

The Virginia Alfalfa Variety Report: A Five-year Summary (1999 - 2003)

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Alfalfa is capable of producing high yields of high quality forage for hay, haylage, and pasture. However, this performance potential can only be realized when site selection and management are appropriate. Alfalfa requires deep, well-drained soils with a pH >6.5 and high levels of phosphorus (P) and potassium (K) in order to persist and yield to its potential. Defoliation and pest management are also key to alfalfa performance.

There are several hundred alfalfa varieties on the market, and many do well in Virginia. This report is a summary of alfalfa variety trials performed at Virginia Tech Agricultural Research and Extension Centers (ARECs) from 1999 through 2003. It includes a trial seeded at the Southern Piedmont AREC (SPAREC) at Blackstone in June 2000 and harvested for 3-1/2 years (2000-2003), (Tables 7-10). It also includes a trial established at the Northern Piedmont AREC (NPAREC) at Orange in September 1998 and harvested for five years (1999-2003; Tables 2-6). Another trial was seeded at the Kentland Farm at Whitethorne in September 1999, (Table 11), but yields only are only included for 2000. Severe deer damage followed by stand winterkill resulted in this trial being discontinued. The trials are conducted at multiple locations within the state in order to provide a range of environments. The tables that follow include summary data of individual harvests within years and total season yields across years.

Varieties were submitted by or specifically requested of cooperating seed companies. Entries were planted in four replications of a randomized complete block design at each location. Individual plot size averaged 5' X 15'. All data are reported on a 100 percent dry matter basis; actual hay yields would be 10 percent to 15 percent higher. The variety trials are managed at high fertility levels. Phosphorus and potassium were maintained at high levels, pH was maintained between 6.5 and 7.0, and boron was applied as required. Weeds and insects were controlled with appropriate pesticides.

All entries in a trial at a location were harvested on the same dates, but harvest dates varied among locations and years. The goal was to harvest five times per year beginning around May 1 and at the early bloom stage thereafter. At each harvest, plots were cut to a 3" residual height with either a sickle or flail harvester.

Statistical analyses were performed for individual harvests within years and for total season yields across years. These analyses determine whether numerical differences were just random effects or indeed a "true" difference in performance among varieties. The term "LSD (0.05)" appears at the bottom of each table with an accompanying value under each column of data. An LSD (0.05) is the amount by which two varieties' yields in the same column must differ in order to be considered statistically, or meaningfully, different. If "NS" appears instead of a value, it means the averages within the column are not statistically, or meaningfully, different.

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Alfalfa is relatively drought and heat tolerant. Nevertheless, precipitation has a profound effect on forage yield and persistence. Monthly average precipitation data are compared to long-term averages for each location during which the trials were conducted (Figure 1).

At Orange, the 1999 growing season was very dry throughout, except for above average rainfall during September. Rainfall was below average during each of 2000, 2001, and 2002 with exceptions during certain months and normal to above normal conditions October through December 2002. Rainfall was above average in 2003 (Figure 1).

At Blackstone, rainfall during the 2000 growing season was close to average with April above and October below. Rainfall was below average in 2001, with the exceptions of March and June. Severe drought continued throughout much of 2002 with normal to above normal conditions returning in the fall. Rainfall was above average in 2003 with frequent heavy rains and waterlogged soils in June and early July. Severe stand losses occurred during this period, likely due to root and crown diseases under these high-moisture conditions.

When using this publication to select an alfalfa variety, it is important to 1) prioritize the relative importance of yield, persistence, and quality for the intended use of the forage and 2) understand the context within which these trials were conducted. Forage quality and palatability were

not determined in our trials. These data reflect the yield and persistence of varieties under optimum management. Varieties that persisted well over several years in these trials may not necessarily persist well under grazing, poor fertility, or a broad range of soil types. Disease resistance is related to persistence. All diseases listed in Table 1 occur in Virginia. Varieties with high resistance to all five diseases would be expected to have the broadest range of adaptation. However, for some forage growers, persistence may not be as important as short-term yield, quality, and palatability.

Consult your local Extension agent for more information about forage varieties and management. Go to the North American Alfalfa Improvement Conference website (www.naaic.org) for links to other alfalfa variety testing programs across the United States. Pennsylvania and Kentucky are the two states in proximity to Virginia that have extensive variety testing programs.

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Table 1. Virginia Alfalfa Forage Variety Trials - Virginia Tech

