



## 2008 Michigan Alfalfa Variety Trials Report

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### Comments on the 2008 Growing Season

Cooler temperatures in the spring resulted in late first cuttings and reduced first cutting yields. Temperatures across the state dipped into the mid-20 degree F range in late-April and again on May 28 which resulted in damaging frost and reduced growth. The typical harvest trigger of 750 growing degree days (GDD)(base 42F) was not attained until June 4 in East Lansing, June 9 in Lake City, and June 27 in Chatham. Furthermore, seasonal total GDD's were below average statewide. Trials in Lake City benefitted from above-normal precipitation in June that supported above-average second cutting yields. Growing season precipitation amounts are presented for each location in Table 1.

### Trial Descriptions

Alfalfa varieties were tested in four locations across the state, using cutting, fertility, and IPM management strategies that are optimal for each location. Alfalfa varieties are planted using a Carter Nursery Seeder in three-ft. wide (5 rows with 6" spacing) by twenty-five ft. long plots into conventionally tilled soil in a randomized complete block design with a minimum of four replications. Irrigation may be used in the seeding year for stand establishment, but subsequent years are supported only by natural rainfall. A pre-incorporated application of EPTC herbicide is normally used for weed control with, if necessary, follow-up applications of imazamox and/or sethoxydim for escapes. Phosphorus, Potassium, and Boron fertilizer (0-13-39+0.5% B) is applied according to soil tests the seeding year, and fertilizer applications subsequent years are applied according to the replacement value of one ton of dry alfalfa harvested removing 14 lbs of P and 40 lbs of K per acre. Plots are harvested with a three-foot Carter Flail-type Forage Harvester with sub-samples collected for DM determination. Trials are normally maintained for a total of 4 years (seeding year plus three).

### Chatham (46.34°N) and Daggett (45.48°N) in the Upper Peninsula

The Upper Peninsula Experiment Station (Chatham, Alger Co. [location 1]) and Daggett, Menominee Co. are locations for trials established spring of 2005. These areas have colder winters than Lake City (location 2), but more snow. Winterhardiness and persistence are important in the Upper Peninsula. Trials are normally seeded in the spring, and are usually cut three times per year: Cut 1- June 10-20; Cut 2 – July 15-25 and Cut 3 – end of September. Potato



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leafhopper (PLH) is not normally a problem, but populations are monitored and controlled if necessary. Dry-matter yields for the Daggett and Chatham are presented in Tables 2 and 3.

### **Lake City (44.35°N) in Central Northern Lower Michigan**

Lake City (location 2) is 130 miles north of East Lansing and has colder winters than East Lansing and less snow than Chatham. Both winterhardiness and persistence are important characteristics for alfalfa varieties grown at Lake City. Trials are managed for good yields (4-6 tons/acre) and long stand life. Trials at Lake City are typically cut three times per year: Cut 1 - June 10-20; Cut 2 - July 25 to August 5; Cut 3 - mid to late September. Yield data for 2005, 2006, and 2007 seedings at Lake City are reported in Tables 4, 5, and 6, respectively. The 2008 trial was reseeded August 6 after heavy rainfall washed away the May seeding. No data was collected from this trial in 2008.

### **East Lansing (42.72°N) in Southern Lower Michigan**

Alfalfa variety trials are seeded annually at East Lansing in southern lower-Michigan (location 3). These trials are located on the Crop and Soil Sciences Agronomy Farm and are usually seeded in the spring. Trials are managed for high yields (8 tons/acre) using four cuttings per year. Typical cutting dates are: Cut 1 - late May to early June (late bud to early bloom[750 GDD's]); Cut 2 - July 5-15 (1/10 bloom); Cut 3 - August 5-15 (1/10 bloom); Cut 4 - mid to late October with little regrowth after cutting. High fertility with P and especially K is essential for obtaining high yields. Potato leafhopper (*Empoasca fabae*) are controlled with an application of Cygon (dimethoate) insecticide prior to cut 2 and 3, and Alfalfa weevil (*Hypera posticata*) populations are controlled as needed with Sevin (carbaryl) prior to the first cutting in the standard trials. The Potato leafhopper resistant variety trials are not treated with insecticides. Standard variety trial data is presented in Tables 7, 9, 11 while the Potato leafhopper resistant (PLHR) alfalfa data are in Tables 8, 10, and 12. The 2008 trial was reseeded August 5 due to poor stands in the April seeding and no harvests were taken.

