

2006 Forage Trials Report

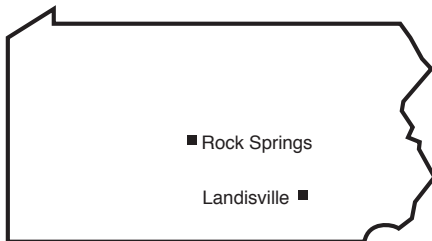


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SUMMARY

The 2006 *Forage Trials Report* summarizes performance data collected from ongoing forage trials at three sites in Pennsylvania. The report includes data from alfalfa and cool-season (forage) grass trials established at the Russell E. Larson Agricultural Research Center at Rock Springs and the Southeast Research and Extension Center at Landisville. Also included are the results of grazing trials established at the Haller Grazing Research Farm near State College. Both cool-season (forage) grasses and legumes are included in the grazing trial.



2006 Forage Growing Season

Weather was a real “mixed bag” across the state this year. Some regions had dry conditions that produced very little but high-quality tonnage while other regions had consistent rains throughout the growing season. Excellent haymaking weather, although sporadic in some areas, was reflected by the high number of hay samples (10 more than in 2005 and nearly 40 more than in 2004) entered in the 2006 Pennsylvania Forage and Grassland Council’s Hay Show at Ag Progress Days. The trend is that the number of samples entered in the hay show increases as rainfall decreases. The average quality of the hay show samples was CP 17, ADF 35, NDF 55, and RFV 121.

Growing-season precipitation amounts for the past four years at Rock Springs and Landisville are presented in Figures 1 through 8 (page 2) by monthly total. Normal amounts also are presented.

Criteria for Reporting Varieties

All varieties listed in this report are eligible for certification by seed certifying agencies and are marketed in Pennsylvania (see Tables 1, 10, and 12). Proprietary and public varieties are included; blends and “commons” are not included.

Interpreting Yield Data and Stand Scores

Yield summaries and stand scores for individual trials appear in Tables 2 through 9, 11, and 13. Only varieties currently being marketed in Pennsylvania appear in the tables. Although the trials contain up to 48 total entries, many of these are advanced experimental varieties or are not currently offered for sale in Pennsylvania. After these entries are named and/or become 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 Trials Report* only if the newly named variety is entered as a commercial variety in the next available trial.

Varieties are ranked according to their yield performance this crop year. In addition, yield totals for the previous harvest years are reported, as well as average yields over the life of the stand. It is important to evaluate the average yields as well as the yields obtained this year because performance over a three- to four-year period is valuable in a long-term forage rotation.

The stand score is a visual estimation of the amount of groundcover and is given following 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.

Please keep in mind when reviewing the yield and stand tables 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 percent confident that this difference is not attributable to mere chance. For example, if variety A is 0.50 ton/acre higher in yield than variety B, then this difference is statistically significant if the LSD is 0.50 or less. If the LSD is 0.51 or greater, then we cannot be confident that variety A really yields higher than B under given environmental and management conditions.

The value for coefficient of variation (CV) is a measure of relative variation useful in evaluating the precision achieved in an experiment. In grain and forage trials, for example, the CV for yield often is between 5 and 15 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 unmeasurable variations in soil fertility, soil drainage, and other environmental factors contribute to increased CV levels.

Figure 1. 2006 Precipitation at Rock Springs

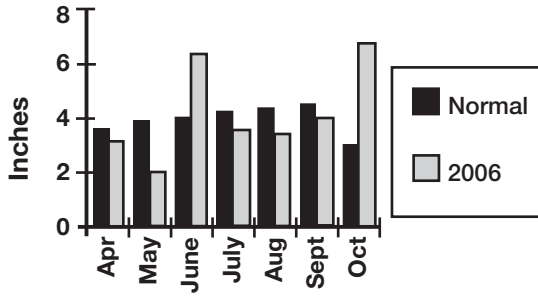


Figure 2. 2006 Precipitation at Landisville

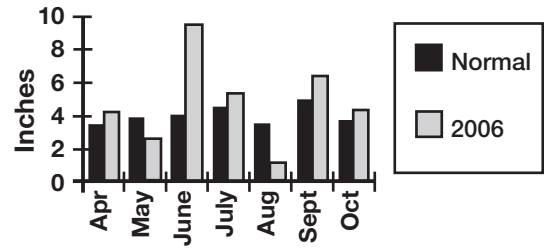


Figure 3. 2005 Precipitation at Rock Springs

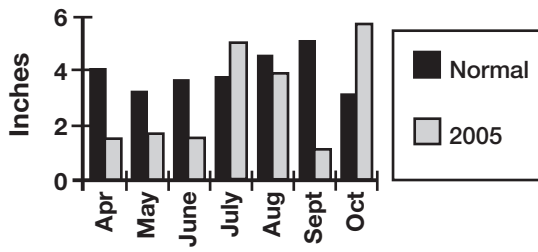


Figure 4. 2005 Precipitation at Landisville

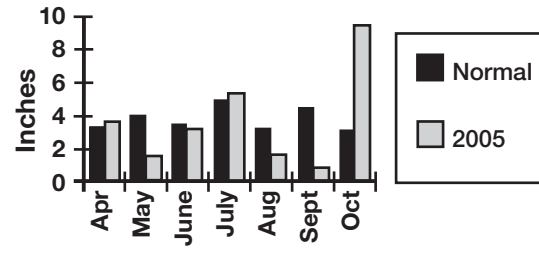


Figure 5. 2004 Precipitation at Rock Springs

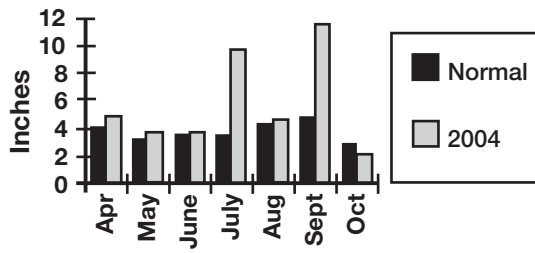


Figure 6. 2004 Precipitation at Landisville

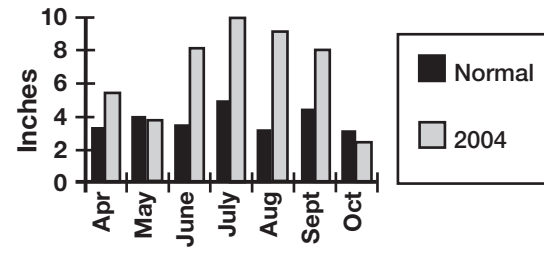


Figure 7. 2003 Precipitation at Rock Springs

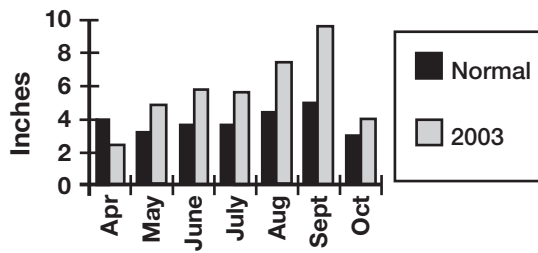
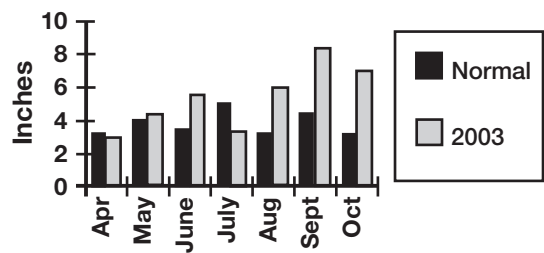


Figure 8. 2003 Precipitation at Landisville



ALFALFA

Many varieties of alfalfa exist, and selecting the appropriate variety is an important management decision. This report lists performance data for those varieties included 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, collection of yield, stand, and other data continues for a maximum of four years 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 to be reflected in the longer growing season, slightly elevated temperatures, and tendency toward late-summer drought at the Landisville site.

