

2013
OHIO FORAGE PERFORMANCE TRIALS

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SUMMARY

This report is a summary of performance data collected from forage variety trials in Ohio during 2013, including commercial varieties of alfalfa, red clover, white clover and annual ryegrass in tests planted in 2010 to 2013 across three sites in Ohio: South Charleston, Wooster, and North Baltimore. For more details on forage species and management, see the *Ohio Agronomy Guide*, Ohio State University Extension Bulletin 472, which can be purchased from Ohio State University Extension's eStore at <http://estore.osu-extension.org/>.

Interpreting Yield Data

Yield data are reported in Tables 2 through 10. Details of establishment and management of each test are listed in footnotes below the tables. Least significant differences (LSD) are listed at the bottom of Tables 3 through 10. Differences between varieties are significant only if they are equal to or greater than the LSD value. If a given variety out yields another variety by as much or more than the LSD value, then we are 95% sure that the yield difference is real, with only a 5% probability that the difference is due to chance alone. For example, if variety X is 0.50 ton/acre higher in yield than variety Y, then this difference is statistically significant if the LSD is 0.50 or less.

The CV value or coefficient of variation, listed at the bottom of each table is used as a measure of the precision of the experiment. Lower CV values will generally relate to lower experimental error in the trial. Uncontrollable or unmeasured variations in soil fertility, soil drainage, and other environmental factors contribute to greater experimental error and higher CV values. However, higher CV values can also occur simply as a result of the mean yield being low (eg. due to weather conditions), because the CV is a function of the mean yield. So a higher CV will often occur where yields are low despite there being no increase in experimental error.

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. The relative yields of all forage legume varieties are affected by crop management and by environmental factors including soil type, winter conditions, soil moisture conditions, diseases, and insects.

ALFALFA

Alfalfa has the highest combined yield and quality potential of any adapted perennial forage grown in Ohio. It is the state's largest single hay crop, being grown on about one-half of the total hay acres. Alfalfa requires well-drained soils with near-neutral pH (6.5-7.0) for greatest production and persistence. Alfalfa trials are initiated each year and data is collected for at least four years unless the stand becomes so depleted that further testing is no longer worthwhile; variety performance should be evaluated over several sites and years.

Guidelines for Selecting Alfalfa Varieties

To capitalize on alfalfa's potential, select high-yielding varieties with resistance to problem diseases. Alfalfa variety rankings for a number of traits described below are reported on the University of Wisconsin forage website, at <http://www.uwex.edu/ces/forage/pubs/varinfo.htm>.

Consider these factors when selecting alfalfa varieties for Ohio:

