



Field Crop Notes



December 2002

ALFALFA

Alfalfa Varieties

Alfalfa variety trials are conducted each year at five University of California research stations that represent the major climatic alfalfa growing areas of the state. In the San Joaquin Valley, the two locations are the U.C. West Side station in western Fresno county and the U.C. Kearney research station on the east side of the valley near Reedley. The West Side Station has clay loam soil while Kearney has a sandy loam soil. These are small plot trials, with four replications in each location. Plots are harvested with a small chopper that also weighs the fresh weight. Samples are taken to determine the moisture content for calculating dry weight. Trials include commercial varieties and experimental lines from University and private company breeding programs.

Each year the results are summarized by the end of December but for those of you trying to determine which variety to plant in the next few months, the results through 2001 are found in Tables 1 and 2 (see pages 3 & 4). Only the commercially available varieties are listed. The numbers in parentheses after the yield value indicate the ranking of that variety out of the total number of entries in the trial. The Kearney trial has 45 entries and the West Side trial has 55. Trials from other parts of the state can be found on the internet at <http://alfalfa.ucdavis.edu>. When 2002 data is ready it will also be available at this site. Just click on "Variety Trials" on the right hand side of the page and then select the location.

Because varieties with less dormancy tend to grow more quickly than varieties that are more dormant, less dormant varieties tend to be slightly lower in quality if all other factors are equal than more dormant varieties. However, the difference in price in most years does not justify the loss in yield that occurs with more dormant varieties. Interval length between cuttings, conditions at the time of raking and baling, soils, and weather are the main factors determining quality.

Besides yield, pest resistance is an important factor in choosing a variety. University trials do not rate pest resistance. Some information on registered varieties is

available from the Alfalfa Council. I have one of their publications so you can contact me for this information or it is also available on the Internet at www.alfalfa.org. When you get to this web page, click on "Alfalfa Varieties Leaflet." For clay soils or soils that don't drain well, Phytophthora root rot resistance is desirable. On sandy soils, root knot nematode resistance is recommended. Alfalfa pest resistance ratings are different than for other crops because alfalfa varieties still have a lot of genetic variation within the variety, which is unlike corn or cotton where each plant in the variety is identical to others. As a consequence, when an alfalfa variety is listed as highly resistant it means that at least 50% of the plants are resistant but there can be, and usually are, many susceptible plants within that variety.

Weed Free Alfalfa Hay for Public/Agency Owned Lands – New Summer Market?

A new program is going into effect to certify hay that is free of noxious weed seeds or plant propagative parts for use on land in National Forests, National Parks and the Bureau of Land Management. People wanting to bring feed for horses or other livestock into these areas will be required to use only certified weed-free hay. The Ag Commissioner's Office is responsible for certification and a special twine will be used for baling to identify certified hay. As the program develops, more information will be provided. This may be an opportunity to sell summer "dry cow" hay, if weed free, to another market.

New Publication on Weed Control in Seedling Alfalfa.

A new U.C. publication (#21615), **Postemergence Weed Control in Seedling Alfalfa and Phytotoxicity Symptoms**, is available at the Cooperative Extension office in Tulare. It covers factors affecting herbicide performance such as weed size and adjuvants, an herbicide quick guide, susceptibility tables, and color photographs of phytotoxicity symptoms. Price is \$12.87 including tax.

(As an additional note on weed control, Raptor herbicide was labeled in California during the past growing season. This postemergence herbicide, which controls a broad

spectrum of broadleaf weeds and suppresses many grasses, has plantback restrictions that are greatly reduced compared to Pursuit. For this reason it is not only a good choice for seedling alfalfa but also for established stands).

