South Dakota State University
College of Agriculture, Food and Environmental Sciences

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South Dakota Agricultural Experiment Station at SDSU

Alfalfa Variety Trial at the Southeast Research Farm – 2020 Season - Establishment Year

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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 first year of an alfalfa variety trial established this last season (2020) at the SDSU Southeast Research Farm.

Methods

The plots were laid out in a randomized complete block design with five 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 July 9 and August 21, 2020. 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. The means were individually compared to the highest yielding line for that cutting and separated with an LSD test ($P < 0.10$) using SAS statistical software.

Results

This past season was marked by drought in the second half of the year. This was the second driest growing season on record at the farm (records go back to 1952). In 2020 the farm received 9.5" of rainfall during the growing season (April through Sept.), where the average for this period is 19.2" of rainfall (68-year average, from 1953 through 2020). Yield data for each cutting and total production for the establishment year for the top 12 lines in the trial are shown in Table 1. This trial will be continued for two more seasons.

Acknowledgement

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Table 1. Dry matter yields in first year (2020) for the top twelve lines of an alfalfa variety trial established at the Southeast Research Farm in Beresford, South Dakota. The season started with ample moisture, but was marked by dry weather and drought stress in late July and August.

Line	Cut 1 - July 9 (ton/ac)	Cut 2 - Aug 21 (ton/ac)	Season Total (ton/ac)
DSX174083	**1.76**	**1.39**	**3.15**
DSX174082	**1.83**	**1.28**	**3.11**
Aqua Maxx	**1.82**	**1.18**	**3.00**
HybriForce 4400	1.71	**1.28**	**3.00**
Viking Organic 5200	1.72	**1.27**	**2.99**
GA440XQ	**1.76**	**1.23**	**2.99**
Falcata	**1.77**	1.18	**2.95**
Red Falcon	1.72	1.22	**2.94**
DB HeavyWeight	1.67	1.27	**2.93**
check	**1.89**	1.03	**2.92**
GA349XL	1.65	1.26	**2.91**
HybriForce-4420	1.74	1.15	2.88
mean	1.71	1.16	2.87
CV (%)	7.3	13.7	7.9
P-value	<0.05	<0.05	<0.05
LSD (0.10)	0.148	0.187	0.265