



2007 Michigan Alfalfa Variety Trials Report

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Comments on the 2007 Growing Season

Michigan weather, once again, presented challenges to many producers. Hard frost in mid-April resulted in damage on newly emerged shoots and foliage in established stands and delayed planting activities for several crops statewide. This late frost resulted in lower first cutting yields for most forage producers in Michigan. The south-central portion of the state received excess rainfall in May and early-June, which resulted in increased levels root rot diseases, reduced effectiveness of herbicides, and stand loss in poorly drained areas. Most of the state experienced dry conditions beginning in July and continuing until mid-August. Northern areas of the state received below-average rainfall from late-April to September. The northwest region was the hardest-hit, where for some producers; a single cutting of hay was all that was obtained. Forage variety trial yields were lower than normal statewide. 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 (46.347°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

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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 leafhopper (PLH) is not normally a problem, but populations are monitored and controlled if necessary. Below average rainfall was received in the 2007 growing season at Chatham and Daggett. 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 2004, 2005, and 2006 seedings at Lake City are reported in Tables 4, 5, and 6, respectively. The 2007 trial was seeded May 8 and an application of Imazomox with spray-grade AMS was made in June. Data for the 2007 seeding is presented in Table 7.



Saginaw (43.35°N) in East-Central Lower Michigan

The East-Central location is on the Saginaw Experiment Station in Saginaw County on Swan Creek Rd (location 3). Saginaw is located about 90 miles northeast of East Lansing. The soils of this area are lake/river bed soils which are prone to heaving as a result of freeze-thawing cycles. This trial is usually cut four times a year: Cut 1 ~ June 1; Cut 2 ~ July 1; Cut 3 – August 10-15; Cut 4 – October 15-20. This is the final year of data for this location. A total of four cuttings were obtained from this trial and yield data is reported in Table 8.

East Lansing (42.72°N) in Southern Lower Michigan

Alfalfa variety trials are seeded annually at East Lansing in southern lower-Michigan (location 4). 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); 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 posticali*) 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. Imazomox and AMS was applied for weed control of Redroot pigweed (*Amaranthus palmeri*), Common lambsquarter (*Chenopodium album*), and foxtail (*Setaria spp.*) when weeds were approximately 4 inches tall in the seeding year and only as needed in subsequent years. Standard variety trial data is presented in Tables 9, 11, 13, 15 while the Potato leafhopper resistant (PLHR) alfalfa data are in Tables 10, 12, 14 and 16.

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.

2007 Precipitation (inches)

	Chatham			Lake City			Saginaw			East Lansing		
	Norm*	2007	dev	Norm*	2007	dev	Norm*	2007	dev	Norm*	2007	dev
Apr	2.46	6.43	3.97	2.88	3.47	0.59	2.76	3.02	0.26	2.81	1.85	-0.96
May	3.15	2.17	-0.98	2.67	2.22	-0.45	2.70	2.2	-0.50	2.73	4.16	1.43
June	3.61	2.06	-1.55	3.09	3.74	0.65	3.32	1.06	-2.26	3.54	5.56	2.02
July	3.56	1.74	-1.82	3.26	1.2	-2.06	2.72	2.59	-0.13	3.02	0.52	-2.50
Aug	3.55	0.77	-2.78	3.01	2.49	-0.52	3.13	4.79	1.66	3.12	5.20	2.08
Sept	4.16	4.98	0.82	3.25	1.88	-1.37	2.82	2.64	-0.18	2.50	2.10	-0.40
Oct	3.24	5.25	2.01	2.65	2.45	-0.2	2.39	2.87	0.48	2.20	4.52	2.32
Total	23.73	23.40	-0.33	20.81	17.45	-3.36	19.84	19.17	-0.67	19.92	23.91	3.99

*30 yr ave.

Table 2.

