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## 2024 FORAGE VARIETY TRIALS REPORT



### SUMMARY

The 2024 Forage Variety Trials Report summarizes performance data collected from ongoing forage variety trials at two sites in Pennsylvania. The report includes data from alfalfa, clovers, perennial cool-season grasses, annual cool-season grasses, annual warm-season grasses, and short-lived winter forages and cover crops established at the Russell E. Larson Agricultural Research Center at Rock Springs and alfalfa at the Southeast Research and Extension Center at Landisville.

### Forage Growing Conditions and Insect Pressure

The 2024 growing season at Rock Springs began with warm temperatures and adequate soil moisture in late March and April. Precipitation levels in March, April, and May were higher than historical averages (3.34 vs. 2.35 inches, 6.09 vs. 3.21 inches, and 3.99 vs. 3.59 inches, respectively). Similarly, average temperatures were elevated compared to historical norms (42.4°F vs. 37.6°F in March, 50.8°F vs. 48.6°F in April, and 61.6°F vs. 59.4°F in May). However, a spring drought persisted for nearly two

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months, from late May to mid-July, before precipitation returned in late July.

On April 26, we seeded annual cool-season grasses and alfalfa. Both germination and establishment were successful. Fortunately, the short-lived winter forages and cover crops seeded in the fall of 2023, as well as the perennial cool-season grasses and alfalfa established prior to 2024, took advantage of the favorable soil moisture and warm temperatures in April and May. These conditions enabled early growth before the drought, resulting in first-cut yields comparable to or exceeding those of previous years. Hay producers benefited from the dry weather in May and early June, producing high-quality first-cut grass and alfalfa hay.

Timely showers and thunderstorms in late July alleviated drought conditions. Although the drought reduced the second cut of perennial forages, which had depleted soil moisture, subsequent cuts recovered well, showcasing the resilience of perennial forage systems under unpredictable weather. Due to their flexible planting schedules, the drought also underscored the value of annual warm-season grasses as emergency forages. On June 13, we successfully seeded teff, sorghum, sudangrass, and sorghum-sudan

hybrids, which performed well throughout the year.

Following July, weather patterns shifted, with a rainier August and an average September and October at Rock Springs. Weather variability remained a constant challenge for forage producers. While making dry hay in July and August was difficult, advanced technologies—such as green chopping, baleage, and silage—offered practical solutions for managing wet forages.

At Landisville, precipitation levels in March (5.23 inches) and April (4.53 inches) were similar to historical averages. Alfalfa yielded well in the first and second cuts but suffered from drought stress between late May and October.

Regarding insect pressure, alfalfa weevils were not particularly active during the first cut at either location, so no pesticides were applied. Instead, we managed alfalfa weevil populations by harvesting as early as possible. Potato leafhoppers appeared after the first cut, prompting pesticide applications at Landisville for the second and third cuts. Adhering to a strict four-week harvest schedule helped minimize damage caused by potato leafhoppers.

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### **Criteria for Reporting Varieties**

Many varieties listed in this report are eligible for certification by seed certifying agencies and are marketed in Pennsylvania (see Tables 1, 10, 12, 14, 17, 19). Some entries are experimental lines and may or may not be marketed in the future. Proprietary and public varieties are included; blends and “commons” are generally not included, with a few exceptions.

### **Interpreting Yield Data and Stand Scores**

Yield summaries and stand scores for individual trials appear in Tables 2 through 9, 11, 13, 15, 16, 18, 20, 21, 22. Although the trials contain about 180 entries, many are advanced experimental varieties or have yet to be sold in Pennsylvania. After these entries are named and/or available for purchase in Pennsylvania, they will be included in future reports.

Experimental alfalfa entries that become named varieties will be footnoted as such. They will be published in the Forage Variety Trials Report only if the newly named variety is entered as a commercial variety in the subsequent available trial.

Varieties are ranked according to their yield performance. In addition, yield totals

for the previous harvest years are reported, as well as average yields over the life of the stand. Evaluating the average yields and yields obtained this year is essential because performance over three to four years is valuable in a long-term forage rotation.

The stand score is a visual estimation of the amount of ground cover in the seeding row and is given following the last harvest in the fall. The stand score is reported on a scale from 1 to 100, with 100 considered a perfect stand. This score is valuable as an indicator of varietal persistence and stand longevity.

When reviewing the yield and stand tables, please remember that differences between varieties are significant only if the least significant difference (LSD) between varieties is exceeded. LSD is the minimum difference between any two varieties necessary for us to be 95% confident that this difference is not attributable to mere chance. For example, if variety A is 0.50 tons/acre higher in yield than variety B, this difference is statistically significant if the LSD is 0.50 tons/acre or less. If the LSD is 0.51 or greater, then we cannot be confident that variety A yields higher than B under given environmental and management conditions.

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The coefficient of variation (CV) measures relative variation and is useful in evaluating the precision achieved in a trial. For example, in grain and forage trials, the CV for yield is often between 5 and 20 percent. Acceptable levels of the CV vary for each trait measured. Confidence in the reliability of the experimental results declines as the CV increases. Uncontrollable or immeasurable variations in soil fertility, drainage, and other environmental factors contribute to increased CV levels.

## **ALFALFA**

Many alfalfa varieties exist; selecting the appropriate variety is an important management decision. This report lists performance data for those varieties in the Penn State Alfalfa Variety Testing Program. Evaluation trials include both commercially available and advanced experimental varieties. Trials are initiated each year at the Rock Springs and Landisville research stations. In each trial, yield, stand, and other data collection continue for a maximum of four years after a seeding year or until the stand becomes so depleted that data collection is no longer worthwhile.

Trials at both locations are established on well-drained Hagerstown silt loam soils. Major site differences are likely reflected in

the longer growing season, slightly elevated temperatures, and a tendency toward late summer drought at the Landisville site.

Keep in mind a few points when evaluating the alfalfa variety performance data:

- Selection of a variety based on yield performance alone is generally less satisfactory than selections that also consider stand score and pest resistance.
- Conditions on most farms are such that several varieties may perform nearly equally. It usually is not necessary to rely on a single variety.
- No variety, regardless of its excellence, can thrive under poor management. Good management considers all aspects of alfalfa production, including seedbed preparation, soil fertility management, lime and fertilizer application, seeding methods and timing, pest control, harvest frequency and timing, storage, and post-harvest treatment. Many modern varieties are adapted to intensive management.

## **Fall Dormancy**

Fall dormancy ratings of alfalfa range from one (very dormant) to eleven (having no dormancy), but ratings above nine are

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uncommon. Varieties with less fall dormancy (higher numerical rating) regreen earlier in the spring, regrow faster after each harvest, and exhibit greater growth in the fall compared to those with more fall dormancy (lower numerical rating).

### **Pest Resistance**

Disease and insect resistance may be the most important attributes of an alfalfa variety. The ratings for pest resistance given in this report can serve as a good indicator of a variety's potential performance in your area. Be aware of your pest resistance needs and choose the appropriate varieties.

*Sclerotinia* stem and crown rot is a severe concern to growers throughout the state because there is little plant resistance to the disease. Late-summer no-till seedings seem to be more susceptible to the disease. Newly established seedlings are very susceptible to infection in the fall when the fungus is active. Plants are attacked rapidly by the pathogen and die the following spring. Plants established in the spring are more resistant to the pathogen and are less severely damaged. The fungus survives as hard, black structures (sclerotia) on or near the soil surface. In the fall, sclerotia produces spores that cause infection—

plowing buries sclerotia, thus reducing inoculum and subsequent infection.

Resistance to *Aphanomyces* can be found in some of the newest varieties. *Aphanomyces euteiches* is a soilborne fungus with behavior and requirements similar to *Phytophthora*. It is a wet-soil seedling pathogen and can be expected to thrive under cool, waterlogged conditions. Resistance may be beneficial when growing alfalfa on poorly drained soils. More specific information about many alfalfa diseases is included in the current *Penn State Agronomy Guide*.

The crown and root rot complex is still a problem. Because of the complexity of the pathogens involved, resistance to this disease is not very high in any variety. Good management slows the progress of this disease. More specific information is included in the current *Penn State Agronomy Guide*.

Plant breeders develop alfalfa varieties by selecting from genetically diverse populations. Within such populations, individual plants may vary widely in their response to a particular disease or insect. Some may be highly resistant, and others very susceptible. A particular pest resistance rating usually reflects the response of the

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majority of plants in the variety. In our trials, varieties with the most pest resistance ratings of moderate or higher usually have shown better long-term performance.

### **Guidelines for Selecting Alfalfa Varieties**

To select alfalfa varieties based on the trial results, follow these suggestions:

1. Determine the trial site that most resembles your farm regarding soil and growing season. Performance data of varieties at this site are likely to provide more relevant selection information.

2. Look at the performances of the varieties at both trial sites. Varieties that do equally well at both sites probably are adapted to a wider range of environmental conditions.

3. Performance data over several years can be very useful in selecting a variety because some varieties seem to decline more rapidly with age than others.

4. The most recent harvest-year data should receive major consideration for long-term rotations. If you plan to harvest alfalfa for three years or less, then high performance during early years should be given major consideration.

5. Disease- and pest-resistance ratings should be examined in relation to yield, especially if your area is known to have problems with alfalfa diseases and pests. For example, *Phytophthora* root rot resistance may be exceptionally important on farms with moderately to poorly drained soils.

Table 1. lists the marketers of alfalfa varieties included in this report, as well as the report table numbers in which the varieties appear. Also included are fall dormancy ratings and selected disease- and insect-resistance ratings. Tables 2 through 9 offer guidelines for assessing the production potential of various alfalfa varieties.