### **Statistics**

Data are analyzed using PROC GLM or MIXED in SAS v. 8.2 software (Cary, NC). Means, coefficient of variation (CV%), and Fischer's Least Significant Difference (LSD) are reported at the bottom of each column. The CV is a percentage that indicates the precision of measurement. Columns with low CV's had lower error between replications within a given treatment. The LSD is used to compare values *within* a column and is the minimum difference between two values for a "real" difference to exist. The alpha level for the LSD in these trials was 0.05 or 5%, which means, we are 95% certain that values differing by more than the LSD are not due to chance. The MCV% is the LSD divided by the mean and the quotient is multiplied by 100 ([LSD/mean]\*100). The LSR% is the LSD divided by the range and the quotient is multiplied by 100 (LSD/[high-low]\*100).

Table 1.

**2008 Precipitation (inches)**

	Chatham			Lake City			East Lansing		
	Norm*	2008	dev	Norm*	2008	dev	Norm*	2008	dev
Apr	2.46	6.30	3.84	2.88	3.49	0.61	2.81	2.15	-0.66
May	3.15	3.64	0.49	2.67	1.79	-0.88	2.73	1.36	-1.37
June	3.61	3.85	0.24	3.09	7.15	4.06	3.54	4.80	1.26
July	3.56	1.76	-1.80	3.26	3.93	0.67	3.02	3.72	0.70
Aug	3.55	1.07	-2.48	3.01	2.16	-0.85	3.12	0.50	-2.62
Sept	4.16	3.78	-0.38	3.25	2.95	-0.3	2.50	8.42	5.92
Oct	3.24	2.32	-0.92	2.65	2.69	0.04	2.20	1.61	-0.59
Total	23.73	22.72	-1.01	20.81	24.16	3.35	19.92	22.56	2.64

\*30 yr ave.

Table 2.

**Michigan State Alfalfa Variety Trial Yield (DM tons/acre)  
Daggett, Menominee Co.**

Sown May 2005

Non-irrigated

Entry	17-Jun	21-Jul	2008	2007	2006	3-yr
WL 357 HQ	2.16	1.45	3.61	3.59	5.47	12.67
Somerset	2.28	1.20	3.48	3.65	5.42	12.55
Garst 6200 HT	2.50	1.38	3.88	3.36	5.30	12.54
Ameristand 403T	2.54	1.24	3.79	3.26	5.47	12.52
WL 319 HQ	2.33	1.21	3.54	3.87	5.01	12.42
4R429	2.22	1.21	3.43	3.40	5.52	12.35
Magnum V	2.22	1.20	3.42	3.74	5.18	12.34
Pioneer 54H91	2.23	1.20	3.43	3.43	5.33	12.19
Vernal	2.48	1.08	3.56	3.21	5.33	12.10
4A421	2.17	1.21	3.38	3.51	5.13	12.02
Garst 6410	2.08	1.27	3.35	3.54	5.06	11.95
Nova	2.27	1.13	3.39	3.20	5.33	11.92
Pioneer 54V46	2.29	1.29	3.58	3.31	4.81	11.70
HayGrazer	2.35	1.19	3.55	2.87	5.26	11.68
Genoa	1.98	1.17	3.14	3.44	5.07	11.65
4S419	2.14	1.08	3.21	3.23	4.84	11.28
Spreador 4	2.34	1.05	3.39	3.12	4.77	11.28
Dakota	2.10	1.22	3.32	2.90	5.00	11.22
Cimarron VL400	2.40	1.01	3.40	2.61	5.21	11.22
Duragreen	2.11	1.16	3.27	3.12	4.82	11.21
Wintergold	2.07	1.17	3.24	2.93	4.72	10.89
HybriForce 400	2.20	0.91	3.11	2.78	4.95	10.84
Mean	2.25	1.18	3.43	3.28	5.14	11.84
CV%	12	12	11	24	12	17
LSD 5%	0.37	0.31	0.55	1.11	NS	NS
MCV (%)			16	34		
LSR (%)			71	87		

