

## 2005 OHIO FORAGE PERFORMANCE TRIALS

R.Mark Sulc, John S. McCormick, Landon H. Rhodes, and David J. Barker

### Summary

This report is a summary of performance data collected from forage variety trials in Ohio. The 2005 report includes performance data of commercial alfalfa, red clover, orchardgrass, tall fescue, perennial and annual ryegrass varieties in tests planted in 2003, 2004 and 2005 at four sites in Ohio: South Charleston, North Baltimore, Wooster, and Jackson. For more details on forage species and management, see the *Ohio Agronomy Guide* (Bulletin 472, Ohio State Univ. Extension).

### Interpreting Yield Data

Least significant differences (LSD) are listed at the bottom of the tables along with the trial average (mean). Differences between varieties are statistically significant only if they are equal to or greater than the LSD value. If a given variety yields more than another variety by the LSD value or greater, then we are 95% sure that the yield difference is real, with only a 5% probability that the difference is due to chance alone. Results reported here should be representative of what might occur throughout the state but would be most applicable under environmental and management conditions similar to those of the tests.

### Summary of 2005 Growing Conditions

The growing season began with a warmer than normal average daily temperatures in April, then cooler temperatures in May, followed again by above normal temperatures for most of the remainder of the season. Overall, rainfall was below normal. The rainfall pattern for the year was atypical with periods of drought and spotty showers.

### Alfalfa

Most alfalfa varieties began the growing season with good stands. Forage yields in 2005 were slightly higher than those in 2004. The 2003 seeding at Wooster had the highest yields with near normal rainfall (except June), and above average temperatures. Alfalfa weevil populations were low with only a few pockets in the state requiring insecticide application. Insecticide applications were used at all locations in standard trials for control of potato leafhopper (PLH). Leafhopper activity was low to moderate at North Baltimore and Wooster, but very high for the second and third harvests at South Charleston.

No insecticide was applied to control potato leafhopper in the potato leafhopper resistance trials. Those trials are a continuing effort to evaluate the new leafhopper resistant alfalfa varieties. Vernal, 54V54, and DK140 are used as PLH-susceptible check varieties. The leafhopper resistant varieties are not resistant to alfalfa weevil, and like standard varieties will need to be rescued if weevil populations exceed economic thresholds.

### Orchardgrass

Yield in 2005 was better than expected given the below average rainfall and above average temperatures during the summer months. Orchardgrass varieties differed greatly in yield over the season, and in maturity at the first harvest. Orchardgrass is one of the most productive cool-season grasses grown in Ohio.

### Annual Ryegrass

Annual ryegrass trials were established at South Charleston in April 2004 and September 2005. Higher yields were collected from the mid- to late- maturing varieties in 2004 compared to early-maturing varieties. Large differences were observed among 2004 seeded varieties in winter survival and yield in 2005. Varieties in the September 2005 seeding differed in November yield. Winter survival and yield of the varieties planted in September 2005 will be evaluated in 2006.

### Tall Fescue

A tall fescue trial of endophyte-free varieties was established at Jackson in August 2004. Respectable yields were measured despite low rainfall and above average summer temperatures. New varieties that are endophyte free or that contain the new non-toxic endophyte (Max Q) have potential to increase animal performance during the summer grazing season and provide adequate forage quality for beef cattle and sheep during autumn and early winter.

### Perennial Ryegrass

A perennial ryegrass trial was established at South Charleston in April 2005. The trial was clipped early to promote tillering and growth, but the dry summer limited yield. Perennial ryegrass is the most winter hardy of the ryegrass types. Tetraploid varieties usually have larger leaves, fewer but larger tillers, produce a more open growth (less ground cover), and tend to have higher digestibility than diploid varieties. Diploids tend to have finer leaves and produce more tillers. A couple of varieties in the ryegrass trial were *festuloliums*, which are crosses between annual ryegrass and fescue. They generally are more winter-hardy and slightly more drought tolerant than perennial ryegrass.