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**Table 1. Alfalfa Varieties Marketed in Pennsylvania and Listed in This Report.**

**Fall dormancy** ratings of alfalfa range from one (very dormant) to eleven (having no dormancy). Varieties that are less fall dormant (higher numerical rating) regreen earlier in the spring, regrow faster after each harvest, and exhibit greater growth in the fall compared to those varieties with more fall dormancy (lower numerical rating).

**BW** = Bacterial Wilt, **VW** = Verticillium Wilt, **FW** = Fusarium Wilt, **AN** = Anthracnose, **PRR** = Phytophthora Root Rot, **APH1** = Aphanomyces Race 1. Resistance Key (%): **S** = 0 to 5 %; **LR** = 6 to 14 %; **MR** = 15 to 30 %; **R** = 31 to 50 %; **HR** = 51 % or greater. If the resistance rating for a variety is not listed, the information is not available.

The Fall Dormancy and Pest Resistance Ratings in this table are from the National Alfalfa and Forage Alliance and/or the alfalfa variety breeder and have not been verified by Penn State.

Variety	Marketer	Fall Dormancy	Pest Resistance Ratings						Appears in Table No.
			BW	VW	FW	AN	PRR	APH1	
374HD	Albert Lea Seed	4	HR	HR	HR	HR	HR	HR	6
394AP	Albert Lea Seed	4	HR	HR	HR	HR	HR	HR	6
54Q16	Pioneer Hi-Bred	4	HR	HR	HR	HR	HR	HR	3,5,8,9
54Q29	Pioneer Hi-Bred	4	HR	HR	R	HR	HR	HR	3,5,8,9
54VQ52	Pioneer Hi-Bred	3	HR	HR	R	HR	HR	HR	5,9
54VR10	Pioneer Hi-Bred	4	HR	HR	R	HR	HR	HR	3,8
55H96	Pioneer Hi-Bred	5	HR	R	HR	HR	HR	HR	4
55V50	Pioneer Hi-Bred	5	HR	HR	R	HR	HR	HR	5
6453Q	Nexgrow	4	HR	HR	HR	HR	HR	HR	3,8
AFX439	Alforex Seeds	4	HR	HR	HR	HR	HR	HR	3,8
AFX589	Alforex Seeds	5	HR	HR	HR	HR	HR	HR	9
Alfabar	Kings Agriseeds/Barenbrug	4	HR	HR	HR	HR	HR	HR	2
Ameristand 428TQ	America's Alfalfa	4	HR	HR	HR	HR	HR	HR	3,8
Bluebird	Blue River Organic Seeds	5	HR	HR	HR	HR	HR	HR	7
CP5364	Legacy Seeds	4	HR	R	HR	R	HR	HR	6
CP5025	Legacy Seeds	4	HR	HR	HR	HR	HR	HR	6
CP5029	Legacy Seeds	4	HR	HR	HR	HJR	HR	HR	6
CP5143	Legacy Seeds	4	HR	R	HR	HR	HR	HR	6
CP5295	Legacy Seeds	4	HR	R	HR	HR	HR	HR	6
CP5382	Legacy Seeds	5	HR	HR	HR	HR	HR	HR	6
CP5420	Legacy Seeds	5	HR	R	HR	HR	HR	HR	6
CP5465	Legacy Seeds	4	HR	HR	HR	HR	HR	HR	6
FF42.A3	DLF	4	HR	HR	HR	HR	HR	HR	5,6
Finch	Albert Lea Seed	4	HR	HR	HR	HR	HR	HR	6

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Table 1. (continued)

Variety	Marketer	Fall Dormancy	Pest Resistance Ratings						Appears in Table No.
			BW	VW	FW	AN	PRR	APHI	
FSG421LH	Seedway	4	HR	HR	HR	HR	HR	HR	4
FSG450	Seedway	5	HR	HR	HR	HR	HR	HR	3,8
FSG527	S&W Seed	4	HR	HR	HR	HR	HR	HR	2,4,7
Gemstone II	Chemgro Seeds	4	HR	HR	HR	HR	HR	HR	2,3,7
High Five	Growmark	4	HR	HR	HR	HR	HR	HR	3,8
Hybriforce-4420/Wet	Dairyland Seed	4	HR	HR	HR	HR	HR	HR	3,8
KF544PLH	Kings Agriseeds	5	HR	HR	HR	HR	HR	HR	4
KF Stronghold	Kings Agriseeds	4	HR	HR	HR	HR	HR	HR	3,8
KF435HD	Kings Agriseeds	4	HR	HR	HR	HR	HR	HR	3,8
Magnum 8-Wet	Alforex Seeds	4	HR	HR	HR	HR	HR	HR	2,7
Mariner V	Growmark	4	HR	HR	HR	HR	HR	HR	3,8
MVS4220Q	Mountain View Seeds	4	HR	HR	HR	HR	HR	HR	2, 6
Oneida VR	Public/Check	3	R	HR	HR	MR	MR	-	2-7,9
Roadrunner	Blue River Organic Seeds	4	HR	R	HR	HR	HR	HR	2,7
Sceptor	Growmark	4	HR	HR	HR	HR	HR	HR	4
Signature	Growmark	4	HR	HR	HR	HR	HR	HR	3,8
SW3407	S&W Seed	3	HR	HR	HR	HR	HR	HR	2,7
SW4107	S&W Seed	4	HR	HR	HR	HR	HR	HR	2,7
SW4412Y	S&W Seed.	4	HR	HR	HR	HR	HR	HR	2,7
SW4515	S&W Seed.	4	HR	HR	HR	HR	HR	HR	3
SW525LH	S&W Seed	5	HR	HR	HR	HR	HR	HR	4
SW5615	S&W Seed	5	HR	HR	HR	HR	HR	HR	3,5,8,9
Touchstone EQ	Chemgro Seeds	4	HR	HR	HR	HR	HR	HR	2,3,5,7,9
Vernal	Public/Check	4	R	S	MR	S	S	S	2-9
WL349HQ	Forage Genetics	4	HR	HR	HR	HR	HR	HR	2,5,6,7,9

### Alfalfa Marketers Listed in This Report:

#### Albert Lea Seed

1414 W Main St, PO Box 127  
 Albert Lea, MN 56007  
 Phone: 800-352-5247  
<https://alseed.com/>

#### Alforex Seeds

2541 Commerce St.  
 La Crosse, WI 54603  
 Phone: 877-560-5181  
[www.alforexseeds.com](http://www.alforexseeds.com)

#### America's Alfalfa

1423 11th Ave N  
 Nampa, ID 83687  
 Phone:208-466-3568  
<https://www.americasalfalfa.com/>

#### Blue River Organic Seeds

2326 230th St  
 Ames, IA 50014  
 Phone: 800-370-7979  
[www.blueriverorgseed.com](http://www.blueriverorgseed.com)

#### Chemgro Seeds

316 Apple House Road  
 Belleville, PA 17004  
 Phone: 800-995-4166  
[www.chemgro.com](http://www.chemgro.com)

#### DLF Pickseed

33080 Red Bridge Road, SE  
 Albany, OR 97322  
 Phone: 541-369-2251  
[www.dlfpickseed.com](http://www.dlfpickseed.com)



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**Forage Genetics International**

1897 195th St  
Boone, IA 50036  
Phone: 515-432-9115  
[www.foragegenetics.com](http://www.foragegenetics.com)

**Growmark FS**

Loucks Mill Rd  
York, PA 17402  
Phone: 800-338-4769  
[www.gromarkfs.com](http://www.gromarkfs.com)

**King's Agriseeds**

1828 Freedom Rd #101  
Lancaster, PA 17601  
Phone: 717-687-6224  
[www.kingsagriseeds.com](http://www.kingsagriseeds.com)

**Legacy Seeds**

290 Depot Street, P.O. Box 68  
Scandinavia, WI 54977  
Phone: 866-791-6390  
<https://legacyseeds.com/>

**Mountain View Seeds**

8955 Sunnyview Rd NE  
Salem, OR 97305  
Phone: 503-588-7333  
[www.mtviewseeds.com](http://www.mtviewseeds.com)

**Pioneer Hi-Bred**

68 Industrial Rd  
Elizabethtown, PA 17022  
Phone: 717-653-5605  
[www.pioneer.com](http://www.pioneer.com)

**S&W Seed**

7108 N Fresno St Ste 380  
Fresno, CA, 93720  
Phone: 559-884-2535  
[www.swseedco.com](http://www.swseedco.com)

**Seedway**

275 N 8th St  
Mifflinburg, PA 17844  
Phone: 800-338-2137  
[www.seedway.com](http://www.seedway.com)

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**Table 2. 2020 Alfalfa Variety Trial--Rock Springs.**

Variety	Yield					Stand Score Fall 2024
	2024	2023	2022	2021	Four-Year Average	
WL349HQ	10.46	11.93	9.95	8.76	<b>10.27</b>	80.61
Gemstone II	9.83	10.42	9.73	9.02	<b>9.75</b>	83.39
SW4506	9.66	10.87	9.62	8.57	<b>9.68</b>	83.39
SW3407	9.37	10.49	9.50	8.71	<b>9.52</b>	83.94
FSG527	9.71	9.88	9.19	8.51	<b>9.32</b>	82.28
SW4107	9.16	10.30	9.25	8.40	<b>9.28</b>	83.39
SW-AM2*	9.16	10.11	9.32	8.37	<b>9.24</b>	85.61
MSV4220Q	9.35	10.32	8.94	8.06	<b>9.17</b>	82.83
SW4412Y	9.11	10.17	8.81	8.41	<b>9.12</b>	85.61
SW5509*	9.01	10.26	9.06	8.16	<b>9.12</b>	80.61
Touchstone EQ	8.78	10.06	9.23	8.33	<b>9.10</b>	81.72
Magnum 8-Wet	8.64	9.99	8.56	8.47	<b>8.92</b>	77.28
Alfabar	7.14	8.83	7.64	7.60	<b>7.80</b>	75.61
Roadrunner	7.32	8.72	7.48	7.60	<b>7.78</b>	82.28
Oneida VR	6.78	8.33	6.26	7.17	<b>7.14</b>	78.94
Bluebird	6.31	8.01	6.43	7.24	<b>7.00</b>	69.50
Vernal	5.61	7.49	5.82	6.49	<b>6.35</b>	62.83
<b>GRAND MEAN</b>	<b>8.55</b>	<b>9.77</b>	<b>8.52</b>	<b>8.11</b>	<b>8.74</b>	<b>79.99</b>
CV (%)	5.77	7.74	7.65	6.04	<b>4.59</b>	8.72
LSD (p = .05)	0.70	1.06	0.91	0.69	<b>0.57</b>	9.92

\*Not commercially available.

