2012
OHIO FORAGE PERFORMANCE TRIALS

C O N T E N T S:

SUMMARY

This report is a summary of performance data collected from forage variety trials in Ohio during 2012, including commercial varieties of alfalfa, red clover, white clover tall fescue and annual ryegrass in tests planted in 2009 to 2012 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. This report includes several trials where yield tolerance to PLH damage is being evaluated. 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.

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 2012 Crop Conditions

Rainfall was below normal for the season at all locations and monthly departures were below normal except for September and October (Table 1). At South Charleston and N. Baltimore rainfall was 2.30 to 3.89 below the long-term average. Temperatures were well above normal for most of the growing season with the exception of September and October.

Table 1:

Weather 2012

	Wooster		S. Charleston		N. Baltimore	
Month	Total	DFA*	Total	DFA*	Total	DFA*
----------Precipitation (inches of rainfall)----------						
	total	DFA	total	DFA	total	DFA
Apr	1.42	-1.88	3.09	-1.01	1.32	-1.98
May	2.21	-1.69	2.76	-1.84	2.35	-1.05
June	2.19	-1.71	3.92	-0.28	1.49	-2.11
July	2.32	1.78	4.48	0.38	2.17	-1.63
Aug	2.24	-1.36	1.37	-2.13	6.56	3.56
Sept	4.86	1.76	3.10	0.10	3.14	0.44
Oct	3.48	1.28	3.09	0.89	2.67	0.47
Total	18.72	-1.82	21.81	-3.89	19.70	-2.30
----------Average Daily Temperature (°F)----------						
Apr	48.6	0.5	52.3	1.1	50.2	1.3
May	65.3	6.8	68.5	7.2	67.1	7.3
June	69.8	2.2	71.6	1.3	71.8	2.3
July	76.3	4.8	77.2	3.4	77.9	5.1
Aug	70.2	0.3	71.8	-0.2	70.6	0.0
Sept	61.5	-1.9	63.2	-2.0	62.1	-1.9
Oct	52.8	0.4	52.3	-1.8	52.6	-0.2

*DFA = departure from long-term average

Alfalfa

The established trial at North Baltimore had the highest yields, averaging over 6.5 tons/acre but lower than the average yield in 2010 and 2011. A new spring seeding at North Baltimore suffered from the drought with an average yield of 1.55 ton/acre. Alfalfa weevil populations were low at all sites and no insecticide was required for their control. 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 Charleston 2012	North Baltimore 2009-12	North Baltimore 2012	Wooster 2010-12	Total site-yrs	Avg all site yrs
4S417	Mycogen		109			4	109
54Q32	Pioneer		100			4	100
55H94	Pioneer	95				1	95
55V12	Pioneer		97			4	97
55V48	Pioneer		101			11	105
55V50	Pioneer	107				1	107
6422Q	NEXGRO		98		96	7	97
A 4330	Producers Choice		103			8	102
Ameristand 403T	Americas Alfalfa		98			12	99
Ameristand 407TQ	Americas Alfalfa	100	103			9	102
Archer III	Americas Alfalfa	96				1	96
Caliber	Beck's Hybrids	98		103		2	101
Charger	Beck's Hybrids	95				1	95
Contender	Beck's Hybrids			90		1	90
DG 4210	Crop Protection Service	95			99	4	98
DKA 3417 RR	Dekalb			96		1	96
DKA 4118 RR	Dekalb			95		5	97
Everlast II	Crop Protection Service		103			4	103
FSG 329	Farm Science Genetics		100			4	100
FSG 420 LH	Farm Science Genetics		95			4	95
Gunner	Croplan Genetics	98				1	98
Hybri+Jade	Channel Bio				103	3	103
HybriForce-2400	Dairyland Seed				102	3	102
King Fisher 243	Byron Seeds		99			4	99
King Fisher 4020	Byron Seeds				107	3	107
Legacy 449 Aph 2	Legacy Seed			98		1	98
Magnitude	Farm Science Genetics			97		1	97
Mariner IV	Allied Seed			105		1	105
Persist II	Doeblers PA Hybrids			95		1	95
PGI 459	Producers Choice				102	7	100
PGI 557	Producers Choice	104			96	4	98
Pluss II	Doeblers PA Hybrids			106		1	106
Radiance HD	Legacy Seeds		103			4	103
Rebound 6.0	Croplan Genetics	99				1	99
TS 4007	Producers Choice				99	3	99
VERNAL	Public	103	90	102	89	101	92
WL 343 HQ	Crop Protection Service		97		99	18	98
WL 353 LH	Crop Protection Service	107				1	107
WL 354 HQ	Crop Protection Service	99				1	99
WL 363 HQ	Crop Protection Service		99		100	11	101
Trial Averaged Yield		6.15	6.56	1.55	4.75	--	--
Number of site years		1	4	1	3	--	--