Variety	Company	Disease Resistance				Blackstone				Orange					Wt
		Bw	Vw	PRR	Fw	00	01	02	03	99	00	01	02	03	
53H81	Pioneer Hi-Bred Int.	HR	HR	R	HR	X	X	X	X						X
53Q60	Pioneer Hi-Bred Int.	HR	R	HR	R	X	X	X	X	X	X	X	X	X	X
5454	Pioneer Hi-Bred Int.	R	MR	HR	HR					X	X	X	X	X	
54H69	Pioneer Hi-Bred Int.	R	R	HR	HR					X	X	X	X	X	
54V54	Pioneer Hi-Bred Int.	HR	HR	HR	HR	X	X	X	X						X
Abilene + Z	ABI Alfalfa	HR	HR	HR	HR										X
ABT 350	AgriBioTech, Inc	HR	HR	HR	HR					X	X	X	X	X	X
ABT 400 SCL	AgriBioTech, Inc	HR	HR	HR	HR					X	X	X	X	X	X
Affinity + Z	ABI Alfalfa	HR	HR	HR	HR					X	X	X	X	X	X
Alfagraze	America's Alfalfa	R	-	LR	R	X	X	X	X						X
Amerigraze 401 + Z	ABI Alfalfa	HR	HR	HR	HR	X	X	X	X	X	X	X	X	X	X
Choice	FFR Cooperative	HR	HR	HR	R	X	X	X	X	X	X	X	X	X	X
Cimarron 3i	Great Plains Research	HR	R	R	HR					X	X	X	X	X	
Cimarron SR	Great Plains Research	HR	HR	HR	HR					X	X	X	X	X	
Clean Sweep 1000	FFR Cooperative	HR	R	HR	HR					X	X	X	X	X	
Dagger + EV	Agripro Seeds	HR	HR	HR	HR					X	X	X	X	X	X
DK133	Monsanto	HR	R	HR	HR					X	X	X	X	X	X
DK140	Monsanto	HR	R	HR	HR					X	X	X	X	X	X
DK141	Monsanto	HR	HR	HR	HR					X	X	X	X	X	X
Feast + EV	Agripro Seeds	HR	HR	HR	HR					X	X	X	X	X	X
Haygrazer	Great Plains Research	HR	R	R	HR	X	X	X	X						X
Interceptor	Agripro Seeds	HR	R	HR	HR					X	X	X	X	X	
Pawnee	Midwest Seed Genetics	HR	HR	HR	HR					X	X	X	X	X	X
Persist	Doebler's PA Hybrids	HR	R	HR	HR	X	X	X	X	X	X	X	X	X	X
Precedent	Doebler's PA Hybrids	HR	R	HR	R										
Prolific	Doebler's PA Hybrids	HR	R	HR	HR	X	X	X	X						
Seedway 512	Seedway	HR	R	HR	HR	X	X	X	X						X
Spur	Seedway	HR	R	HR	HR					X	X	X	X	X	X
Stellar	ChemGro Seeds	HR	HR	HR	HR					X	X	X	X	X	
Trialfalon	ChemGro Seeds	HR	R	HR	HR	X	X	X	X						X
Triple Crown	FFR Cooperative	HR	R	HR	HR	X	X	X	X	X	X	X	X	X	X
WL 323	W-L Research	HR	R	HR	HR					X	X	X	X	X	
WL 324	W-L Research	HR	R	HR	HR					X	X	X	X	X	
WL 325 HQ	W-L Research	HR	R	HR	HR					X	X	X	X	X	X
WL 326 GZ	W-L Research	HR	HR	HR	HR					X	X	X	X	X	
WL 327	W-L Research	HR	R	HR	HR										X

*Wt = Whitethorne

Bw = Bacterial wilt, Vw = Verticillium wilt, Fw = Fusarium wilt, An Anthracnose, and PRR = Phytophthora root rot.

Disease Resistance Ratings:

<u>% Resistant Plants</u>	<u>Resistance class</u>
0-5%	Susceptible (S)
6-14%	Low Resistance (LR)
15-30%	Moderate Resistance (MR)
31-50%	Resistance (R)
>50%	High Resistance (HR)

Table 2. 1999 Alfalfa Variety Yields - Northern Piedmont AREC, Orange, Va., Sept. 1998 Seeding

Variety	Company	2-Jun	1-Nov	Total
	DM Yield (ton/acre)			
Dagger + EV	AgriPro	0.30	0.67	0.97
Spur	Seedway	0.26	0.71	0.96
Persist	Doebler's	0.22	0.74	0.95
Cimarron 3-i	Great Plains	0.24	0.67	0.90
Pioneer 5454	Pioneer	0.31	0.59	0.90
Dekalb 133	Monsanto	0.24	0.65	0.89
Triple Crown	FFR	0.25	0.63	0.88
WL 324	W-L	0.21	0.66	0.88
Cimarron - SR	Great Plains	0.28	0.59	0.87
ABT 400SCL	ABT	0.28	0.58	0.87
AmeriGraze 401 + Z	ABI	0.19	0.66	0.85
Pawnee	ABI	0.17	0.66	0.83
ABT 350	ABT	0.20	0.63	0.82
Feast + EV	AgriPro	0.21	0.61	0.82
Stellar	ChemGro	0.28	0.53	0.82
WL 323	W-L	0.21	0.61	0.82
CleanSweep 1000	FFR	0.22	0.57	0.80
Pioneer 53Q60	Pioneer	0.19	0.61	0.79
WL 326GZ	W-L	0.20	0.57	0.77
Dekalb 140	Monsanto	0.18	0.59	0.77
Choice	FFR	0.21	0.52	0.73
Affinity + Z	ABI	0.19	0.54	0.73
Interceptor	AgriPro	0.16	0.54	0.71
Pioneer 54H69	Pioneer	0.14	0.56	0.70
WL 325HQ	W-L	0.15	0.47	0.62
LSD (0.05)		NS	NS	NS

9/23/98 - Planted

9/14/98 - Applied 9 - 54 - 54/acre

9/21/98 - Sprayed 1 qt of Eptam 7E and spike tooth in

3/26/99 - Overseeded Study (Thin stand so drilled 15 lb/acre over each plot late March)

6/11/99 - Applied 100 lb K₂O/acre

Table 3. 2000 Alfalfa Variety Yields - Northern Piedmont AREC, Orange, Va., Sept. 1998 Seeding