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

Sown May 2005

Non-irrigated

Entry	1-Jun	13-Jul	2007 Total	2006 Total	2-yr Total
Somerset	2.05	1.60	3.65	5.42	9.07
WL 357 HQ	2.28	1.31	3.59	5.47	9.06
4R429	1.97	1.43	3.40	5.52	8.92
Magnum V	2.05	1.69	3.74	5.18	8.92
WL 319 HQ	2.37	1.50	3.87	5.01	8.88
Pioneer 54H91	1.82	1.61	3.43	5.33	8.76
Ameristand 403T	1.93	1.33	3.26	5.47	8.73
Garst 6200 HT	1.96	1.40	3.36	5.30	8.66
4A421	2.12	1.39	3.51	5.13	8.64
Garst 6410	2.23	1.31	3.54	5.06	8.60
Vernal	2.00	1.21	3.21	5.33	8.54
Nova	1.96	1.24	3.20	5.33	8.53
Genoa	1.92	1.52	3.44	5.07	8.51
HayGrazer	1.70	1.17	2.87	5.26	8.13
Pioneer 54V46	2.08	1.23	3.31	4.81	8.12
4S419	1.94	1.29	3.23	4.84	8.07
Duragreen	1.78	1.34	3.12	4.82	7.94
Dakota	1.65	1.25	2.90	5.00	7.90
Spreador 4	1.82	1.30	3.12	4.77	7.89
Cimarron VL400	1.52	1.09	2.61	5.21	7.82
HybriForce 400	1.74	1.04	2.78	4.95	7.73
Wintergold	1.70	1.23	2.93	4.72	7.65
Mean	1.94	1.34	3.28	5.14	8.41
CV%	21	34	24	12	21
LSD 5%	0.58	0.64	1.11	NS	NS
MCV (%)			34		
LSR (%)			87		

Location: Brock Dairy Farm, Menominee
 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
 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	8-Jun	11-Jul	22-Aug	2007 Total	2006 Total	2005 Total	3-yr. Total
Garst 6410	2.23	1.40	0.60	4.23	4.85	1.09	10.17
WL 357 HQ	2.28	1.30	0.66	4.24	4.69	0.95	9.88
Ameristand 403T	2.10	1.26	0.53	3.89	4.76	1.17	9.82
Somerset	2.19	1.26	0.56	4.01	4.70	0.92	9.63
Dakota	2.03	1.18	0.50	3.71	4.66	1.25	9.62
Magnum V	2.17	1.21	0.57	3.95	4.52	1.03	9.50
HybriForce 400	2.05	1.11	0.53	3.69	4.69	1.08	9.46
4R429	2.14	1.16	0.51	3.81	4.55	1.07	9.43
FSG 406	2.01	1.16	0.55	3.72	4.59	1.04	9.35
Nova	2.12	1.15	0.42	3.69	4.50	1.11	9.30
Garst 6200 HT	2.10	1.14	0.54	3.78	4.50	0.99	9.27
FSG 407SF	1.96	1.22	0.50	3.68	4.56	1.01	9.25
Pioneer 54H91	2.06	1.10	0.52	3.68	4.49	1.06	9.23
4S419	1.99	1.08	0.46	3.53	4.59	1.10	9.22
FSG 400 LH	1.98	1.27	0.34	3.59	4.55	1.08	9.22
Cimarron VL400	2.03	1.11	0.52	3.66	4.50	1.03	9.19
4A421	2.11	1.14	0.43	3.68	4.49	0.98	9.15
Summergold	2.01	1.20	0.45	3.66	4.42	1.04	9.12
WL 319 HQ	2.07	1.20	0.46	3.73	4.44	0.91	9.08
Wintergold	1.89	1.06	0.54	3.49	4.54	1.03	9.06
Duragreen	1.88	1.10	0.48	3.46	4.49	1.07	9.02
Genoa	1.99	1.19	0.43	3.61	4.39	0.99	8.99
Evergreen 2	1.91	1.08	0.73	3.72	4.26	0.98	8.96
Vernal	2.11	0.98	0.42	3.51	4.38	1.01	8.90
Mean	2.06	1.17	0.51	3.74	4.55	1.04	9.05
CV%	8	10	32	8	6	12	6
LSD 5%	0.22	0.16	0.23	0.44	0.37	0.16	0.78
MCV (%)				20	8	15	8
LSR (%)				51	63	47	60