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

- Selection of a variety on the basis of 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, lime and fertilizer, seeding, pest control, harvest, storage, and postharvest treatment. Many modern varieties are adapted to intensive management.

Fall Dormancy

Fall dormancy ratings of alfalfa range from “1” (very dormant) to “9” (having no dormancy). Varieties that have less fall dormancy (higher numerical rating) regrow faster after harvest and exhibit greater growth in the fall compared to those varieties 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.

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 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 on the basis of the trial results, follow these suggestions:

1. Determine which of the trial sites most resembles your farm in terms of 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 are probably 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 with age more rapidly than others.
4. For long-term rotations, the most recent harvest-year data should receive major consideration. If you plan to harvest the 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.

Summary of Crop Conditions

Alfalfa weevil populations were generally low with several localized outbreaks. Potato leafhopper infestations were early and severe in some areas of Pennsylvania and caught many producers “off guard.”

Sclerotinia stem and crown rot is becoming a serious concern for 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 not as severely damaged as are the younger plants. The fungus survives as hard, black structures (sclerotia) on or near the soil surface. In the fall, the sclerotia produce 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 eutiches* 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*.

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*.

Table 1 lists the marketers of alfalfa varieties included in this report, as well as the trial 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.

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

Table 1. Alfalfa varieties marketed in Pennsylvania and listed in this report.

Fall dormancy ratings of alfalfa range from 1 (very dormant) to 9 (having no dormancy). Varieties that are less fall dormant (higher numerical rating) regrow faster after harvest and exhibit greater growth in the fall compared to those varieties with greater fall dormancy (lower numerical rating).

BW = Bacterial Wilt, VW = Verticillium Wilt, FW = Fusarium Wilt, AN = Anthracnose, PRR = Phytophthora Root Rot, APH1 = Aphanomyces Race 1

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

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.

Variety	Marketer ^a	Fall Dormancy	Pest-Resistance Ratings						Appears in Table No.
			BW	VW	FW	AN	PRR	APH1	
361 HY	Preferred Seed	4	HR	R	HR	R	HR	R	5,9
4A421	Mycogen Seeds	4	HR	HR	HR	HR	HR	—	2,4,5,6,8,9
4S419	Mycogen Seeds	4	HR	HR	HR	HR	HR	R	9
54Q25	Pioneer Hi-Bred Int'l, Inc.	4	HR	HR	HR	HR	HR	—	2,3,4,7,8
54V46	Pioneer Hi-Bred Int'l, Inc.	4	HR	HR	HR	HR	HR	—	2,3,4,5,6,7,8,9
6400 HT	Garst Seeds, P.L. Rohrer	4	HR	HR	HR	HR	HR	HR	3,7
6415	Garst Seeds, P.L. Rohrer	4	HR	HR	HR	HR	HR	HR	3,4,5,7,8,9
6420	Garst Seeds	4	HR	R	HR	R	HR	R	4,8
A-4440	Producer's Choice	3.8	HR	HR	HR	HR	HR	HR	5
ASCEND	Mid Atlantic Seeds	5	HR	HR	HR	HR	HR	—	5
AMERISTAND 407TQ	P.L. Rohrer	4	HR	HR	HR	HR	HR	HR	4,8
BARALFA 53 HR	Keystone Group Ag Seeds, King's AgriSeeds	5	HR	HR	HR	HR	HR	—	2,6
CIMARRON SR	Wetsel, Inc.	4	HR	HR	HR	HR	HR	MR	2,6
CIMARRON VL400	Wetsel, Inc.	4	R	R	HR	HR	HR	R	4,8
DKA33-16	Monsanto	3	HR	HR	HR	HR	HR	HR	3,7
DKA42-15	Monsanto	2.5	HR	HR	HR	HR	HR	HR	4,8
DKA50-18	Monsanto	5	HR	HR	HR	HR	HR	—	3,7
DOUBLE EAGLE	American Seed Co.	4	HR	HR	HR	HR	HR	HR	5,9
DYNAMIC	Grassland Central	2	HR	HR	HR	HR	HR	HR	2,6
ENFORCER	FS Seeds	3.5	HR	HR	HR	HR	HR	HR	4,8
ESCALADE	FS Seeds	5	HR	R	HR	R	HR	R	4,8
EVERLAST	UAP	4	HR	HR	HR	HR	HR	R	4,8
EXPEDITION	NK Brand Seeds	5	R	HR	HR	HR	HR	HR	3,7
FOREMOST II	Hubner Hybrids	4	HR	HR	HR	HR	HR	R	2
FSG 351	Seedway	3	HR	R	HR	HR	HR	R	4,8
FSG 400 LH	Seedway	4	HR	HR	HR	HR	HR	HR	4,8
FSG 406	Seedway	4	HR	HR	HR	HR	HR	HR	4,8
FSG 408 DP	Seedway	4	HR	HR	HR	HR	HR	R	4,8
FSG 505	Seedway	5	HR	HR	HR	HR	HR	—	4,8
GENOA	NK Brand Seeds	4	HR	HR	HR	HR	HR	HR	2,4,5,6,8,9
GUARDSMAN II	Seedway	4	HR	HR	HR	HR	HR	—	4,8

(Table 1 continued)

