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# 2024 South Dakota Rye Forage Variety Trial Results

Peter Sexton | SDSU Southeast Research Farm Supervisor & SDSU Extension Sustainable Cropping Systems Specialist
Brad Rops | Southeast Farm Operations Manager
Sara Bauder | SDSU Extension Forage Specialist
Joslyn Fousert | Agricultural Research Assistant

**Cooperator:** South Dakota State University Southeast Research Farm
**Location:** Beresford (43° 02' 37.1" N, 96° 53' 47.9" W)
**Soil Type:** Egan Silty Clay Loam
**Previous crop:** soybean
**Tillage:** no-till
**Row spacing:** 8”
**Seeding Rate:**
- Hybrid Lines 800,000 seeds/ac
- Open Pollinated lines; 1,200,000 seeds/ac

**Fertilizer:**
- Fall 30 lbs/ac N + P
- Spring 40 lbs/ac N

**Herbicide:**
- None

**Fungicide:**
- Propi-Star - Aerial Application

**Date seeded:** 10/2/2023
**Date harvested:** 5/17/2024

**Cooperator:** South Dakota State University Southeast Research Farm
**Location:** Wagner (43° 06' 46.5" N, 96° 10' 48.9" W)
**Soil Type:** Salmo-Napa Complex Silt Loam
**Previous crop:** soybean
**Tillage:** no-till
**Row spacing:** 8”
**Seeding Rate:**
- Hybrid Lines 800,000 seeds/ac
- Open Pollinated lines; 1,200,000 seeds/ac

**Fertilizer:**
- Fall 30 lbs/ac N + P
- Spring 40 lbs/ac N

**Herbicide:**
- None

**Fungicide:**
- None

**Date seeded:** 10/19/2023
**Date harvested:** 5/20/2024



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# 2024 South Dakota Rye Forage Variety Trial Results Beresford

Table 1. Rye forage variety trial results. Harvested on 5/17/2024. Significantly highest yeilds are shaded blue and bolded.

| Line | Type | Height (inches) | Lodging (1-5) | Feeke's Stage | Dry Matter Forage (ton/ac) | Silage Yield (ton/ac) | TDN* (%) | RFV* (%) | Crude Protein* (%) |
|---|---|---|---|---|---|---|---|---|---|
| FX 1001 | Triticale | 36.1 | 0.0 | 9.0 | **3.81** | **10.88** | 57.2 | 104 | 19.5 |
| ND Gardner | OP Rye | **48.6** | 0.5 | 10.5 | 3.22 | 9.19 | 52.7 | 89 | 15.8 |
| Hazlet | OP Rye | 38.7 | 0.3 | 10.2 | 3.19 | 9.13 | 52.7 | 90 | 16.8 |
| Aroostook | OP Rye | 39.2 | 0.0 | 10.2 | 3.16 | 9.03 | 57.4 | 107 | 18.7 |
| Aviator | Hybrid Rye | 39.4 | 0.3 | 10.2 | 3.09 | 8.83 | 51.2 | 85 | 13.3 |
| Danko | OP Rye | 39.7 | 0.0 | 10.3 | 2.96 | 8.45 | 49.7 | 78 | 11.0 |
| Progas | Hybrid Rye | 37.4 | 0.5 | 10.1 | 2.94 | 8.40 | 47.5 | 80 | 12.6 |
| H10129 | Hybrid Rye | 37.9 | 0.0 | 10.1 | 2.89 | 8.27 | 56.5 | 101 | 18.3 |
| H240 | Hybrid Rye | 36.7 | 0.3 | 10.1 | 2.89 | 8.25 | 56.8 | 102 | 20.0 |
| H238 | Hybrid Rye | 36.2 | 0.0 | 10.1 | 2.65 | 7.56 | 56.3 | 98 | 17.7 |
| MTF 1435 | Wheat | 24.0 | 0.0 | 8.8 | 1.84 | 5.26 | 64.8 | 138 | 26.7 |
| Willow Creek | Wheat | 20.4 | 1.0 | 8.0 | 1.79 | 5.11 | 63.8 | 135 | 25.4 |
| **Mean** | - | 36.2 | 0.2 | 9.8 | 2.87 | 8.20 | 55.6 | 101 | 18.0 |
| **CV (%)** | - | 5.0 | 197.2 | - | 8.0 | 8.0 | - | - | - |
| **LSD (0.10)** | - | 2.5 | NS | - | 0.32 | 0.90 | - | - | - |