CORN

Corn Stunt

Corn Stunt disease was again widespread in Tulare County, perhaps not as seriously as in 2001. Some fields were hit hard and most fields, even early planted ones, had some infected plants. Research last winter proved that the adult corn leafhopper can survive the winter here in the San Joaquin Valley, at least relatively mild winters such as we had last year. Even though corn is their only host, the leafhoppers can survive several months without corn. However, to minimize the survival of overwintering adults and to reduce the percentage of infected survivors, growers are encouraged to take out any remaining corn fields and to control all corn volunteers. This late in the season, it will take any remaining corn a long time to mature. In the meantime, plants can be a refuge for overwintering leafhopper adults and possibly a source of the Spiroplasma that causes corn stunt. Volunteer plants, if infected, could also be a source of the pathogen for leafhoppers that might not be carrying the Spiroplasma as well as a refuge. Please see the inserted flyer for more information.

Two late season insecticide trials evaluating leafhopper disease control were conducted but data has not been summarized yet. Results of these trials and other information learned about this disease will be presented at a meeting on corn stunt on January 7, 2003, from 10 am to noon, at the Ag Auditorium in the U.C. Cooperative Extension Building (4437 S. Laspina St. in Tulare, across from the International Agri-Center). The same meeting will be held in the afternoon in Hanford. See enclosed meeting announcement.

Silage Corn Variety Trial

The 2002 silage corn trial was conducted north of Tipton with grower cooperator Mike Silva. The field was primarily a Chino loam. Six tons of manure were applied prior to planting. Seventeen varieties, replicated three times, were planted on 38-inch beds on June 13, 2002. Each plot was 6 rows wide and the length of the quarter mile field. Emergence was good for all varieties. Plant populations taken three weeks after planting are shown in Table 3. UAN-32 was sidedressed at 125 lbs N/acre with an additional water-run application later in the season of 50 lb/acre. Weeds were treated with Banvel on July 16th. On July 23rd, a tank mix of Capture/Dimethoate (6.4 oz/acre and 2 pts/acre, respectively) was applied by ground for both spider mite and corn leafhopper control.

Tassels were noticed the first week of August. After irrigating for what would have normally been the next to last irrigation, some pockets of lodging were observed. In order to avoid more significant lodging the last irrigation was not applied. Prior to harvest, plant and ear heights were taken and these are listed in Table 3. On September 20 and 21, Netto Ag Inc harvested the trial. Five rows of the six row plots were cut and weighed. Samples were taken to determine the moisture at harvest and to prepare samples for feed analysis. Dried samples were sent to Dairyland Lab for NIR analysis.

Moistures at harvest, which ranged from 66.4 – 70.0%, are listed in Table 3 for each variety. Both “at harvest” weights and weights adjusted to 70% moisture are presented in Table 3 (see page 5). Giving just the weight “as harvested” penalizes varieties that are earlier maturing than others because they have started to dry down while late maturing plants still have a lot of water in them. Adjusting to 70% moisture puts a penalty on varieties that are later maturing because in the “real world” those varieties would continue filling kernels for however long it would take them to dry down. For both methods, statistical analysis indicates that there was no difference among the varieties; in other words we cannot say with 95% certainty that any of these varieties was better or worse than any of the others. While skipping the last irrigation probably prevented widespread lodging problems, it may inadvertently compromised obtaining a more precise differentiation among the varieties.

For the most part, lodging that did occur was limited to small areas. However, TS 518, MBSx1410, and Mycogen 8070 had some lodging in 2 of the 3 replications. It was estimated that TS 518 had 12 and 20% lodged plants in 2 reps. MBSx1410 and Mycogen 8070 had 2-7% lodging in 2 of 3 replications.

Low levels of corn stunt disease were observed mostly at the ends by the edge of the field. Disease counts were taken near these ends and the only pattern of disease that was evident was that once in the field 150 ft or so, there was hardly ever a plant with symptoms.

There were no differences in the lab reports for the various feed analyses with the exception of calcium. All feed results are listed in Table 4.



Table 1. UC Kearney Alfalfa Cultivar Trial 2000-2001 Yields. Trial planted 9/16/99

Note: In this trial, there are varieties with varying Fall Dormancy (FD) scores, which may affect quality, persistence, as well as yield.

These FD scores were provided by the companies. Also see FD scores from experimental data in this report.