CV = coefficient of variation.

LSD = least significant difference.

The trial was seeded on May 14, 2020.

Yields are given in tons per acre (on a dry matter basis).

2023 and 2024 yields represent 5 cuttings. 2022 and 2021 yields represent 4 cuttings.

17 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the four-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

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**Table 3. 2021 Alfalfa Variety Trial--Rock Springs.**

Variety	Yield				Stand Score Fall 2024
	2024	2023	2022	Three-Year Average	
C0518A3663*	10.12	12.06	8.26	<b>10.14</b>	92.78
Ameristand 428TQ	9.96	11.71	8.42	<b>10.03</b>	90.56
SW5614*	9.42	11.10	8.09	<b>9.54</b>	89.44
54Q16	8.92	10.99	8.00	<b>9.30</b>	90.00
AFX439	9.22	10.64	7.87	<b>9.24</b>	90.56
High Five	8.94	10.72	7.74	<b>9.13</b>	90.00
6453Q	9.14	10.82	7.33	<b>9.10</b>	91.11
KF Stronghold	8.92	10.51	7.80	<b>9.08</b>	90.56
SW4515	9.21	10.32	7.66	<b>9.06</b>	91.11
SW5615	8.77	10.37	7.96	<b>9.03</b>	88.89
KF435HD	8.88	10.30	7.84	<b>9.00</b>	88.89
Gemstone II	8.75	10.53	7.49	<b>8.92</b>	88.89
54VR10	8.59	10.29	7.74	<b>8.87</b>	90.00
Hybriforce-4420/Wet	8.52	9.96	8.03	<b>8.84</b>	91.11
Mariner V	8.38	10.04	7.88	<b>8.77</b>	86.11
Signature	8.60	10.23	7.46	<b>8.76</b>	90.56
FSG450	8.82	10.30	7.14	<b>8.75</b>	89.44
54Q29	8.41	10.07	7.56	<b>8.68</b>	91.67
FF42.A3	8.31	9.78	7.13	<b>8.41</b>	87.22
Touchstone EQ	8.10	9.67	7.42	<b>8.40</b>	89.44
Oneida VR	6.78	8.45	6.24	<b>7.16</b>	91.11
Vernal	5.78	7.98	5.52	<b>6.42</b>	88.33
<b>GRAND MEAN</b>	<b>8.66</b>	<b>10.31</b>	<b>7.57</b>	<b>8.85</b>	<b>89.90</b>
CV (%)	6.75	6.55	9.23	<b>6.14</b>	1.89
LSD (p = .05)	0.83	0.95	0.98	<b>0.76</b>	2.41

\*Not commercially available.

CV = coefficient of variation.

LSD = least significant difference.

The trial was seeded on April 23, 2021.

Yields are given in tons per acre (on a dry matter basis).

2023 and 2024 yields represent 5 cuttings. 2022 yields represent 4 cuttings.

22 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the three-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

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**Table 4. 2021 Potato Leafhopper (PLH) Resistant Alfalfa Variety Trials--Rock Springs.**

Variety	Yield				PLH-R Rating† Two-Year Average	Stand Score Fall 2024
	2024	2023	2022	Three-Year Average		
55H96	8.79	9.82	6.97	<b>8.53</b>	3.10	88.33
SW525LH	8.60	9.38	7.11	<b>8.36</b>	3.20	88.33
SW4602LH	8.66	9.28	7.08	<b>8.34</b>	3.20	90.00
FSG421LH	8.17	9.22	7.13	<b>8.17</b>	4.10	88.89
Sceptor	8.47	9.22	6.69	<b>8.13</b>	3.30	90.00
KF544PLH	7.49	10.29	6.16	<b>7.98</b>	3.40	89.44
7801*	7.13	9.97	6.38	<b>7.83</b>	3.00	85.00
Oneida VR	7.64	9.69	5.57	<b>7.63</b>	1.40	91.11
Vernal	6.97	9.66	5.44	<b>7.36</b>	1.30	88.33
<b>GRAND MEAN</b>	<b>7.99</b>	<b>9.61</b>	<b>6.50</b>	<b>8.04</b>	<b>2.89</b>	<b>88.83</b>
CV (%)	6.25	6.91	10.35	<b>2.46</b>	20.27	3.65
LSD (p = .05)	0.73	0.93	0.94	<b>0.29</b>	0.70	4.74

\*Not commercially available.

†PLH-R Score: Best (No Damage) = 5 and Worst (Damage) = 1. The two-year average is 2022 and 2023 combined.

CV = coefficient of variation.

LSD = least significant difference.

The trial was seeded on April 23, 2021.

No insecticide was applied to this trial.

Yields are given in tons per acre (on a dry matter basis).

2023 and 2024 yields represent 5 cuttings. 2022 yields represent 4 cuttings.

9 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the three-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

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**Table 5. 2022 Alfalfa Variety Trial--Rock Springs.**

Variety	Yield			Stand Score Fall 2024
	2024	2023	Two-Year Average	
AFX184021*	9.19	10.72	<b>9.95</b>	95.56
54Q29	8.77	10.82	<b>9.80</b>	93.89
54Q16	8.70	10.89	<b>9.79</b>	95.00
AFX479*	9.43	9.92	<b>9.68</b>	96.67
WL349HQ	9.32	9.94	<b>9.63</b>	93.33
SW5615	8.49	10.44	<b>9.47</b>	92.22
54VQ52	8.61	10.30	<b>9.46</b>	95.56
Touchstone EQ	8.89	10.01	<b>9.45</b>	95.00
FF42.A3	8.06	10.17	<b>9.11</b>	93.89
55V50	8.37	9.84	<b>9.10</b>	95.56
Oneida VR	7.27	10.16	<b>8.71</b>	93.89
Vernal	6.06	9.66	<b>7.86</b>	93.33
<b>GRAND MEAN</b>	<b>8.43</b>	<b>10.24</b>	<b>9.33</b>	<b>94.49</b>
CV (%)	5.42	9.90	<b>4.85</b>	1.79
LSD (p = .05)	0.66	1.42	<b>0.72</b>	2.43

\* Not commercially available.

CV = coefficient of variation

LSD = least significant difference

The trial was seeded on April 28, 2022.

Yields are given in tons per acre (on a dry matter basis).

The yields represent five cuttings.

12 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the two-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

The tables in this report may be reproduced only in their entirety.

**Table 6. 2023 Alfalfa Variety Trial--Rock Springs.**

Variety	2024 Yield	Stand Score Fall 2024
CP5382*	9.38	97.78
CP5364*	9.07	97.22
CP5420*	9.03	97.78
374HD	8.50	95.56
MVS4220Q	8.32	97.78
Oneida VR	8.18	99.44
FF42.A3	8.10	97.78
WL349HQ	8.10	97.22
CP5025*	8.09	95.00
Finch	8.06	96.11
CP5465*	8.05	97.22
394AP	8.03	97.22
CP5029*	7.82	96.11
CP5295*	7.66	96.11
Vernal	7.56	98.89
CP5143*	7.01	96.67
<b>GRAND MEAN</b>	<b>8.19</b>	<b>97.12</b>
CV (%)	8.56	1.43
LSD (p = .05)	1.00	1.98

\* Not commercially available.

CV = coefficient of variation.

LSD = least significant difference.

The trial was reseeded on August 24, 2023, after a stand failure seeded on April 25, 2023.

Yields are given in tons per acre (on a dry matter basis).

2024 yields represent five cuttings.

16 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the first production year (2024) yield.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.



The tables in this report may be reproduced only in their entirety.