- 1. Yield.** Yield is critical to profitability of an alfalfa stand. Select varieties with high yields over several locations and years. Table 2 shows this comparison in percent of the average test yield. Varieties that perform equally well across several locations and years are adapted to a wider range of environmental conditions, which is important because soils may vary on your farm and weather conditions vary from year to year.
- 2. Persistence.** Another important consideration is how long the alfalfa stand will last. Study variety performance by age of stand to get an estimate of longevity of productivity. Some varieties may decline with age more rapidly than others, which may influence your variety choice depending on how long you intend to keep the stand. For long-term rotations, choose varieties with good disease resistance and good performance in the fourth year. If you plan to harvest alfalfa for three years or less, then high performance during the first three years should be given priority.
- 3. Fall dormancy (FD).** Alfalfa varieties with fall dormancy ratings of 1 through 5 are considered adequately winter hardy for Ohio conditions while those of 6 or higher are not considered adapted. Varieties with higher fall dormancy ratings tend to grow at a lower temperature, so they begin growth earlier in the spring and continue growth later into the fall. The fall dormancy rating does not correlate well with winter hardiness within the range of varieties adapted to the Midwest USA.
- 4. Disease resistance.** Variety selection based on yield performance alone is less satisfactory than selections that also consider disease resistance characteristics. Resistance to specific disease-causing pathogens may be the most important attribute in an alfalfa variety. Pathogens can dramatically reduce yield and persistence of susceptible varieties. In an evaluation of older versus newer alfalfa varieties we found that newer varieties yielded more and persisted longer than older varieties, primarily because of improved resistance to diseases that affected the trial. For more information on alfalfa diseases and varietal resistance to specific diseases, go to the following websites:
http://oardc.osu.edu/ohiofieldcropdisease/t01_pageview2/Home.htm
<http://www.uwex.edu/ces/forage/pubs/varinfo.htm>
- 5. Insect resistance.** Alfalfa varieties have been developed for resistance to potato leafhopper (PLH), which is the most consistently damaging insect pest of alfalfa in Ohio. The PLH resistant varieties are not resistant to the alfalfa weevil, and they will need to be protected from that pest like all standard alfalfa varieties when weevil populations exceed the economic action threshold. For more information on insect management in alfalfa, see the following website:
<http://entomology.osu.edu/ag/pageview.asp?id=1029>.
- 6. Compare to check variety.** For comparisons of varieties across several trials, always compare varieties to the same check variety planted within the trial. The variety Vernal is used as a check in all Ohio trials and is commonly included in trials in other states. Another good way to compare varieties across trials is to look at their yield in relation to the trial average reported in Table 2.
- 7. Use good management.** No variety can produce well under poor management. Good management considers all aspects of alfalfa production: seed bed preparation, liming and fertilization, seeding, pest control, harvest, storage, and post harvest treatment. Many newer varieties are better adapted to intensive management.

Summary of 2013 Crop Conditions

Total rainfall for the season was above normal at all locations, with the greatest deviation being at N. Baltimore (4.6 inches above normal). Rainfall in May and August was well below normal at all locations. Average monthly temperatures were above normal in May, but tended to be below normal for July through October at all locations.

Table 1:
Weather 2013

Month	Wooster		S. Charleston		N. Baltimore	
	Total	DFA*	Total	DFA*	Total	DFA*
-----Precipitation (inches of rainfall)-----						
	total	DFA	total	DFA	total	DFA
Apr	4.10	0.80	4.44	0.44	3.52	0.22
May	2.03	-1.87	2.58	-2.02	1.36	-2.04
June	5.03	1.13	4.06	-0.14	3.74	-0.14
July	6.60	1.50	5.20	1.10	8.94	5.14
Aug	1.95	-1.65	1.77	-1.73	1.44	-1.56
Sept	2.89	0.29	4.02	1.52	1.63	-0.77
Oct	<u>3.64</u>	<u>1.34</u>	<u>3.78</u>	<u>1.48</u>	<u>6.07</u>	<u>3.77</u>
Total	26.24	1.54	25.85	0.65	26.70	4.62
-----Average Daily Temperature (°F)-----						
Apr	49.5	1.4	51.4	0.4	47.5	-1.4
May	62.3	3.8	64.1	2.8	64.5	4.7
June	68.1	0.5	70.2	-0.1	70.3	,8
July	71.7	0.2	72.2	-1.6	72.5	-0.3
Aug	69.3	-0.6	70.5	-1.5	69.9	-0.7
Sept	63.6	-0.8	65.4	-0.8	64.7	-0.3
Oct	53.6	0.2	53.5	-2.2	53.7	-0.6

*DFA = departure from long-term average

Alfalfa

The established trial at Wooster had the highest yields, averaging over 6.90 tons/acre and just over one ton more than the average yield in 2011 and 2012. A new spring seeding at Wooster performed very well with three harvests taken for a total annual yield of 4.05 tons / acre when averaged across all varieties. Alfalfa weevil populations were present at North Baltimore and required an insecticide application. Insecticide applications were used at all locations for control of potato leafhopper (PLH) in the standard yield trials.