Variety	Marketer ^a	Fall Dormancy	Pest-Resistance Ratings						Appears in Table No.
			BW	VW	FW	AN	PRR	APH1	
HYBRI+ 421	NC+ Hybrids	4	HR	R	HR	R	HR	R	5,9
HYBRIFORCE-400	Dairyland Seed Co.	4	HR	R	HR	R	HR	—	2,6
HYBRIFORCE-420/WET	Dairyland Seed Co.	4	HR	R	HR	R	HR	R	3,4,7,8
HYTEST 410	Hyttest Seeds	3.9	HR	HR	HR	HR	HR	HR	2,6
INTEGRITY	Producer's Choice	4	HR	HR	HR	HR	HR	HR	4,5,8,9
JADE III	NC+ Hybrids	4	HR	R	HR	HR	HR	R	4,8
L-311	Legacy Seeds	3	HR	HR	HR	HR	HR	HR	3,7
L-411HD	Legacy Seeds	4	HR	HR	HR	HR	HR	HR	4,8
L-447HD	Legacy Seeds	4	HR	R	HR	HR	HR	HR	5,9
LEGENDAIRY 5.0	Croplan Genetics	4	HR	HR	HR	HR	HR	HR	4,8
MARINER III	FS Seeds	4	HR	R	HR	HR	HR	HR	4
MARVEL	FS Seeds	4	HR	HR	HR	HR	HR	HR	4,8
MILESTONE	Chemgro Seeds	3	HR	R	HR	R	HR	R	5,9
MULTIPLIER 3	Mycogen Seeds	3	HR	R	HR	HR	HR	HR	2,6
NOVA	Northstar Seeds	4	HR	R	HR	R	HR	R	4,8
ONEIDA VR	Public	3	R	HR	HR	MR	MR	—	2,3,4,5,6,7,8,9
PARAMOUNT II	Chemgro Seeds	3	HR	HR	HR	HR	HR	—	2,3,6,7
PERFECT	Grassland Central	4	HR	HR	HR	HR	HR	HR	2,6
PERFORM	Doebler's Hybrids	4	HR	HR	HR	HR	HR	HR	5
POWER 4.2	Power Seeds	4	HR	R	HR	R	HR	HR	3,7
PROLIFIC	Doebler's Hybrids	4	HR	HR	HR	HR	HR	HR	5,9
REBOUND 5.0	Croplan Genetics	4	HR	R	HR	HR	HR	HR	4,8
REGAL	Northstar Seeds	5	HR	R	HR	R	R	MR	3,7
REGEN	AgriCulver, Seedway	3	R	HR	HR	HR	R	—	2,4,6,8
SHEPHERD	Dahlco Seeds	5	HR	HR	HR	HR	HR	R	2
SUMMER GOLD	Beck's Superior Hybrids	4	HR	—	HR	HR	HR	HR	2
TRIBUTE	Chemgro Seeds	4.6	HR	R	HR	HR	HR	—	2,3,6,7
VERNAL	Public	2	R	—	MR	—	—	—	2,3,4,5,6,7,8,9
WL 319 HQ	AgriCulver, Hytest Seeds, UAP	2.8	HR	HR	HR	HR	HR	HR	2,6
WL 335 HQ	Hyttest Seeds	4	HR	HR	HR	HR	HR	HR	4,8
WL 348 AP	AgriCulver, Hytest Seeds, UAP	3.5	HR	HR	HR	HR	HR	HR	3,7
WL 357 HQ	AgriCulver, Hytest Seeds, UAP	4.7	HR	HR	HR	HR	HR	—	3,7

(Table 1 continued)

^aAlfalfa Marketers listed in this report—location and phone number.

AgriCulver, Inc.

Trumansburg, NY 14866
Phone: 607-387-5788

American Seed Co.

Porter's Siding, PA 17362
Phone: 717-225-3730

Beck's Superior Hybrids

Atlanta, IN 46031
Phone: 317-984-3508

Chemgro Seeds

E. Petersburg, PA 17520
Phone: 800-346-4769

Croplan Genetics

St. Paul, MN 55164
Phone: 651-765-7510

Dairyland Seed Company

West Bend, WI
Phone: 800-236-0163
Web: www.dairylandseed.com

Dahlco Seeds

Cokato, MN 55321
Phone: 888-324-5261
Web: dahlcoseeds.com

Doebler's Hybrids

Jersey Shore, PA 17740
Phone: 570-753-3210
Web: www.doebler.com

FS Seeds

York, PA 17402
Phone: 800-338-4769

Garst Seed Co.

Slater, IA
Phone: 888-464-2778
Web: www.garstseed.com

Grassland Central

Jordan, MN 55352
Phone: 952-492-2990

Hyttest Seeds

Dover, PA 17315
Phone: 717-870-0351

Hubner Hybrids

Columbia, PA 17512
Phone: 717-684-8718

Keystone Group Ag Seeds

New Columbia, PA 17856
Phone: 570-538-1170

King's AgriSeeds

Ronks, PA 17572
Phone: 866-687-6224

Legacy Seeds, Inc.

Manheim, PA 17545
Phone: 717-665-7655

Mid Atlantic Seeds

York, PA 17403
Phone: 717-852-8894

Monsanto

St. Louis, MO
Phone: 800-833-5252

Mycogen Seeds

Export, PA 15632
Phone: 724-468-6533

NC+ Hybrids

Blairsville, PA 15717
Phone: 800-279-7999

NK Brand Seeds

Golden Valley, MN 55427
Phone: 800-445-0956

Northstar Seeds

Neepawa, Manitoba ROJ 1H0, Canada
Phone: 204-476-5241
Web: www.northstarseed.com

P. L. Rohrer & Bro., Inc.

Smoketown, PA 17576
Phone: 717-299-2571

Pioneer Hi-Bred Int'l, Inc.

Mount Joy, PA 17552
Phone: 717-653-5605
Web: pioneer.com

Power Seeds

Lindsay, Ontario, Canada
Phone: 705-324-4400

Preferred Seed

Buffalo, NY 14227
Phone: 716-895-7333
Web: preferredseed.com

Producer's Choice

Story City, IA 50248
Phone: 866-744-5710

Seedway

Mifflinburg, PA 17844
Phone: 800-338-2137
Web: seedway.com

T.A. Seeds

Jersey Shore, PA 17740
Phone: 570-753-5503

UAP

Avon, NY 14414
Phone: 585-226-2700

UAP

Holtwood, PA 17532
Phone: 707-284-5350

Wetsel, Inc.

Kittanning, PA 16201
Phone: 800-742-2510

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Table 2. 2002 alfalfa variety trial—Rock Springs.

Variety	2006 Yield	2005 Yield	2004 Yield	2003 Yield	2003–06 Average	Stand 9/27/06
GENOA*	8.36	6.56	7.48	5.36	6.94	73.5
TRIBUTE	7.86	6.26	7.20	5.25	6.65	75.2
SHEPHERD*	7.69	6.22	7.24	5.14	6.57	75.6
4A421	7.63	5.65	7.11	5.07	6.37	75.6
FOREMOST II*	7.61	5.96	6.87	5.10	6.39	74.3
SUMMER GOLD*	7.45	6.10	7.18	5.49	6.56	77.2
HYTEST 410	7.42	5.79	7.05	5.14	6.35	75.0
MULTIPLIER 3	7.36	5.36	6.94	5.23	6.22	71.7
WL 319 HQ	7.15	5.57	6.92	5.14	6.19	74.3
HYBRIFORCE-400	7.13	5.25	6.81	5.59	6.20	72.9
BARALFA 53 HR	7.10	5.53	6.24	4.94	5.95	73.2
54V46*	6.99	5.36	6.89	4.99	6.06	79.0
PARAMOUNT II	6.90	4.93	6.43	4.79	5.76	72.0
REGEN*	6.81	4.94	6.86	5.17	5.94	73.4
54Q25*	6.54	4.57	6.26	4.90	5.57	71.1
PERFECT	6.39	4.69	6.25	5.00	5.58	67.5
ONEIDA VR	6.32	4.50	5.83	5.02	5.42	74.5
CIMARRON SR	6.12	4.58	6.33	5.00	5.51	74.1
DYNAMIC	5.89	4.76	6.52	5.12	5.57	72.8
VERNAL	5.44	3.85	5.36	4.91	4.89	68.0
GRAND MEAN	6.80	5.18	6.60	5.09	5.92	72.8
CV (%)	5.99	8.41	5.03	4.52	4.96	5.8
LSD (p = 0.05)	0.57	0.61	0.47	0.32	0.41	5.9

CV = coefficient of variation

LSD = least significant difference

- Seeded April 23, 2002.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings each year.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 42 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

*Variety tested with experimental seed that may or may not give performance similar to commercially available seed.

