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Alfalfa Variety Trial at the Southeast Research Farm – 2021 Season

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Introduction

Alfalfa is an important crop for most ruminant nutrition, and it is critical for profitable dairy production. The following is a report on forage yields observed in the second year of an alfalfa variety trial established the previous year (2020) at the SDSU Southeast Research Farm.

Methods

The plots were laid out in a randomized complete block design with six replications. Plot size is 5' by 18'. Whole plot yields were taken using a forage harvester (Model SMW-SCH-48; Swift Machine & Welding, Swift Current, Saskatchewan, Canada) on May 28, June 28, and on August 2, 2021. Subsamples of fresh material were weighed and dried at 140˚ F to determine percent moisture. Some plots had skipped rows due to a planter row plugging, in order to correct for this, yields in these plots were adjusted up 11.4 % (which was the average difference between the plots with and without skipped rows). All yield data are presented on a dry weight basis. The means were individually compared to the highest yielding line for that cutting and separated with an LSD test ($P < 0.05$) using SAS statistical software. Yields of the top 50 % of the lines entered in the trial are shown along with the check variety.

Results

The drought from 2020 carried over into the first half of 2021 (Table 1). June was a particularly stressful period for crop production in our area, which was followed by more moderate weather in July and August. This is reflected in higher yields for the third cutting versus the second cutting (Table 2). This is the second year of this trial. We plan to continue this trial for one more season.

Acknowledgement

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Table 1. Precipitation[a] at the Southeast Research Farm – January 2020 thru November 2021.

Month	Precipitation (inches)	Average (inches)**	Departure from Avg. (inches)	Cumulative Departure from Avg. (inches)
January 2020	0.39	0.45	-0.06	-0.06
February	0.08	0.79	-0.71	-0.77
March	2.73	1.45	+1.28	0.51
April	0.55	2.54	-1.99	-1.48
May	2.16	3.55	-1.39	-2.87
June	3.23	4.19	-0.96	-3.83
July	1.95	3.08	-1.13	-4.96
August	1.23	3.04	-1.81	-6.77
September	0.35	2.81	-2.46	-9.23
October	0.70	1.92	-1.22	-10.45
November	0.91	1.13	-0.22	-10.67
December	0.26	0.66	-0.40	-11.07
January 2021	1.01	0.46	+0.55	-10.52
February	0.30	0.78	-0.48	-11.00
March	2.33	1.46	+0.87	-10.13
April	2.45	2.53	-0.08	-10.21
May	2.07	3.53	-1.46	-11.67
June	0.71	4.14	-3.43	-15.10
July	3.02	3.08	-0.06	-15.16
August	3.88	3.05	+0.83	-14.33
September	3.05	2.82	+0.23	-14.10
October	3.32	1.94	+1.38	-12.72
November	0.19	1.12	-0.93	-13.65

[a] Computed from daily observations

** Average for 2020 based on 68 years, Average for 2021 based on 69 years of data

Table 2. Dry matter yields from an alfalfa variety trial conducted at the Southeast Farm in Beresford, South Dakota in the 2021 season. Plots were established in the spring of 2020, making this the second year of the trial. Plots were harvested on May 28, June 28, and Aug. 2 of 2021. Some plots had skipped rows due to a planter row plugging, in order to correct for this, yields in these plots were adjusted up 11.4 % (which was the average difference between the plots with and without skipped rows). Yields were impacted by drought, which was particularly severe during the month of June. Yields of the top 50 % of the entries included in the trial are shown in this table along with the check variety ('Vernal').

Line	First Cutting (tons/ac)	Second Cutting (tons/ac)	Third Cutting (tons/ac)	Total (tons/ac)
Viking O. 5200	**1.96**	**1.42**	**1.42**	**4.80**
DSX174083	**2.15**	**1.21**	**1.39**	**4.76**
GA440XQ	**2.01**	**1.24**	**1.33**	**4.58**
DSX174082	**1.93**	**1.16**	**1.41**	**4.50**
Viking 394	**1.98**	1.09	**1.22**	**4.29**
Red Falcon	**1.86**	1.14	**1.27**	**4.27**
DB 540 Salt	1.80	**1.16**	**1.30**	**4.27**
HybriForce 4400	**1.94**	1.03	**1.24**	**4.22**
DB Rush Hour	1.81	1.09	**1.26**	**4.16**
DB HeavyWeight	1.82	1.10	**1.23**	**4.15**
Viking 342	1.72	1.07	**1.35**	**4.14**
C0415C3364	1.62	1.15	**1.34**	**4.10**
Check (Vernal)	1.63	0.76	0.97	3.36
Mean	*1.81*	*1.04*	*1.22*	*4.06*
CV (%)	*15.5*	*22.1*	*19.1*	*15.9*
LSD (0.05)	*0.32*	*0.26*	*0.27*	*0.74*
LSD (0.10)	*0.27*	*0.22*	*0.22*	*0.62*