Location: Brock Dairy Farm, Menominee Co.  
 Design: RCB, plot size: 3 x 24 (3 x 21 harvested)  
 Seeded: 5/3/2005, 20 lbs. PLS/acre  
 Soil Type: Onaway-Nadeau fine sandy loam  
 Cuttings: three in 2006, two in 2007  
 Fertility: 0-91-247+3 lbs boron/acre

Table 3.

**Michigan State Alfalfa Variety Trial Yield (DM tons/acre)**  
**Upper Peninsula Exp. Sta., Chatham**  
 Sown June 2005  
 Non-irrigated

Entry	17-Jun	30-Jul	12-Sep	2008	2007	2006	2005	4-yr.
Garst 6410	1.56	1.87	0.74	4.17	4.23	4.85	1.09	14.34
Ameristand 403T	1.68	1.85	0.74	4.26	3.89	4.76	1.17	14.08
WL 357 HQ	1.60	1.76	0.79	4.15	4.24	4.69	0.95	14.03
Magnum V	1.68	2.01	0.68	4.36	3.95	4.52	1.03	13.86
Somerset	1.66	1.81	0.74	4.21	4.01	4.70	0.92	13.84
Nova	1.55	2.25	0.62	4.42	3.69	4.50	1.11	13.72
4R429	1.55	2.07	0.65	4.27	3.81	4.55	1.07	13.70
Dakota	1.55	1.81	0.68	4.05	3.71	4.66	1.25	13.67
HybriForce 400	1.80	1.77	0.58	4.15	3.69	4.69	1.08	13.61
FSG 407SF	1.58	2.03	0.67	4.28	3.68	4.56	1.01	13.53
Pioneer 54H91	1.73	1.86	0.69	4.28	3.68	4.49	1.06	13.51
FSG 406	1.50	1.85	0.70	4.06	3.72	4.59	1.04	13.41
Summergold	1.78	1.85	0.63	4.25	3.66	4.42	1.04	13.37
Garst 6200 HT	1.58	1.90	0.61	4.08	3.78	4.50	0.99	13.35
Cimarron VL400	1.62	1.80	0.73	4.14	3.66	4.50	1.03	13.33
4A421	1.54	1.92	0.71	4.18	3.68	4.49	0.98	13.33
4S419	1.64	1.71	0.66	4.02	3.53	4.59	1.10	13.24
WL 319 HQ	1.69	1.82	0.62	4.12	3.73	4.44	0.91	13.20
FSG 400 LH	1.46	1.84	0.64	3.94	3.59	4.55	1.08	13.16
Wintergold	1.42	1.70	0.72	3.85	3.49	4.54	1.03	12.91
Vernal	1.57	1.88	0.54	3.99	3.51	4.38	1.01	12.89
Duragreen	1.54	1.70	0.59	3.83	3.46	4.49	1.07	12.85
Genoa	1.43	1.75	0.64	3.82	3.61	4.39	0.99	12.81
Evergreen 2	1.56	1.43	0.57	3.56	3.72	4.26	0.98	12.52
Mean	1.59	1.84	0.66	4.10	3.74	4.55	1.04	13.43
CV%	10	16	20	10	8	6	12	6
LSD 5%	0.22	0.41	0.18	0.56	0.44	0.37	0.16	1.08
MCV (%)				14	20	8	15	8
LSR (%)				65	51	63	47	59

Location: Upper Peninsula Exp. Sta., Alger Co.  
 Design: RCB, plot size: 3 x 24 (3 x 21 harvested)  
 Seeded: 6/3/2005, 20 lbs. PLS/acre  
 Soil Type: Eben Very Cobbly Sandy Loam  
 Cuttings: one in 2005, three in 2006 & 2007  
 Fertility: 0-91-247+3 lbs boron/acre

Table 4.