**Contributors:** Clarence Renk, Joe Davlin, Eugene Balthaser, Lynn Ault, and Matt Davis

**Summary of Alfalfa Variety Performance in Ohio**

Standard Trials - Insecticide Applied (values are yield as a percentage of the trial average)

Variety	Marketer	South Charleston		Wooster	North Baltimore		Jackson	total site-yrs	avg all site yrs
		2003-05	2005	2003-05	2004-05	2005			
4A421	Mycogen Seeds		100	100				4	100
53Q30	Pioneer		99					1	98
54H91	Pioneer	96		100				14	96
54Q25	Pioneer	102		100	102			8	101
54V46	Pioneer	104	86	100	103			9	100
54V54	Pioneer	97		99				14	100
6400HT	Garst	101	110	100	98		100	10	101
6420	Garst	104	113	101	98			21	101
AlfaStar II	Steyer Seeds			101				3	101
Baralfa 53HR	Barenbrug USA		97					1	97
DKA 42-15	Monsanto				103			10	101
Evermore	Allied Seed			101				3	101
Feast +EV	ABI Alfalfa			98				3	98
FSG 351	Allied Seed			100				3	100
FSG 406	Allied Seed			98				3	98
FSG 408 DP	Allied Seed		97					1	97
FSG 505	Allied Seed			101				3	101
Genoa	NK Brand Seed		99		105		100	4	102
GH 744	Golden Harvest			100				3	100
HybriForce-420/wet	Dairyland	100		101	96		103	9	100
Integrity	PGI Alfalfa Inc.		95					1	95
L-311	Legacy Seed			101				3	101
L-411-HD	Legacy Seed				105			2	105
LegenDairy 5.0	Croplan Genetics				100			2	100
Marvel	Allied Seed		114					1	114
Nova	Great Plains				98			2	98
Power 4.2	Power Seed Inc.			100				3	100
Predator	Doebler's Seed	102						3	102
Rebel	Burtch Seeds				100			2	100
Rebound 5.0	Croplan Genetics		101		104			3	103
Regal	Great Plains			97				3	97
Reward II	PGI Alfalfa Inc.			101			100	4	101
Rugged	Burtch Seeds				98			2	98
SummerGold	Beck's Superior				104		95	3	101
VERNAL	Public	89	98	96	92		102	71	91
Winter Gold	Beck's Superior			100				3	100
WL 335 HQ	Royster Clark		95		95			3	95
WL 348 AP	Royster Clark		93	100				4	98
WL 357 HQ	Royster Clark	105		101	104			8	103
Trial Average (total tons/acre)		18.35	1.89	18	9.83		3.07	--	--
No. site years		3	1	3	2		1	--	--

More details available on internet: [www.ag.ohio-state.edu/~perf](http://www.ag.ohio-state.edu/~perf)

**Seed Marketers of Varieties Included in 2005 Forage Performance Trials**

ABI Alfalfa	515-292-2432	Doebler PA Hybrid Inc.	570-753-5503	Pickseed West Inc.	503-926-8886
Allied Seed	660-385-6690	Fraser Seeds Ltd.	604-929-7371	Pioneer Hi-Bred Int'l	See local retailer
Barenbrug USA	541-926-5801	Garst Seed Company	260-693-1100	Power Seeds	705-944-5600
Becks Superior	800-yes-beck	Golden Harvest	800-944-7333	Radix Research, Inc.	503-749-2888
Blue River Hybrids	800-370-7979	Great Plains Research	800-874-7945	Royster Clark	See local retailer
Burtch Seed Co.	419-363-3713	HYTEST Seeds	800-442-7391	Saddle Butte Ag.	541-491-3501
Byron Seeds	765-435-7243	Legacy Seeds Inc.	866-866-3888	Seed Rsch. of Oregon	541-757-2663
Cebeco Int'l. Seeds Inc.	541-369-2251	Monsanto	See local retailer	Seed Solutions	800-562-2459
Columbia Seeds	541-757-1468	Mycogen Seeds	800-mycogen	Steyer Seeds	419-992-4570
Croplan Genetics	See local retailer	Northrup King	See local retailer	Turf-Seed, Inc.	503-651-2130
Dairyland Seeds	800-236-0163	Pennington Seed Inc.	541-451-5261	W-L Research	608-240-0630
DLF -International Seeds	800-445-2251	PGI Alfalfa Inc.	866-744-5710		