**Table 7. 2020 Alfalfa Variety Trial--Landisville.**

Variety	Yield					Stand Score Fall 2024
	2024	2023	2022	2021	Four-Year Average	
FSG527	8.82	11.96	11.29	11.33	<b>10.85</b>	83.33
AFX174082*	8.88	11.30	11.77	11.42	<b>10.84</b>	81.67
Gemstone II	8.78	11.51	11.55	11.17	<b>10.75</b>	83.89
SW4506*	8.94	11.07	10.88	11.48	<b>10.59</b>	81.67
SW3407	9.18	11.54	10.22	11.32	<b>10.57</b>	84.44
Touchstone EQ	8.75	10.91	10.53	10.52	<b>10.18</b>	79.44
AFX174084*	8.52	10.22	10.78	11.17	<b>10.17</b>	82.22
WL349HQ	8.09	11.02	10.77	10.70	<b>10.15</b>	85.00
SW-AM2*	7.90	10.59	10.41	10.78	<b>9.92</b>	84.44
SW4107	8.48	10.68	10.09	9.76	<b>9.75</b>	84.44
Bluebird	6.91	10.55	10.23	10.91	<b>9.65</b>	79.44
SW4412Y	7.94	10.60	9.43	10.24	<b>9.55</b>	73.89
SW5509*	7.42	10.64	9.76	10.27	<b>9.52</b>	85.00
Magnum 8-Wet	7.48	9.50	9.46	11.02	<b>9.37</b>	82.22
AFX174085	8.09	8.63	8.13	9.15	<b>8.50</b>	80.00
Roadrunner	7.22	8.30	8.50	8.97	<b>8.25</b>	73.33
Oneida VR	6.90	7.49	6.95	7.62	<b>7.24</b>	78.89
Vernal	6.23	7.75	6.35	7.34	<b>6.92</b>	76.11
<b>GRAND MEAN</b>	<b>8.03</b>	<b>10.24</b>	<b>9.84</b>	<b>10.29</b>	<b>9.60</b>	<b>81.08</b>
CV (%)	7.71	12.23	9.91	10.30	<b>6.31</b>	4.60
LSD (p = .05)	0.88	1.75	1.36	1.48	<b>0.87</b>	5.29

\* Not commercially available.

CV = coefficient of variation.

LSD = least significant difference.

The trial was seeded on April 17, 2020.

Yields are given in tons per acre (on a dry matter basis).

2023 and 2024 yields represent 6 cuttings. 2021 and 2022 yields represent 5 cuttings.

18 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the four-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

The tables in this report may be reproduced only in their entirety.

**Table 8. 2021 Alfalfa Variety Trial--Landisville.**

Variety	Yield				Stand Score Fall 2024
	2024	2023	2022	Three-Year Average	
Ameristand428TQ	7.95	10.33	8.80	<b>9.03</b>	87.78
AFX439	7.41	10.14	8.55	<b>8.70</b>	86.67
SW5517*	7.70	9.59	8.80	<b>8.70</b>	87.78
54Q16	7.04	9.90	9.11	<b>8.68</b>	88.33
Hybriforce-4420/Wet	6.56	9.38	9.40	<b>8.45</b>	88.33
KF435HD	7.06	9.75	8.51	<b>8.44</b>	87.78
FSG450	7.25	9.63	8.33	<b>8.40</b>	86.11
54Q29	6.54	9.46	8.75	<b>8.25</b>	86.11
6453Q	7.20	9.03	8.48	<b>8.24</b>	85.00
Signature	6.56	9.85	8.17	<b>8.19</b>	85.56
54VR10	6.37	9.48	8.62	<b>8.16</b>	89.44
High Five	7.00	9.14	7.98	<b>8.04</b>	89.44
FF42.A3	6.81	8.72	8.43	<b>7.98</b>	85.00
KF Stronghold 35-2	6.74	8.85	7.70	<b>7.76</b>	88.89
SW5606*	6.37	8.90	7.49	<b>7.59</b>	90.00
Mariner V	5.92	8.83	7.97	<b>7.57</b>	86.67
SW5615	6.36	8.81	7.48	<b>7.55</b>	88.33
Vernal	5.19	6.94	6.44	<b>6.19</b>	83.89
<b>GRAND MEAN</b>	<b>6.78</b>	<b>9.26</b>	<b>8.28</b>	<b>8.11</b>	<b>87.3</b>
CV (%)	14.21	15.66	16.19	<b>12.25</b>	2.2
LSD (p = .05)	1.36	2.03	1.88	<b>1.38</b>	2.8

\* Not commercially available.

CV = coefficient of variation.

LSD = least significant difference.

The trial was seeded on April 19, 2021.

2023 and 2024 yields represent 6 cuttings, and 2022 yields represent 5 cuttings.

18 entries, RCBD, 4 reps, analyzed by R.

Entries are ranked in order of decreasing yield based on the three-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

The tables in this report may be reproduced only in their entirety.

**Table 9. 2022 Alfalfa Variety Trial--Landisville.**

Variety	Yield			Stand Score Fall 2024
	2024	2023	Two-Year Average	
WL349HQ	9.28	10.14	<b>9.71</b>	86.67
54Q16	8.27	10.42	<b>9.35</b>	90.00
AFX479*	7.90	10.63	<b>9.26</b>	89.44
SW5615	8.30	10.23	<b>9.26</b>	90.00
AFX184021*	8.07	10.27	<b>9.17</b>	90.00
AFX589	8.14	10.01	<b>9.07</b>	89.44
54Q29	7.53	10.08	<b>8.80</b>	90.00
FF42.A3	7.47	9.83	<b>8.65</b>	87.22
Touchstone	6.92	9.87	<b>8.40</b>	88.89
54VQ52	7.12	9.05	<b>8.09</b>	90.00
Oneida VR	6.25	8.08	<b>7.16</b>	90.00
Vernal	6.25	7.18	<b>6.72</b>	86.67
<b>GRAND MEAN</b>	<b>7.62</b>	<b>9.65</b>	<b>8.64</b>	<b>89.03</b>
CV (%)	10.40	12.33	<b>9.75</b>	1.68
LSD (p = .05)	1.14	1.67	<b>1.23</b>	2.16

\*Not commercially available.

CV = coefficient of variation.

LSD = least significant difference.

The trial was seeded on April 25, 2022.

Yields are given in tons per acre (on a dry matter basis).

The yields represent 6 cuttings.

12 entries, RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the two-year average.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.

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## **PERENNIAL CLOVERS**

Red Clover is an excellent short-lived perennial forage species adapted to many Pennsylvania farms where soil conditions may limit the performance of alfalfa. It can produce profitable levels of highly palatable, nutritious forage. Several management practices may enhance the longevity and acceptability of red clover:

1. When harvesting direct-seeded red clover, cut before it blooms in the seeding year.
2. For most of Pennsylvania, red clover is harvested on a three-cut system.
3. Choose varieties that have adequate disease resistance for your area.

See the current *Penn State Agronomy Guide* for specific establishment,

fertilization, and harvest management recommendations.

Our trial also includes white clover varieties. While white clover is not well suited for silage or hay production, it can make high-quality pasture and performs well in years with frequent rain.

The following clover trial was harvested on a three-cut system. The trial was fertilized according to Penn State soil test recommendations. Table 10 lists clover varieties in our testing program currently marketed in Pennsylvania. Table 11 offers guidelines for assessing the production potential of various red clover varieties and one white clover variety.

The tables in this report may be reproduced only in their entirety.

**Table 10. Perennial Clover Varieties Marketed in Pennsylvania and Listed in This Report.**

Species/Variety	Marketer	Appears in Table No.
<b>Red Clover</b>		
Blaze	Mountain View Seeds	11
Cinnamon Plus	Cornell - Check	11
CW040040	Barenbrug USA	11
CW202	Barenbrug USA	11
GA-9908	Smith Seed Services	11
SERC-V15	Smith Seed Services	11
<b>White Clover</b>		
Alice	Barenbrug USA	11
C26800	Ampac Seeds/Luisetti Seeds	11
C27413	Ampac Seeds/Luisetti Seeds	11
CW0401	Barenbrug USA	11
CW0501	Barenbrug USA	11
CW905	Barenbrug USA	11
CW9502	Barenbrug USA	11
Fiona	Barenbrug USA	11

**Perennial Clover Marketers Listed in This Report:**

**AMPAC Seed**

32727 OR-99E,  
Tangent, OR 97389  
Phone: 541-928-1651

<https://www.ampacseed.com/>

**Barenbrug USA**

33477 OR-99E  
Tangent, OR 97389  
Phone: 541-926-5801

[www.barusa.com](http://www.barusa.com)

**Mountain View Seeds**

8955 Sunnyview Rd NE  
Salem, OR 97305  
Phone: 503-588-7333

[www.mtviewseeds.com](http://www.mtviewseeds.com)

**Smith Seed Services**

26890 Powerline Road  
Halsey, OR 97348  
Phone: 541-369-2757

<https://smithseed.com/>

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**Table 11. 2021 Perennial Clovers Variety Trial--Rock Springs.**

Species/Variety	Yield	Stand Score Fall 2024
	2024	
<b>Red Clover</b>		
SERC-V15*	15.63	88.75
Cinnamon Plus	14.17	77.50
CW202*	13.86	72.50
GA-9908	13.54	85.00
Blaze	13.04	80.00
CW040040*	12.56	83.75
<b>Red Clover Mean</b>	<b>13.80</b>	<b>81.25</b>
Red Clover CV (%)	7.16	6.09
Red Clover LSD (p = .05)	1.49	7.45
<b>White Clover</b>		
CW9501*	6.39	100
CW0905*	6.02	100
CW9502*	5.57	100
Fiona	5.24	100
Alice	5.02	100
CW0401*	4.59	100
C27413*	4.55	100
C26800*	3.50	100
<b>White Clover Grand Mean</b>	<b>5.11</b>	<b>100</b>
White Clover CV (%)	9.24	-†
White Clover LSD (p = .05)	0.69	-†

\*Not commercially available.

†Not significant.

CV = coefficient of variation.

LSD = least significant difference.

Seeded on April 25, 2023.

Yields are given in tons per acre on a dry matter basis.

Yields indicated represent three cuttings in 2024.

RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on 2024.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.



## **PERENNIAL COOL-SEASON GRASSES**

Many farmers in Pennsylvania could benefit from including some perennial cool-season grasses as an integral part of their forage program. Our soil fertility management in our 2023 perennial cool-season grasses trial was designed around maintenance applications of phosphorus and potash to meet the soil test requirements. Seventy pounds of available nitrogen is applied in early April, with an additional 50 pounds applied after each harvest except for the last.