**Michigan State Alfalfa Variety Trial Yields (DM tons/acre)**  
**Lake City, Missaukee Co., Mich. State Univ.**  
 Sown May 2005  
 Non-irrigated

Entry	17-Jun	22-Jul	14-Oct	2008	2007	2006	3-yr.
4A421	1.80	0.96	0.14	2.90	2.83	3.80	9.53
4S419	1.68	0.99	0.23	2.90	2.72	3.60	9.22
Pioneer 54V46	1.53	0.95	0.13	2.61	2.61	3.76	8.98
Pioneer 53Q30	1.42	0.90	0.05	2.37	2.41	3.46	8.24
Saranac	1.31	0.76	0.12	2.19	2.54	3.47	8.20
Vernal	1.25	0.95	0.15	2.35	2.41	3.36	8.12
Mean	1.50	0.92	0.14	2.42	2.59	3.58	8.72
CV%	15	19	36	16	17	10	12
LSD 5%	0.34	NS	0.13	0.63	NS	NS	NS
MCV (%)				26			
LSR (%)				89			

Location: Lake City Exp. Station, Lake City  
 Design: RCB, plot size: 3 x 23'(3 x20' harvested)  
 Seeded: 27-May-05  
 Soil Type: Nester sandy loam  
 Cuttings: three in 2006 and 2007  
 Fertility: 0-65-195 + 2.5 boron lbs./acre

Table 5.

**Michigan State Alfalfa Variety Trial Yields (DM tons/acre)**  
**Lake City, Missaukee Co., Mich. State Univ.**  
 Sown May 2006  
 Non-irrigated

Entry	17-Jun	22-Jul	14-Oct	2008	2007	2006	3-yr.
FSG505	2.52	1.81	0.73	5.06	4.62	2.17	11.85
FSG406	2.59	1.76	0.48	4.83	4.50	2.31	11.64
FSG351	2.50	1.78	0.53	4.81	4.39	2.18	11.38
Magnum VI**	2.35	1.60	0.59	4.54	4.22	2.05	10.81
FSG408DP	2.49	1.65	0.51	4.65	4.26	1.84	10.75
DS616*	2.45	1.62	0.53	4.60	4.17	1.72	10.49
Pioneer 54V46	2.43	1.59	0.51	4.53	4.33	1.63	10.49
IML04	2.51	1.61	0.52	4.64	3.71	2.06	10.41
RadiantAM	2.23	1.56	0.53	4.32	4.22	1.73	10.27
Vernal	2.55	1.34	0.4	4.29	4.25	1.72	10.26
DS615*	2.31	1.69	0.52	4.52	3.86	1.85	10.23
Pioneer 53Q30	2.66	1.49	0.53	4.68	3.80	1.45	9.93
Mean	2.47	1.63	0.53	4.62	4.19	1.89	10.18
CV%	10	9	33	9	15	25	12
LSD 5%	0.34	0.21	0.23	0.59	0.77	0.66	1.81
MCV (%)				13	18	34	18
LSR (%)				77	84	77	94

Location: Lake City Exp. Station, Lake City  
 Design: RCB, plot size: 3 x 23'(3 x 20' harvested)  
 Seeded: 8-May-06  
 Soil Type: Nester sandy loam  
 Fertility: 0-65-195 + 2.5 boron lbs./acre  
 Cuttings: two in 2006, three in 2007

\*Experimental Cultivar

\*\*Newly released cultivar that was established with experimental seed

Table 6.