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

Table 3. 2003 alfalfa variety trial—Rock Springs.

Variety	2006 Yield	2005 Yield	2004 Yield	2004–06 Average	Stand 9/28/06
6415	8.75	5.87	6.78	7.14	84.2
WL 357 HQ	8.65	5.56	6.81	7.01	81.8
DKA33-16	8.62	5.79	6.82	7.08	85.4
EXPEDITION	8.48	5.64	6.51	6.88	86.2
PARAMOUNT II	8.40	5.67	6.30	6.81	86.7
DKA50-18	8.39	5.68	6.56	6.95	83.8
54Q25	8.21	4.96	6.31	6.50	82.9
TRIBUTE	8.06	5.38	6.47	6.64	82.6
54V46	7.94	4.95	6.70	6.57	82.2
HYBRIFORCE-420/WET	7.73	5.08	6.69	6.47	85.9
POWER 4.2	7.72	5.23	6.15	6.38	84.2
WL 348 AP	7.67	5.02	6.23	6.31	84.5
L-311	7.60	4.85	6.45	6.32	82.5
6400 HT	6.80	4.28	6.14	5.67	85.0
ONEIDA VR	6.59	4.21	5.79	5.48	81.6
REGAL	6.44	4.23	5.74	5.47	77.8
VERNAL	6.21	3.81	5.32	5.11	79.3
GRAND MEAN	7.63	4.91	6.28	6.27	83.4
CV (%)	5.78	9.65	5.89	6.02	3.7
LSD (p = 0.05)	0.62	0.67	0.52	0.53	4.3

CV = coefficient of variation

LSD = least significant difference

- Seeded April 16, 2003.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 28 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

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Table 4. 2004 alfalfa variety trial—Rock Springs.

Variety	2006 Yield	2005 Yield	2005–06 Average	Stand 9/27/06
LEGENDAIRY 5.0	8.53	5.98	7.26	83.0
DKA42-15	8.49	6.36	7.43	79.0
6415	8.29	5.95	7.12	83.7
FSG 505	8.29	6.04	7.16	83.4
REBOUND 5.0	8.27	5.41	6.84	85.0
MARVEL*	8.08	5.43	6.75	87.3
WL 335 HQ	8.08	5.74	6.91	84.4
FSG 351	7.96	5.57	6.76	88.3
ASCEND	7.89	5.13	6.51	84.1
HYBRIFORCE-420/WET	7.85	5.56	6.71	81.7
4A421	7.83	5.10	6.47	82.6
54Q25	7.72	5.49	6.61	80.0
54V46	7.72	5.34	6.53	85.1
6420	7.71	5.19	6.45	82.8
MARINER III*	7.69	5.18	6.43	90.0
L-411HD	7.67	5.36	6.51	84.2
NOVA	7.66	5.29	6.47	83.0
FSG 406	7.63	5.62	6.62	82.6
FSG 408 DP	7.62	5.39	6.50	83.8
INTEGRITY*	7.62	5.18	6.40	85.4
JADE III	7.57	5.16	6.36	87.8
ESCLADE*	7.54	5.28	6.41	87.2
REGEN*	7.51	4.53	6.02	83.0
ENFORCER*	7.23	4.93	6.08	81.6
EVERLAST	7.18	4.97	6.07	84.7
GENOA	7.17	4.87	6.02	84.2
ONEIDA VR	7.12	5.06	6.09	82.7
CIMARRON VL400*	6.95	5.06	6.01	88.1
GUARDSMAN II*	6.63	4.27	5.45	80.0
VERNAL	6.47	4.53	5.50	81.5
FSG 400 LH	6.19	3.98	5.09	86.4
GRAND MEAN	7.60	5.23	6.42	84.5
CV (%)	8.03	13.79	9.80	3.8
LSD (p = 0.05)	0.85	1.01	0.88	4.4

CV = coefficient of variation
LSD = least significant difference

- Seeded April 20, 2004.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings each year.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 40 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

*Variety tested with experimental seed that may or may not give performance similar to commercially available seed.

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

Table 5. 2005 alfalfa variety trial—Rock Springs.

Variety	2006 Yield	Stand 9/20/06
GENOA	6.62	94.7
AMERSTAND		
407TQ*	6.59	93.9
6415	6.48	94.8
DOUBLE EAGLE	6.45	93.9
4A421	6.44	94.5
MILESTONE*	6.35	93.1
54V46	6.22	93.5
L 447HD	6.18	92.9
PERFORM*	6.18	93.1
PROLIFIC	6.01	95.2
INTEGRITY	5.91	94.4
HYBRI+ 421	5.88	94.5
53Q30	5.87	95.0
361 HY	5.55	94.0
A-4440*	5.35	95.5
VERNAL	5.33	94.4
ONEIDA VR	5.22	94.3
GRAND MEAN	5.92	94.6
CV (%)	6.44	1.4
LSD (p = 0.05)	0.54	1.8

CV = coefficient of variation
LSD = least significant difference

- Seeded April 14, 2005.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 32 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

*Variety tested with experimental seed that may or may not give performance similar to commercially available seed.

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

Table 6. 2002 alfalfa variety trial—Landisville.

Variety	2006 Yield	2005 Yield	2004 Yield	2003 Yield	2003–06 Average	Stand 10/11/06
HYTEST 410	6.75	6.09	7.97	6.19	6.75	53.7
GENOA*	6.57	6.05	7.50	5.77	6.47	45.8
4A421	6.56	5.97	7.61	6.01	6.54	48.3
54V46*	6.13	5.88	7.31	5.44	6.19	47.8
TRIBUTE	6.03	5.75	7.12	5.46	6.09	55.2
WL 319 HQ	5.97	5.51	7.40	5.53	6.10	47.4
HYBRIFORCE-400	5.93	5.27	6.87	5.88	5.99	58.8
MULTIPLIER 3	5.73	5.18	6.87	5.22	5.75	48.3
BARALFA 53 HR	5.71	5.19	6.71	5.02	5.66	38.1
PARAMOUNT II	5.43	5.16	6.57	5.35	5.63	46.5
DYNAMIC	5.28	4.48	6.64	4.76	5.29	45.9
REGEN*	5.24	4.77	6.87	5.48	5.59	51.4
CIMARRON SR	5.22	4.72	6.63	5.24	5.45	57.4
ONEIDA VR	5.12	4.58	6.35	5.35	5.35	50.6
PERFECT	4.99	4.72	6.29	5.05	5.27	53.4
VERNAL	4.31	3.62	5.36	4.79	4.52	45.1
GRAND MEAN	5.67	5.07	6.87	5.51	5.78	49.8
CV (%)	7.94	7.53	5.76	8.07	6.28	13.2
LSD (p = 0.05)	0.63	0.54	0.56	0.62	0.51	9.2

CV = coefficient of variation

LSD = least significant difference

- Seeded April 19, 2002.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings in 2005 and five cuttings each year in 2003 ,2004, and 2006.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 36 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

*Variety tested with experimental seed that may or may not give performance similar to commercially available seed.