Table 2:

Summary of Alfalfa Variety Performance in Ohio

Standard Trials - Insecticide applied (values are yield as a percent of the trial average)

Variety	Marketers	South		North		Total site-yrs	Avg all site yrs
		Wooster 2010-13	Charleston 2012-13	Baltimore 2012-13	Wooster 2013		
4030	Preferred Seed Company				104	1	104
6422Q	NEXGRO	96				8	97
55V50	Pioneer		106		99	3	104
55H94	Pioneer		95		97	3	96
Ameristand 407TQ	Americas Alfalfa		99			10	102
Archer III	Americas Alfalfa		98			2	98
BlueJay	Blue River Hybrids				97	1	97
Caliber	Beck's Hybrids		98	101		4	99
Charger	Beck's Hybrids		100			2	100
Contender	Beck's Hybrids			94		2	94
DBX 303 L	Doebler's PA Hybrids Inc.				97	1	97
DBX 304 HY	Doebler's PA Hybrids Inc.				105	1	105
DBX 305 LH	Doebler's PA Hybrids Inc.				99	1	99
DG 4210	Crop Protection Service	100	100		100	7	100
DKA 3417 RR	Dekalb			100		2	100
DKA 4118 RR	Dekalb			95		6	97
FSG 403 LR	Farm Science Genetics				101	1	101
FSG 424	Farm Science Genetics				91	1	91
FSG 524	Farm Science Genetics				94	1	94
Gunner	Croplan Genetics		99			2	99
HybriForce-2400	Dairyland Seed	102				4	102
Hybri+Jade	Channel Bio	104				4	104
King Fisher 4020	Byron Seeds	106				4	106
L-455 HD	Legacy Seeds				99	1	99
Legacy 449 Aph 2	Legacy Seeds			99		2	99
Magnitude	Farm Science Genetics			101		2	101
Mariner IV	Allied Seed			109		2	109
Persist II	Doebler's PA Hybrids			97		2	97
Persist III	Doebler's PA Hybrids				110	1	110
PGI 459	Producers Choice	103				8	101
PGI 557	Producers Choice	98	104			6	100
Pluss II	Doebler's PA Hybrids			100		2	100
Prolific II	Doebler's PA Hybrids				112	1	112
Rebound 6.0	Croplan Genetics		100			2	100
TS 4007	Producers Choice	98				4	98
VERNAL	Public	89	99	102	99	105	92
WL 343 HQ	Crop Protection Service	98				19	98
WL 354 HQ	Crop Protection Service		98			2	98
WL 353 LH	Crop Protection Service		104			2	104
WL 363 HQ	Crop Protection Service	102				12	101

Table 3:
Alfalfa Variety Trial
Ohio, Wooster, Sown 4-23-2010

Variety	28-May	1-Jul	6-Aug	10-Sep	Total			2010	2010-13	% Stand 9/30/13
					2013	2012	2011			
Released Cultivars:	-----Tons Dry Matter/Acre -----									
Kingfisher 4020	2.38	1.94	1.62	1.21	7.18	6.00	6.47	2.77	22.41	84.7
Hybri+Jade	2.53	1.88	1.69	1.29	7.40	5.90	6.09	2.73	22.11	75.5
PGI 459	2.40	1.98	1.70	1.22	7.32	6.01	5.96	2.61	21.91	75.6
HybriForce-2400	2.43	1.80	1.62	1.19	7.07	5.84	5.68	2.97	21.57	77.0
WL 363 HQ	2.30	1.96	1.65	1.26	7.20	6.01	5.76	2.53	21.51	85.5
DG 4210	2.36	1.88	1.58	1.29	7.07	5.98	5.68	2.47	21.18	80.8
WL 343 HQ	2.24	1.71	1.50	1.24	6.71	5.82	5.82	2.41	20.76	83.9
TS 4007	2.12	1.73	1.55	1.20	6.62	5.79	5.70	2.55	20.67	78.4
PGI 557	2.24	1.85	1.61	1.30	7.04	5.74	5.53	2.36	20.67	79.0
6422Q	2.22	1.82	1.56	1.25	6.75	5.89	5.60	2.13	20.37	79.8
Vernal	2.36	1.54	1.33	0.84	6.10	5.21	5.13	2.40	18.84	49.6
Mean	2.33	1.84	1.58	1.21	6.95	5.84	5.84	2.56	21.19	77.7
LSD 0.05	0.14	0.18	0.14	0.13	0.34	0.33	0.70	0.46	1.19	8.4
Prob > F	<.001	<.001	<.001	<.0001	<.0001	<.01	0.07 ns	0.06 ns	<.0001	<.0001
CV %	4.3	6.7	6.0	7.2	3.4	3.9	8.4	12.6	3.9	7.5