**Michigan State Alfalfa Variety Trial Yields (DM tons/acre)**  
**Lake City, Missaukee Co., Mich. State Univ.**

Sown May 2007

Non-irrigated

Entry	17-Jun	22-Jul	14-Oct	2008	2007	2-yr.
Garst6200HT	1.16	0.79	0.43	2.38	0.24	2.62
Cdual*	1.02	0.66	0.42	2.10	0.45	2.55
DK140	1.00	0.74	0.43	2.17	0.37	2.54
BOB06*	1.05	0.7	0.42	2.17	0.36	2.53
CDAK06*	0.97	0.75	0.46	2.18	0.31	2.49
Vernal	1.05	0.78	0.28	2.11	0.33	2.44
CimarronVL410*	0.91	0.66	0.45	2.02	0.38	2.40
CCim06*	0.98	0.75	0.35	2.08	0.30	2.38
Pioneer 55V48	0.88	0.65	0.41	1.94	0.42	2.36
Ascend	0.88	0.75	0.38	2.01	0.31	2.32
CDurango06*	0.86	0.62	0.43	1.91	0.38	2.29
Pioneer 5312	0.88	0.68	0.35	1.91	0.30	2.21
Ckey*	0.76	0.62	0.28	1.66	0.35	2.01
777	0.74	0.74	0.31	1.79	0.13	1.92
Mean	0.94	0.71	0.39	1.65	0.33	1.98
CV%	18	20	37	16	33	17
LSD 5%	0.24	0.21	NS	0.48	0.15	0.57
MCV (%)				29	45	29
LSR (%)				67	47	81

Location: Lake City Exp. Station, Lake City  
 Design: RCB, plot size: 3 x 25'(3 x 22' harvested)  
 Seeded: 27-May-07  
 Cuttings: One in 2007  
 Soil Type: Nester sandy loam  
 Fertility: 0-65-195 + 2.5 boron lbs./acre  
 \*Experimental Cultivar



Table 7.

**Michigan State Alfalfa Variety Trial Yield (DM tons/acre)**  
**East Lansing, Ingham Co.**  
 Sown Apr 2005  
 Non-irrigated

Entry	30-May	5-Jul	5-Aug	13-Oct	2008	2007	2006	2005	4-yr.
MS-Sunstra-507*	2.32	2.12	1.48	0.89	6.81	5.96	8.08	1.28	22.13
4s419	2.33	2.17	1.40	0.97	6.87	5.87	7.90	1.28	21.92
Pioneer 54V46	2.21	2.12	1.33	0.80	6.46	5.75	8.29	1.30	21.80
MS-Sunstra-506*	2.09	2.20	1.50	0.80	6.59	5.56	8.20	1.27	21.62
Garst 6415	2.28	2.18	1.36	0.78	6.60	5.77	7.93	1.28	21.58
4A421	2.21	2.33	1.36	0.77	6.67	5.61	7.79	1.27	21.34
Shepherd	2.36	2.08	1.47	0.87	6.78	5.41	7.65	1.42	21.26
MS-Sunstra-505	2.24	2.03	1.42	0.81	6.50	5.58	7.70	1.29	21.07
Genoa	2.28	2.18	1.42	0.86	6.73	5.20	7.73	1.40	21.06
GH717	2.19	2.21	1.28	0.78	6.46	5.32	7.71	1.42	20.91
Labrador	2.16	2.09	1.18	0.99	6.41	5.44	7.30	1.39	20.54
Integrity	2.06	1.90	1.18	0.58	5.73	5.45	7.32	1.42	19.92
DS204 Hyb	2.14	2.07	1.20	0.84	6.25	4.89	7.31	1.46	19.91
362HY*	1.98	1.81	1.18	0.74	5.71	5.12	7.76	1.14	19.73
Pioneer 53Q30	2.05	2.07	1.21	0.80	6.13	5.13	7.18	1.21	19.65
AA104E*	1.97	1.72	1.15	0.54	5.39	5.01	7.08	1.42	18.90
Garst 6400HT	2.00	1.62	1.03	0.52	5.17	4.70	7.00	1.30	18.17
Vernal	1.32	1.30	0.74	0.35	3.71	3.67	6.50	1.02	14.90
Yellowhead	1.42	1.39	0.63	0.30	3.74	3.45	5.28	0.89	13.36
Non-dormant alfalfa	0.01	0.01	0.01	0.04	0.06	1.33	4.45	1.10	6.94
Mean	1.98	1.88	1.18	0.70	5.74	5.01	7.31	1.28	18.63
CV%	7	10	16	16	8	8	7	13	6
LSD 5%	0.27	0.19	0.27	0.15	0.69	0.59	0.68	0.24	1.65
MCV (%)					12	11	9	19	9
LSR (%)					10	12	18	42	11

Location: Mich. State Univ. Exp. Station, East Lansing  
 Design: RCB, plot size 3 x 24' (3 x 21' harvested)  
 Seeded: 4/19/2005 (18 lbs PLS/A)  
 Soil Type: Capac loam, tile drainage  
 Cuttings: one in 2005, four per yr. 2006-8  
 Fertility: 0-78-234 + 3 boron lbs/acre  
 Insects: Sevin applied after cuts one and two  
 \*Experimental Cultivar

Table 8.

