	83.3	60.0	84.0	59.4	-0.7	+0.6
September	76.2	52.7	75.6	49.2	+0.6	+3.5

<sup>a</sup> Computed from daily observations

\*Daily weather information (temperature and precipitation) is available by contacting the Southeast Research Farm, 29974 University Road, Beresford, SD 57004; telephone 605-563-2989; email [ruth.stevens@sdstate.edu](mailto:ruth.stevens@sdstate.edu)