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

ns = no significant differences among varieties.

Data subjected to Nearest Neighbor AOV, adjusted means reported.

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 16 lb/a.

Eptam applied PPI at 2 qt/a.

Plot size: 4' x 20', 15' alleys and borders, RCBD with four reps.

Soil type / analysis: Riddles silt loam, pH = 6.5, P =64 lb/a, K = 420 lb/a, CEC = 6.9 (10/12).

2013 Fertility: Applied 555 lb/a 0-18-36 and 166 lb/a 0-0-60 after first harvest.

2013 Pest control: Insecticide was applied 12-June, 16-July and 20-August for potato leafhopper control.

Table 4:
Alfalfa Variety Trial
Ohio, South Charleston, Sown 8/22/2011

	30-May	25-Jun	30-Jul	9-Sep	Total		
					2013	2012	2012-13
Released Cultivars:	----- Tons Dry Matter/Acre -----						
55V50	2.62	1.60	1.17	0.84	6.23	6.61	12.85
PGI 557	2.50	1.52	1.23	0.96	6.20	6.38	12.59
WL 353 LH	2.33	1.47	1.21	0.98	5.99	6.57	12.56
Rebound 6.0	2.25	1.49	1.26	0.99	5.99	6.06	12.05
DG 4210	2.41	1.59	1.21	1.03	6.23	5.82	12.05
Charger	2.49	1.50	1.22	0.97	6.19	5.83	12.02
Gunner	2.34	1.54	1.22	0.85	5.95	6.04	11.99
AmeriStand 407TQ	2.36	1.45	1.10	0.94	5.85	6.13	11.99
Vernal	2.34	1.26	1.13	0.84	5.55	6.35	11.91
Archer III	2.30	1.48	1.23	0.88	5.90	5.93	11.83
WL 354 HQ	2.26	1.51	1.10	0.82	5.69	6.09	11.78
Caliber	2.36	1.50	1.12	0.77	5.74	6.04	11.78
55H94	2.29	1.32	1.14	0.91	5.66	5.85	11.51
Mean	2.37	1.47	1.18	0.90	5.92	6.15	12.07
LSD 0.05	0.30	0.22	0.16	0.20	0.56	0.92	1.30
Prob > F	0.6 ns	0.16 ns	0.82 ns	0.25 ns	0.17 ns	0.83 ns	0.8 ns
CV%	8.9	10.6	9.8	15.6	6.6	10.4	7.5

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

Data subjected to Nearest Neighbor AOV, adjusted means reported.

ns = no significant differences among varieties.

Note: Stand at 95% for all varieties on 9/21/2013.

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 16 lb/a.

Plot size: 4' x 20' , 15'alleys and borders, RCBD with four reps.

Soil type / analysis: Crosby silt loam, pH=6.5, P=74 lbs/a, K= 232 lbs/a, CEC=13.8, O.M.=2.2, (10/12).