**Michigan State Alfalfa Variety Trial**  
**East Lansing Potato Leafhopper-Resistant Alfalfa Trial**  
 Sown April 2005  
 Non-irrigated

Entry	DM tons/acre								% of Check
	30-May	5-Jul	5-Aug	13-Oct	2008	2007	2006	3-yr.	
FG 43H178	2.09	1.79	1.45	0.89	6.22	6.35	6.67	19.24	137
WL 347 LH	1.85	1.70	1.42	0.88	5.85	5.71	6.76	18.32	131
Evergreen 2	1.79	1.56	1.15	0.79	5.29	6.04	6.53	17.86	127
Pioneer 54H91	1.87	1.70	1.27	0.82	5.66	5.73	6.46	17.85	127
Vernal	1.64	1.38	1.02	0.52	4.56	3.58	5.89	14.03	100
Mean	1.85	1.63	1.26	0.78	5.52	5.48	6.46	17.46	
CV%	8	6	14	13	8	8	5	6	
LSD 5%	0.23	0.13	0.27	0.15	0.70	0.68	0.53	1.70	
MCV%					13	12	8	10	
LSR%					42	24	61	33	

Location: Mich. State Univ. Exp. Station, East Lansing  
 Design: RCB, plot size 3 x 24' (3 x 21' harvested)  
 Seeded: 19-Apr-05  
 Soil Type: Capac loam, tile drainage  
 Insects: low PLH pressure in 2008  
 Fertility: 0-78-234 + 3 boron lbs/acre  
 Cuttings: four in 2006-8  
 \* Hopperburn rating 1 to 9 (1=no burn)

**Table 9. Michigan State Alfalfa Variety Trial Yield (DM tons/acre)  
East Lansing, Ingham Co., Sown Apr 2006, Non-irrigated**