ENTRY	FD																	% OF				
	Score	2000		2001		AVERAGE															CUF 101	
		Dry Ton/acre																%				
Released Varieties																						
WL 625 HQ (C349)	9	11.12	(01)	14.08	(03)	12.60	(02)	A													115.8	
Mecca II	9	10.58	(10)	13.28	(08)	11.93	(08)	A	B	C	D	E	F								109.7	
DynaGro AL999	9	10.58	(07)	12.98	(12)	11.78	(10)	A	B	C	D	E	F	G							108.3	
PGI 481	8	10.28	(22)	13.27	(09)	11.78	(11)	A	B	C	D	E	F	G							108.3	
Dura 843	8	9.83	(35)	13.60	(07)	11.71	(13)		B	C	D	E	F	G	H						107.7	
ADF 99-801	9	10.53	(12)	12.73	(16)	11.63	(15)		B	C	D	E	F	G	H	I					106.9	
Pershing	8	10.58	(08)	12.53	(24)	11.55	(18)		B	C	D	E	F	G	H	I					106.2	
SW 9500	9	10.35	(19)	12.73	(17)	11.54	(19)		B	C	D	E	F	G	H	I					106.1	
Magna 901	9	10.32	(20)	12.55	(23)	11.43	(23)			C	D	E	F	G	H	I	J				105.1	
WestStar	9	10.16	(25)	12.49	(26)	11.33	(24)			C	D	E	F	G	H	I	J				104.1	
57Q77	7	10.14	(27)	12.44	(27)	11.29	(25)				D	E	F	G	H	I	J				103.8	
Highline	9	10.21	(23)	12.37	(29)	11.29	(26)				D	E	F	G	H	I	J				103.8	
Achiever	7	10.17	(24)	11.97	(38)	11.07	(31)						F	G	H	I	J	K	L	M	101.8	
58N57	8	9.92	(32)	12.12	(34)	11.02	(33)							G	H	I	J	K	L	M	101.3	
El Tigre Verde	8	9.40	(41)	12.64	(21)	11.02	(34)							G	H	I	J	K	L	M	101.3	
Yolo	8	9.42	(40)	12.51	(25)	10.96	(35)							G	H	I	J	K	L	M	100.8	
Magna 8	8	9.60	(39)	12.30	(31)	10.95	(36)							G	H	I	J	K	L	M	N	100.7
CUF 101	9	9.64	(37)	12.12	(35)	10.88	(37)								H	I	J	K	L	M	N	100.0
Falcon	8	9.61	(38)	12.11	(36)	10.86	(39)								H	I	J	K	L	M	N	99.9
Dura 765	7	10.04	(30)	11.15	(44)	10.60	(41)										J	K	L	M	N	97.4
SW 9301	9	8.87	(45)	11.92	(40)	10.39	(42)											K	L	M	N	95.6
ADF 98-801	7	9.04	(44)	11.67	(42)	10.36	(43)												L	M	N	95.2
Tulare	8	9.15	(42)	11.43	(43)	10.29	(44)													M	N	94.6
Fiesta (8G519)	8	9.13	(43)	11.07	(45)	10.10	(45)														N	92.8

Variety X Year interaction is significant

Trial seeded at 25 lb/acre viable seed on Hanford fine sandy loam soil at the Univ. of Calif. Kearney Agricultural Center, Parlier, CA.

Entries followed by the same letter are not significantly different at the 5% probability level according to Fishers (protected) LSD.