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
 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 2004
 Non-irrigated

Entry	7-Jun	20-Jul	5-Sep	2007	2006	2005	3-yr
				Total	Total	Total	Total
Rugged	1.93	1.19	0.19	3.31	6.23	5.03	14.57
Rebel	2.03	1.18	0.19	3.40	6.11	4.78	14.29
Garst 6200HT	2.02	1.08	0.31	3.41	5.94	4.91	14.26
LegenDairy 5.0	2.13	1.05	0.17	3.35	6.01	4.84	14.20
HybriForce 420/wet	2.07	1.05	0.23	3.35	5.94	4.89	14.18
DKA42-15	2.14	1.15	0.23	3.52	5.94	4.72	14.18
Rebound 5.0	1.92	0.97	0.17	3.06	5.78	4.57	13.41
Vernal	1.87	0.96	0.16	2.99	5.60	4.51	13.10
Mean	2.01	1.08	0.21	3.30	5.94	4.78	14.02
CV%	12	27	40	17	8	9	10
LSD 5%	NS	NS	NS	NS	0.5	NS	NS
MCV (%)					8		
LSR (%)					79		

Location: Lake City Exp. Station, Lake City
 Design: RCB, plot size: 3 x 23'(3 x20' harvested)
 Seeded: 29-May-04
 Soil Type: Nester sandy loam
 Cuttings: three in 2005 & 2006
 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 2005
 Non-irrigated

Entry	7-Jun	20-Jul	5-Sep	2007 Total	2006 Total	2-yr Total
4A421	1.50	1.02	0.31	2.83	3.80	6.63
Pioneer 54V46	1.58	0.93	0.10	2.61	3.76	6.37
4S419	1.51	1.00	0.21	2.72	3.60	6.32
Saranac	1.53	0.86	0.15	2.54	3.47	6.01
Pioneer 53Q30	1.34	0.91	0.16	2.41	3.46	5.87
Vernal	1.45	0.82	0.14	2.41	3.36	5.77
Mean	1.49	0.92	0.18	2.59	3.58	6.16
CV%	11	27	40	17	10	13
LSD 5%	NS	NS	0.1	NS	NS	NS
MCV (%)						
LSR (%)						

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
 Fertility: 0-65-195 + 2.5 boron lbs./acre

Table 6.

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

Entry	7-Jun	20-Jul	5-Sep	2007 Total	2006 Total	2-yr Total
FSG406	1.98	1.75	0.77	4.50	2.31	6.81
FSG505	2.26	1.8	0.56	4.62	2.17	6.79
FSG351	1.98	1.59	0.82	4.39	2.18	6.57
Magnum VI**	1.86	1.77	0.59	4.22	2.05	6.27
FSG408DP	2.01	1.48	0.77	4.26	1.84	6.10
Vernal	2.26	1.31	0.68	4.25	1.72	5.97
Pioneer 54V46	2.02	1.62	0.69	4.33	1.63	5.96
RadiantAM	2.1	1.5	0.62	4.22	1.73	5.95
DS616*	2.05	1.56	0.56	4.17	1.72	5.89
IML04	2.01	1.31	0.39	3.71	2.06	5.77
DS615*	1.91	1.39	0.56	3.86	1.85	5.71
Pioneer 53Q30	1.95	1.47	0.38	3.80	1.45	5.25
Mean	2.03	1.55	0.62	4.19	1.89	6.09
CV%	13	26	43	15	25	18
LSD 5%	0.36	0.54	0.33	0.77	0.66	1.5
MCV (%)				18	34	8
LSR (%)				84	77	96

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

*Experimental Cultivar

**Newly released cultivar that was established with experimental seed

Table 7.