* NIR analysis, unreplicated composite samples

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# 2024 South Dakota Rye Forage Variety Trial Results Wagner

Table 2. Rye forage variety trial results. Harvested on 5/20/2024. Significantly highest yeilds are shaded blue and bolded.

| Line | Type | Height (inches) | Lodging (1-5) | Feeke's Stage | Dry Matter Forage (ton/ac) | Silage Yield (ton/ac) | TDN* (%) | RFV* (%) | Crude Protein* (%) |
|---|---|---|---|---|---|---|---|---|---|
| Hazlet | OP Rye | 44.4 | 0.0 | 10.4 | **3.80** | **10.85** | 49.6 | 81 | 14.1 |
| Aviator | Hybrid Rye | **45.5** | 0.0 | 10.5 | **3.71** | **10.60** | 47.3 | 81 | 14.3 |
| Aroostook | OP Rye | 43.2 | 0.0 | 10.5 | **3.62** | **10.35** | 51.0 | 88 | 15.9 |
| H240 | Hybrid Rye | 42.5 | 0.0 | 10.4 | 3.59 | 10.26 | 52.1 | 89 | 16.0 |
| Progas | Hybrid Rye | 43.0 | 0.0 | 10.4 | 3.59 | 10.26 | 53.4 | 96 | 18.1 |
| H238 | Hybrid Rye | 43.6 | 0.0 | 10.4 | 3.58 | 10.22 | 44.4 | 74 | 12.8 |
| Danko | OP Rye | **45.6** | 0.0 | 10.5 | 3.57 | 10.20 | 47.4 | 75 | 13.5 |
| H10129 | Hybrid Rye | 43.1 | 0.0 | 10.4 | 3.40 | 9.71 | 54.0 | 99 | 19.6 |
| FX 1001 | Triticale | 38.9 | 0.0 | 9.0 | 3.29 | 9.39 | 55.0 | 101 | 18.2 |
| ND Gardner | OP Rye | **48.5** | 1.0 | 10.5 | 3.23 | 9.22 | 49.5 | 85 | 15.1 |
| MTF 1435 | Wheat | 30.0 | 0.0 | 9.0 | 2.70 | 7.70 | 53.4 | 96 | 18.6 |
| Willow Creek | Wheat | 27.6 | 0.0 | 8.3 | 2.05 | 5.87 | 54.0 | 97 | 16.6 |
| **Mean** | - | 41.3 | 0.1 | 10.0 | 3.34 | 9.55 | 50.9 | 89 | 16.1 |
| **CV (%)** | - | 7.7 | - | - | 5.0 | 5.0 | - | - | - |
| **LSD (0.10)** | - | 4.4 | - | - | 0.20 | 0.57 | - | - | - |

* NIR analysis, unreplicated composite samples

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# 2024 South Dakota Rye Variety Trial Results

Peter Sexton | SDSU Southeast Research Farm Supervisor & SDSU Extension Sustainable Cropping Systems Specialist
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Joslyn Fousert | Agricultural Research Assistant

**Cooperator:** South Dakota State University Southeast Research Farm
**Location:** Beresford (43° 02' 37.1" N, 96° 53' 47.9" W)
**Soil Type:** Egan Silty Clay Loam
**Previous crop:** soybean
**Tillage:** no-till
**Row spacing:** 8”
**Seeding Rate:**
- Hybrid Lines 800,000 seeds/ac
- Open Pollinated lines; 1,200,000 seeds/ac
**Fertilizer:**
- Fall 30 lbs/a N+P
- Spring 80-0-0 N/ac
**Herbicide:**
- None
**Fungicide:**
- Propi-Star - Aerial Application
**Date seeded:** 10/2/2023
**Date harvested:** 7/22/2024