Variety	Company	15-May	20-Jun	21-Jul	24-Aug	12-Oct	Total
		<i>DM Yield (tons/acre)</i>					
ABT 400SCL	W-L	2.92	1.60	1.51	1.17	1.09	8.29
AmeriGraze 401 + Z	ABI	2.67	1.71	1.54	1.31	1.01	8.24
Dekalb 141	Monsanto	2.61	1.64	1.56	1.22	1.16	8.19
Cimarron - SR	Great Plains	2.77	1.69	1.47	1.19	1.06	8.18
Interceptor	ABI	2.77	1.70	1.47	1.19	1.00	8.13
Pioneer 53Q60	Pioneer	2.71	1.66	1.52	1.25	0.99	8.13
Pawnee(ZC9650)	ABI	2.52	1.66	1.56	1.31	1.08	8.12
Persist	Doebler's	2.79	1.63	1.49	1.14	0.97	8.02
Dagger + EV	ABI	2.47	1.68	1.54	1.24	1.05	7.97
Cimarron 3i	Great Plains	2.67	1.66	1.40	1.13	1.08	7.94
WL 323	W-L	2.62	1.67	1.44	1.13	1.07	7.93
WL 324	W-L	2.46	1.67	1.50	1.20	1.07	7.90
Dekalb 140	Monsanto	2.52	1.65	1.50	1.12	1.10	7.88
CleanSweep 1000	FFR	2.47	1.65	1.54	1.22	1.00	7.87
Affinity + Z	ABI	2.47	1.58	1.54	1.17	1.00	7.77
Dekalb 133	Monsanto	2.43	1.63	1.42	1.14	1.11	7.73
Triple Crown (A9503)	FFR	2.47	1.64	1.36	1.14	1.07	7.69
Pioneer 5454	Pioneer	2.45	1.55	1.54	1.17	0.97	7.68
Spur	Allied	2.47	1.56	1.42	1.20	0.99	7.64
Choice	FFR	2.58	1.58	1.40	1.03	0.99	7.58
WL 326GZ	W-L	2.35	1.59	1.48	1.14	1.01	7.57
Feast + EV	Agri-pro	2.53	1.60	1.40	1.17	0.87	7.56
WL 325HQ	W-L	2.35	1.54	1.47	1.08	1.05	7.48
Stellar	W-L	2.23	1.59	1.52	1.17	0.89	7.41
ABT 350	W-L	2.29	1.50	1.46	1.07	1.07	7.37
Pioneer 54H69	Pioneer	2.34	1.49	1.30	1.00	0.85	6.96
LSD (0.05)		NS	NS	0.13	NS	0.12	NS

9-23-98 - Planted

3-26-99 - Replanted Study

2-25-00 - Applied 80 lb P₂O₅ + 4 lb B/acre2-25-00 - Applied 240 lb K₂O/acre

3-02-00 - Sprayed 0.5 lb Sinbar/acre

4-05-00 - Sprayed 1 qt of Lorsban 4E/acre to control Alfalfa weevil

5-16-00 - Applied 180 lb K₂O/acre

Table 4. 2001 Alfalfa Variety Yields - Northern Piedmont AREC, Orange, Va., Sept. 1998 Seeding

Variety	Company	09-May	06-Jun	06-Jul	03-Aug	26-Sep	Total
		<i>DM Yield (tonslacre)</i>					
Pawnee (ZC9650)	ABI	1.77	0.99	1.71	0.72	0.89	6.07
Dekalb 140	Monsanto	1.82	1.02	1.61	0.65	0.95	6.05
Stellar	W-L	1.80	1.02	1.70	0.75	0.74	6.01
AmeriGraze 401 + Z	ABI	1.89	0.89	1.59	0.69	0.95	5.99
Interceptor	ABI	1.86	0.93	1.61	0.67	0.86	5.94
WL 325HQ	W-L	1.63	1.08	1.72	0.69	0.82	5.94
ABT 400SCL	W-L	1.84	0.98	1.54	0.65	0.91	5.93
WL 326GZ	W-L	1.73	0.99	1.63	0.66	0.84	5.84
Pioneer 5454	Pioneer	1.76	0.98	1.59	0.64	0.85	5.81
CleanSweep 1000	FFR	1.84	0.86	1.55	0.66	0.88	5.80
Affinity + Z	ABI	1.73	1.01	1.65	0.63	0.75	5.76
Dagger + EV	ABI	1.77	0.92	1.52	0.66	0.89	5.76
Dekalb 141	Monsanto	1.81	0.88	1.45	0.53	1.09	5.76
ABT 350	W-L	1.59	1.01	1.65	0.67	0.81	5.73
Dekalb 133	Monsanto	1.73	0.87	1.44	0.59	1.07	5.70
Persist	Doebler's	1.79	0.86	1.51	0.58	0.94	5.68
Cimarron - SR	Great Plains	1.85	0.81	1.40	0.58	1.00	5.63
Spur	Allied	1.65	0.93	1.54	0.59	0.90	5.61
Pioneer 53Q60	Pioneer	1.83	0.86	1.47	0.60	0.85	5.60
WL 324	W-L	1.75	0.90	1.48	0.62	0.80	5.56
Triple Crown (A9503)	FFR	1.67	0.92	1.43	0.60	0.89	5.51
WL 323	W-L	1.82	0.88	1.38	0.54	0.84	5.45
Choice	FFR	1.68	0.93	1.47	0.53	0.75	5.37
Cimarron 3i	Great Plains	1.75	0.83	1.38	0.54	0.85	5.37
Feast + EV	Agri-pro	1.66	0.83	1.35	0.61	0.85	5.30
Pioneer 54H69	Pioneer	1.39	0.78	1.53	0.58	0.87	5.14
LSD (0.05)		NS	0.12	0.14	NS	NS	NS

9-23-98 - Planted

3-26-99 - Replanted Study

2-28-01 - Applied 100 lbs P₂O₅ + 4 lbs B per acre2-28-01 - Applied 240 lbs K₂O per acre

2-28-01 - Sprayed 0.75 lbs Sinbar per acre

4-10-01 - Sprayed 1 Qt of Lorsban 4E per Acre to control Alfalfa weevil

5-10-01 - Applied 180 lbs K₂O per acre

Table 5: 2002 Alfalfa Variety Yields - Northern Piedmont AREC, Orange, VA, Sept. 1998 Seeding.