Michigan State Alfalfa Variety Trial Yields (DM tons/acre)
Lake City, Missaukee Co., Mich. State Univ.
 Sown May 2007
 Non-irrigated

<u>Entry</u>	<u>5-Sep</u>
Cdual*	0.45
Pioneer 55V48	0.42
CDurango06*	0.38
CimarronVL410*	0.38
DK140	0.37
BOB06*	0.36
Ckey*	0.35
Vernal	0.33
CDAK06*	0.31
Ascend	0.31
Pioneer 5312	0.30
CCim06*	0.30
Garst6200HT	0.24
<u>777</u>	<u>0.13</u>
Mean	0.33
CV%	33
<u>LSD 5%</u>	<u>0.15</u>
MCV (%)	45
LSR (%)	47

Location: Lake City Exp. Station, Lake City
 Design: RCB, plot size: 3 x 25'(3 x22' harvested)
 Seeded: 27-May-07
 Soil Type: Nester sandy loam
 *Experimental Cultivar

Table 8.

Michigan State Alfalfa Variety Trial Yield (DM tons/acre)
Saginaw, Saginaw Co.
 Sown April 2004
 Non-irrigated

Entry	31-May	2-Jul	22-Aug	8-Oct	2007	2006	2005	2004	4-yr.
					Total	Total	Total	Total	Total
Genoa	2.01	0.96	1.89	1.36	6.22	7.39	7.34	3.62	24.57
HybriForce 420/WET	1.97	0.85	1.94	1.36	6.12	7.24	6.91	3.91	24.18
WL 357 HQ	1.95	0.91	1.94	1.34	6.14	7.34	7.01	3.54	24.03
Pioneer 54Q25	1.98	0.93	1.84	1.38	6.13	7.24	6.74	3.64	23.75
SummerGold	1.82	0.79	1.71	1.16	5.48	7.37	7.06	3.55	23.46
DKA 42-15	1.81	0.76	1.69	1.15	5.41	7.36	6.81	3.41	22.99
Rebound 5.0	1.96	0.80	1.73	1.29	5.78	7.26	6.71	3.25	23.00
Garst 6420	1.76	0.72	1.77	1.26	5.51	7.03	6.51	3.70	22.75
Pioneer 54V46	1.69	0.78	1.60	1.21	5.28	7.20	6.75	3.35	22.58
Rebel	1.73	0.62	1.84	1.23	5.42	7.00	6.56	3.48	22.46
LegenDairy 5.0	1.92	0.84	1.63	1.25	5.64	6.96	6.67	3.16	22.43
Garst 6200 HT	1.76	0.72	1.77	1.26	5.51	6.60	6.60	3.63	22.34
Vernal	1.73	0.59	1.49	1.29	5.10	6.97	6.51	3.49	22.07
Rugged	1.62	0.54	1.72	1.39	5.27	6.45	6.25	3.34	21.31
Saranac	1.61	0.53	1.32	1.04	4.50	6.35	6.15	3.46	20.46
Mean	1.82	0.76	1.73	1.26	5.57	7.05	6.70	3.50	22.83
CV%	10	17	14	12	9	5	6	7	5
LSD 5%	0.22	0.16	0.30	0.19	0.65	0.47	0.47	0.31	1.61
MCV (%)					12	7	7	9	7
LSR (%)					38	46	39	41	39

Location: Saginaw Research Farm, Saginaw
 Design: RCB, plot size 3 x 24' (3 x 21' harvested)
 Seeded: April 7, 2004 (20 lbs. PLS/A.)
 Soil Type: Misteguay silty clay
 Insects: Baythroid applied prior to cut 2
 Cuttings: Three in 2004, four in 2005 & 2006

Table 9.