**Cooperator:** South Dakota State University Southeast Research Farm
**Location:** Arlington (44° 23' 14.9" N, 97° 01' 40.0 W)
**Soil Type:** Poinsett Waubay Silty Clay Loam
**Previous crop:** soybean
**Tillage:** no-till
**Row spacing:** 8”
**Seeding Rate:**
- Hybrid Lines 800,000 seeds/ac
- Open Pollinated lines; 1,200,000 seeds/ac
**Fertilizer:**
- Fall 30 lbs/a N+P
- Spring 80-0-0 N/ac
**Herbicide:**
- None
**Fungicide:**
- None
**Date seeded:** 10/11/2023
**Date harvested:** 8/26/2024

**Cooperator:** South Dakota State University Southeast Research Farm
**Location:** Clear Lake (44° 43' 09.91" N, 96° 49' 58.3 W)
**Soil Type:** Kranzberg - Brookings Silty Clay Loam
**Previous crop:** soybean
**Tillage:** no-till
**Row spacing:** 8”
**Seeding Rate:**
- Hybrid Lines 800,000 seeds/ac
- Open Pollinated lines; 1,200,000 seeds/ac
**Fertilizer:**
- Fall 30 lbs/a N+P
- Spring 80-0-0 N/ac
**Herbicide:**
- None
**Fungicide:**
- None
**Date seeded:** 9/21/2023
**Date harvested:** 8/9/2024



S-0002-2024-14-R

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# 2024 South Dakota Rye Variety Trial Results

Table 1. Rye grain variety trial data pooled across sites of Beresford, Clear Lake, and Arlington, South Dakota in the 2024 growing season. Data on test weight and 100-seed weight are not included from Arlington (100-seed weight has not been processed yet, and combine test wt. measurements were not considered reliable in this case). Also data on 'Andes' wheat yield at Clear Lake was excluded from this analysis due to wildlife damage at that site. Note there were significant site by line interactions for yield, test weight, lodging, and height. Only one replication was measured for height at Arlington. The statistically significant highest yeilds are bolded and shaded blue.

| Line | Height (inches) | Lodging (1-10) | 100-SeedWt (g) | Moisture (%) | Test Wt (lb/bu) | Grain Yield (bu/ac) |
|---|---|---|---|---|---|---|
| H9011 | 48.7 | **2.0** | **2.84** | 15.9 | 52.7 | **117** |
| H20003 | 48.6 | **1.8** | 2.79 | 16.0 | 53.5 | **116** |
| Receptor | 49.7 | 3.5 | 2.57 | 16.5 | 54.4 | **116** |
| H9008 | 49.8 | 2.5 | 2.77 | 15.8 | 53.8 | **112** |
| H20005 | 48.4 | **1.8** | 2.66 | 15.9 | 53.1 | 111 |
| SU Karlsson | 48.9 | 2.8 | 2.57 | 16.0 | 54.2 | 107 |
| SU Cossani | 49.8 | **2.1** | 2.52 | 16.7 | 52.7 | 104 |
| SU Perspectiv | 48.7 | 2.4 | 2.67 | 15.8 | 53.5 | 104 |
| Tayo | 48.3 | 2.4 | **2.93** | 16.3 | 53.7 | 103 |
| Serafino | 48.8 | 2.6 | 2.56 | 16.7 | 53.0 | 103 |
| SU Performer | 49.4 | 2.8 | 2.37 | 15.7 | 51.9 | 102 |
| SU Bebop | 48.9 | 3.6 | 2.58 | 16.2 | 53.1 | 94 |
| Danko | 50.5 | 2.8 | 2.66 | 15.8 | 54.5 | 84 |
| Aroostook | 52.3 | 5.3 | **2.95** | 15.9 | 53.8 | 81 |
| Hazlet | **54.3** | 4.2 | **2.92** | 15.9 | 54.4 | 81 |
| Andes | 38.0 | **2.1** | 2.60 | 15.5 | 57.6 | 66 |
| ND Gardner | **53.4** | 5.8 | 2.55 | 15.8 | 52.2 | 58 |
| **Mean** | 49.5 | 3.0 | 2.68 | 16.0 | 53.5 | 98.2 |
| **CV (%)** | 3.4 | 24.6 | 4.8 | 8.9 | 2.1 | 7.2 |
| **Line P-Value** | <0.01 | <0.01 | <0.01 | NS | <0.01 | <0.01 |
| **Site * Live P-Value** | <0.01 | <0.01 | NS | NS | <0.01 | <0.01 |
| **LSD (0.10)** | 1.2 | 0.5 | 0.11 | - | 1.0 | 5.0 |