Variety	Company	16-May	6-Jun	19-Jul	21-Aug	22-Oct	Total
		<i>DM Yield (tonslacre)</i>					
AmeriGraze 401 + Z	ABI	1.92	1.69	1.06	1.21	0.93	6.80
Dekalb 140	Monsanto	1.89	1.74	1.05	1.17	0.93	6.78
Pawnee (ZC9650)	ABI	1.85	1.70	1.02	1.23	0.96	6.75
WL 325HQ	W-L	2.08	1.65	0.93	1.10	0.95	6.71
ABT 400SCL	W-L	1.95	1.61	0.97	1.12	0.92	6.57
Dekalb 133	Monsanto	1.87	1.63	0.93	1.11	1.00	6.54
Cimarron - SR	Great Plains	1.79	1.64	0.96	1.20	0.94	6.53
Dagger + EV	ABI	1.75	1.64	1.00	1.17	0.90	6.47
Stellar	W-L	1.75	1.69	1.04	1.19	0.72	6.40
WL 326GZ	W-L	1.94	1.58	0.91	1.06	0.89	6.37
ABT 350	W-L	1.95	1.46	0.91	1.07	0.98	6.37
Persist	Doebler's	1.76	1.49	0.99	1.19	0.89	6.33
Triple Crown (A9503)	FFR	1.96	1.56	0.88	0.97	0.93	6.30
Spur	Allied	1.81	1.51	0.95	1.10	0.88	6.24
Dekalb 141	Monsanto	1.86	1.47	0.92	1.08	0.92	6.24
Pioneer 5454	Pioneer	1.84	1.55	0.91	1.06	0.87	6.23
Pioneer 53Q60	Pioneer	1.65	1.64	0.98	1.10	0.86	6.23
Interceptor	ABI	1.78	1.62	0.91	1.05	0.85	6.21
WL 324	W-L	1.82	1.46	0.92	1.03	0.91	6.14
CleanSweep 1000	FFR	1.84	1.53	0.86	0.94	0.83	5.99
Choice	FFR	1.81	1.45	0.84	0.99	0.84	5.92
WL 323	W-L	1.79	1.41	0.80	0.94	0.83	5.77
Cimarron 3i	Great Plains	1.76	1.36	0.79	0.97	0.88	5.76
Affinity + Z	ABI	1.81	1.38	0.78	0.93	0.82	5.72
Feast + EV	Agri-pro	1.64	1.38	0.82	0.98	0.78	5.60
Pioneer 54H69	Pioneer	1.62	1.16	0.78	0.88	0.76	5.20
LSD (0.05)		NS	NS	NS	NS	0.12	NS

9-23-98 - Planted

3-26-99 - Replanted Study

2-26-02 - Applied 100 lb P₂O₅ + 3 lb B/acre2-26-02 - Applied 240 lb K₂O/acre

2-27-02 - Sprayed 0.75 lb Sinbar/acre

4-16-02 - Sprayed 1 qt of Lorsban 4E/acre to control Alfalfa weevil

5-17-02 - Applied 180 lb K₂O/acre

Table 6. 2003 Alfalfa Variety Yields - Northern Piedmont AREC, Orange, Va., Sept. 1998 Seeding

Variety	Company	20-May	30-Jun	30-Jul	9-Sep	30-Oct	Total
		<i>DM Yield (tons/acre)</i>					
AmeriGraz 401 + Z	ABI	1.92	1.69	1.06	1.21	0.93	6.80
Dekalb 140	Monsanto	1.89	1.74	1.05	1.17	0.93	6.78
Pawnee (ZC9650)	ABI	1.85	1.70	1.02	1.23	0.96	6.75
WL 325HQ	W-L	2.08	1.65	0.93	1.10	0.95	6.71
ABT 400SCL	W-L	1.95	1.61	0.97	1.12	0.92	6.57
Dekalb 133	Monsanto	1.87	1.63	0.93	1.11	1.00	6.54
Cimarron - SR	Great Plains	1.79	1.64	0.96	1.20	0.94	6.53
Dagger + EV	ABI	1.75	1.64	1.00	1.17	0.90	6.47
Stellar	W-L	1.75	1.69	1.04	1.19	0.72	6.40
WL 326GZ	W-L	1.94	1.58	0.91	1.06	0.89	6.37
ABT 350	W-L	1.95	1.46	0.91	1.07	0.98	6.37
Persist	Doebler's	1.76	1.49	0.99	1.19	0.89	6.33
Triple Crown (A9503)	FFR	1.96	1.56	0.88	0.97	0.93	6.30
Spur	Allied	1.81	1.51	0.95	1.10	0.88	6.24
Dekalb 141	Monsanto	1.86	1.47	0.92	1.08	0.92	6.24
Pioneer 5454	Pioneer	1.84	1.55	0.91	1.06	0.87	6.23
Pioneer 53Q60	Pioneer	1.65	1.64	0.98	1.10	0.86	6.23
Interceptor	ABI	1.78	1.62	0.91	1.05	0.85	6.21
WL 324	W-L	1.82	1.46	0.92	1.03	0.91	6.14
CleanSweep 1000	FFR	1.84	1.53	0.86	0.94	0.83	5.99
Choice	FFR	1.81	1.45	0.84	0.99	0.84	5.92
WL 323	W-L	1.79	1.41	0.80	0.94	0.83	5.77
Cimarron 3-i	Great Plains	1.76	1.36	0.79	0.97	0.88	5.76
Affinity + Z	ABI	1.81	1.38	0.78	0.93	0.82	5.72
Feast + EV	Agri-pro	1.64	1.38	0.82	0.98	0.78	5.60
Pioneer 54H69	Pioneer	1.62	1.16	0.78	0.88	0.76	5.20
LSD (0.05)		NS	0.20	NS	NS	0.09	0.70

9-23-98 - Planted
3-26-99 - Replanted Study
5-17-02 - Applied 180 lb K₂O/acre
3-10-03 - Applied 100 lb P₂O₅, 200 lb K₂O, + 27 lbs B/acre
3-11-03 - Sprayed 0.75 lb Sinbar/acre

4-15-03 - Sprayed 1 oz/acre Baythroid
5-20-03 - Applied 185 lb K₂O/acre
5-30-03 - Sprayed edges with Poast Plus 1%
7-11-03 - Sprayed 1.5 oz/acre Baythroid, 2 pt/acre Poast Plus

Table 7. Alfalfa Variety Yields - Northern Piedmont AREC, Orange, Va., Sept. 1998 Seeding