The first cutting in the perennial cool-season grasses trial was made when an individual variety reached the mid-to-late boot stage. Subsequent harvests were then made at intervals of 40 to 45 days, except the final harvest, when all the plots were harvested on the same day. All plots were harvested four times throughout the growing season, weather permitting, except the establishment year.

Although production for each cut in a given year varies among species, most varieties produce one-third to one-half of the total annual production in the first cut. Yields are not greatly reduced if a three-cut system is used. Quality will be increased by early and frequent cutting. Choose a species that fits the farm's capabilities and the operator's management scheme. See the current *Penn State Agronomy Guide* for specific recommendations about establishment, fertilization, and other management considerations.

Table 12 lists perennial cool-season grass varieties in our testing program that are currently marketed in Pennsylvania or may be available in the near future (Please check with marketers for availability). Table 13 offers guidelines for assessing the production potential of various grass varieties.

The tables in this report may be reproduced only in their entirety.

**Table 12. Perennial Cool-Season Grass Varieties Marketed in Pennsylvania and Listed in This Report.**

Species/Variety	Marketer	Table No.
<b>Bromegrass</b>		
Arid	Mountain View Seeds	13
BAR15BR35	Barenbrug USA	13
Carlton	Mountain View Seeds	13
Champaigne	Mountain View Seeds	13
Fleet	Mountain View Seeds	13
<b>Meadow Fescue</b>		
Hyperbola	DLF USA	13
Modena	BrettYoung Seeds	13
PPG-FP101	Mountain View Seeds	13
<b>Orchardgrass</b>		
Alpine	Mountain View Seeds	13
Bighorn	Mountain View Seeds	13
Captur	DLF USA	13
Devour	Mountain View Seeds	13
GK281(Kaha)	Ampac Seeds/Luisetti Seeds	13
OG96	DLF USA	13
Persist II	Smith Seed Services	13
Potomac	Smith Seed Services	13
SEOG-122	Smith Seed Services	13
SEOG-223	Smith Seed Services	13
<b>Perennial Ryegrass</b>		
BAR16LPD101	Barenbrug USA	13
BARLP8BTRESN	Barenbrug USA	13
Dexter 1	DLF USA	13
<b>Tall Fescue</b>		
Cajun II	Smith Seed Services	13
Estancia E+	Mountain View Seeds	13
Fawn	Smith Seed Services	13
FTF96	DLF USA	13
Greendale	DLF USA	13
Palatine	Mountain View Seeds	13
SETF-N97	Smith Seed Services	13
SETFPC-5BK	Smith Seed Services	13
SETF-SGT	Smith Seed Services	13
Teton II	Mountain View Seeds	13
Triumphant	DLF USA	13
<b>Timothy</b>		
Carson	Mountain View Seeds	13
NC-Graze/NC-G22	Green Consulting Services	13

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## **Perennial Cool-Season Grass Marketers Listed in This Report:**

### **AMPAC Seed**

32727 OR-99E

Tangent, OR 97389

Phone: 541-928-1651

<https://www.ampacseed.com/>

### **Barenbrug USA**

33477 OR-99E

Tangent, OR 97389

Phone: 800-547-4101

[www.barusa.com](http://www.barusa.com)

### **Brett Young Seeds**

Box 99 ST. Norbert P.S.

Winnipeg, MB Canada

Phone: 204-478-2202

<https://brettyoung.ca/>

### **DLF Pickseed**

33080 Red Bridge Road, SE

Albany, OR 97322

Phone: 541-369-2251

[www.dlfpickseed.com](http://www.dlfpickseed.com)

### **Green Consulting Services**

8324 Broken Yolk Trail

Raleigh, NC 27695

Phone: 919-609-8141

<https://www.ncfarmfresh.com>

### **Mountain View Seeds**

8955 Sunnyview Rd NE

Salem, OR 97305

Phone: 503-588-7333

[www.mtviewseeds.com](http://www.mtviewseeds.com)

### **Smith Seed Services**

26890 Powerline Road

Halsey, OR 97348

Phone: 541-369-2757

<https://smithseed.com/>

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**Table 13. 2023 Perennial Cool-Season Grass Variety Trial--Rock Springs.**

Species/Variety	First Cut Date	Yield	Stand Score	CP§	ADF§	aNDF§	30-hr NDFD§	TTNDFD§
		2024	Fall 2024	%	%	%	%	%
<b>Bromegrass</b>								
BAR15BR35	17-May	NA†	NA†	NA†	NA†	NA†	NA†	NA†
Fleet	13-May	<b>5.53</b>	92.22	16.80	34.69	53.54	53.89	52.87
Champaigne	13-May	<b>5.03</b>	68.89	14.10	36.10	58.84	55.31	51.41
Arid	17-May	<b>3.33</b>	87.78	13.99	36.06	57.68	54.39	50.49
Carlton	29-May	<b>3.18</b>	86.67	14.95	35.61	57.66	54.01	49.27
<b>GRAND MEAN</b>		<b>4.27</b>	<b>83.89</b>	<b>14.78</b>	<b>35.81</b>	<b>56.71</b>	<b>53.44</b>	<b>50.34</b>
CV (%)		<b>6.40</b>	6.24					
LSD (p = .05)		<b>0.44</b>	8.37					
<b>Meadow Fescue</b>								
PPG-FP101	17-May	<b>5.68</b>	97.22	14.13	36.52	58.39	54.61	50.86
Hyperbola	17-May	<b>4.74</b>	92.78	14.57	35.67	54.84	56.85	54.48
Modena	17-May	<b>4.69</b>	87.22	14.28	35.85	55.63	55.61	53.98
<b>GRAND MEAN</b>		<b>5.04</b>	<b>92.41</b>	<b>14.33</b>	<b>36.01</b>	<b>56.29</b>	<b>55.69</b>	<b>53.11</b>
CV (%)		<b>9.31</b>	5.32					
LSD (p = .05)		<b>0.81</b>	8.5					
<b>Orchardgrass</b>								
OG96	29-May	<b>6.98</b>	97.20	13.48	38.26	59.59	51.15	49.01
Alpine	29-May	<b>6.68</b>	98.89	12.89	39.15	61.44	51.39	48.42
Bighorn	17-May	<b>6.52</b>	96.67	14.63	36.78	55.51	52.48	51.62
Captur	29-May	<b>6.49</b>	95.56	12.31	39.16	61.33	51.49	47.54
Potomac	17-May	<b>5.94</b>	98.33	15.48	35.16	56.47	53.93	51.46
Devour	29-May	<b>5.87</b>	97.22	13.04	38.76	60.20	50.57	47.47
SEOG-122	21-May	<b>5.75</b>	95.00	15.63	36.70	56.92	54.18	51.31
SEOG-223	17-May	<b>5.57</b>	98.33	15.68	35.97	57.04	53.72	52.00
Persist II	17-May	<b>5.47</b>	93.89	16.53	35.58	56.78	51.32	50.46
GK281(Kaha)	17-May	<b>4.11</b>	93.89	17.83	35.27	55.20	55.93	54.39
<b>GRAND MEAN</b>		<b>5.94</b>	<b>96.50</b>	<b>14.75</b>	<b>37.08</b>	<b>58.05</b>	<b>52.62</b>	<b>50.37</b>
CV (%)		<b>9.74</b>	3.35					
LSD (p = .05)		<b>0.84</b>	4.68					

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**Table 13. (continued)**

Species/Variety	First Cut Date	Yield	Stand Score	CP§	ADF§	aNDF§	30-hr NDFD§	TTNDFD§
		2024	Fall 2024	%	%	%	%	%
<b>Perennial Ryegrass</b>								
Dexter 1	29-May	<b>5.80</b>	95.00	10.61	39.28	60.18	51.66	46.71
BAR16LPD101	29-May	<b>5.73</b>	98.89	10.30	38.45	60.00	51.15	46.52
BARLP8BTRESN	29-May	<b>4.98</b>	100.00	11.98	38.29	60.03	53.44	49.62
<b>GRAND MEAN</b>		<b>5.51</b>	<b>97.96</b>	<b>10.96</b>	<b>38.67</b>	<b>60.07</b>	<b>52.08</b>	<b>47.62</b>
CV (%)		<b>5.04</b>	2.85					
LSD (p = .05)		<b>0.48</b>	4.84					
<b>Tall Fescue</b>								
Triumphant	13-May	<b>8.53</b>	84.44	12.81	38.61	59.42	53.72	49.94
Teton II	13-May	<b>7.83</b>	89.44	12.56	38.40	60.04	51.57	47.45
SETF-N97	13-May	<b>7.70</b>	88.33	13.85	37.50	57.16	53.14	48.69
Estancia E+	13-May	<b>7.69</b>	95.56	12.92	37.72	59.43	52.83	50.15
Greendale	13-May	<b>7.69</b>	91.11	13.90	36.28	58.13	56.43	52.14
SETFPC-5BK	13-May	<b>7.59</b>	80.00	12.30	38.55	60.47	53.12	48.59
SETF-SGT	13-May	<b>7.56</b>	89.44	12.88	37.18	58.82	55.02	50.19
Fawn	13-May	<b>7.41</b>	92.78	13.11	38.81	59.16	51.83	49.33
Cajun II	13-May	<b>7.34</b>	73.89	12.43	38.30	60.17	52.82	47.82
FTF96	13-May	<b>6.72</b>	68.33	13.90	36.28	58.13	56.43	52.14
Palatine	13-May	<b>6.54</b>	89.44	13.89	36.77	59.08	55.88	51.17
<b>GRAND MEAN</b>		<b>7.51</b>	<b>85.71</b>	<b>13.14</b>	<b>37.67</b>	<b>59.09</b>	<b>53.89</b>	<b>49.78</b>
CV (%)		<b>8.63</b>	5.71					
LSD (p = .05)		<b>0.94</b>	7.07					
<b>Timothy</b>								
Carson	29-May	<b>6.08</b>	97.78	10.45	41.65	62.60	46.16	39.69
NC-G22	29-May	<b>5.25</b>	98.89	10.59	42.33	64.53	45.63	38.85
<b>GRAND MEAN</b>		<b>5.67</b>	<b>98.33</b>	<b>10.52</b>	<b>41.99</b>	<b>63.57</b>	<b>45.90</b>	<b>39.27</b>
CV (%)		<b>6.16</b>	1.6					
LSD (p = .05)		<b>0.79</b>	3.54					
<b>Overall</b>								
<b>GRAND MEAN</b>		<b>6.11</b>	<b>89.26</b>	<b>13.59</b>	<b>37.45</b>	<b>58.56</b>	<b>52.91</b>	<b>49.46</b>
CV (%)		<b>10.41</b>	5.42					
LSD (p = .05)		<b>0.89</b>	6.79					

†Not applicable due to stand establishment failure.