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

Table 7. 2003 alfalfa variety trial—Landisville.

Variety	2006 Yield	2005 Yield	2004 Yield	2004–06 Average	Stand 10/11/06
DKA33-16	6.73	6.16	6.61	6.50	73.7
DKA50-18	6.71	6.59	7.08	6.80	72.7
6415	6.55	5.83	6.59	6.33	69.8
54V46	6.52	5.62	6.36	6.16	76.2
EXPEDITION	6.50	5.80	6.48	6.26	71.5
L-311	6.50	6.03	6.81	6.44	78.5
TRIBUTE	6.32	5.49	6.70	6.17	73.4
HYBRIFORCE-420/WET	6.21	5.23	6.54	6.00	78.3
WL 357 HQ	6.20	5.59	6.41	6.07	73.1
PARAMOUNT II	6.16	5.64	6.64	6.15	72.6
54Q25	6.06	5.15	6.03	5.75	74.2
POWER 4.2	6.03	5.33	6.12	5.83	75.0
REGAL	5.97	5.22	6.32	5.84	74.2
6400 HT	5.73	4.67	6.20	5.53	78.4
WL 348 AP	5.72	5.01	5.87	5.53	74.5
VERNAL	5.19	3.66	4.94	4.59	72.5
ONEIDA VR	4.86	3.84	5.16	4.62	72.3
GRAND MEAN	6.13	5.33	6.33	5.93	75.1
CV (%)	6.03	7.36	5.13	5.05	4.1
LSD (p = 0.05)	0.52	0.55	0.46	0.42	4.4

CV = coefficient of variation

LSD = least significant difference

- Seeded April 23, 2003.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings in 2005 and five cuttings each year in 2004 and 2006.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 28 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

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

Table 8. 2004 alfalfa variety trial—Landisville.

Variety	2006 Yield	2005 Yield	2005–06 Average	Stand 10/11/06
6415	7.73	7.15	7.44	80.1
54V46	7.71	7.17	7.44	78.6
FSG 505	7.62	6.87	7.24	79.5
LEGENDAIRY 5.0	7.59	6.80	7.19	79.2
GENOA	7.57	6.97	7.27	76.9
54Q25	7.50	6.75	7.13	78.3
MARVEL*	7.50	7.01	7.25	77.7
FSG 351	7.48	6.95	7.22	80.8
REBOUND 5.0	7.48	6.92	7.20	78.3
HYBRIFORCE-420/WET	7.39	6.53	6.97	80.8
4A421	7.36	6.74	7.05	79.8
DKA42-15	7.33	6.81	7.07	77.2
ESCLADE*	7.12	7.05	7.09	81.8
ASCEND	6.94	6.18	6.56	78.7
L-411HD	6.92	6.72	6.81	78.6
REGEN* (NY0131)	6.88	6.42	6.65	77.8
EVERLAST	6.77	6.42	6.60	77.2
NOVA	6.77	6.26	6.51	73.0
JADE III	6.72	5.92	6.32	77.8
6420	6.70	5.98	6.34	79.5
WL 335 HQ	6.68	6.36	6.52	77.4
FSG 406	6.62	6.38	6.49	78.8
FSG 408 DP	6.62	6.25	6.43	80.6
CIMARRON VL400*	6.56	6.06	6.31	76.6
INTEGRITY*	6.41	5.88	6.14	82.7
ONEIDA VR	6.34	6.24	6.29	77.3
FSG 400 LH	6.23	5.90	6.07	73.0
GUARDSMAN II*	6.03	6.16	6.09	82.5
VERNAL	5.80	5.30	5.55	76.3
ENFORCER*	5.66	5.49	5.57	70.8
GRAND MEAN	6.96	6.45	6.71	78.3
CV (%)	6.17	5.75	5.61	5.0
LSD (p = 0.05)	0.60	0.52	0.53	5.5

CV = coefficient of variation
LSD = least significant difference

- Seeded April 21, 2004.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings in 2005 and five cuttings in 2006.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 28 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

*Variety tested with experimental seed that may or may not give performance similar to commercially available seed.

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

Table 9. 2005 alfalfa variety trial—Landisville.

Variety	2006 Yield	Stand 10/11/06
GENOA	8.22	94.8
6415	7.96	90.6
HYBRI+ 421	7.93	96.5
4A421	7.88	94.4
4S419*	7.82	92.7
DOUBLE EAGLE	7.80	95.2
54V46	7.79	94.5
L 447HD	7.67	93.6
PROLIFIC	7.57	95.2
53Q30	7.47	92.7
MILESTONE*	7.45	92.7
INTEGRITY	7.43	95.6
361 HY	7.30	94.7
ONEIDA VR	7.29	92.4
VERNAL	6.36	91.9
GRAND MEAN	7.54	93.6
CV (%)	5.09	2.9
LSD (p = 0.05)	0.54	NS

CV = coefficient of variation
LSD = least significant difference
NS = not significant at alpha = 0.05

- Seeded April 13, 2005.
- Yields (tons per acre DM Basis).
- Yields in Table 9 represent the sum of five cuttings.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Grand Mean, CV, and LSD values represent 32 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis.
- Varieties are listed by rank for 2006 yield.

*Variety tested with experimental seed that may or may not give performance similar to commercially available seed.

COOL-SEASON GRASSES

Many farmers in Pennsylvania could benefit from including some cool-season grasses as an integral part of their forage program. The following tables summarize the yield potential of many perennial grass varieties in our research trials at Penn State's Russell E. Larson Research Center at Rock Springs.

Our soil fertility program is 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 the last one.

The first cutting in the perennial cool-season forage grass trials is made when an individual variety reaches mid- to late boot. Subsequent harvests are then made at intervals of 35 to 40 days, with the exception of the final harvest, when all plots are harvested on the same day. All plots are harvested four times throughout the growing season, weather permitting, except in the establishment year.

Although production for each cutting 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 10 lists cool-season grass varieties in our testing program that are currently marketed in Pennsylvania. Table 11 offers guidelines for assessing the production potential of various cool-season grass varieties once the species has been chosen.

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

Table 10. Cool-season grass varieties marketed in Pennsylvania and listed in this report.