Variety	Company	1999	2000	2001	2002	2003	2000-2003 Avg.
		<i>DM Yield (ton/acre)</i>					
Pawnee (ZC9650)	ABI	0.83	8.12	6.07	6.75	7.81	7.19
AmeriGraze 401 + Z	ABI	0.85	8.24	5.99	6.80	7.24	7.07
ABT 400SCL	W-L	0.87	8.29	5.93	6.57	7.45	7.06
Dekalb 140	Monsanto	0.77	7.88	6.05	6.78	7.33	7.01
WL 325HQ	W-L	0.62	7.48	5.94	6.71	7.72	6.96
Cimarron - SR	Great Plains	0.87	8.18	5.63	6.53	7.19	6.88
WL 326GZ	W-L	0.77	7.57	5.84	6.37	7.59	6.84
Dekalb 133	Monsanto	0.89	7.73	5.70	6.54	7.41	6.84
Stellar	W-L	0.82	7.41	6.01	6.40	7.50	6.83
Dagger + EV	ABI	0.97	7.97	5.76	6.47	7.09	6.82
Persist	Doebler's	0.95	8.02	5.68	6.33	7.23	6.81
Pioneer 5454	Pioneer	0.90	7.68	5.60	6.23	7.72	6.81
ABT 350	W-L	0.82	7.37	5.73	6.37	7.76	6.81
Dekalb 141	Monsanto	1.05	8.19	5.76	6.24	7.00	6.80
Interceptor	ABI	0.71	8.13	5.94	6.21	6.86	6.78
Triple Crown (A9503)	FFR	0.88	7.69	5.51	6.30	7.58	6.77
Pioneer 53Q60	Pioneer	0.79	8.13	5.81	6.23	6.87	6.76
WL 324	W-L	0.88	7.90	5.56	6.14	7.43	6.75
CleanSweep 1000	FFR	0.80	7.87	5.80	5.99	7.27	6.73
Affinity + Z	ABI	0.73	7.77	5.76	5.72	7.31	6.64
Spur	Allied	0.96	7.64	5.61	6.24	7.01	6.63
WL 323	W-L	0.82	7.93	5.45	5.77	6.90	6.51
Choice	FFR	0.73	7.58	5.37	5.92	7.05	6.48
Cimarron 3-i	Great Plains	0.90	7.94	5.37	5.76	6.72	6.45
Feast + EV	Agri-pro	0.82	7.56	5.30	5.60	6.59	6.26
Pioneer 54H69	Pioneer	0.70	6.96	5.14	5.20	6.72	6.01
LSD (0.05)		NS	NS	NS	NS	.70	NS

*See Individual Years for Cultural Practices

Table 8. 2000 Alfalfa Variety Yields - Southern Piedmont AREC, Blackstone, Va., June 2000 Seeding

Variety	Company	16-Aug	27-Sep	Total
		<i>DM Yield (tons/acre)</i>		
HayGrazer	Great Plains	1.36	1.02	2.38
Seedway 512	Seedway	1.25	0.99	2.24
Prolific	Doebler's	1.26	0.86	2.12
Pioneer 53H81	Pioneer	1.27	0.84	2.11
Pioneer 53Q60	Pioneer	1.21	0.91	2.11
AmeriGraze 401 + Z	ABI	1.24	0.86	2.10
Magnum V	Dairyland	1.24	0.84	2.08
Alfagraze	America's Alfalfa	1.14	0.90	2.04
Persist	Doebler's	1.22	0.81	2.03
Choice	FFR	1.23	0.81	2.03
Triple Crown	FFR	1.09	0.91	2.00
Trialfalon	ChemGro	1.11	0.88	1.99
Pioneer 54V54	Pioneer	1.11	0.84	1.95
Dairyland Seed Hybrid	Dairyland	0.99	0.84	1.83
LSD (0.05)		NS	0.11	NS

5-18-00 - Applied 0-210-434 + 4 lb B/acre

5-26-00 - Sprayed 2 qt Eptam 7E/acre

6-8-00 - Planted

8-23-00 - Sprayed 18.4 oz Quadris 2.08/acre to control Southern Stem Blight

9-12-00 - Sprayed 1 pt Poast + 2 pt COC/acre

10-3-00 - Sprayed 18.4 oz Quadris 2.08/acre to control Southern Stem Blight

Soil Type: Dothan - Norfolk

Soil Test: Oct. 99

pH: 6.9

P: High

K: Medium

Ca: Med -

Mg: High +

Zn: 1.4

Mn: 3.3

OM: 1.4

Table 9. 2001 Alfalfa Variety Yields - Southern Piedmont AREC, Blackstone, Va., June 2000 Seeding

Variety	Company	26-Apr	31-May	6-Jul	14-Aug	21-Sep	Total
		<i>DM Yield (tons/acre)</i>					
Persist	Doebler's	2.86	1.73	1.54	2.43	0.58	9.14
HayGrazer	Great Plains	2.82	1.59	1.46	2.20	0.61	8.68
Prolific	Doebler's	2.68	1.74	1.71	1.86	0.57	8.55
Trialfalon	ChemGro	2.68	1.56	1.83	1.90	0.56	8.53
Triple Crown (A9503)	FFR	2.85	1.62	1.44	1.93	0.50	8.35
Seedway 512	Seedway	2.98	1.59	1.29	1.84	0.57	8.28
Pioneer 53H81	Pioneer	2.70	1.50	1.58	1.78	0.57	8.13
Pioneer 54V54	Pioneer	2.62	1.44	1.64	1.83	0.55	8.07
Alfagraze	America's Alfalfa	2.58	1.46	1.65	1.80	0.52	8.01
AmeriGraze 401 + Z	ABI	2.54	1.57	1.58	1.82	0.48	7.99
Magnum V	Dairyland	2.60	1.62	1.41	1.75	0.49	7.87
Dairyland Seed Hybrid	Dairyland	2.60	1.48	1.46	1.81	0.50	7.85
Choice	FFR	2.72	1.52	1.27	1.78	0.44	7.73
Pioneer 53Q60	Pioneer	2.54	1.58	1.27	1.76	0.52	7.67
LSD (0.05)		0.19	0.17	NS	NS	0.08	0.64