Table 3:
Alfalfa Variety Trial
Ohio, North Baltimore, Sown 4-27-2009

Variety	24-May	21-Jun	23-Jul	30-Aug	Total 2012	2011	2010	2009	2009-12	Relative Yield	% Stand
Released Cultivars:	---------- Tons Dry Matter/Acre ----------									% mean	10/2/2012
4S417	2.91	1.08	0.63	2.50	7.10	9.41	9.02	2.98	28.50	109	89
Everlast II	2.75	1.18	0.59	2.36	6.90	8.72	8.53	2.97	27.12	103	89
AmeriStand 407TQ	2.76	1.09	0.59	2.43	6.89	8.96	8.47	2.77	27.08	103	89
A 4330	2.48	1.15	0.69	2.50	6.85	9.01	8.32	2.86	27.05	103	91
Radiance HD	2.69	1.05	0.57	2.31	6.55	8.95	8.47	3.04	27.02	103	86
55V48	2.36	1.17	0.46	2.26	6.35	9.01	8.40	2.82	26.59	101	89
54Q32	2.45	1.07	0.66	2.37	6.54	8.65	8.26	2.83	26.28	100	85
FSG 329	2.55	1.03	0.51	2.36	6.45	8.90	8.16	2.64	26.15	100	88
KingFisher 243	2.47	1.23	0.74	2.32	6.75	8.71	7.90	2.72	26.08	99	89
WL 363 HQ	2.39	1.14	0.48	2.20	6.15	8.50	8.38	2.85	25.89	99	90
6422Q	2.39	1.08	0.70	2.18	6.38	8.59	8.32	2.52	25.81	98	90
AmeriStand 403T	2.69	0.88	0.50	2.23	6.34	8.88	7.89	2.66	25.76	98	83
55V12	2.18	1.03	0.43	2.29	5.94	8.67	8.09	2.85	25.55	97	90
WL 343 HQ	2.19	0.95	0.53	2.31	6.02	8.73	8.10	2.64	25.49	97	89
FSG 420 LH	2.42	0.94	0.32	2.16	5.84	8.43	8.08	2.59	24.94	95	86
Vernal	2.65	0.94	0.45	2.25	6.23	7.58	7.21	2.67	23.69	90	84
Mean	2.54	1.06	0.54	2.32	6.47	8.76	8.21	2.79	26.23	--	88
LSD 0.05	ns	0.18	0.20	0.18	0.48	0.46	0.52	ns	1.15	--	3.7
CV %	12.07	11.65	26.22	5.48	5.17	3.68	4.42	9.73	3.08	--	2.92

* 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.

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=6.3, P=50 lbs/a, K=370 lbs/a, CEC=19.5, O.M.=3.6, (10/10).
2012 Pest control:	Insecticide was applied on 6-June, 5-July, 6-August for potato leafhopper control.

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

Variety	25-May	27-Jun	30-Jul	5-Sep	Total 2012	Total 2011	Total 2010	Total 2010-12	Relative Yield
Released Cultivars:				Tons Dry Matter/Acre					% mean
Kingfisher 4020	2.18	1.74	1.02	1.06	6.00	6.47	2.77	15.24	107
Hybri+Jade	2.21	1.68	0.95	1.07	5.90	6.09	2.73	14.72	103
PGI 459	2.28	1.67	0.95	1.10	6.01	5.96	2.61	14.58	102
HybriForce-2400	2.17	1.74	0.87	1.06	5.84	5.68	2.97	14.49	102
WL 363 HQ	2.29	1.76	0.94	1.03	6.01	5.76	2.53	14.30	100
DG 4210	2.29	1.75	0.96	0.96	5.98	5.68	2.47	14.12	99
WL 343 HQ	2.06	1.75	1.01	1.01	5.82	5.82	2.41	14.05	99
TS 4007	2.09	1.70	0.98	1.02	5.79	5.70	2.55	14.04	99
PGI 557	2.20	1.60	0.93	1.01	5.74	5.53	2.36	13.63	96
6422Q	2.18	1.76	1.03	0.93	5.89	5.60	2.13	13.62	96
Vernal	2.20	1.30	0.75	0.95	5.21	5.13	2.40	12.74	89
Mean	2.19	1.68	0.95	1.02	5.84	5.84	2.56	14.24	--
LSD 0.05	ns	0.15	0.11	0.08	0.33	ns	ns	1.05	--
CV %	6.87	6.08	8.21	5.55	3.89	8.38	12.55	5.12	--