2013 Pest control: Insecticide was applied on 11-June, 8-July, 15-August for potato leafhopper control.

Table 5:
Alfalfa Variety Trial
Ohio, North Baltimore, Sown 4-13-2012

	3-Jun	15-Jul	14-Aug	13-Sep	Total		
					2013	2012	2012-13
Released Cultivars:	----- Tons Dry Matter/Acre -----						
Mariner IV	2.15	2.44	1.78	0.62	7.00	1.62	8.58
Vernal	2.08	2.32	1.60	0.53	6.56	1.58	8.05
Caliber	2.08	1.85	1.73	0.61	6.22	1.60	7.94
Magnitude	1.98	2.01	1.77	0.73	6.50	1.50	7.92
Plus II	1.88	2.19	1.65	0.64	6.39	1.64	7.90
DKA 3417 RR	1.93	2.30	1.61	0.60	6.34	1.49	7.89
L 449 Aph2	1.95	2.06	1.68	0.61	6.31	1.52	7.83
Persist II	2.06	1.94	1.71	0.55	6.25	1.47	7.65
DKA 4118 RR	1.71	1.96	1.64	0.57	5.89	1.47	7.48
Contender	1.76	2.00	1.66	0.61	6.11	1.40	7.40
Mean	1.93	2.09	1.69	0.61	6.32	1.55	7.87
LSD 0.05	0.22	0.40	0.18	0.07	0.44	0.24	0.51
Prob > F	<.0001	.12 ns	.65 ns	<.001	<.01	0.52	<.01
CV %	7.77	13.17	7.28	8.32	4.85	10.78	4.46

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

Data subjected to Nearest Neighbor AOV, adjusted means reported.
ns = no significant differences among varieties.

Note: Stands are all at 95% on 9/25/13.

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 16 lb/a.
Plot size: 4' x 20', 15'alleys and borders, RCBD with four reps.
Soil type / analysis: Holtville silt loam, pH=6.4, P=62 lbs/a, K=428 lbs/a, CEC=19.6, O.M.=2.9, (10/12).
2013 Fertility Applied 300 #/A of 9-23-31 in November 2012.
2013 Pest control: Insecticide was applied on 17-May for Alfalfa Weevil and 7-June, 29-July and 29-August for potato leafhopper control.

Table 6:
Alfalfa Variety Trial
Ohio, Wooster, Sown 4/23/2013

Variety	1-Jul	5-Aug	9-Sep	Total 2013
Released Cultivars:	-----Tons Dry Matter/Acre -----			
Prolific II	1.37	2.13	1.02	4.52
Persist III	1.30	2.14	1.02	4.46
DBX 304 HY	1.27	2.07	0.92	4.26
4030	1.13	2.06	1.04	4.23
FSG 403 LR	1.07	2.05	0.97	4.08
DG 4210	1.17	1.93	0.97	4.07
DBX 305 LH	1.07	2.08	0.88	4.02
Vernal	1.15	2.03	0.81	4.00
55V50	1.09	2.05	0.86	3.99
L 455 HD	1.03	1.97	0.99	3.99
BlueJay	1.08	2.02	0.84	3.94
DBX 303 L	1.07	2.02	0.83	3.92
55H94	1.01	2.05	0.84	3.91
FSG 524	1.16	1.87	0.78	3.81
FSG 424	0.89	1.90	0.89	3.69
Mean	1.13	2.02	0.91	4.05
LSD 0.05	0.17	0.17	0.08	0.29
Prob > F	<.0001	0.15 ns	<.0001	<.0001
CV %	10.8	5.8	6.5	5.1

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

ns = no significant differences among varieties.

Data subjected to Nearest Neighbor AOV, adjusted means reported.

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 16 lb/a.
 Plot size: 4' x 20', 15' alleys and borders, RCBD with four reps.
 Soil type / analysis: Riddles silt loam, pH = 6.5, P =64 lb/a, K = 420 lb/a, CEC = 6.9 (10/12).
 2013 Fertility: Applied 291 lb/A of 0-18-36 prior to planting and 116 lb/A of 0-0-60 after first harvest.
 2013 Pest control: Insecticide was applied 12-June, 16-July and 20-August for potato leafhopper control.
 Herbicide applied 15-August for weed control.