Species/Variety	Ploidy/Species	Marketer ^a	Appears in Table Number
Bromegrass			
Peak	Brome, Smooth	FS Seeds, Seedway	11
Saratoga	Brome, Smooth	Public	11
Tall Fescue			
BAR FA 6FRD		T.A. Seeds	11
BAR FA 98TR 6		King's AgriSeeds	11
Barcarella		Keystone Group Ag Seeds, King's AgriSeeds	11
Enhance		Seedway	11
PST-5NF		Turf-Seed, Inc.	11
Stockman		Hyttest Seeds	11
Orchardgrass			
Athos		King's AgriSeeds	11
BAR DGL 98TR-G		King's AgriSeeds	11
Barexcel		King's AgriSeeds	11
Barlemas		Keystone Group Ag Seeds	11
Bounty		Seedway	11
Century		Chemgro Seeds, Hyttest Seeds	11
Command		Hyttest Seeds	11
Extend		Seedway	11
Haymaster		Seedway	11
LG-31		Doebler's Hybrids	11
Niva		DLF International Seeds	11
Pennlate		Public, P.L. Rohrer, Seedway	11
Persist		King's AgriSeeds	11
Shiloh II		Penn State Seed Co.	11
Takena 2		Smith Seed Services	11
Reed Canarygrass			
Marathon		FS Seeds	11
Ryegrass			
BAR 1M	Diploid Perennial	Keystone Group Ag Seeds, King's AgriSeeds	11
Bargala	Tetraploid Perennial	Keystone Group Ag Seeds, King's AgriSeeds	11
Barsprinter	Diploid Perennial	Keystone Group Ag Seeds, King's AgriSeeds	11
Bestfor Plus	Tetraploid Intermediate	Seedway	11
Remmington	Tetraploid Perennial	Keystone Group Ag Seeds, King's AgriSeeds	11
Sierra	Diploid Perennial	Lewis Seed	11
Tetrelite II	Tetraploid Hybrid	DLF International Seeds	11

(Table 10 continued)

Species/Variety	Ploidy/Species	Marketer ^a	Appears in Table Number
Timothy			
Barfleo		Keystone Group Ag Seeds, King's AgriSeeds	11
Barliza		Keystone Group Ag Seeds, King's AgriSeeds	11
Climax		Public, P.L. Rohrer, Seedway	11
Derby		Allied Seed	11
Express		Hyttest Seeds	11
Summit		Seedway	11

^aForage Grass Marketers listed in this report—location and phone number.

AgriCulver, Inc.

Trumansburg, NY 14866
Phone: 800-836-3701

Allied Seed, LLC

Lebanon, PA 17042
Phone: 888-305-0500

Chemgro Seeds

E. Petersburg, PA 17520
Phone: 800-346-4769

Doebler's Hybrids

Jersey Shore, PA 17740
Phone: 570-753-3210
Web: www.doebler.com

DLF International Seeds

Halsey, OR 97348
Phone: 800-445-2251
Web: www.intlseed.com

FS Seeds

York, PA 17402
Phone: 800-338-4769

Hyttest Seeds

Dover, PA 17402
Phone: 717-870-0351

Keystone Group Ag Seeds

New Columbia, PA 17856
Phone: 570-538-1170

King's AgriSeeds

Ronks, PA 17572
Phone: 866-687-6224

Lewis Seed

Shedd, OR 97377
Phone: 541-466-3704

P.L. Rohrer & Bro., Inc.

Smoketown, PA 17576
Phone: 717-299-2571

Penn State Seed Co.

Dallas, PA 18612
Phone: 570-675-8585

Seedway

Mifflinburg, PA 17844
Phone: 800-338-2137
Web: seedway.com

Smith Seed Services

Halsey, OR 97348
Phone: 541-369-2831

T.A. Seeds

Avis, PA 17721
Phone: 570-753-5503
Web: www.taseeds.com

Turf-Seed, Inc.

Hubbard, OR 97032
Phone: 503-651-2130
Web: www.turf-seed.com

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Table 11. 2004 cool-season grass variety trial—Rock Springs.

Species/Variety	Ploidy/Species	2006 Yield	2005 Yield	2005–06 Average	Date of 1st cutting ^a	Stand 10/6/06
Bromegrass						
Peak	Brome, Smooth	4.38	2.88	3.63	5/17	68.9
Saratoga	Brome, Smooth	*	*			
Fescue						
Stockman	Fescue, Tall	6.42	4.88	5.66	5/17	89.5
PST-5NF	Fescue, Tall	6.05	4.28	5.17	5/17	89.6
BAR FA 6FRD	Fescue, Tall	5.97	4.48	5.23	5/17	90.5
Enhance	Fescue, Tall	5.93	4.91	5.43	5/22	90.0
Barcarella	Fescue, Tall	5.50	4.12	4.82	5/22	85.9
BAR FA 9BTR 6	Fescue, Tall	5.48	4.32	4.91	5/22	92.5
Orchardgrass						
Pennlate		6.41	4.65	5.52	5/12	88.3
Takena 2		6.26	5.03	5.64	5/17	90.1
Extend		6.06	5.46	5.75	5/17	81.3
Persist		6.05	4.64	5.34	5/12	88.4
Bounty		5.99	4.79	5.38	5/12	90.3
Shiloh II		5.84	3.95	4.89	5/12	86.2
Niva		5.59	4.77	5.17	5/17	86.9

(Table 11 continued)

Species/Variety	Ploidy/Species	2006 Yield	2005 Yield	2005–06 Average	Date of 1st cutting ^a	Stand 10/6/06
Haymaster		5.54	5.21	5.38	5/17	87.4
Century		5.50	4.73	5.10	5/12	89.2
Command		5.16	4.45	4.80	5/17	82.3
LG-31		5.08	4.46	4.76	5/22	85.8
Athos		5.03	4.62	4.82	5/22	87.1
Barexcel		5.01	4.29	4.65	5/12	85.4
BAR Dgl 9BTR-G		4.93	3.86	4.39	5/12	84.9
Barlemas		4.47	3.83	4.15	5/26	87.0
Reed Canarygrass						
Marathon		4.55	3.36	3.96	5/30	94.0
Ryegrass						
Sierra	Diploid/Perennial	4.31	3.36	3.83	5/17	97.5
Tetrelite II	Tetraploid/Hybrid	4.03	4.38	4.20	5/30	83.6
Remington	Tetraploid/Perennial	3.84	3.21	3.52	6/7	92.0
Barsprinter	Diploid/Perennial	3.58	3.27	3.42	5/30	99.1
Bargala	Tetraploid/Perennial	3.54	2.75	3.15	5/30	89.1
BAR 1M	Diploid/Perennial	3.42	3.43	3.42	5/22	96.2
Bestfor Plus	Tetraploid/Intermediate	*	3.64			4.0
Timothy						
Barfleo		5.45	3.81	4.63	6/7	86.9
Derby		4.56	4.21	4.39	5/22	87.7
Climax		4.46	3.64	4.05	6/7	87.3
Barliza		4.38	4.03	4.21	5/30	88.8
Summit		4.28	4.66	4.48	5/26	83.6
Express		4.24	3.81	4.03	5/30	81.2
GRAND MEAN		4.71	3.97	4.34		85.3
CV %		8.25	9.54	6.96		4.9
LSD (p = 0.05)		0.54	0.53	0.42		5.9

^aRefers to the date when the first cutting was made in 2006. First cutting was made at late boot to early heading.