*The tables in this report may be reproduced only in their entirety.*

§Forage quality analysis for the first cut samples:

CP = crude protein

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

30-hr NDFD = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on April 21, 2023.

All harvest events occurred in 2024.

Yields are given in tons per acre on a dry matter basis.

RCBD, 4 reps, analyzed with R.

Entries are ranked in order of decreasing yield based on the 2024 yield for each species.

Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.



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## **Fall-Seeded Winter Forages and Cover Crops**

In the fall of 2023, a Fall-Seeded Winter Forages and Cover Crops trial was seeded at Rock Springs. The trial was planted in early October and harvested in the spring of 2024. It included two different harvest management treatments: a single-cut system and a multi-cut system. The cereal species were harvested using the single-cut system, while the annual ryegrasses were harvested using both the single-cut and multi-cut systems. Five annual ryegrass varieties were included in both cutting systems. In the multi-cut system, annual ryegrass entries were harvested twice: the first cut was taken at the flag leaf stage (target height of 20 inches) in early May, followed by a second harvest in late May. The varieties in the single-cut system were cut when they reached the early to mid-boot stage. Cutting started on April 21, 2024, and was completed on May 21, 2024. Our soil

fertility program is designed around phosphorous and potash maintenance applications to meet soil test requirements. Plots received 30 units of nitrogen in the fall, 100 units of nitrogen in the spring at green-up, and, for the multi-cut system, 50 units after the first cut. For specific recommendations on establishment, fertilization, and other management considerations, refer to the current *Penn State Agronomy Guide*.

Table 14 lists the fall-seeded winter forage and cover crop varieties in our testing program that are currently marketed in Pennsylvania or may be available in the near future (please check with marketers for availability). Tables 15 and 16 provide guidelines for assessing the production potential of various winter forage and cover crop varieties.

The tables in this report may be reproduced only in their entirety.

**Table 14. 2023-2024 Fall-Seeded Winter Forage and Cover Crop Varieties Marketed in Pennsylvania and Listed in This Report.**

Species/Variety	Marketer	Appears in Table No.
<b>Annual Ryegrass</b>		
Barextra	Barenbrug USA	16
Barmultra II	Barenbrug USA	16
Barnael	Barenbrug USA	16
Centurion	Mountain View Seeds	15,16
Jackson	The Wax Company	15,16
ME-4	The Wax Company	16
ME-94	The Wax Company	16
Nelson (Tetraploid)	The Wax Company	15,16
Tetraprime II	Mountain View Seeds	15,16
WAX Marshall	The Wax Company	15,16
WMWL	The Wax Company	16
WMWL-2	The Wax Company	16
<b>Cereal Rye</b>		
Aroostook	Check	15
Aviator	KWS Cereals USA	15
Grazemaster II	Seedway	15
KWSH10129	KWS Cereals USA	15
KWSH238	KWS Cereals USA	15
KWSH240	KWS Cereals USA	15
KWSH95075	KWS Cereals USA	15
Progas	KWS Cereals USA	15
<b>Barely</b>		
VT Beahm	VA Crop Improvement Assoc.	15
Thoroughbred	Check	15
<b>Triticale</b>		
2021U10	Oregon Trail Seeds	15
2021U17	Oregon Trail Seeds	15
BCT19003	SeedLink	15
BCT19004	SeedLink	15
BCT19005	SeedLink	15
BCT23002	SeedLink	15
BCT23003	SeedLink	15
BCT23004	SeedLink	15
HK-1	Oregon Trail Seeds	15
HK-2	Oregon Trail Seeds	15
Hybrid flex	Seedway Inc.	15
Hyoctane	Seedway Inc.	15
Maverick	Seedway Inc.	15
R5-401919	Oregon Trail Seeds	15
<b>Wheat</b>		
Evina	Oregon Trail Seeds	15
MAS#86	SeedLink	15
<b>Forage Mix</b>		
DART*	King's Agriseeds	15

\*DART includes Daikon radish, annual ryegrass, and triticale.

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### Fall-Seeded Winter Forage and Cover Crop Marketers Listed in This Report:

**Barenbrug USA**

33477 OR-99E  
Tangent, OR 97389  
Phone: 541-926-5801  
[www.barusa.com](http://www.barusa.com)

**King's Agriseeds**

1828 Freedom Rd #101  
Lancaster, PA 17601  
Phone: 717-687-6224  
[www.kingsagriseeds.com](http://www.kingsagriseeds.com)

**KWS Cereals USA**

495 County Rd 1300 N  
Champaign, IL 61822  
Phone: 303-489-4265  
[www.kws.com](http://www.kws.com)

**Mountain View Seeds**

8955 Sunnyview Rd NE  
Salem, OR 97305  
Phone: 503-588-7333  
[www.mtviewseeds.com](http://www.mtviewseeds.com)

**Oregon Trail Seeds**

65268 Striker Ln.  
Imbler, OR 97841  
Phone: 541-898-7333  
<https://www.otseeds.com>

**SeedLink**

208 St. David Street  
Lindsay, Ontario, K9V 4Z4, CANADA  
Phone: 705-324-0544  
<http://www.seed-link.ca/>

**Seedway**

275 N 8th St  
Mifflinburg, PA 17844  
Phone: 800-338-2137  
[www.seedway.com](http://www.seedway.com)

**Virginia Crop Improvement Association**

9225 Atlee Branch Lane  
Mechanicsville, VA 23116  
Phone: 804-472-4649  
[www.virginiacrop.org](http://www.virginiacrop.org)

The tables in this report may be reproduced only in their entirety.

**Table 15. 2023-2024 Fall-Seeded Winter Forages and Cover Crops Trial--Single-Cut Management Sequence--Rock Springs.**

Species/Variety	Harvest date	Yield	CP§	ADF§	aNDF§	30-hr NDFD§	TTNDFD§
<b>Annual Ryegrass</b>							
Jackson	7-May	<b>6.02</b>	14.04	30.27	45.67	54.66	50.76
Nelson (Tetraploid)	7-May	<b>4.98</b>	13.47	33.25	47.05	56.46	55.20
WAX Marshall	7-May	<b>4.58</b>	13.75	34.50	53.36	61.35	58.97
Centurion	7-May	<b>4.59</b>	13.50	30.37	45.75	58.08	55.66
Tetraprime II	7-May	<b>3.54</b>	14.71	28.84	41.36	58.74	57.91
<b>GRAND MEAN</b>		<b>4.74</b>	<b>13.90</b>	<b>31.45</b>	<b>46.64</b>	<b>57.86</b>	<b>55.70</b>
CV (%)		<b>10.36</b>					
LSD (p = .05)		<b>0.75</b>					
<b>Cereal Rye</b>							
KWS H240	2-May	<b>5.58</b>	11.33	38.89	64.50	57.48	52.16
Grazemaster II	2-May	<b>5.10</b>	13.63	34.69	59.14	63.96	60.22
KWS H10129	3-May	<b>5.10</b>	12.05	37.41	61.07	58.53	53.99
KWS H238	30-Apr	<b>4.50</b>	14.23	37.96	60.78	58.52	54.64
Aviator	3-May	<b>4.15</b>	13.64	37.72	59.50	58.00	54.02
Progas	30-Apr	<b>4.12</b>	14.80	36.06	59.97	60.30	56.73
Aroostook	21-Apr	<b>3.59</b>	15.64	36.99	59.17	58.63	55.45
KWS H95075	21-Apr	<b>2.60</b>	16.49	37.05	58.91	60.60	57.58
<b>GRAND MEAN</b>		<b>4.34</b>	<b>13.98</b>	<b>37.10</b>	<b>60.38</b>	<b>59.5</b>	<b>55.6</b>
CV (%)		<b>5.43</b>					
LSD (p = .05)		<b>0.35</b>					
<b>Barley</b>							
VT Beahm	2-May	<b>3.91</b>	13.77	35.64	58.55	63.69	59.59
Thoroughbred	2-May	<b>2.61</b>	16.03	32.83	55.42	67.07	67.38
<b>GRAND MEAN</b>		<b>3.26</b>	<b>14.9</b>	<b>34.23</b>	<b>56.98</b>	<b>65.38</b>	<b>63.48</b>
CV (%)		<b>9.36</b>					
LSD (p = .05)		<b>0.69</b>					
<b>Triticale</b>							
Hybrid flex	2-May	<b>5.62</b>	9.94	39.12	64.11	57.34	54.00
BCT23003*	7-May	<b>5.21</b>	13.42	37.31	60.31	60.21	55.34
BCT23004*	7-May	<b>5.12</b>	12.76	34.26	53.74	60.14	55.22
Maverick	7-May	<b>4.76</b>	14.98	35.46	55.54	59.01	56.78
BCT23002*	7-May	<b>4.56</b>	13.26	36.76	59.53	62.13	59.14
BCT19005*	7-May	<b>4.32</b>	13.49	36.28	57.97	60.72	57.42
HK-2	3-May	<b>4.30</b>	13.58	35.28	55.55	60.93	59.95