Alfalfa Variety Trial  
Ohio, Wooster, Sown 4-24-2003

Variety	2005	2004	2003	2003-05	2003-05	% Stand
	----Tons dry matter/acre ----			% mean	10/18/05	
Reward II	7.89	6.86	3.09	17.84	101	89
FSG 505	7.80	7.01	2.98	17.79	101	92
L-311	7.89	6.83	3.07	17.79	101	92
Alfa Star II	7.82	6.83	3.11	17.77	101	93
WL 357 HQ	7.56	7.22	2.97	17.75	101	91
Evermore	7.74	6.91	3.08	17.73	101	93
6420	7.57	6.90	3.25	17.72	101	91
HybriForce 420/wet	7.60	7.02	3.10	17.71	101	93
6400 HT	7.66	6.88	3.11	17.65	100	91
4A421	7.56	7.14	2.93	17.63	100	91
WL 348 AP	7.77	6.72	3.08	17.57	100	89
54Q25	7.80	6.83	2.94	17.57	100	90
Winter Gold	7.72	6.75	3.08	17.55	100	91
54H91	7.66	6.92	2.96	17.54	100	89
FSG 351	7.51	6.92	3.09	17.52	100	92
Power 4.2	7.75	6.83	2.94	17.52	100	92
GH 744	7.48	6.88	3.15	17.51	100	90
54V46	7.39	6.97	3.12	17.49	100	91
54V54	7.58	6.93	2.96	17.47	99	92
FSG 406	7.44	6.82	3.02	17.28	98	91
Feast + EV	7.62	6.72	2.94	17.27	98	90
Regal	7.34	6.72	3.06	17.12	97	93
Vernal	7.76	6.31	2.78	16.85	96	82
Mean	7.65	6.89	3.04	17.58	--	91
LSD 0.05	NS	0.33	0.21	NS	--	3.38

Alfalfa Variety Trial  
Ohio, North Baltimore, Sown 4-19-2004

Variety	2005	2004	2004-05	2004-05
	--- Tons dry matter/acre ---			% mean
Genoa	8.27	2.02	10.28	105
L-411-HD	8.34	1.93	10.28	105
WL 357 HQ	8.08	2.14	10.22	104
SummerGold	8.17	2.04	10.21	104
Rebound 5.0	8.18	2.02	10.20	104
DKA 42-15	8.26	1.90	10.16	103
54V46	8.43	1.65	10.08	103
54Q25	8.06	1.95	10.01	102
LegenDairy 5.0	7.99	1.85	9.85	100
Rebel	7.89	1.95	9.84	100
Rugged	7.71	1.93	9.63	98
6400 HT	7.65	1.96	9.62	98
6420	7.64	1.96	9.61	98
Nova	7.91	1.69	9.61	98
HybriForce 420/wet	7.81	1.61	9.43	96
WL 335 HQ	7.67	1.62	9.30	95
Vernal	7.50	1.59	9.09	92
Mean	7.97	1.86	9.83	--
LSD 0.05	NS	NS	NS	--

Note: Stand was 95 % for all varieties on 13-Oct-2005.

Alfalfa Variety Trial  
Ohio, South Charleston, Sown 4-15-03

Variety	2005	2004	2003	2003-05	2003-05	% Stand
	----Tons dry matter/acre ----			% mean	10/14/05	
WL 357 HQ	7.37	7.32	4.57	19.26	105	92
54Q25	7.15	7.04	4.48	18.67	102	92
6420	7.14	7.13	4.85	19.11	104	91
54V46	7.09	7.02	4.94	19.06	104	90
Predator	7.00	6.93	4.75	18.68	102	89
HybriForce 420/wet	6.90	6.92	4.54	18.36	100	89
6400 HT	6.82	6.91	4.77	18.50	101	90
54V54	6.67	6.86	4.34	17.87	97	90
54H91	6.53	6.56	4.54	17.61	96	89
Vernal	6.38	6.01	3.96	16.34	89	83
Mean	6.90	6.87	4.57	18.35	--	89
LSD 0.05	NS	0.30	0.41	0.80	--	4.2

Alfalfa Variety Trial  
Ohio, Jackson, Sown 8-12-2004

Variety	1-Jun	28-Jul	3-Aug	2005	2005
	----- Tons dry matter/acre -----			% mean	
HybriForce 420/wet	1.68	0.84	0.62	3.15	103
Vernal	1.78	0.78	0.55	3.12	102
Reward II	1.69	0.83	0.55	3.08	100
6400 HT	1.72	0.85	0.52	3.07	100
Genoa	1.66	0.85	0.54	3.06	100
SummerGold	1.68	0.83	0.43	2.92	95
Mean	1.70	0.83	0.54	3.07	--
LSD 0.05	NS	NS	0.08	NS	--

Note: Stand was 100 % for all varieties on 29- Sept-2005.  
Data subjected to Nearest Neighbor AOV, adjusted means reported.

