South Dakota State University

College of Agriculture, Food and Environmental Sciences |
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2026 South Dakota Winter Rye Forage Variety Trial Results

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Introduction:

This report reviews forage yield data from a winter rye forage variety trial conducted at the Southeast Research Farm in Beresford, South Dakota in 2026. There is growing use and interest in rye as a spring forage or silage crop followed by a double crop of soybeans or sorghum in our area. The objective of this trial is to compare different commercially available lines of interest for forage yield.

Methods:

Plots were direct seeded into soybean stubble on Sept. 25, 2025 using a small plot drill. Plots were 25 by 5' in size and were laid out in a randomized complete block design. Fertilizer was applied at a rate of 30-25-0-15 NPKS on Oct. 24, 2025 and an additional application of 9-45-0 was made on Nov. 21, 2025. In the following spring, 50 lb/ac of N as urea was applied on March 24, 2026. Visual ratings of percent stand were made on Nov. 25, 2025 and April 9, 2026. On April 9th, the plots were also rated for relative vigor on a 1 to 10 scale (10 showing the most vigor). Plots were harvested when most of the lines were in the late boot stage on May 15, 2026 using a small plot forage harvester. Subsamples of each line were dried for estimation of percent dry matter and this was used with whole plot fresh weight to calculate dry matter yields on a per acre basis. Hay, and silage, yields were estimated using values 15%, and 65% moisture, respectively. Data were analyzed using standard ANOVA with SAS statistical software. A triticale line ('Flex 719') was included as a check in the trial.

Results:

There was sufficient moisture to establish the plots, but overall soil moisture was low in the fall of 2025, limiting crop development going into winter (Table 1). The winter in turn was open, with very little snow cover which resulted in limited soil moisture going into spring. Across the trial, including the triticale check, dry matter yields averaged 1.85 tons per acre. Contrasting this with other years, in 2025 (a poor year with drought during rye establishment) the rye lines in the forage trial averaged just over 1 ton per acre (1.07 tons/ac). In the excellent production year of 2024, the average yield across rye lines in this trial was 3.56 tons per acre, almost twice what was observed in the current trial (2026 season). Across all these trials, 'Hazlet' rye has consistently been among the top-yielding lines tested. For those interested in an earlier rye line, 'ND Gardener' was earlier than the other lines tested and was headed out by the time most of the other lines were in the boot stage. 'Hazlet', 'Rymin' and 'ND Gardener' were statistically similar to each other for total biomass produced and were the higher yielding lines tested in this trial for total forage production.

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Table 1. Monthly precipitation and average maximum and minimum temperatures, along with departure from the 74-year average, observed at the SDSU Southeast Research Farm in Beresford, South Dakota, from September 2025 through June 2026. Note the below-average rainfall in the fall, along with very little January or February moisture (i.e. snowfall) coupled with below-average temperatures in February.

Month	Precipitation Sept 2025 – June 2026 (inches)	Departure from Avg. (inches)	2025 Average Air Temps. (°F) Maximum	Minimum	Departure from Average (˚F) Maximum	Minimum
September	0.91	-1.82	79.6	54.2	+3.6	+4.5
October	1.08	-0.84	68.7	43.2	+5.3	+5.7
November	0.84	-0.27	48.2	27.7	+2.6	+3.9
December	0.53	-0.16	32.6	14.0	+1.5	+2.1
January	0.02	-0.44	31.0	8.3	+2.8	+2.2
February	0.00	-0.74	45.6	17.0	-3.0	-6.8
March	0.38	-1.07	55.5	25.7	+10.5	+2.7
April	3.91	1.38	61.2	34.9	+1.2	-0.2
May	2.63	-0.87	73.6	47.2	0.0	+0.5

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Table 2. Fall and spring stand ratings, spring relative vigor rating, height at harvest, Feeke's stage at harvest, dry matter yield, and estimated hay and silage yields for six lines of winter rye evaluated with a triticale check evaluated in a forage variety trial at the Southeast Research Farm, Beresford, South Dakota, in the 2026 growing season. Plots were planted on Sept. 25, 2025 and harvested on May 15, 2026. Visual ratings of percent stand were made in the fall on Nov. 25, 2025. Ratings of percent stand and relative vigor were made the following spring on April 9, 2026. Plots were laid in a randomized complete block design with 4 replications. Plots were harvested with a small plot forage harvester. Varieties yielding in the top 1/3 of the trial are bold and shaded light blue.

Line	Fall Stand Rating (%)	Spring Stand Rating (%)	Relative Vigor (1 to 10)	Height (cm)	Feeke's Stage	Dry Matter Yield (lb/ac)	Hay Yield (tons/ac)	Silage Yield (tons/ac)
Hazlet	88.8	88.0	**8.0**	85.0	10.2	**2.57**	**3.03**	**7.35**
Rymin	84.3	88.3	**7.3**	75.0	10.2	**2.25**	**2.65**	**6.43**
ND Gardener	90.6	84.0	**7.3**	92.5	10.5	**2.23**	**2.63**	**6.38**
Aviator	77.6	76.5	**7.5**	77.5	10.1	2.05	2.41	5.85
Progas	77.9	71.5	6.3	65.0	10.2	1.79	2.11	5.13
Performer	76.3	64.7	6.3	55.0	10.2	1.78	2.10	5.10
Flex 719	82.8	37.0	2.0	33.3	8.0	0.25	0.30	0.73
Mean	82.6	72.8	6.4	69.0	9.9	1.85	2.17	5.28
CV (%)	5.8	10.7	15.1	-	-	16.0	16.0	16.0
LSD (0.10)	6.3	10.4	1.3	-	-	0.39	0.46	1.12