CV = coefficient of variation
LSD = least significant difference

- Seeded April 20, 2004.
- Yields (tons per acre DM Basis).
- Yields indicated represent the sum of four cuttings each year.
- Grand Mean, CV, and LSD values represent 48 total entries.
- Variety means are adjusted means derived from nearest neighbors analysis. Therefore, multiple-year averages may not be the arithmetic mean of the years involved.
- Stand score based on a scale from 1 to 100. A 100 is considered to be a perfect stand.
- Varieties are listed by rank within species for 2006 yield.

*No data taken in indicated year due to stand thinning and/or encroachment by other grasses.

FORAGE GRAZING TRIAL

Forage variety evaluation under grazing is done at the Haller Farm near State College, Pa. This year's report contains the results from a trial seeded in August 2003. Grazing began the spring after seeding. All entries from each forage species were blocked together so that each species block could be grazed independently of other species, thus eliminating animal grazing preference between forage species. Fertility was maintained at optimum based on soil test recommendations. Nitrogen as urea was applied at 75 lb/acre at green-up in the spring, in June, and again in September.

Grazing was initiated when the average height of a species block reached 10 inches. Cow-calf pairs of mixed breeds were used to graze. Samples were collected pre- and postgrazing at a 3-inch height to determine dry matter yield and provide an estimate of rejection for each entry. After grazing, solid manure was removed from all plots and the area was clipped (when needed) to a uniform 3-inch height using a disk mower. Herbicides were applied as needed to control invading weed species.

Figure 9a. 2004 Precipitation at Haller Farm.

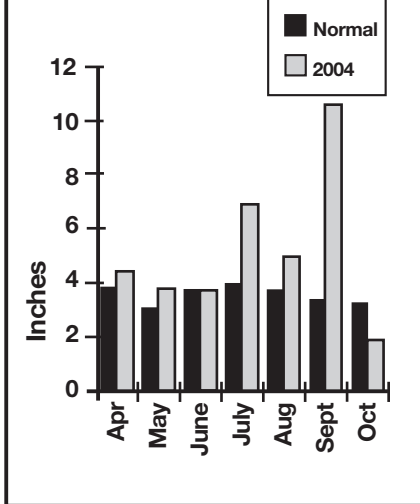


Figure 9b. 2005 Precipitation at Haller Farm.

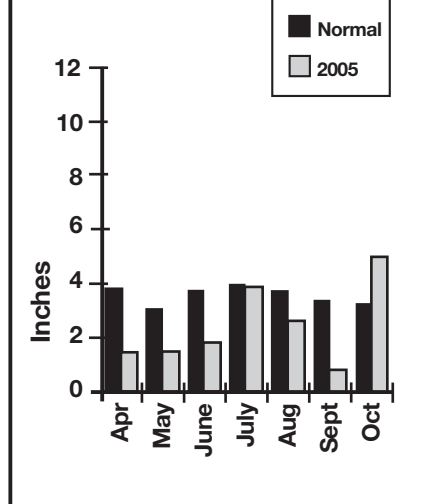
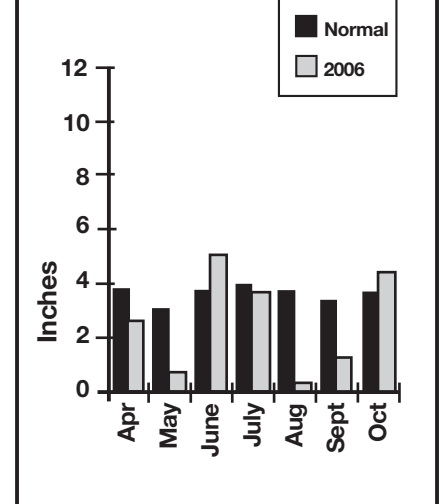


Figure 9c. 2006 Precipitation at Haller Farm.



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

Table 12. Varieties, endophyte level, ploidy level, and marketers of forage species evaluated under grazing.

Species/Variety	Endophyte/Ploidy	Marketer^a
Bromegrass		
AC Knowles	Hybrid Brome	DLF Int. Seeds
Matua	Prairie Brome	Check
Orchardgrass		
BAR DGL 9BTR-G		King's Agriseeds
Barexcel		King's Agriseeds
Bounty		Seedway
Command		Seed Res. of OR
Endurance		DLF Int. Seeds
Haymaster		Allied Seed
LG-31		Doebler's
Pennlate		Public, P.L. Rohrer, Seedway
Ryegrass		
Aries	Diploid/Perennial	Ampac Seed
Aires AR1	Tetraploid/Perennial	Ampac Seed
Baremon	Diploid/Perennial	Barenbrug USA
Bestfor Plus	Tetraploid/Intermediate	Seedway
Lofa	Festulolium	King's Agriseeds
Quartet	Tetraploid/Perennial	P.L. Rohrer, Ampac Seed
Quartet AR1	Tetraploid/Perennial	Ampac Seed
Remington	Diploid/Perennial	King's Agriseeds
Tivoli	Tetraploid/Perennial	King's Agriseeds
Tonga	Tetraploid/Perennial	P.L. Rohrer, Preferred Seed
Tall Fescue/Festulolium		
BAR FA 6FRD	Noninfected	T.A. Seeds
Barcel	Noninfected	Barenbrug USA
Bronson	Noninfected	P.L. Rohrer
Enhance	Noninfected	Seedway
Kora	Noninfected	King's Agriseeds, Keystone Group Seeds
Quantum	Nontoxic	Ampac Seed
Quantum AR542	Noninfected	Ampac Seed
Vulcan	Noninfected	Ampac Seed
Timothy		
Barmidi		Barenbrug USA
Climax		Public, P.L. Rohrer, Seedway
Derby		Allied Seed
Alfalfa		
6400 HT		P.L. Rohrer
Alfagraze		P.L. Rohrer
Red Clover		
Cinnamon Plus		Allied Seed
White Clover		
Alice		King's Agriseeds
Barblanca		T.A. Seeds

(Table 12 continued)

Marketers listed in this report—location and phone number.

Allied Seed

Lebanon, PA 17042
Phone: 800-813-5025

Ampac Seed Company

State College, PA 16803
Phone: 814-234-7930

Barenbrug USA

Tangent, OR 97389
Phone: 800-547-4101

DLF-International Seeds

Albany, OR 97348
Phone: 541-369-2251

Doebler's Hybrids

Jersey Shore, PA 17740
Phone: 570-753-3210

Keystone Group Ag Seeds

New Columbia, PA 17856
Phone: 570-538-1170

King's AgriSeeds

Ronks, PA 17572
Phone: 717-687-6224

Preferred Seed

Buffalo, NY 14227
Phone: 716-895-7333

P.L. Rohrer & Bro., Inc.