Michigan State Alfalfa Variety Trial Yield (DM tons/acre)
East Lansing, Ingham Co.
 Sown Apr 2004
 Non-irrigated

Entry	29-May	29-Jun	2-Aug	10-Sep	2007	2006	2005	3-yr
					Total	Total	Total	Total
Genoa	1.92	1.86	0.91	1.27	5.96	7.80	8.80	22.56
41M130*	1.96	1.71	0.89	1.28	5.84	7.69	8.19	20.44
Rebound 5.0	1.91	1.76	0.79	1.22	5.68	7.65	8.27	20.38
41M120*	1.81	1.73	0.74	1.23	5.51	7.52	8.35	20.15
HybriForce 420/wet	1.78	1.47	0.66	1.26	5.17	7.13	8.63	19.67
WL 348 AP	1.79	1.63	0.76	1.20	5.38	7.18	7.87	19.23
WL 335 HQ	1.83	1.45	0.64	1.18	5.10	7.59	7.71	19.22
SummerGold	1.81	1.53	0.76	1.20	5.30	7.23	7.89	19.22
DKA42-15	1.81	1.60	0.74	1.13	5.28	7.50	7.54	19.19
Brown Seed 377 Hybrid*	1.91	1.64	0.75	1.29	5.59	7.27	7.58	19.15
Pioneer 54V46	1.85	1.48	0.79	1.19	5.31	6.87	8.12	19.11
Pioneer 54Q25	1.88	1.40	0.61	1.20	5.09	7.03	8.07	18.99
Garst 6420	1.74	1.31	0.58	1.09	4.72	6.66	7.44	17.73
Rebel	1.68	1.22	0.50	1.10	4.50	6.51	7.10	17.01
Rugged	1.68	1.22	0.47	1.02	4.39	6.10	6.75	16.22
Vernal	1.61	1.09	0.31	0.89	3.90	5.67	6.10	14.78
Saranac	1.58	0.92	0.23	0.93	3.66	5.63	6.17	14.53
Mean	1.80	1.47	0.65	1.16	5.08	7.00	7.62	18.68
CV%	8	9	20	8	6	6	6	4
LSD 5%	0.19	0.17	0.17	0.12	0.45	0.59	0.63	1.24
MCV (%)					9	8	8	6
LSR (%)					20	28	23	15

Location: Mich. State Univ. Exp. Station, East Lansing
 Design: RCB, plot size 3 x 24' (3 x 21' harvested)
 Seeded: 4/9/2004 (20 lbs PLS/A)
 Soil Type: Capac loam, tile drainage
 Cuttings: five in 2005 and four in 2006
 Fertility: 0-78-234 + 3 boron lbs/acre
 Insects: dimethoate applied prior to cuts 2 & 3
 *Experimental Cultivar

Table 10.

Michigan State Alfalfa Variety Trial
East Lansing Potato Leafhopper-Resistant Alfalfa Trial
 Sown Apr 2004
 Non-irrigated

Entry	DM tons/acre									% of checks
	29-May	29-Jun	2-Aug	10-Sep	2007 Total	2006 Total	2005 Total	2004 Total	4-yr. Total	
42H169**	1.67	1.10	0.49	1.06	4.32	6.24	7.06	2.73	20.35	125
42H153**	1.81	1.08	0.43	1.01	4.33	5.79	6.85	2.31	19.28	119
Pioneer 54H91	1.55	0.84	0.27	0.93	3.59	6.14	6.38	2.77	18.88	116
Garst 6325	1.95	0.76	0.11	0.92	3.74	5.64	6.17	2.77	18.32	113
Vernal	1.67	0.53	0.08	0.94	3.22	4.97	5.90	2.24	16.33	100
Saranac	1.86	0.60	0.18	0.81	3.45	4.94	5.67	2.13	16.19	100
Mean	1.75	0.82	0.26	0.95	3.78	5.62	6.34	2.49	18.23	
CV%	16	12	40	11	8	7	5	8	5	
LSD 5%	ns	0.17	0.15	0.14	0.77	0.59	0.40	0.30	2.10	
MCV%					20	10	6	12	11	
LSR%					69	45	28	47	50	