Clover: Red & White

Red and white clover trials were seeded in 2013 at South Charleston. Trials were sprayed after the first harvest for potato Leafhopper (PLH) control to aid new growth due to the high numbers of PLH. Red clover is better adapted than alfalfa to soils that are somewhat poorly drained and slightly acidic; however, greatest production will occur on well-drained soils with high water-holding capacity and pH above 6.0. Red clover is not as productive as alfalfa in the summer and it generally persists for a shorter time than alfalfa. New varieties are capable of persisting into a third year. While clover is a short-lived perennial that is well suited for pastures. It spreads and persists over time by vegetative propagation of stolons and by natural reseeding. White clover tolerates periods of poor drainage, but does poorly in dry weather.

Table 7:
Red Clover Variety Trial
Ohio, South Charleston, Sown 4/9/2013

Variety	Marketers	17-Jul	7-Aug	10-Sep	Total 2013
		----- Tons Dry Matter/A -----			
RC0401*	Allied Seed	1.02	1.01	1.04	3.08
FSG 402	Farm Science Genetics	0.96	0.95	1.04	2.98
Gallant	The Cisco Companies	0.90	1.10	0.93	2.91
PGI 44	Producers Choice	1.08	0.83	1.02	2.91
Common red	Public	0.65	0.79	1.09	2.55
Mammoth red	Public	0.31	1.03	0.56	1.86
Mean		0.82	0.95	0.95	2.72
LSD 0.05		0.15	0.29	0.23	0.49
Prob > F		<.0001	.22 ns	<.01	<.001
CV %		12.4	20.0	16.3	12.0

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

Note: Stand for all varieties was 100% on 9/23/13.

ns = no significant differences among varieties.

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 12 lb/a.

Plot size: 4' x 20' , 7' alleys and borders, RCBD with four reps.

Soil type/

analysis: Crosby silt loam, pH=7.0, P=24 lbs/a, K=108 lbs/a, CEC=12.7, O.M.=1.8,(10/13).

2013 Pest control: Insecticide was applied on 18-July and 12-August for potato leafhopper control.

Herbicide was applied on 5-June for weed control.

Table 8:
White Clover Variety Trial
Ohio, South Charleston, Sown 4/9/2013

Variety	Marketers	17-Jul	7-Aug	10-Sep	Total 2013
		----- Tons Dry Matter/A -----			
Crusade II	Allied Seed	0.27	0.96	0.59	1.88
Cashmere	Saddle Butte Ag	0.31	0.92	0.47	1.70
Kentucky Select	Saddle Butte Ag	0.25	0.76	0.49	1.48
Durana	Pennington Seed	0.13	0.79	0.46	1.39
Patriot	Pennington Seed	0.22	0.48	0.56	1.25
Mean		0.26	0.79	0.50	1.56
LSD 0.05		0.11	0.19	0.18	0.29
Prob > F		<.01	<.001	.31 ns	<.01
CV %		28.6	15.7	24.4	12.4

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

Note: Stand for all varieties was 100% on 9/23/13.

ns = no significant differences among varieties.

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 4 lb/a.

Plot size: 4' x 20' , 7' alleys and borders, RCBD with four reps.

Soil type/

analysis: Crosby silt loam, pH=7.0, P=24 lbs/a, K=108 lbs/a, CEC=12.7, O.M.=1.8,(10/13).

2013 Pest control: Insecticide was applied on 18-July and 12-August for potato leafhopper control.

Herbicide was applied on 5-June for weed control.

Annual Ryegrass

This trial (Table 9) was harvested once in November 2012 and four times in 2013. Excellent growing conditions with adequate rainfall at this site through June provided for high yields of annual ryegrass this year. The second trial (Table 10) was planted in September of 2013 and was only harvested once in 2013. Additional harvest for the second trial will occur in 2014. Annual ryegrass is a cool-season annual bunch grass that is highly palatable and digestible. It has high seedling vigor and is well adapted to either conventional or no-till establishment methods.