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

Note: All varieties had stands that were 90% or better except for Vernal at 74 %.
Data subjected to Nearest Neighbor AOV, adjusted means reported.
ns = no significant differences among varieties.

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).
2012 Fertility:	Applied 555 lb/a 0-18-36 and 166 lb/a 0-0-60 after first harvest.
2012 Pest control:	Insecticide was applied 13-June, 10-July and 13-August for potato leafhopper control.

Table 5:
Alfalfa Variety Trial
Ohio, South Charleston, Sown 8/22/2011

Variety	24-May	27-Jun	30-Jul	5-Sep	Total 2012	Relative Yield
Released Cultivars:	----------	----------	Tons Dry Matter/Acre	----------	----------	% mean
55V50	2.72	1.71	1.57	0.60	6.61	108
WL 353 LH	2.77	1.84	1.40	0.57	6.57	107
PGI 557	2.46	1.73	1.52	0.67	6.38	104
Vernal	2.71	1.67	1.43	0.55	6.35	103
AmeriStand 407TQ	2.31	1.76	1.49	0.57	6.13	100
WL 354 HQ	2.34	1.67	1.50	0.58	6.09	99
Rebound 6.0	2.30	1.73	1.38	0.66	6.06	99
Caliber	2.55	1.80	1.27	0.42	6.04	98
Gunner	2.53	1.67	1.41	0.42	6.04	98
Archer III	2.42	1.57	1.40	0.54	5.93	96
55H94	2.52	1.72	1.22	0.40	5.85	95
Charger	2.57	1.40	1.39	0.47	5.83	95
DG 4210	2.24	1.64	1.46	0.48	5.82	95
Mean	2.51	1.70	1.41	0.53	6.15	--
LSD 0.05	ns	ns	ns	0.19	ns	--
CV %	10.93	17.51	12.26	24.43	10.42	--

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

Note: All varieties had stands that were 95% or better.
Data subjected to Nearest Neighbor AOV, adjusted means reported.
ns = no significant differences among varieties.

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).
2012 Pest control:	Insecticide was applied on 5-June, 13-July, 13-August for potato leafhopper control.

Table 6:
Alfalfa Variety Trial
Ohio, North Baltimore, Sown 4-13-2012

Variety	21-Jun	16-Aug	Total 2012	Relative Yield
Released Cultivars:	---------- Tons Dry Matter/Acre ----------			% mean
Pluss II	0.67	0.99	1.64	106
Mariner IV	0.56	1.03	1.62	104
Caliber	0.60	0.96	1.60	104
Vernal	0.57	0.98	1.58	102
L 449 Aph2	0.69	0.88	1.52	98
Magnitude	0.59	0.92	1.50	97
DKA 3417 RR	0.52	0.95	1.49	97
Persist II	0.60	0.91	1.47	95
DKA 4118 RR	0.57	0.88	1.47	95
Contender	0.63	0.81	1.40	91
Mean	0.61	0.94	1.55	--
LSD 0.05	ns	0.13	ns	--
CV %	18.70	9.58	10.78	--

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

Note: All varieties had stands that were 95% or better.
Data subjected to Nearest Neighbor AOV, adjusted means reported.
ns = no significant differences among varieties.

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).
2012 Fertility	2 ton of lime was applied in the fall of 2011.
2012 Pest control:	Insecticide was applied on 5-July, 30-August for potato leafhopper control.

Clover: Red & White

Red and white clover trials were seeded in 2010 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, as shown by the low yields (Table 8) compared with red clover (Table 7).