Location: Mich. State Univ. Exp. Station, East Lansing
 Design: RCB, plot size 3 x 24' (3 x 21' harvested)
 Seeded: 4/9/2004 (20 lbs PLS/A)
 Soil Type: Capac loam, tile drainage
 Insects: high PLH pressure in 2007
 Fertility: 0-78-234 + 3 boron lbs/acre
 Cuttings: three in the seeding year, five in 2005, four in 2006

** Experimental Cultivar

Table 11.

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

Entry	29-May	29-Jun	2-Aug	10-Sep	2007 Total	2006 Total	2005 Total	3-yr Total
Pioneer 54V46	2.01	1.49	1.03	1.22	5.75	8.29	1.30	15.34
MS-Sunstra-507*	2.00	1.59	1.07	1.30	5.96	8.08	1.28	15.32
MS-Sunstra-506*	1.92	1.44	0.93	1.27	5.56	8.20	1.27	15.03
4s419	1.89	1.52	1.12	1.34	5.87	7.90	1.28	15.05
Garst 6415	1.93	1.55	1.01	1.28	5.77	7.93	1.28	14.98
MS-Sunstra-505	1.89	1.43	1.04	1.22	5.58	7.70	1.29	14.57
4A421	2.01	1.49	0.78	1.33	5.61	7.79	1.27	14.67
GH717	1.82	1.52	0.75	1.23	5.32	7.71	1.42	14.45
Shepherd	1.76	1.43	0.96	1.26	5.41	7.65	1.42	14.48
Genoa	1.78	1.42	0.82	1.18	5.20	7.73	1.40	14.33
Integrity	2.00	1.41	0.81	1.23	5.45	7.32	1.42	14.19
Labrador	1.89	1.45	0.90	1.20	5.44	7.30	1.39	14.13
362HY*	1.91	1.26	0.75	1.20	5.12	7.76	1.14	14.02
DS204 Hyb	1.78	1.36	0.53	1.22	4.89	7.31	1.46	13.66
AA104E*	1.81	1.31	0.72	1.17	5.01	7.08	1.42	13.51
Pioneer 53Q30	1.91	1.33	0.67	1.22	5.13	7.18	1.21	13.52
Garst 6400HT	1.86	1.20	0.55	1.09	4.70	7.00	1.30	13.00
Vernal	1.64	0.82	0.31	0.90	3.67	6.50	1.02	11.19
Yellowhead	1.58	0.82	0.15	0.90	3.45	5.28	0.89	9.62
Non-dormant alfalfa	0.34	0.47	0.12	0.40	1.33	4.45	1.10	6.88
Mean	1.79	1.32	0.75	1.16	5.01	7.31	1.28	13.6
CV%	6	10	31	8	8	7	13	6
LSD 5%	0.15	0.19	0.33	0.13	0.59	0.68	0.24	1.15
MCV (%)					11	9	19	8
LSR (%)					12	18	42	13

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 in 2006
 Fertility: 0-78-234 + 3 boron lbs/acre
 Insects: Sevin applied after cuts one and two
 *Experimental Cultivar

Table 12.

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

Entry	DM tons/acre				2007 Total	2006 Total	2-yr Total	% of Check
	29-May	29-Jun	2-Aug	10-Sep				
FG 43H178	2.16	1.82	1.25	1.12	6.35	6.67	13.02	137
Evergreen 2	2.19	1.68	1.04	1.13	6.04	6.53	12.57	133
WL 347 LH	2.16	1.48	0.94	1.13	5.71	6.76	12.47	132
Pioneer 54H91	2.16	1.50	0.90	1.17	5.73	6.46	12.19	129
Vernal	1.87	0.48	0.26	0.97	3.58	5.89	9.47	100
Mean	2.11	1.39	0.88	1.10	5.48	6.46	11.94	
CV%	6	10	19	8	8	5	6	
LSD 5%	0.20	0.13	0.19	0.12	0.68	0.53	1.16	
MCV%					12	8	10	
LSR%					24	61	32	