Entry	6-Jun	5-Jul	6-Aug	22-Oct	2008	2007	2006	3-yr.
DS304 HYB*	3.04	1.84	1.12	0.93	6.93	6.59	4.57	18.09
FSG 505	2.89	1.99	1.24	1.10	7.22	6.79	3.98	17.99
msSunstra-602*	2.79	1.68	1.23	0.98	6.68	6.93	4.31	17.92
FSG 351	2.73	1.81	1.18	0.92	6.64	6.75	4.43	17.82
Ascend	2.82	1.86	1.23	0.96	6.87	6.50	4.13	17.50
Ameristand 407TQ	2.69	2.04	1.31	0.87	6.91	6.86	3.72	17.49
FG 43M127*	2.84	1.90	1.15	0.94	6.83	6.58	4.06	17.47
WL 355 RR	2.81	1.89	1.17	0.87	6.73	6.60	3.95	17.28
GH727	2.79	1.68	1.18	0.89	6.55	6.43	4.25	17.23
FG 44M123*	2.42	1.93	1.29	0.92	6.56	6.43	3.95	16.94
DKA41-18RR	2.51	1.81	1.06	0.91	6.28	6.49	4.07	16.84
Garst 6420	2.67	1.82	1.03	0.95	6.47	6.21	4.16	16.84
Garst 6415	2.67	1.95	1.19	0.86	6.66	6.40	3.77	16.83
DKA34-17RR	2.61	1.91	1.18	0.91	6.60	6.40	3.82	16.82
Magnum VI**	2.59	1.73	1.17	0.87	6.37	6.24	4.16	16.77
FSG 406	2.73	1.71	1.02	0.80	6.26	6.51	3.90	16.67
msSunstra-604*	2.57	1.73	1.04	0.88	6.23	6.45	3.92	16.60
WL 343HQ	2.69	2.04	1.25	0.87	6.84	6.28	3.21	16.33
msSunstra-603*	2.57	1.64	1.19	0.85	6.26	6.29	3.76	16.31
FG 44M336*	2.46	1.80	1.06	0.84	6.16	6.16	3.85	16.17
msSunstra-601*	2.37	1.87	1.04	0.79	6.06	6.18	3.91	16.15
ZG9830	3.19	1.30	1.04	0.71	6.24	6.16	3.70	16.10
IML04*	2.55	1.51	0.97	0.89	5.92	6.11	4.03	16.06
CW 25006*	2.67	1.78	1.04	0.93	6.43	5.89	3.66	15.98
CW 25037*	2.48	1.74	1.14	0.90	6.26	5.91	3.80	15.97
Mountaineer 2.0	2.42	1.66	1.10	1.08	6.26	5.76	3.61	15.63
Pioneer 54V46	2.22	1.75	1.10	0.87	5.95	6.08	3.52	15.55
CW 24025*	2.54	1.78	1.02	0.93	6.28	5.86	3.13	15.27
Radiant-AM	2.35	1.63	1.04	0.87	5.90	6.07	3.23	15.20
Pioneer 53Q30	2.43	1.65	1.04	0.86	5.98	5.90	3.23	15.11
4G418RR	2.31	1.72	1.13	0.86	6.02	5.77	3.05	14.84
FSG 408DP	2.40	1.54	0.96	0.77	5.67	5.62	3.39	14.68
Yellowhead(05)	2.17	1.66	0.74	0.57	5.15	5.53	3.15	13.83
Yellowhead(06)	2.19	1.15	0.90	0.67	4.91	5.65	3.20	13.76
Vernal	2.21	1.17	0.72	0.51	4.61	5.45	3.16	13.22
Anik	0.00	0.39	0.01	0.00	0.40	3.18	0.85	4.43
Mean	2.51	1.70	1.06	0.84	6.11	6.14	3.68	15.09
CV%	14	10	15	13	10	9	18	9
LSD 5%	0.50	0.24	0.22	0.15	0.87	0.75	0.90	2.08
MCV (%)					14	12	24	14
LSR (%)					13	20	24	15

Location: Mich. State Univ. Exp. Station, East Lansing  
Design: RCB, plot size 3 x 25' (3 x 22' harvested)  
Seeded, Soil Type: 4/19/2006, Capac loam, tile drainage  
Cuttings: three in 2006, four in 2007  
Fertility: 0-78-234 + 3 boron lbs/acre  
Insects: dimethoate applied prior to cuts two and three  
\*Experimental cv., \*\*Newly released cv. that was established with experimental seed

Table 10.

**Michigan State Alfalfa Variety Trial Yield**  
**East Lansing Potato Leafhopper-Resistant Alfalfa Trial**  
 Sown Apr 2006  
 Non-irrigated

Entry	DM tons / acre								% of check
	6-Jun	5-Jul	6-Aug	22-Oct	2008	2007	2006	3-yr.	
Pioneer 53H92	2.12	1.55	0.99	0.86	5.52	4.78	2.50	12.80	145
4P424	1.99	1.49	1.01	0.68	5.17	4.62	2.39	12.18	138
Garst 6426	1.98	1.35	0.84	0.64	4.81	4.54	2.42	11.77	133
FSG400LH	1.96	1.46	0.86	0.77	5.05	4.39	2.41	11.85	134
Vernal	1.63	1.12	0.77	0.57	4.09	3.35	1.41	8.85	100
Mean	1.94	1.39	0.89	0.70	4.93	4.34	2.23	11.49	
CV%	11	11	15	12	9	11	16	9	
LSD 5%	0.30	0.24	0.21	0.13	0.68	0.69	0.49	1.50	
MCV (%)					14.00	16	24	13	
LSR (%)					47	48	41	38	

Location: Mich. State Univ. Exp. Station, East Lansing  
 Design: RCB, plot size 3 x 25' (3 x 22' harvested)  
 Seeded: 4/19/2006  
 Cuttings: three in 2006, four in 2007  
 Fertility: 0-78-234 + 3 boron lbs/acre  
 Soil Type: Capac loam, tile drainage  
 Insects: low PLH pressure in 2008

Table 11.