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Table 15. (continued)

Species/Variety	Harvest date	Yield	CP§	ADF§	aNDF§	30-hr NDFD§	TTNDFD§
HK-1	2-May	<b>4.25</b>	13.24	34.35	56.31	62.84	60.93
Hyoctane	7-May	<b>4.23</b>	14.06	36.31	58.40	57.61	55.43
BCT19004	7-May	<b>4.22</b>	12.85	38.00	60.81	57.85	53.67
BCT19003	7-May	<b>3.93</b>	15.86	37.31	60.31	63.64	59.94
2021U10	3-May	<b>3.73</b>	13.66	35.10	54.76	60.11	60.03
2021U17	3-May	<b>3.47</b>	16.67	34.19	54.05	60.28	59.82
R5-401919	3-May	<b>3.25</b>	15.38	35.87	54.83	58.76	57.54
<b>GRAND MEAN</b>		<b>4.35</b>	<b>13.80</b>	<b>36.12</b>	<b>57.59</b>	<b>60.11</b>	<b>57.52</b>
CV (%)		<b>7.28</b>					
LSD (p = .05)		<b>0.45</b>					
<b>Wheat</b>							
Evina	13-May	<b>4.23</b>	13.15	33.10	51.26	56.43	51.91
MAS#86	7-May	<b>3.40</b>	15.34	35.16	57.93	61.54	59.64
<b>GRAND MEAN</b>		<b>3.82</b>	<b>14.25</b>	<b>34.13</b>	<b>54.59</b>	<b>58.99</b>	<b>55.78</b>
CV (%)		<b>10.75</b>					
LSD (p = .05)		<b>0.92</b>					
<b>Mixed Species</b>							
DART	2-May	6.40	16.24	33.88	55.90	62.85	60.93

\*Experimental entries that are not currently marketed.

§Forage quality analysis for the first cut samples:

CP = crude protein

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

30-hr NDFD = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on October 3, 2023.

All harvest events occurred in 2024.

Yields are given in tons per acre on a dry matter basis.

The tables in this report may be reproduced only in their entirety.

**Table 16. 2023-2024 Fall-Seeded Winter Forages and Cover Crops Trial--Multi-Cut Management Sequence--Rock Springs.**

Species/Variety	Yield			ADF§	aNDF§	CP§	30-hr NDFD§	TTNDFD§
	1 <sup>st</sup> -Cut	2 <sup>ed</sup> -Cut	Total					
<b>Annual Ryegrass</b>								
ME-4*	3.53	1.85	<b>5.38</b>	30.62	46.72	18.43	66.19	69.66
Centurion	3.58	1.60	<b>5.18</b>	37.67	57.86	18.15	65.46	67.36
Barnael	2.93	1.86	<b>4.78</b>	27.15	40.38	19.24	67.67	72.54
WMWL-2*	3.31	1.41	<b>4.72</b>	30.86	46.64	17.81	64.98	66.14
WMWL	3.01	1.71	<b>4.71</b>	30.53	44.52	20.19	64.65	67.64
Jackson	2.99	1.72	<b>4.71</b>	30.27	45.67	19.60	65.32	67.42
Nelson (Tetraploid)	3.20	1.50	<b>4.70</b>	33.25	47.05	18.55	62.70	64.25
Barmultra II	2.71	1.83	<b>4.54</b>	29.19	42.22	20.17	65.46	69.43
WAX Marshall	2.77	1.67	<b>4.44</b>	29.90	44.73	19.05	64.33	66.77
Barextra	2.50	1.83	<b>4.32</b>	30.47	40.82	19.83	62.35	67.47
ME-94*	2.56	1.72	<b>4.28</b>	31.28	45.63	20.37	63.47	66.02
Tetraprime II	2.63	1.58	<b>4.21</b>	28.84	41.36	20.93	68.32	72.43
<b>GRAND MEAN</b>	<b>2.98</b>	<b>1.69</b>	<b>4.67</b>	<b>30.84</b>	<b>45.30</b>	<b>19.36</b>	<b>65.08</b>	<b>68.09</b>
CV (%)	7.69	9.43	<b>5.83</b>					
LSD (p = .05)	0.33	0.23	<b>0.39</b>					

\*Experimental entries that are not currently marketed.

§Forage quality analysis for the first cut samples:

CP = crude protein

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

30-hr NDFD = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on October 3, 2023.

All harvest events occurred in 2024.

Yields are given in tons per acre on a dry matter basis.

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## **ANNUAL COOL-SEASON GRASSES**

In the spring of 2024, a cereals trial intended to measure forage production potential was seeded at Rock Springs. The trial was planted on April 26. Each variety was harvested at the early to mid-boot stage. Our soil fertility program is designed around phosphorous and potash maintenance applications to meet soil test requirements. Plots receive 60 units of N per acre in the spring pre-plant. See the current *Penn State Agronomy Guide* for specific

recommendations about establishment, fertilization, and other management considerations.

Table 17 lists spring-planted cereal and annual ryegrass forage varieties in our testing program that are currently marketed in Pennsylvania or may be available in the near future (Please check with marketers for availability). Table 18 offers guidelines for assessing the production potential of various cereal and annual ryegrass varieties that may be suitable for forage production.

The tables in this report may be reproduced only in their entirety.

**Table 17. Spring-Planted Small Cereal Varieties Marketed in Pennsylvania and Listed in This Report**

Species/Variety	Marketer	Appears in Table No.
<b>Annual Ryegrass</b>		
Bar LM17790-3	Barenbrug USA	18
Bar LM17790-4	Barenbrug USA	18
Bar LM18168-1	Barenbrug USA	18
Bar LM18168-3	Barenbrug USA	18
Barextra	Barenbrug USA	18
Barmultra II	Barenbrug USA	18
Barnael	Barenbrug USA	18
Centurion	Mountain View Seeds	18
Ranahan	Mountain View Seeds	18
Ribeye	Barenbrug USA	18
Tetraprime II	Mountain View Seeds	18
<b>Spring Triticale</b>		
1010	Oregon Trail Seeds	18
KT13053	Oregon Trail Seeds	18

**Annual Cool-Season Grasses Marketers Listed in This Report:**

**Barenbrug USA**

33477 OR-99E  
Tangent, OR 97389  
Phone: 541-926-5801  
[www.barusa.com](http://www.barusa.com)

**Mountain View Seeds**

8955 Sunnyview Rd NE  
Salem, OR 97305  
Phone: 503-588-7333  
[www.mtviewseeds.com](http://www.mtviewseeds.com)

**Oregon Trail Seeds**

65268 Striker Ln.  
Imbler, OR 97841  
Phone: 541-898-7333  
<https://www.otseeds.com>



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**Table 18. 2024 Spring-Seeded Small Cereal and Annual Ryegrass Variety Trial--Rock Springs.**

Species/Varieties	Yield	CP§	ADF§	aNDF§	30-hr NDFD§	TTNDFD§	Stand 2024
<b>Annual Ryegrass</b>							
Centurion	<b>4.07</b>	14.55	33.06	49.00	53.19	52.62	98.10
Barnaël	<b>3.81</b>	15.08	32.97	46.40	53.21	51.64	98.60
Ribeye	<b>3.79</b>	15.57	32.56	48.82	54.72	52.31	91.10
Barmultra II	<b>3.73</b>	16.76	33.10	46.72	55.44	54.79	99.40
Barextra	<b>3.55</b>	15.45	32.24	45.87	54.92	52.77	98.30
Ranahan	<b>3.52</b>	16.12	33.63	45.62	54.33	49.15	97.80
Bar LM18168-3	<b>3.47</b>	15.39	33.13	48.03	54.21	50.39	98.30
Tetraprime II	<b>3.37</b>	14.94	33.35	47.17	52.26	53.42	98.10
Bar LM18168-1	<b>3.32</b>	15.57	32.07	46.81	55.07	52.53	99.70
Bar LM17790-3	<b>3.28</b>	14.08	33.01	47.95	52.15	49.10	98.30
Bar LM17790-4	<b>3.03</b>	14.40	32.27	46.93	52.06	52.20	98.30
<b>Grand Mean</b>	<b>3.54</b>	<b>15.26</b>	<b>32.85</b>	<b>47.21</b>	<b>53.78</b>	<b>51.90</b>	<b>97.80</b>
CV (%)	<b>9.39</b>						
LSD (p = .05)	<b>0.48</b>						
<b>Spring Triticale</b>							
1010*	<b>1.42</b>	11.88	36.10	59.90	56.59	50.53	100
KT13053*	<b>1.41</b>	10.80	38.19	62.79	54.51	48.31	100
<b>Grand Mean</b>	<b>1.42</b>	<b>11.34</b>	<b>37.15</b>	<b>61.35</b>	<b>55.55</b>	<b>49.42</b>	<b>100</b>
CV (%)	<b>19.18</b>						
LSD (p = .05)	<b>0.61</b>						

\*Experimental entries that are not currently marketed.

§Forage quality analysis for the first cut samples:

CP = crude protein

30-hr NDFD = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on April 26, 2024.