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# 2024 South Dakota Rye Variety Trial Results Beresford

Table 2. Rye variety trial data on height, lodging (0 to 10 score), 100-seed weight, moisture, test weight, and grain yield at Beresford, South Dakota in the 2024 growing season. The statistically significant highest yeilds are bolded and shaded blue.

| Line | Height (inches) | Lodging (1-10) | 100-SeedWt (g) | Moisture (%) | Test Wt (lb/bu) | Grain Yield (bu/ac) |
|---|---|---|---|---|---|---|
| Receptor | 49.8 | 2.0 | 2.51 | 14.6 | 56.7 | **130** |
| H20003 | 48.3 | **1.5** | 2.66 | 13.7 | 55.5 | **129** |
| H9011 | 49.5 | **1.5** | 2.65 | 13.5 | 54.9 | **128** |
| H9008 | 49.5 | **1.8** | 2.64 | 14.4 | 55.8 | **125** |
| Tayo | 49.7 | **1.3** | **2.86** | 13.4 | 56.7 | **125** |
| H20005 | 48.8 | **1.3** | 2.48 | 13.4 | 54.7 | **124** |
| SU Karlsson | 48.8 | 2.8 | 2.37 | 14.3 | 56.4 | 120 |
| Serafino | **51.8** | **1.8** | 2.44 | 13.5 | 55.5 | 117 |
| SU Perspectiv | 49.3 | 2.0 | 2.57 | 13.7 | 55.6 | 117 |
| SU Cossani | **50.5** | 2.0 | 2.27 | 13.6 | 55.0 | 113 |
| SU Performer | 49.8 | 2.0 | 2.25 | 13.4 | 54.2 | 112 |
| SU Bebop | 49.3 | 2.8 | 2.44 | 13.6 | 55.2 | 102 |
| Danko | 49.8 | 2.5 | 2.55 | 13.7 | 56.2 | 95 |
| Hazlet | **52.5** | 3.8 | **2.88** | 13.5 | 56.3 | 91 |
| Aroostook | 49.8 | 4.5 | **2.80** | 12.9 | 55.6 | 85 |
| ND Gardner | **52.0** | 3.5 | 2.46 | 12.7 | 55.6 | 84 |
| Andes | 39.3 | **1.0** | 2.60 | **15.2** | **57.6** | 71 |
| **Mean** | 49.3 | 2.2 | 2.55 | 13.7 | 55.7 | 110 |
| **CV (%)** | 3.5 | 27.4 | 4.60 | 5.6 | 1.0 | 4.5 |
| **LSD (0.10)** | 2.3 | 0.8 | 0.16 | 1.1 | 0.8 | 6.7 |

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# 2024 South Dakota Rye Variety Trial Results Clear Lake

Table 3. Rye variety trial data on height, lodging (0 to 10 score), 100-seed weight, moisture, test weight, and grain yield at Clear Lake, South Dakota in the 2024 growing season. Note that the 'Andes' variety of wheat was damaged by wildlife at this site - so data from that line is not shown in this table. The statistically significant highest yeilds are bolded and shaded blue.