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: moderate PLH pressure in 2006
 Fertility: 0-78-234 + 3 boron lbs/acre
 Cuttings: four in 2006

* Hopperburn rating 1 to 9 (1=no burn)

**Table 13. Michigan State Alfalfa Variety Trial Yield (DM tons/acre)
East Lansing, Ingham Co., Sown Apr 2006, Non-irrigated**

Entry	29-May	29-Jun	3-Aug	12-Sep	2007 Total	2006 Total	2-yr Total
msSunstra-602*	2.86	1.84	0.87	1.36	6.93	4.31	11.24
FSG 351	2.72	1.85	0.92	1.26	6.75	4.43	11.18
DS304 HYB*	2.66	1.89	0.79	1.25	6.59	4.57	11.16
FSG 505	2.83	1.74	0.81	1.41	6.79	3.98	10.77
GH727	2.73	1.74	0.81	1.15	6.43	4.25	10.68
FG 43M127*	2.60	1.83	0.90	1.25	6.58	4.06	10.64
Ascend	2.68	1.72	0.80	1.30	6.50	4.13	10.63
Ameristand 407TQ	2.68	1.96	0.98	1.24	6.86	3.72	10.58
DKA41-18RR	2.66	1.87	0.80	1.16	6.49	4.07	10.56
WL 355 RR	2.74	1.82	0.83	1.21	6.60	3.95	10.55
FSG 406	2.73	1.80	0.80	1.18	6.51	3.90	10.41
Magnum VI**	2.76	1.64	0.67	1.17	6.24	4.16	10.40
FG 44M123*	2.49	1.90	0.85	1.19	6.43	3.95	10.38
msSunstra-604*	2.81	1.80	0.64	1.20	6.45	3.92	10.37
Garst 6420	2.57	1.66	0.68	1.30	6.21	4.16	10.37
DKA34-17RR	2.63	1.79	0.79	1.19	6.40	3.82	10.22
Garst 6415	2.67	1.73	0.78	1.22	6.40	3.77	10.17
IML04*	2.67	1.62	0.63	1.19	6.11	4.03	10.14
msSunstra-601*	2.69	1.71	0.57	1.21	6.18	3.91	10.09
msSunstra-603*	2.60	1.88	0.65	1.16	6.29	3.76	10.05
FG 44M336*	2.53	1.78	0.75	1.10	6.16	3.85	10.01
ZG9830	2.84	1.64	0.50	1.18	6.16	3.70	9.86
CW 25037*	2.31	1.74	0.71	1.15	5.91	3.80	9.71
Pioneer 54V46	2.44	1.68	0.77	1.19	6.08	3.52	9.60
CW 25006*	2.45	1.69	0.59	1.16	5.89	3.66	9.55
WL 343HQ	2.61	1.68	0.73	1.26	6.28	3.21	9.49
Mountaineer 2.0	2.49	1.50	0.53	1.24	5.76	3.61	9.37
Radiant-AM	2.63	1.69	0.63	1.12	6.07	3.23	9.30
Pioneer 53Q30	2.51	1.63	0.73	1.03	5.90	3.23	9.13
FSG 408DP	2.44	1.47	0.56	1.15	5.62	3.39	9.01
CW 24025*	2.47	1.62	0.59	1.18	5.86	3.13	8.99
Yellowhead(06)	2.82	1.30	0.48	1.05	5.65	3.20	8.85
4G418RR	2.46	1.56	0.61	1.14	5.77	3.05	8.82
Yellowhead(05)	2.82	1.29	0.43	0.99	5.53	3.15	8.68
Vernal	2.50	1.42	0.47	1.06	5.45	3.16	8.61
Anik	2.35	0.61	0.10	0.12	3.18	0.85	4.03
Mean	2.62	1.67	0.69	1.16	6.14	3.68	9.82
CV%	8	11	31	10	9	18	11
LSD 5%	0.27	0.25	0.30	0.16	0.75	0.90	1.40
MCV (%)					12	24	14
LSR (%)					20	24	19

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
Insects: dimethoate applied prior to cuts two and three
Cuttings: three in 2006

*Experimental cv., **Newly released cv. that was established with experimental seed

Table 14.