**Michigan State Alfalfa Variety Trial Yield (DM tons/acre)**  
**East Lansing, Ingham Co.**  
 Sown Apr 2007  
 Non-irrigated

Entry	6-Jun	5-Jul	6-Aug	22-Oct	2008	2007	2-yr.
FG 44M125*	2.25	1.81	1.40	0.84	6.30	1.25	7.55
Velocity**	2.38	1.77	1.30	0.83	6.28	1.21	7.49
DS705-M*	2.31	1.54	1.23	0.81	5.89	1.60	7.49
SpringGold	2.23	1.62	1.33	0.81	5.99	1.41	7.40
Pioneer 55V48	2.38	1.72	1.14	0.85	6.09	1.30	7.39
DS 711-BR*	2.30	1.68	1.22	0.78	5.98	1.24	7.22
DS703-BR*	2.19	1.63	1.23	0.83	5.88	1.33	7.21
WL343 HQ	2.24	1.70	1.30	0.79	6.03	1.17	7.20
DK140	2.30	1.65	1.19	0.74	5.88	1.27	7.15
FG 44M318*	2.16	1.79	1.34	0.80	6.09	1.04	7.13
Pioneer 5312	2.29	1.57	1.22	0.71	5.79	1.30	7.09
DS 712-M*	2.30	1.67	1.15	0.77	5.89	1.12	7.01
FG 44M317*	2.06	1.58	1.32	0.81	5.77	0.99	6.76
Garst 6415	2.14	1.55	1.19	0.68	5.56	1.05	6.61
Vernal	2.28	1.27	0.99	0.51	5.05	0.99	6.04
Mean	2.25	1.64	1.24	0.77	5.90	1.22	7.11
CV%	9	9	13	16	8	23	9
LSD 5%	0.30	0.21	0.22	0.17	0.66	0.40	0.93
MCV (%)					11	31	13
LSR (%)					53	61	62

Location: Mich. State Univ. Exp. Station, East Lansing  
 Design: RCB, plot size 3 x 25' (3 x 22' harvested)  
 Seeded: 4/20/2007  
 Cuttings: Two in 2007  
 Soil Type: Capac loam, tile drainage  
 Fertility: 0-78-234 + 3 boron lbs/acre  
 Insects: dimethoate applied prior to cuts two and three  
 \*Experimental Cultivar  
 \*\*Seeded as an experimental cultivar with breeder selected seed

Table 12.

**Michigan State Alfalfa Variety Trial Yield**  
**East Lansing Potato Leafhopper-Resistant Alfalfa Trial**  
 Sown Apr 2007  
 Non-irrigated

Entry	DM tons/acre							% of Check
	6-Jun	5-Jul	6-Aug	22-Oct	2008	2007	2-yr.	
Pioneer 53H92	2.65	1.78	1.48	0.94	6.85	1.83	8.68	136
4P24	2.52	1.66	1.30	0.88	6.36	1.54	7.90	124
Garst 6426	2.58	1.67	1.49	0.74	6.48	1.24	7.72	121
Pioneer 5312	2.34	1.42	1.32	0.67	5.75	0.87	6.62	104
Vernal	2.41	1.37	1.29	0.54	5.61	0.76	6.37	100
Mean	2.50	1.58	1.38	0.75	6.21	1.25	7.46	
CV%	16	8	17	15	9	22	11	
LSD 5%	0.60	0.18	NS	0.17	0.89	0.42	1.20	
MCV (%)					14	34	16	
LSR (%)					72	39	52	

Location: Mich. State Univ. Exp. Station, East Lansing  
 Design: RCB, plot size 3 x 25' (3 x 22' harvested)  
 Seeded: 4/20/2007  
 Cuttings: Two in 2007  
 Soil Type: Capac loam, tile drainage  
 Fertility: 0-78-234 + 3 boron lbs/acre  
 Insects: low PLH pressure in 2008