Table 9:
Annual Ryegrass Variety Trial
Ohio, South Charleston, Sown 9-12-2012

Variety	Marketers	2013 Harvest Data					Total 2012-13	Winter injury 15-Apr	Maturity	
		20-Nov-12	2-May	30-May	20-Jun	17-Jul			30-May	19-Jun
----- Tons Dry Matter/Acre -----										
PS-Lm-09-2*	Not marketed in 2013	0.15	1.94	1.96	2.38	1.91	8.36	1.5	4.0	3.9
Max	Pickseed USA	0.19	2.09	1.84	2.32	1.84	8.32	1.3	4.4	3.9
Lh 4X-IPS*	Not marketed in 2013	0.20	1.84	1.96	2.12	1.78	7.89	2.0	4.6	4.8
Winterhawk	Oregon Seeds	0.21	2.24	1.70	1.75	0.85	6.75	1.0	3.8	4.9
TAMTBO	Oregon Seeds	0.36	1.70	1.58	1.86	0.92	6.43	3.8	6.1	4.8
Marshall	Wax Seed Co.	0.19	2.09	1.60	1.76	0.64	6.27	1.0	3.3	3.8
Fria	Allied Seed	0.28	2.02	1.49	1.71	0.70	6.13	1.0	4.1	5.1
Lonestar	Grassland Oregon	0.19	1.39	1.44	1.63	0.84	5.48	2.5	5.7	5.5
Tetrastar	Grassland Oregon	0.26	1.03	1.26	1.57	0.78	4.87	4.5	6.1	5.8
Mean		0.23	1.93	1.67	1.89	1.09	6.82	2.0	4.5	4.6
LSD 0.05		0.14	0.47	0.14	0.20	0.20	0.72	0.54	1.17	1.07
Prob > F		0.11 ns	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.001	<.001
CV %		41.6	16.7	5.6	7.4	12.3	7.3	19.2	18.0	16.1

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

Winter Injury: 1 = no injury to 5 = severe injury.

Note: Maturity on May 2, 2013 were vegetative for all varieties.

Maturity scale: 1 = vegetative, 2 = early boot, 3= initial emergence from boot, 4 = complete emergence,
5 = elongated peduncle, 6 = pre anthesis

Soil type /

analysis: Crosby silt loam, pH=6.4, P=82 lbs/a, K=248lbs/a, CEC=10.2, O.M.=1.6,(10/12).

2012 Fertilization: Applied 100 lb/a of 46-0-0 on 4 - October.

2013 Fertilization: Applied 100 lb/a of 46-0-0 on 4-April, 3-May and 24-June.

Table 10:
Annual Ryegrass Variety Trial
Ohio, South Charleston, Sown 9-16-2013

Variety	Marketers	11-Nov-13 Tons Dry Matter/Acre
Dyna-Gain	Columbia Seeds	0.45
Passerel Plus	Pennington Seed	0.42
Frosty	Central Farm Supply	0.37
LRM42*	Not Marketed in 2013	0.33
Max	Pickseed USA	0.31
SARG-RGED*	Not Marketed in 2013	0.27
Jeanne	DLF International Seeds	0.26
LRM41*	Not Marketed in 2013	0.25
PS-Lm-09-2*	Not Marketed in 2013	0.25
Fria	Allied Seed	0.25
07-EW*	Not Marketed in 2013	0.25
Amp	Columbia Seeds	0.25
TAMTBO	Oregon Seeds	0.24
Marshall	Wax Seed Co.	0.23
SARG-GRF*	Not Marketed in 2013	0.23
Winterhawk	Oregon Seeds	0.22
CTD12-WM*	Not Marketed in 2013	0.22
Big Shot	Central Farm Supply	0.21
SARG-KOWE*	Not Marketed in 2013	0.20
07-WW*	Not Marketed in 2013	0.19
CTD12-WAL*	Not Marketed in 2013	0.19
PPG-LWD101*	Not Marketed in 2013	0.19
Lh4X-IPS*	Not Marketed in 2013	0.18
SARG-KOSP*	Not Marketed in 2013	0.18
KoGreen	Oregon Seeds	0.18
SARG-RGT90*	Not Marketed in 2013	0.17
CTD12-WEW*	Not Marketed in 2013	0.17
Assist	Saddle Butte Ag	0.14
CTD12-WLF*	Not Marketed in 2013	0.13
CTD12-WF*	Not Marketed in 2013	0.12
SARG-KOWI*	Not Marketed in 2013	0.10
CTD12-WK*	Not Marketed in 2013	0.10
Mean		0.23
LSD 0.05		0.12
Prob > F		<0.0000
CV %		37.0