6-08-00 - Planted

2-21-01 - 0-200-400 + 4lb B/acre

3-26-01 - 1 qt Furadan 4F + 18.4 oz Quadris 2.08/acre

Table 10. 2002 Alfalfa Variety Yields - Southern Piedmont AREC, Blackstone, Va., June 2000 Seeding

Variety	Company	<i>DM Yield (tons/acre)</i>					Total
		8-May	4-May	2-Jul	4-Aug	2-Oct	
Persist	Doebler's	2.83	1.20	0.24	0.67	0.98	5.93
HayGrazer	Great Plains	2.78	1.09	0.20	0.61	1.05	5.73
Prolific	Doebler's	2.73	1.10	0.26	0.69	0.95	5.72
Pioneer 53Q60	Pioneer	2.69	1.12	0.23	0.65	0.97	5.66
Alfagraze	America's Alfalfa	2.73	1.13	0.18	0.61	1.00	5.65
Seedway 512	Seedway	2.64	1.09	0.22	0.59	1.04	5.58
Triple Crown (A9503)	FFR	2.66	1.03	0.24	0.66	0.97	5.56
Pioneer 54V54	Pioneer	2.57	1.12	0.25	0.66	0.94	5.54
AmeriGraze 401 + Z	ABI	2.53	1.08	0.25	0.71	0.96	5.53
Magnum V	Dairyland	2.52	1.12	0.26	0.70	0.91	5.51
Pioneer 53H81	Pioneer	2.65	1.11	0.18	0.62	0.94	5.50
Dairyland Hybrid	Dairyland	2.49	1.08	0.22	0.70	0.93	5.41
Choice	FFR	2.55	0.93	0.21	0.59	0.92	5.19
Trialfalon	ChemGro	2.27	1.06	0.24	0.64	0.90	5.12
LSD (0.05)		NS	NS	0.05	NS	NS	NS

2/13/2002 - 0-200-400 + 4lb B/acre

4/2/2002 - 1 qt Furadan 4F/acre

4/5/2002 - 0-200-400 + 4lb B/acre

6/12/2002 - 1.44 oz Pursuit + 1.5 oz Poast/acre

Soil Test:

pH 6.9

P High

K Medium

Table 11. 2003 Alfalfa Variety Yields - Southern Piedmont AREC, Blackstone, Va., June 2000 Seeding

Variety	Company	StandCount	
		8-May <i>DM Yield (tons/acre)</i>	22-Oct <i>Plants/90 square ft.</i>
Pioneer 54V54	Pioneer	1.99	32
Alfagraze	America's Alfalfa	1.93	75
HayGrazer	Great Plains	1.92	15
Seedway 512	Seedway	1.89	20
Trialfalon	ChemGro	1.84	20
A9503	FFR	1.83	16
Persist	Doebler's	1.81	24
Choice	FFR	1.79	19
Pioneer 53H81	Pioneer	1.79	20
Prolific	Doebler's	1.77	28
AmeriGraze 401 + Z	ABI	1.71	44
Dairyland Magnum V	Dairyland	1.71	39
Dairyland Seed Hybrid	Dairyland	1.71	30
Pioneer 53Q60	Pioneer	1.69	10
LSD (0.05)		0.17	19

Table 12. Alfalfa Variety Yield Summary - Southern Piedmont AREC, Blackstone, Va., June 2000 Seeding

Variety	Company	2000	2001	2002	2001-2002 Average
		<i>DM Yield (ton/acre)</i>			
Triple Crown (A9503)	FFR	2.00	8.35	5.56	6.95
Alfagraze	America's Alfalfa	2.04	8.01	5.65	6.83
AmeriGraze 401 + Z	ABI	2.10	7.99	5.53	6.76
Choice	FFR	2.03	7.73	5.19	6.46
Magnum V	Dairyland	2.08	7.87	5.51	6.69
Dairyland Seed Hybrid	Dairyland	1.83	7.85	5.41	6.63
HayGrazer	Great Plains	2.38	8.68	5.73	7.20
Persist	Doebler's	2.03	9.14	5.93	7.54
Pioneer 53H81	Pioneer	2.11	8.13	5.50	6.82
Pioneer 53Q60	Pioneer	2.11	7.67	5.66	6.67
Pioneer 54V54	Pioneer	1.95	8.07	5.54	6.81
Prolific	Doebler's	2.12	8.55	5.72	7.14
Seedway 512	Seedway	2.24	8.28	5.58	6.93
Trialfalon	ChemGro	1.99	8.53	5.12	6.82
LSD (0.05)		NS	0.64	NS	NS

*See Individual Years for Cultural Practices

Table 13. 2000 Alfalfa Variety Yields - Kentland Farm, Whitethorne, Va., Sept. 1999 Seeding