Yields are given in tons per acre on a dry matter basis, there were 3 cuttings in the growing season except triticale.

*The tables in this report may be reproduced only in their entirety.*

## **ANNUAL WARM-SEASON GRASSES**

In the summer of 2024, annual warm-season grass trials were conducted at Rock Springs, including forage sorghum, sudangrass, sorghum-sudan hybrids, and teff. The trials were planted on June 13. In the trial, 100 lbs. N, 60 lbs. P<sub>2</sub>O<sub>5</sub>, 60 lbs. K<sub>2</sub>O and 20 lbs. S (sulfur) was applied at planting. In the sudangrass, sorghum-sudan hybrids, and teff trials, additional applications of 50 lbs. N was applied after each cutting. Forage sorghum was harvested using a 1-cut system, and harvest occurred

on October 18. Sudangrass, sorghum-sudan hybrids, and teff were harvested twice during the trial.

Table 19 lists annual warm-season grass varieties in our testing program that are currently marketed in Pennsylvania or may be available in the near future (Please check with marketers for availability). Tables 20, 21, and 22 offer guidelines for assessing the production potential of forage sorghum, sudangrass, sorghum-sudan hybrids, and teff that may be suitable for forage production, respectively.

The tables in this report may be reproduced only in their entirety.

**Table 19. Annual Warm-Season Grass Varieties Marketed in Pennsylvania and Listed in This Report.**

Species/Variety	Marketer	Appears in Table No.
<b>Forage sorghum</b>		
F71FS72 BMR	Dyna-Gro	20
F72FS05	Dyna-Gro	20
F74FS23 BMR	Dyna-Gro	20
F74FS72 BMR	Dyna-Gro	20
FX24067	Dyna-Gro	20
FX24806	Dyna-Gro	20
NK300	S&W Seed	20
SP1727 MS BMR	S&W Seed	20
SP2606 BMR	S&W Seed	20
SP2707 DT	S&W Seed	20
SS304	S&W Seed	20
SS405	S&W Seed	20
SSA1904 XP	Seedway	20
SSA181 BMR6 DS	Seedway	20
Super Sile 20	Dyna-Gro	20
Super Sile 30	Dyna-Gro	20
SweetTon MS	Dyna-Gro	20
<b>Multi-cut sorghum-sudan hybrids, sudangrass</b>		
Danny Boy II BMR	Dyna-Gro	21
Dynagraze II	Dyna-Gro	21
Dynagraze II BMR	Dyna-Gro	21
Fullgraze II	Dyna-Gro	21
Fullgraze II BMR	Dyna-Gro	21
Prussic Acid-Free	S&W Seed	21
S6 2504 XP	Seedway	21
S6 2514 XP	Seedway	21
S6 252 BMR 6	Seedway	21
Sordan 79	S&W Seed	21
SP4555 BMR	S&W Seed	21
SP7106 BMR PPS	S&W Seed	21
Super Sweet 10	Dyna-Gro	21
<b>Multi-cut teff</b>		
Bonus	Mountain View	22
Corvallis	Mountain View	22

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**Annual Warm-Season Grass Marketers Listed in This Report:**

**Dyna-Gro Seed**

5061 Babe Road  
Tyron, PA 16686  
Phone: 814-6849-470  
[www.dynagroseed.com](http://www.dynagroseed.com)

**Mountain View Seeds**

8955 Sunnyview Rd NE  
Salem, OR 97305  
Phone: 503-588-7333  
[www.mtviewseeds.com](http://www.mtviewseeds.com)

**S&W Seed Company/Sorghum Partners**

2101 Ken Pratt Blvd STE 201  
Longmont, CO 80501  
Phone: 855-767-4486  
[www.sorghumpartners.com](http://www.sorghumpartners.com)

**Seedway**

275 N 8th St  
Mifflinburg, PA 17844  
Phone: 800-338-2137  
[www.seedway.com](http://www.seedway.com)

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**Table 20. 2024 Forage Sorghum Variety Trial--Rock Springs.**

Variety	Yield		CP§	ADF§	aNDF§	NDFD30§	TTNDFD§	Stand 2024
	Oven-dried	Adjusted to 65% moisture						
ss405	7.19	20.54	9.06	36.95	60.45	50.26	45.04	98.60
ss304	6.66	19.03	9.99	33.07	52.94	52.00	46.70	99.40
sp1727 MS BMR	6.28	17.94	10.89	30.50	46.89	56.67	53.93	99.20
Super Sile 20	5.79	16.54	10.31	33.96	56.41	51.99	46.54	99.40
SweetTon MS	5.58	15.94	9.75	32.07	53.91	55.03	46.52	98.60
Super Sile 30	5.57	15.91	9.24	36.75	59.41	51.71	46.24	98.60
FX24806	5.42	15.49	9.83	31.39	50.29	58.70	52.87	98.60
NK300	5.28	15.09	10.01	41.66	65.69	46.28	39.39	99.20
SSA181 BMR6 Ds	5.16	14.74	9.87	32.44	48.84	56.18	53.13	99.70
SP2606 BMR	5.06	14.46	11.34	34.19	58.35	53.10	49.96	98.10
F72FS05	4.94	14.11	10.16	40.95	65.60	46.88	44.34	99.20
F74FS23 BMR	4.84	13.83	10.58	32.50	52.97	56.14	51.25	98.30
Fx24067	4.57	13.06	10.28	36.79	59.20	54.49	49.76	99.40
SP2707 Dt	4.47	12.77	10.55	32.69	55.52	54.19	51.60	98.10
F71FS72 BMR	4.38	12.51	10.60	35.15	61.19	54.22	49.78	99.20
F74FS72 BMR	4.31	12.31	9.63	33.32	53.33	56.81	52.18	99.40
SSA 1904 XP	4.00	11.43	11.17	36.95	61.24	53.66	51.13	97.50
<b>GRAND MEAN</b>	<b>5.26</b>	<b>15.04</b>	<b>10.19</b>	<b>34.78</b>	<b>56.60</b>	<b>53.43</b>	<b>48.84</b>	<b>98.9</b>
CV (%)	12.29							1.26
LSD (p = .05)	0.92							1.78

§Forage quality analysis for the first cut samples:

CP = crude protein

NDFD30 = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on June 13, 2024.

All harvest events occurred on October 18, 2024.

Yields are given in tons per acre on a dry matter basis.

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**Table 21. 2024 Sorghum-Sudan Hybrids and Sudangrass Variety Trial--Rock Springs.**

Variety	Total yield	CP§	ADF§	aNDF§	NDFD30§	TTNDFD§	Stand 2024
Danny Boy II BMR	<b>4.63</b>	16.55	36.45	58.56	58.77	56.79	97.22
Dynagraze II	<b>4.45</b>	17.13	37.79	58.46	52.90	48.63	98.06
Sordan 79	<b>4.07</b>	14.15	40.10	63.34	50.85	46.37	97.22
Super Sweet 10	<b>4.06</b>	15.39	39.96	63.32	52.72	47.32	97.78
SP4555 BMR	<b>4.01</b>	17.52	34.35	54.97	59.32	56.98	98.80
Prussic acid-free	<b>3.15</b>	17.62	37.46	58.96	55.92	55.14	98.33
s6 2504 XP	<b>3.12</b>	18.08	35.10	55.60	56.59	53.64	97.71
Dynagraze II BMR	<b>3.10</b>	19.22	36.32	56.67	57.20	56.06	96.39
s6 2514 XP	<b>2.83</b>	16.05	37.77	59.43	56.83	56.92	97.50
Fullgraze II BMR	<b>2.80</b>	14.75	39.96	63.24	54.02	50.73	96.94
Fullgraze II	<b>2.79</b>	12.38	42.51	67.49	49.73	45.15	98.33
SP7106 BMR PPS	<b>2.50</b>	18.68	36.04	56.71	55.35	55.24	98.61
S6 252 BMR 6	<b>1.99</b>	17.36	33.53	57.08	58.65	57.92	96.21
<b>GRAND MEAN</b>	<b>3.35</b>	<b>16.53</b>	<b>37.49</b>	<b>59.52</b>	<b>55.30</b>	<b>52.84</b>	<b>98.00</b>
CV (%)	<b>21.67</b>						1.06
LSD (p = .05)	<b>1.05</b>						1.49

§Forage quality analysis for the first cut samples:

CP = crude protein

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

NDFD30 = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on June 13, 2024.

All harvest events occurred on August 13 and September 21, 2024.

Yields are given in tons per acre on a dry matter basis.

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**Table 22. 2024 Teff Variety Trial--Rock Springs.**

Variety	Yield	Stand 2024	ADF§	aNDF§	CP§	NDFD30§	TTNDFD§
Bonus	5.49	100.00	35.00	58.90	19.11	59.12	54.47
Corvallis	5.42	99.80	36.04	56.93	19.34	57.91	52.78
<b>GRAND MEAN</b>	<b>5.45</b>	<b>99.90</b>	<b>35.52</b>	<b>57.91</b>	<b>19.23</b>	<b>58.52</b>	<b>53.63</b>
CV (%)	5.82	-					
LSD (p = .05)	0.71	-					

§Forage quality analysis for the first cut samples:

CP = crude protein

ADF = acid detergent fiber

aNDF = neutral detergent fiber after starch amylase digestion

NDFD30 = 30-hour neutral detergent fiber digestibility

TTNDFD = total tract NDFD

CV = coefficient of variation.

LSD = least significant difference.

All species were seeded on June 13, 2024.

All harvest events occurred on August 13 and September 21, 2024.

Yields are given in tons per acre on a dry matter basis.

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