Alfalfa Variety Trial Ohio, South Charleston, Sown 4-14-05				
Variety	7-Jul	6-Sep	Total	2005
	--- Tons dry matter/acre ---			% mean
Marvel	1.02	0.81	2.15	114
6420	0.98	1.06	2.14	113
6400HT	1.01	1.14	2.09	110
CW 15030	1.02	1.06	2.07	110
Rebound 5.0	0.80	0.90	1.90	101
4A421	0.85	0.93	1.88	100
Genoa	0.96	0.91	1.87	99
53Q30	0.80	1.10	1.86	99
Vernal	0.94	1.03	1.86	99
FSG 408DP	0.92	1.05	1.84	97
Baralfa 53HR	0.86	0.79	1.83	97
WL 335 HQ	0.89	1.11	1.79	95
Integrity	0.82	0.97	1.79	95
WL 348 AP	0.82	1.04	1.75	93
54V46	0.82	0.92	1.63	86
Mean	0.89	1.00	1.89	--
LSD 0.05	0.13	NS	NS	--

Regional Alfalfa Yield Trial for Varieties Tolerant to Potato Leafhopper Conducted at Ames, IA and S. Charleston, OH, Seeded Spring, 2005.					
Variety	Cut 1	Cut 2	Total	PLH Yield Index	
	Tons dry matter/acre			% above checks	
<i>PLH Resistant Varieties</i>					
54H91	Pioneer	0.99	0.82	1.81	50*
WL347LH	WL Research	0.89	0.81	1.70	41*
Enforcer	Allied Seed	0.84	0.76	1.60	33*
FSG 400LH	Allied Seed	0.79	0.80	1.58	31*
Bluebird HR	Blue River Hybrids	0.69	0.75	1.44	20
WL345LH	WL Research	0.68	0.70	1.38	15
6325	Garst Seed Co.	0.54	0.59	1.12	-6
<i>Susceptible Checks</i>					
5454	Pioneer	0.53	0.64	1.18	-2
DK140	Monsanto	0.71	0.69	1.41	17
Vernal	Public	0.47	0.54	1.01	-16
PLH Variety Mean		0.77	0.75	1.52	
Check Variety Mean		0.57	0.63	1.20	
LSD		0.20	0.16	0.34	

\* Means significantly higher yielding (P<0.05) than the susceptible checks.

Alfalfa Yield Trial for Varieties Tolerant to Potato Leafhopper Ohio, South Charleston, Sown 4-20-2004			
Variety	2005	2004	2004-05
	--- Tons dry matter/acre ---		
<i>PLH Resistant Varieties</i>			
WL 346 LH	8.12	2.33	10.56*
54H91	7.87	2.46	10.49*
Evergreen II	7.83	2.25	10.05*
<i>Susceptible Checks</i>			
Vernal	6.31	1.91	8.13
54V54	6.24	1.74	7.83
Mean	7.54	2.16	9.71
LSD 0.05	0.43	0.44	0.64

\*Means significantly higher yielding (P>.05) than the susceptible checks

Alfalfa Yield Trial for Varieties Tolerant to Potato Leafhopper Ohio, Jackson, Sown 8-12-2004				
Variety	1-Jun	28-Jul	3-Aug	2005
	----- Tons dry matter/acre -----			
<i>PLH Resistant Varieties</i>				
Evergreen II	1.72	0.84	0.70	3.25
54H91	1.75	0.77	0.63	3.16
WL 346 LH	1.58	0.84	0.59	3.01
<i>Susceptible Checks</i>				
54V54	1.63	0.90	0.58	3.12
Vernal	1.78	0.75	0.66	3.19
Mean	1.69	0.82	0.63	3.14
LSD 0.05	NS	NS	NS	NS

Note: Stand was 100% for all varieties on Sept 29, 2005.