| Line | Height (inches) | Lodging (1-10) | 100-SeedWt (g) | Moisture (%) | Test Wt (lb/bu) | Grain Yield (bu/ac) |
|---|---|---|---|---|---|---|
| H9011 | 49.0 | **2.0** | **3.04** | 16.7 | 50.5 | **116** |
| H20003 | 49.5 | **2.0** | **2.92** | 16.6 | **51.6** | **114** |
| H20005 | 49.3 | **2.0** | 2.83 | 16.3 | **51.5** | **107** |
| H9008 | 51.0 | **2.4** | 2.90 | 15.8 | **51.9** | 105 |
| Receptor | 50.5 | 3.5 | 2.63 | 16.2 | **52.1** | 105 |
| SU Karlsson | 49.3 | 2.8 | 2.78 | 16.7 | **52.1** | 104 |
| SU Cossani | 50.3 | **2.5** | 2.78 | 17.2 | 50.5 | 102 |
| Tayo | 48.8 | **2.5** | **2.99** | 16.4 | **51.4** | 101 |
| SU Performer | 50.0 | 3.0 | 2.49 | 16.5 | 49.6 | 101 |
| SU Perspectiv | 49.5 | **2.3** | 2.78 | 16.5 | **51.3** | 99 |
| Serafino | 47.8 | 2.8 | 2.73 | 17.7 | 50.4 | 98 |
| SU Bebop | 49.3 | 3.0 | 2.71 | 16.7 | **51.1** | 93 |
| Aroostook | **54.5** | 3.8 | **3.11** | 16.9 | **51.9** | 78 |
| Hazlet | **55.8** | 3.0 | **2.95** | 16.4 | **52.6** | 78 |
| Danko | 52.0 | 3.3 | 2.77 | 16.2 | **52.7** | 74 |
| ND Gardner | **54.5** | 5.8 | 2.65 | 15.2 | 48.8 | 35 |
| **Mean** | 49.8 | 3.2 | 2.80 | 16.4 | 50.9 | 89.8 |
| **CV (%)** | 3.3 | 19.6 | 4.9 | 8.8 | 3.3 | 9.8 |
| **LSD (0.10)** | 2.0 | 0.7 | 0.19 | NS | 2.0 | 10.5 |

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# 2024 South Dakota Rye Variety Trial Results Arlington

Table 4. Rye variety trial data on height (one replication only), lodging (0 to 10 score), moisture, and grain yield at Arlington, South Dakota in the 2024 growing season. Data on 100-seed weight has not yet been measured. Data on test weight is not shown as the combine test wt. was not considered reliable and insufficient sample was retained to measure it later. The statistically significant highest yeilds are bolded and shaded blue.

| Line | Height (inches) | Lodging (1-10) | Moisture (%) | Grain Yield (bu/ac) |
|---|---|---|---|---|
| Receptor | 46.7 | 5.0 | 18.7 | **112** |
| H9011 | 44.5 | **2.5** | 17.5 | **107** |
| H20003 | 46.7 | **2.0** | 17.5 | **105** |
| H9008 | 46.5 | 3.3 | 17.0 | **104** |
| H20005 | 44.0 | **2.3** | 18.1 | 101 |
| SU Cossani | 45.3 | **1.8** | 19.2 | 98 |
| SU Perspectiv | 43.5 | **3.0** | 17.1 | 96 |
| SU Karlsson | 48.5 | **3.0** | 17.1 | 95 |
| SU Performer | 45.5 | 3.5 | 17.1 | 94 |
| Serafino | 41.2 | 3.3 | 18.9 | 93 |
| Tayo | 42.2 | **3.0** | 18.2 | 90 |
| SU Bebop | 46.0 | 5.0 | 18.4 | 87 |
| Danko | 47.5 | **2.8** | 17.6 | 83 |
| Aroostook | 53.3 | 7.5 | 18.0 | 81 |
| Hazlet | 55.5 | 5.8 | 17.7 | 74 |
| Andes | 32.8 | 3.3 | 15.8 | 61 |
| ND Gardner | 54.7 | 8.0 | 19.3 | 56 |
| **Mean** | 46.1 | 3.8 | 17.8 | 90.4 |
| **CV (%)** | - | 25.7 | 10.1 | 7.9 |
| **LSD (0.10)** | - | 1.2 | NS | 8.5 |