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

Entry	DM tons / acre							% of check
	30-May	29-Jun	3-Aug	12-Sep	2007 Total	2006 Total	2-yr Total	
Pioneer 53H92	1.57	1.44	0.61	1.16	4.78	2.50	7.28	153
4P424	1.62	1.50	0.33	1.17	4.62	2.39	7.01	147
Garst 6426	1.55	1.46	0.53	1.00	4.54	2.42	6.96	146
FSG400LH	1.59	1.35	0.39	1.06	4.39	2.41	6.80	143
Vernal	1.58	0.72	0.10	0.95	3.35	1.41	4.76	100
Mean	1.58	1.29	0.39	1.07	4.34	2.23	6.56	
CV%	9	12	24	11	11	16	11	
LSD 5%	0.21	0.24	0.14	0.17	0.69	0.49	1.05	
MCV (%)					16	24	14	
LSR (%)					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
 Soil Type: Capac loam, tile drainage

Table 15.

Michigan State Alfalfa Variety Trial Yield
East Lansing, Ingham Co.

Sown Apr 2007

Non-irrigated

Entry			2007
	16-Aug	5-Nov	Total
DS705-M*	0.92	0.68	1.60
SpringGold	0.74	0.67	1.41
DS703-BR*	0.62	0.71	1.33
Pioneer 5312	0.65	0.65	1.30
Pioneer 55V48	0.71	0.59	1.30
DK140	0.62	0.65	1.27
FG 44M125*	0.77	0.48	1.25
DS 711-BR*	0.70	0.54	1.24
Velocity**	0.65	0.56	1.21
WL343 HQ	0.61	0.56	1.17
DS 712-M*	0.58	0.54	1.12
Garst 6426	0.55	0.50	1.05
FG 44M318*	0.62	0.42	1.04
FG 44M317*	0.61	0.38	0.99
Vernal	0.56	0.43	0.99
Mean	0.66	0.56	1.22
CV%	29	30	23
LSD 5%	0.27	0.23	0.40
MCV (%)			31
LSR (%)			61

Location: Mich. State Univ. Exp. Station
 Design: RCB, plot size 3 x 25' (3 x 25')
 Seeded: 4/20/2007
 Soil Type: Capac loam, tile drainage
 Insects: dimethoate applied prior to planting
 Weed Control: Raptor, Poast Plus and clipping

*Experimental Cultivar

**Seeded as an experimental cultivar with breeding

Table 16.

Michigan State Alfalfa Variety Trial Yield (DM tons/acre)
East Lansing Potato Leafhopper-Resistant Alfalfa Trial
 Sown Apr 2007
 Non-irrigated

Entry	2007		
	16-Aug	5-Nov	Total
Pioneer 53H92	1.10	0.73	1.83
4P24	0.91	0.63	1.54
Garst 6426	0.76	0.48	1.24
Pioneer 5312	0.40	0.47	0.87
Vernal	0.27	0.49	0.76
Mean	0.69	0.56	1.25
CV%	31	22	22
LSD 5%	0.33	0.18	0.42
MCV (%)			34
LSR (%)			39

Location: Mich. State Univ. Exp. Station, East Lansing
 Design: RCB, plot size 3 x 25' (3 x 22' harvested)
 Seeded: 4/20/2007
 Soil Type: Capac loam, tile drainage
 Weed Control: Raptor, Poast Plus and clipping with harvester