Table 7:
Red Clover Variety Trial
Ohio, South Charleston, Sown 4-13-2010

					Total				
Variety	Marketers	24-May	26-Jul	10-Sep	2012	2011	2010	2010-12	% Stand
		---------- Tons Dry Matter/Acre ----------							9/25/12
LS 9703	Lewis Seed Co.	3.38	1.83	0.87	6.19	7.23	1.94	15.44	61
CW 30091*	Cal West Seeds	3.58	1.90	0.68	6.26	6.98	1.89	15.04	60
Freedom MR!	Barenbrug USA	3.68	1.91	0.83	6.38	6.54	1.78	14.65	62
Rustler	Oregon Seeds, Inc.	3.41	1.48	0.57	5.43	6.84	1.75	14.09	17
Medium red**	Public	2.33	1.25	0.45	3.88	4.38	1.87	10.12	16
Mean		3.28	1.67	0.68	5.63	6.39	1.85	13.87	43
LSD 0.05		0.44	ns	ns	0.63	0.77	0.26	0.80	9.66
CV %		8.62	20.83	43.16	7.18	7.78	8.99	3.69	14.43

* Variety tested using experimental seed that may not give performance identical to that of commercially available seed.
** Medium red was used as a check variety.

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=6.5, P=296 lbs/a, K=264 lbs/a, CEC=18.6, O.M.=2.9,(10/10).
2012 Fertility: 500 lb/a of 0-0-60.

Table 8:
White Clover Variety Trial
Ohio, South Charleston, Sown 4-13-2010

Variety	Marketers	24-May	26-Jul	Total 2012	Total 2011	Total 2010	Total 2010-12
		Tons Dry Matter/Acre					
CW 040041*	Cal West Seeds	1.73	1.23	2.97	3.47	1.28	7.72
Companion	Oregon Seeds, Inc.	1.76	0.69	2.45	3.76	1.18	7.40
AMP-124*	Ampac Seed	1.70	0.79	2.51	3.54	1.28	7.33
Check	Public	1.66	0.57	2.20	3.44	1.18	6.82
Rampart	Oregon Seeds, Inc.	1.32	0.58	1.89	3.58	1.10	6.57
Mean		1.63	0.77	2.40	3.56	1.20	7.17
LSD 0.05		ns	0.23	ns	ns	0.13	0.84
CV %		17.69	19.38	17.22	10.46	7.03	7.49

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

Note: Stand for all varieties is 95% on 9/25/12.

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=6.5, P=296 lbs/a, K=264 lbs/a, CEC=18.6, O.M.=2.9,(10/10).
2012 Fertility: 500 lb/a of 0-0-60.
2012 Pest control: Insecticide was applied on 13-July for potato leafhopper control.

Tall Fescue

The tall fescue trial of endophyte-free varieties established at South Charleston in 2008 averaged 5.66 tons/acre in 2012. New varieties that are endophyte free or that contain a non-toxic endophyte (eg., Jessup Max Q) have potential to increase animal performance, especially during the summer grazing season, and to provide forage for beef cattle and sheep during autumn and early winter.

Table 9:
Tall Fescue Variety Trial
Ohio, South Charleston, Sown 4-23-2008

Variety	Marketer	24-May	5-Jul	12-Sep	5-Nov	Total 2012	2011	2010	2009	2009-12	Relative Yield
		Tons Dry Matter/Acre									% mean
Brutus	Saddle Butte Ag.	2.41	0.89	2.13	0.56	6.01	4.94	5.30	4.75	20.60	105
IS-79/9901	DLF International	2.41	0.94	1.95	0.48	5.81	4.75	4.73	4.17	19.68	101
KY31 E-	Public	2.50	0.86	1.76	0.41	5.49	4.67	5.12	4.54	19.58	100
Bronson	Ampac Seed	2.59	1.01	1.74	0.46	5.74	5.22	5.18	3.44	19.58	100
KY31 E+	Public	2.47	0.97	1.64	0.41	5.49	4.61	4.67	4.12	19.24	98
TF 0201*	Winfield Solutions	2.11	0.86	1.91	0.45	5.37	4.30	4.93	4.39	19.12	98
IS-FTF-31*	DLF International	2.31	1.05	1.88	0.51	5.72	4.46	4.71	4.24	19.04	97
Mean		2.40	0.94	1.86	0.47	5.66	4.71	4.95	4.24	19.55	--
LSD 0.05		ns	ns	0.30	ns	ns	ns	0.47	ns	ns	--
CV %		15.02	11.17	10.68	29.54	9.48	10.22	6.35	13.86	6.19	--

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

Note: Maturity stage for all varieties was R1 (Inflorescence emergence).