Annual Ryegrass Variety Trial Ohio, South Charleston, Sown April 20, 2004					
Variety	Marketer	2005	2004	2004-05	% Stand
		Tons DM/Acre		% mean	5/6/05
Jeanne	DLF Int'l Seed	1.38	4.65	130	49
Passerel Plus	Pennington Seed	0.99	4.31	114	5
Aurelia	Seed Rsch Oregon	1.00	4.18	112	18
Marshal	Public	1.28	3.75	109	14
Gulf	Public	0.00	4.57	99	0
Adin	Seed Rsch Oregon	0.88	3.65	98	26
Monarque	Seed Rsch Oregon	0.87	3.27	89	21
Double Barrel	DLF Int'l Seed	0.00	3.87	84	0
Angus 1	DLF Int'l Seed	0.00	3.02	65	0
Mean		0.71	3.92	4.63	15
LSD (0.05)		0.40	1.21	0.62	16

2005 Fertilization: 147 lb/a of 34-0-0 applied 2 April and 22 July.

Perennial Ryegrass Variety Trial Ohio, South Charleston, Sown April 14, 2005			
Variety	Marketer	2005	2005
		Tons/acre % mean	
Perun <sup>a</sup>	Byron Seeds	1.84	150
CSBF 124 <sup>a</sup>	Saddle Butte Ag	1.26	103
Mathilde	DLF International	1.22	99
Aubisque	Seed Solutions	1.01	82
Portia	DLF International	1.00	82
Respect	Doebblers P.A. Hybrid	0.87	71
Pennlate <sup>b</sup>	Public	1.39	113
Mean		1.23	--
LSD (0.05)		0.36	--

<sup>a</sup> Varieties are festuloliums; <sup>b</sup> Variety of orchardgrass, for comparison.  
2005 Fertilization: 150 lb/a of 34-0-0 applied 2 April and 22 July.  
2005 Pest control: Herbicide applied to control weeds.

Orchardgrass Variety Trial						
Ohio, South Charleston, Sown April 15, 2003						
Variety	Marketer	2005	2004	2003	2003-05	Maturity <sup>a</sup>
		Tons dry matter/acre % mean				5/25/05
ORCA*	Pickseed West Inc.	5.97	7.12	3.03	110	6.3
Icon	Seed Rsch Oregon	6.04	7.10	2.97	110	5.3
Megabite	Turf Seed	6.07	6.89	2.89	108	4.8
CIS-OG-4	Cebeco Int'l	5.84	6.93	3.05	108	4.8
Command*	Seed Rsch Oregon	5.86	6.80	2.95	106	4.5
Harvestar*	Radix Rsch Inc.	5.47	6.78	3.21	105	2.0
Elise	Turf Seed	5.59	6.77	3.08	105	6.5
ECF 30*	Radix Rsch Inc.	5.64	6.65	3.00	104	6.3
Pennlate	Public	5.57	6.64	2.76	102	5.5
Athes	DLF - Jenks	4.98	6.05	3.01	96	2.0
LG-31	DLF - Jenks	5.02	6.22	2.63	94	2.4
Potomac	Public	4.70	5.36	2.81	88	3.2
Abertop	Pennington Seed Inc.	3.18	4.09	2.23	65	2.4
Mean		5.38	6.42	2.89	--	--
LSD (0.05)		0.41	0.52	NS	--	--

\* Variety tested with experimental seed that may not give performance identical to commercial seed.

<sup>a</sup>Maturity scale: 2 =early boot, 3 =initial head emergence, 4 =complete head emergence, 5 = head fully extended (elongated peduncle), 6 = pre-pollination, 7 = pollen shed.

Fertilization: 200 lb/a of 34-0-0 applied 2- April, 147 lb/a of 34-0-0 applied on 7- June, 22- July.