Smoketown, PA 17576
Phone: 717-299-2571

Seed Research of Oregon

Corvallis, OR 97333
Phone: 800-253-5766

Seedway

Mifflinburg, PA 17844
Phone: 800-338-2137
Web: seedway.com

T.A. Seeds

Avis, PA 17721
Phone: 570-753-5503

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Table 13. 2003 grazing variety trial—Haller Farm, State College, Pa.

Species/Variety	% Stand 4/17/2006	Ht. (inches) 4/17/2006	Graze dates in 2006	Forage Consumed (lbs/acre)					% Stand 10/6/2006	
				2006 Spring	2006 Summer	2006 Fall	2006 Total	2005 Total		2004 Total
				No data due to plant death during winter of 2004–05.						
Bromegrass										
AC Knowles								ND	5,076	ND
Matua								ND	ND	ND
GRAND MEAN								ND	ND	ND
CV (%)								ND	ND	ND
LSD (p = 0.05)								ND	ND	ND
Orchardgrass										
BAR DGL 9BTR-G	89	4.5	5/1, 5/23	3,331	871	658	4,860	3,123	7,965	81
Barexcel	84	4.3	6/13, 7/6	3,414	1,393	1,002	5,809	3,991	8,783	80
Bounty	91	5.0	7/25, 8/30	3,376	1,218	1,090	5,684	4,195	9,124	79
Command	85	3.8	9/25, 10/25	2,951	1,042	555	4,547	3,227	8,635	76
Endurance	90	4.8		3,133	1,307	1,134	5,574	3,805	8,174	86
Haymaster	88	3.5		3,221	1,261	912	5,393	3,552	7,937	79
LG-31	84	2.8		2,840	1,185	1,228	5,254	3,315	7,117	84
Pennlate	93	5.8		3,497	1,191	1,188	5,875	3,780	8,381	79
GRAND MEAN	88	4.3		3,201	1,168	961	5,330	3,522	8,246	81
CV (%)	5	13		12	20	20	13	20	8	8
LSD (p = 0.05)	6	0.8		NS	NS	NS	NS	NS	961	NS
Ryegrass/Festulolium										
Aries	73	3.8	5/3, 5/23	2,580	894	1,173	4,647	2,748	8,543	85
Aries AR1	69	3.8	6/19, 7/17	2,556	1,092	1,179	4,827	2,770	7,854	88
Baremon	84	3.8	9/12, 10/10	2,545	1,406	1,313	5,263	3,247	9,606	94
Bestfor Plus	10	1.0		ND	ND	ND	ND	ND	ND	13
Lofa	69	4.5		2,353	1,650	1,133	5,135	3,708	11,425	79
Quartet	10	1.0		ND	ND	ND	ND	ND	ND	11
Quartet AR1	10	1.0		ND	ND	ND	ND	ND	ND	16
Remington	96	3.3		2,388	1,603	1,441	5,431	2,340	10,134	91
Tivoli	84	3.8		2,388	1,429	1,342	5,158	1,880	9,540	93
Tonga	68	3.4		2,428	778	958	4,165	2,331	9,183	78

(Table 13 continued)

Species/Variety	% Stand 4/17/2006	Ht. (inches) 4/17/2006	Grazed dates in 2006	Forage Consumed (lbs/acre)						% Stand 10/6/2006
				2006 Spring	2006 Summer	2006 Fall	2006 Total	2005 Total	2004 Total	
GRAND MEAN	62	3.3		2,436	1,289	1,211	4,936	2,690	9,362	71
CV (%)	10	20		14	40	20	19	24	9	10
LSD (p = 0.05)	9	1.0		NS	NS	NS	NS	936	1,193	10
Tall Fescue										
BAR FA 6FRD	86	3.8	5/1, 5/23	3,235	2,037	1,777	7,049	4,353	7,828	91
Barcel	68	3.0	6/19, 7/12	2,422	1,590	1,201	5,213	2,785	5,066	81
Bronson	73	3.5	8/15, 9/17	3,111	2,037	1,964	7,111	3,480	8,061	91
Enhance	79	3.8	10/25	2,559	2,186	1,591	6,336	3,470	7,750	90
Kora	78	4.5		3,185	2,092	1,684	6,962	4,637	9,059	84
Quantum	71	4.8		2,968	1,658	1,275	5,902	4,003	6,676	83
Quantum AR542	74	4.8		2,596	1,485	1,263	5,343	4,046	6,843	85
Vulcan	70	3.0		2,168	1,282	1,362	4,812	2,189	5,602	83
GRAND MEAN	74	3.8		2,699	1,736	1,428	5,862	3,421	7,000	85
CV (%)	12	15		17	22	19	14	23	9	7
LSD (p = 0.05)	13	NS		651	548	386	1,171	1,131	946	9
Timothy										
Barmidi	73	3.5	5/4, 5/23	1,904	989	337	3,231	1,409	4,230	79
Climax	56	3.3	6/19, 7/25	2,522	1,809	444	4,775	2,581	5,556	59
Derby	74	4.8	9/20	2,955	1,977	444	5,376	3,857	6,794	68
GRAND MEAN	70	3.8		2,411	1,496	410	4,317	2,478	5,529	70
CV (%)	14	17		13	31	45	16	16	8	13
LSD (p = 0.05)	NS	NS		491	705	NS	1,035	592	680	NS
Alfalfa										
6400 HT	88	4.5	5/4, 6/6	3,390	3,166	1,237	7,793	2,964	7,463	85
Alfagraze	80	4.3	7/6, 8/2, 9/25	3,230	2,281	1,130	6,642	2,623	5,085	73
GRAND MEAN	84	4.4		3,310	2,724	1,183	7,217	2,793	6,274	79
CV (%)	2	15		13	19	9	4	13	11	3
LSD (p = 0.05)	5	NS		NS	NS	NS	599	NS	1,612	5
Red Clover										
Cinnamon Plus	46	3.5	5/4, 6/6, 7/6, 8/2, 9/25	1,770	1,716	64	3,550	4,104	9,915	20
GRAND MEAN										
CV (%)										
LSD (p = 0.05)										
White Clover										
Alice	71	1.8	5/4, 6/6	981	490	117	1,589	970	4,915	81
Barblanca	79	1.9	7/6, 8/2, 9/25	1,045	437	384	1,866	800	3,678	76
GRAND MEAN	75	1.8		1,013	464	251	1,727	885	4,296	79
CV (%)	6	10		21	38	67	29	55	8	13
LSD (p = 0.05)	NS	NS		NS	NS	NS	NS	NS	816	NS

- Seeded August 20, 2003.
- Endophyte (NI = non-infected; NT = infected with nontoxic endophyte)
- Forage consumed (pounds per acre DM basis). Spring (all grazings before June 15), summer (all grazings between June 16 and August 31), fall (all grazings after September 1). Amount of forage consumed by grazing animals was equivalent to forage available because high stocking density did not allow animal preference.
- Varieties within a species are listed alphabetically.

PENNSTATE



College of Agricultural Sciences Agricultural Research and Cooperative Extension

Prepared by Richard F. Todd, senior research aide; W. Scott Harkcom, farm manager; Atila Deak, graduate student; and Marvin H. Hall, professor of forage management.

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