Establishment: Seeded with a Hege 3-point hitch drill with presswheels at 16 lb/a.
Plot size: 4' x 20' , 7' alleys and borders, RCBD with four reps.
Soil type / analysis: 2012 Crosby silt loam, pH=7.1, P=74 lbs/a, K=316lbs/a, CEC=21.2, O.M.=3.2,(10/12).
Fertilization: Applied 150 lb/a of 34-0-0 2-March, 100 lb/a of 34-0-0 on 31-May and 13-July.

Annual Ryegrass

Table 10 reports yield of the trial seeded in September of 2011. The trial was harvested once in November 2011 and three times in 2012. With the early warm temperatures we were able to take the first cutting in early April that is not typical. Excellent growing conditions with adequate rainfall at this site through June provided for high yields of annual ryegrass this year. 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 10:
Annual Ryegrass Variety Trial
Ohio, South Charleston, Sown 9-9-2011

Variety	Marketers	11-Nov-11	4-Apr	24-May	5-Jul	Total 2011-12	Relative Yield
		---------- Tons Dry Matter/Acre ----------					% mean
PS-Lm-09-2*	Not Marketed for 2012	0.33	1.33	3.42	2.15	7.25	115
Maximo	Pickseed USA	0.30	1.48	3.35	2.01	7.13	113
PS-AR-09-1*	Not Marketed for 2012	0.23	1.47	3.17	2.22	7.09	113
Max	Pickseed USA	0.30	1.42	3.28	1.94	6.93	110
ORWHTAR-11*	Not Marketed for 2012	0.32	1.39	3.03	1.69	6.44	102
Winterhawk	Oregon Seeds	0.29	1.87	2.71	1.31	6.12	97
TAMTBO	Oregon Seeds	0.33	1.24	3.01	1.40	6.03	96
ORWH-11*	Not Marketed for 2012	0.36	1.28	2.69	1.43	5.75	91
Ed	Smith Seed Services	0.09	1.60	2.80	1.28	5.71	91
B-10.0960	Blue Moon Farms	0.13	1.57	2.69	1.30	5.67	90
Verdure	Smith Seed Services	0.40	1.07	2.48	1.12	5.09	81
Mean		0.28	1.43	2.96	1.62	6.29	--
LSD 0.05		0.16	0.15	0.20	0.31	0.50	--
CV %		38.5	7.0	4.6	13.3	5.5	--

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

Note: Maturity in April / May was vegitative for all varieties. Maturity in July was R2 (Spikelets fully emerged).

Establishment:	Seeded with a Hege 3-point hitch drill with presswheels at 20 lb/a.
Plot size:	4' x 20' , 7' alleys and borders, RCBD with four reps.
Soil type / analysis: 2011	Crosby silt loam, pH=6.1, P=98 lbs/a, K=394lbs/a, CEC=19.4, O.M.=3.1,(10/10).
Fertilization: 2012	Appplied 100 lb/a of 46-0-0 on 4 - October.
Fertilization:	Applied 100 lb/a of 46-0-0 on 3/2/12 and 6/31/12.

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.americasalfalfa.com

Ampac Seed Co.
P.O. Box 318
Tangent, OR 97389
www.ampacseed.com

Barenbrug USA
P.O. Box 239
Tangent, OR 97359
www.barusa.com

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

Blue Moon Farms
P.O. Box 2390
Lebanon, OR 97355
541-936-1210

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

Cal West Seeds
38001 County Road 27
Woodland, CA 95695
www.calwestseeds.com

Channel Bio
See Local Retailer
www.channel.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,WI53525-9728
www.dairylandseed.com

Dekalb
See Local Retailer
www.asgrowanddekalb.com

DLF International Seeds
P.O. Box 229
Halsey,OR97348
www.intlseed.com

Doeblers PA Hybrids
202 Tiadaghton Ave.
Jersey Shore, PA 17740
www.doeblers.com

Farm Science Genetics
9311 Highway 45
Nampa, ID83686
www.farmsciencegenetics.com

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

Lewis Seed Co.
P.O. Box 100
Shed, OR 97377
www.lewisseed.com

Mycogen Seeds
9330 Zionsville Rd.
IndianapollisIN46268-1053
www.dowagro.com/mycogen

NEXGRO
www.plantnexgro.com

Oregon Seed Inc.
33080 Red Bridge Rd.
Albany OR97322

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

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

Smith Seed Services
P.O. Box 288
Halsey, OR 97348
www.smithseed.com

Winfield Solutions, LLC
2901 Packers Ave.
Madison,WI 53707
www.winefield.com

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