Tall Fescue Variety Trial			
Ohio, Jackson, Sown August 12, 2004			
Variety	Marketer	2005	2005
		Tons/a	% mean
Hykor <sup>a</sup>	DLF Int'l Seed	5.97	114
Fuego	Seed Rsch Oregon	5.55	106
Hymark	Fraser Seeds	5.54	106
Jessup Max Q	Pennington Seed	5.43	104
IS-FTF-12*	DLF Int'l Seed	5.39	103
Stockman	Seed Rsch Oregon	5.38	103
Ky 31	Public	5.24	100
CSN 26*	Fraser Seeds	4.98	95
Seine	Seed Rsch Oregon	4.97	95
Potomac	Public	4.91	94
Ridgeway	Columbia Seeds	4.85	93
Montendre	Seed Rsch Oregon	4.68	89
Mean		5.24	--
LSD (0.05)		NS	--

\* Variety tested using experimental seed that may not give performance identical to that of commercial seed.

<sup>a</sup> Variety is a festulium

Fertilization: 200 lb/a of 34-0-0 was applied on 14- April, 100 lb/a applied on 27-May and 8- August.

Annual Ryegrass Variety Trial		
Ohio, South Charleston, Sown 9-9-2005		
Variety	Marketer	21-Nov-05
		Tons DM/acre
Passerel Plus	Pennington Seed	0.88
Gulf	Public	0.83
Grazer II	DLF Int'l Seed	0.81
Bounty	Saddle Butte Ag.	0.77
Florlina	Saddle Butte Ag.	0.76
Marshall	Public	0.75
Striker	Seed Rsch of Oregon	0.72
Bruiser	Seed Rsch of Oregon	0.72
Surrey II	DLF Int'l Seed	0.67
T Rex	Saddle Butte Ag.	0.62
Monarque	Seed Rsch of Oregon	0.62
Jeanne	DLF Int'l Seed	0.50
Angus I	DLF Int'l Seed	0.43
Perun*	Byron Seeds	0.08
Mean		0.68
LSD (0.05)		0.33

\* Variety is a festulium

2005 Fertilization: 2.5 ton ag lime and 88 lb/a of 34-0-0 incorporated prior to planting.

Weather Data Summary for the 2005 Growing Season								
	Wooster	S. Charleston	N. Baltimore	Jackson				
Month	Total DFA*	Total DFA*	Total DFA*	Total DFA*				
----- Precipitation (inches of rainfall) -----								
Apr	4.14	0.82	3.45	-0.40	3.17	-0.08	4.30	0.49
May	2.27	-1.50	2.18	-2.21	1.73	-1.54	1.61	-2.43
June	1.39	-2.55	1.64	-2.38	0.82	-2.73	1.73	-1.99
July	4.03	0.60	1.55	-2.37	7.09	3.38	3.00	-1.31
Aug	4.38	0.92	2.84	-0.54	0.71	-2.11	4.97	1.46
Sept	2.73	-0.41	3.15	0.16	4.86	2.15	2.14	-0.98
Oct	<u>2.93</u>	<u>0.67</u>	<u>5.52</u>	<u>0.27</u>	<u>1.22</u>	<u>-1.06</u>	<u>3.05</u>	<u>0.71</u>
Total	21.87	-1.45	20.33	-7.47	19.60	-1.99	20.80	-4.05
----- Average daily temperature (°F) -----								
Apr	50.6	2.5	52.6	1.8	49.5	0.6	54.4	2.0
May	55.8	-2.6	57.6	-3.4	56	-3.6	57.6	-4.0
June	71.9	4.3	73.0	2.9	73.7	4.2	72.8	2.9
July	74.0	2.4	74.6	0.8	47.2	-0.7	75.7	2.2
Aug	72.5	2.5	73.7	1.7	72.9	2.3	75.1	2.9
Sept	66.1	2.7	67.9	2.7	67.1	3.1	67.5	2.3
Oct	52.4	0.2	60.9	1.3	53.9	1.3	54.0	0.3

\*DFA = departure from long-term average

Inclusion of entries in Ohio Alfalfa Performance Trials does not constitute an endorsement of a particular entry by The Ohio State University, Ohio Agricultural Research and Development Center, or Ohio State University Extension. Where trade names appear, no discrimination is intended, and no endorsement is implied by The Ohio State University, Ohio Agricultural Research and Development Center, or Ohio State University Extension.

11/2005

All educational programs conducted by Ohio State University Extension are available to clientele on a non-discriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Keith L. Smith, Director, Ohio State University Extension.