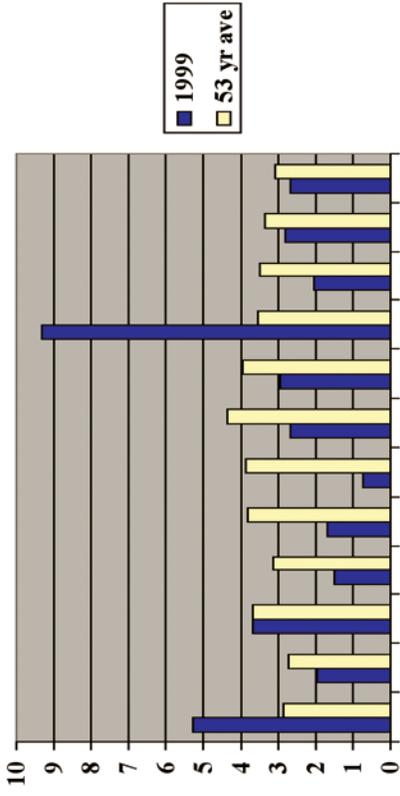
Variety	Company	15-May	20-Jun	Total
		<i>DM Yield (tons/acre)</i>		
Haygrazer	Great Plains	2.32	1.60	3.92
Pioneer 53Q60	Pioneer	2.10	1.72	3.82
Dekalb 141	Monsanto	2.33	1.32	3.65
Persist	Doebler's	2.24	1.38	3.62
Spur	Allied	2.18	1.37	3.55
Affinity + Z	ABI	2.24	1.30	3.54
Dagger + EV	ABI	2.14	1.28	3.41
ABT 350	W-L	2.11	1.24	3.35
Feast + EV	Agri-pro	1.92	1.38	3.30
Pioneer 5454	Pioneer	1.91	1.34	3.25
Prolific	Doebler's	2.02	1.23	3.24
WL 325HQ	W-L	1.99	1.19	3.18
Seedway 512	Seedway	1.95	1.22	3.17
Dekalb 133	Monsanto	1.87	1.28	3.15
Choice	FFR	2.02	1.13	3.15
Pioneer 53H81	Pioneer	1.97	1.08	3.05
Pawnee(ZC9650)	ABI	2.00	1.05	3.05
Trialfalon	ChemGro	1.85	1.18	3.04
ABT 400SCL	W-L	1.67	1.37	3.03
WL 327	W-L	2.07	0.94	3.00
Alfagraze	America's Alfalfa	1.93	1.05	2.97
Dekalb 140	Monsanto	1.79	1.14	2.94
AmeriGraze 401 + Z	ABI	1.88	0.85	2.73
Abilene + Z	ABI	1.65	1.06	2.71
Triple Crown (A9503)	FFR	1.49	1.04	2.54
LSD (0.05)		0.30	0.25	0.44

Soil test results taken 10/11/00
P = 15 (Medium range = 6-18)
K = 67 (Medium range = 38-88)
pH = 6.7

Table 14. Alfalfa forage seed companies with varieties in Virginia Tech trials

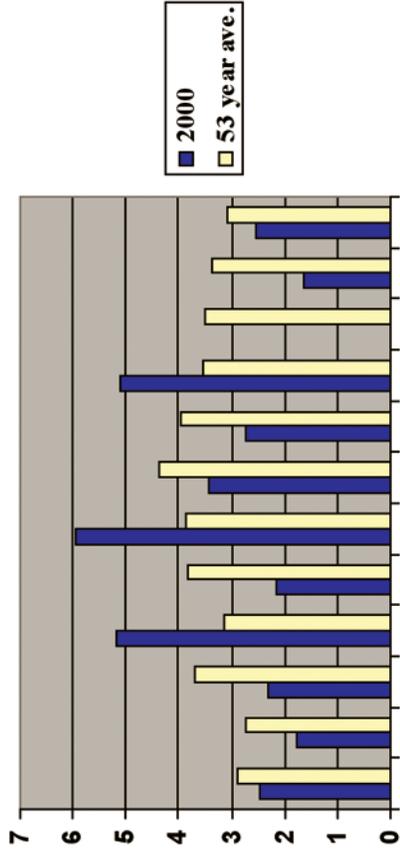
53H81	5	1. Southern States Cooperative	7. Doebler's PA Hybrids
53Q60	5	PO Box 26234	RR 1 Box 424
5454	5	Richmond, VA 23260	Jersey Shore, PA 17740
54H69	5	(804) 281-1253	(800) 853-CORN
54V54	5	www.southernstates-coop.com	
Abilene + Z	8		8. ABI Alfalfa, Inc.
ABT 350	11	2. Seedway Inc.	12351 W. 96 Terrace Ste. 101
ABT 400 SCL	11	1734 Railroad Place	Lenexa, KS 66215
Affinity + Z	8	PO Box 250	(800) 873-2532
Alfagraze	8	Hall, NY 14463	
Amerigraze 401 + Z	8	(716) 526-6391	9. W-L Research, Inc.
Choice	1		8701 W. US Hwy 14
Cimarron 3I	4	3. ChemGro Seeds	Evansville, WI 53536
Cinarron SR	4	PO Box 218	(608) 882-4100
Clean Sweep 1000	1	East Petersburg, PA 17520	
Dagger + EV	10	(717) 569-3296	10. AgriPro, Inc.
DK133	6		PO Box 500
DK140	6	4. Wetsel, Inc.	Slater, IA 50244
DK141	6	961 N. Liberty	(877) AGRIPRO
Feast + EV	10	Harrisonburg, VA 22801	
Haygrazer	4	(540) 434-6753	11. AgriBioTech, Inc.
Interceptor	10		120 Corporate Park Dr.
Pawnee	12	5. Pioneer Hi-Bred International, Inc.	Henderson, NV 89014
Persist	7	800 Tiffany Blvd.,	(702) 566-2440
Precedent	7	#200 Rocky Mount, NC 27804-1826	
Prolific	7	(212) 972-3320	12. Midwest Seed Genetics
Seedway 512	2		PO Box 518
Spur	2	6. Monsanto	Carroll, IA 51408
Stellar	3	3100 Sycamore Rd	(712) 792-6691
Trialfalon	3	DeKalb, IL 60115	
Triple Crown	1	1 (800) 8DEKALB	
WL 323	9		
WL 324	9		
WL 325 HQ	9		
WL 326 GZ	9		
WL 327	9		