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.

NOTE: All varieties had a 100% stand and 100% ground (gap) cover at harvest.
Not Marketed in 2013 - Experimental varieties that may be named at a latter date.

Soil type /
analysis: Crosby silt loam, pH=7.0, P=48 lbs/a, K=216 lbs/a, CEC=12.7, O.M.=1.8,(10/13).
2013 Fertilization: Applied 100 lb/a of 46-0-0 on 15 - October.

ADDRESS OF MARKETERS

Allied Seed
1108 Hilldale Drive
Macon, MO 63552
www.alliedseed.com

America's Alfalfa
P.O. Box 8246
Madison, WI 53708
www.americasalalfa.com

Beck's Hybrids
6767 East 276th St.
Atlanta, IN 46031
www.beckshybrids.com

Blue River Hybrids
27087 Tiber Rd.
Kelly, IA 50134
www.blueriverorgseed.com

Byron Seeds, LLC
775 N 350 E.
Rockville, IN 47872
765-569-3555
<http://byronseeds.net>

Central Farm & Supply
380 N. Smyser Rd.
Wooster, Ohio 44691
330-264-0282
www.centralfarm.com

Channel Bio
See Local Retailer
www.channel.com

Columbia Seeds
887 N. Grant Ave.
Corvallis, OR 97330
541-757-1468
www.columbiaseeds.com

Croplan Genetics
See Local Retailer
www.croplangenetics.com

Crop Protection Services
See Local Retailer
www.cpsagu.com

Dairyland Seed
9728 Clinton Corners Rd.
Clinton, WI 53525-9728
www.dairylandseed.com

Dekalb
See Local Retailer
www.asgrowanddekalb.com

DLF International Seeds
175 W. H Street
P.O. Box 229
Halsey, OR 97348
www.dlfis.com

Doebblers PA Hybrids
202 Tiadaghton Ave.
Jersey Shore, PA 17740
www.doebblers.com

Farm Science Genetics
9311 Highway 45
Nampa, ID 83686
www.farmsciencegenetics.com

Grassland Oregon
4455 60th Save.
Salem, OR 97305
503-566-9900
www.grasslandoregon.com

Legacy Seeds, Inc.
290 Depot St
Scandinavia, WI 54977
www.Legacyseeds.com

NEXGRO
www.plantnexus.com

Oregon Seed Inc.
33080 Red Bridge Rd.
Albany OR 97322

Pennington Seed
P.O. Box 290
Madison, GA 30650
www.penningtonusa.com

Pickseed USA, Inc.
P.O. Box 888
Tangent, OR 97389-
www.pickseed.com/usa

Pioneer Hi-Bred Int'l
See Local Retailer
www.pioneer.com

Preferred Seed Company
575 Kennedy Rd.
Buffalo, NY 14227
www.preferredseed.com

Producers Choice
16690 Greystone Lane
Jordan, MN 55352
www.producerschoiceseed.com

Saddle Butte Ag., Inc.
P.O. Box 50
Shedd, OR 97377
www.saddlebutte.com

The Ciscio Companies
602 N. Shortridge Rd.
Indianapolis, IN 46219
www.ciscoseeds.com

Wax Seed Company
212 Front St N.
Armory, MS 38821
662-256-3511

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