1999 Monthly Rainfall - Orange VA



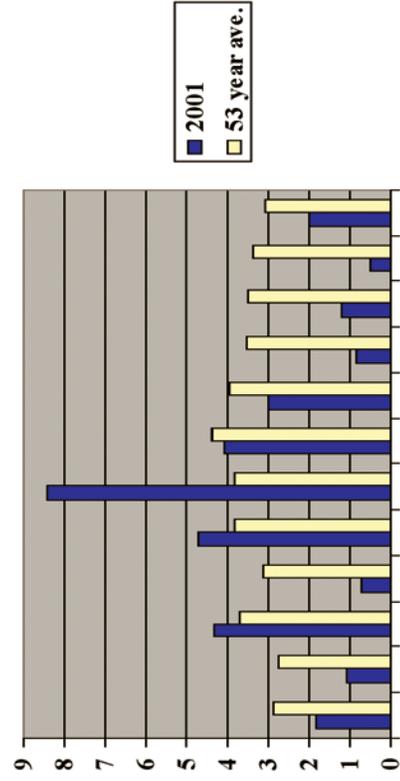
Months

2000 Monthly Rainfall - Orange VA



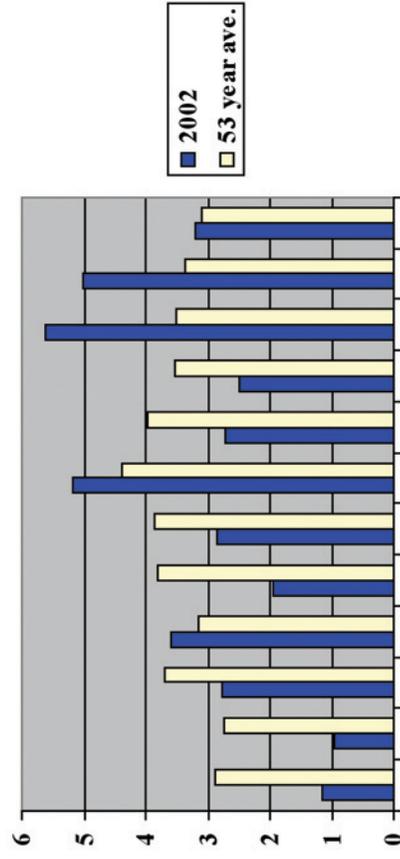
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2001 Monthly Rainfall - Orange VA



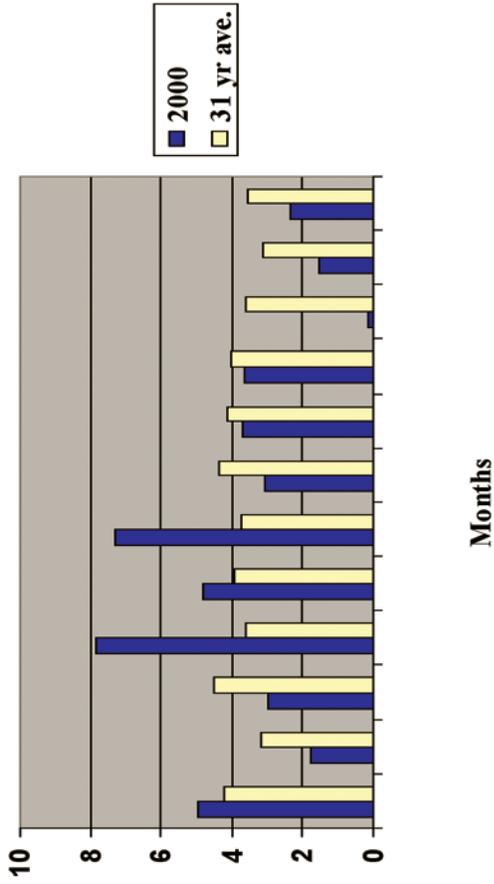
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2002 Monthly Rainfall - Orange VA

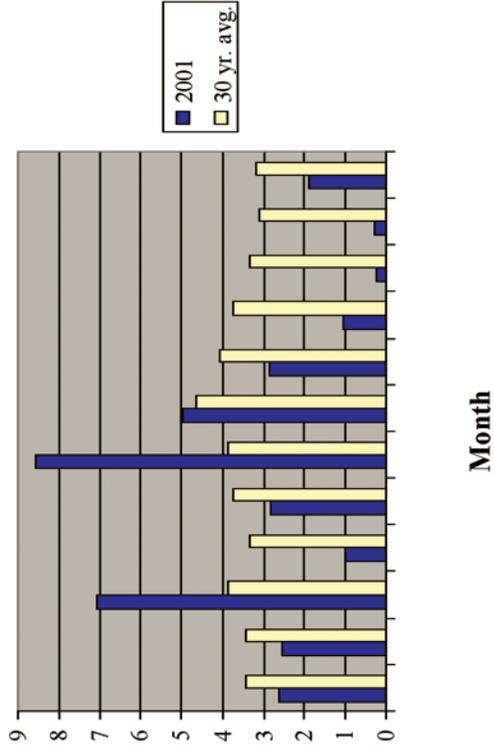


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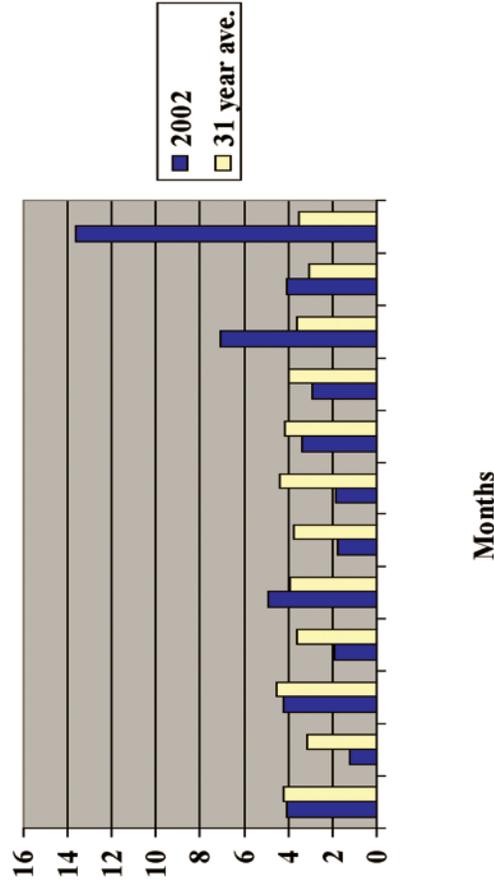
2000 Monthly Rainfall - Blackstone



2001 Monthly Precipitation - Blackstone VA



2002 Monthly Rainfall - Blackstone



2000 Monthly Precipitation - Whitethorne VA