Table 2. UC WESTSIDE ALFALFA CULTIVAR TRIAL 1999-2001 YIELDS. TRIAL PLANTED 9/29/99

ENTRY	1999								2000								2001								AVERAGE								% OF MOAPA 69
	Dry Tons/acre																																
Released Varieties																																	
CutMor (FG99-1)	5.71	(10)	12.61	(09)	15.62	(04)	11.31	(05)	A	B	C	D	E									114.7											
SW 9628	5.67	(11)	12.47	(13)	15.75	(02)	11.30	(06)	A	B	C	D	E									114.6											
Beacon	5.85	(04)	13.03	(04)	14.91	(14)	11.26	(07)		B	C	D	E	F								114.2											
Mecca III	5.50	(19)	12.42	(15)	15.45	(07)	11.12	(10)		B	C	D	E	F	G							112.8											
Magna 901 (DS 691)	5.58	(15)	12.94	(06)	14.46	(25)	11.00	(12)		B	C	D	E	F	G	H	I					111.5											
Dura 843	4.95	(46)	12.58	(10)	15.44	(08)	10.99	(14)		B	C	D	E	F	G	H	I	J					111.5										
Mecca	5.21	(34)	12.08	(18)	14.85	(17)	10.71	(20)				D	E	F	G	H	I	J	K	L	M	N	108.7										
El Tigre Verde	5.33	(26)	12.02	(20)	13.89	(29)	10.41	(24)								H	I	J	K	L	M	N	O	P	105.6								
WestStar	5.35	(25)	11.72	(29)	14.11	(28)	10.40	(25)								H	I	J	K	L	M	N	O	P	105.5								
58N57	5.32	(27)	11.73	(28)	14.14	(27)	10.40	(26)								H	I	J	K	L	M	N	O	P	105.5								
WL 525 HQ	5.06	(41)	11.19	(38)	14.84	(18)	10.36	(27)								H	I	J	K	L	M	N	O	P	105.1								
57Q77	5.14	(36)	11.67	(30)	13.71	(33)	10.18	(32)												L	M	N	O	P	103.2								
Maricopa	5.06	(42)	11.28	(37)	13.79	(31)	10.04	(35)															N	O	101.9								
SW 9720	5.10	(38)	11.00	(44)	13.78	(32)	9.96	(36)																O	101.0								
Highline	5.86	(03)	10.99	(45)	12.92	(44)	9.93	(37)																P	100.7								
Magna 8	5.58	(16)	11.42	(35)	12.60	(47)	9.87	(39)																P	100.1								
Moapa 69	5.16	(35)	11.49	(32)	12.92	(45)	9.86	(40)																P	100.0								
5939	5.49	(20)	11.07	(41)	12.95	(43)	9.84	(42)																P	99.8								
DK 191	5.02	(45)	10.85	(46)	13.15	(38)	9.67	(45)																	98.1								
DK 180ML	4.88	(49)	10.63	(50)	11.43	(54)	8.98	(52)																	91.1								
Dura 765	4.44	(53)	10.32	(52)	11.86	(51)	8.87	(53)																	90.0								
Y5Q10	4.19	(55)	10.03	(54)	11.91	(50)	8.71	(54)																	88.4								
Rio Grande	4.41	(54)	9.71	(55)	11.23	(55)	8.45	(55)																	85.7								

VARIETY X YEAR INTERACTION IS SIGNIFICANT

Trial seeded at 25 lb/acre viable seed on Panoche clay loam soil at UC West Side Research and Extension Center, Five Points, CA.

Entries followed by the same letter are not significantly different at the 5% probability level according to Fishers (protected) LSD.

Table 3. 2002 Tulare County Silage Corn Variety Trial - Yield Summary

Brand	Average Plant Population after emergence No. plants/Acre	Average Plant Height (ft)		Average Ear Height (ft)		Moisture % at harvest	Yield as Harvested tons/acre	Yield adjusted to 70% Moisture tons/acre
Baglietto 5636RR	29,080	11.6	bcde	6.6	abc	72.0	32.30	29.70
Hyttest - 7815	29,390	10.4	f	6.1	cdef	71.7	31.69	29.58
DeKalb - DK 668	30,720	11.5	bcde	6.2	bcdef	70.6	31.67	30.95
Simplot - Golden Harvest H2641	31,360	10.9	def	6.3	bcdef	71.2	30.97	29.70
Western Ag Services - N91-R9	31,110	13.3	a	7.1	a	69.8	30.21	30.36
Lockwood Seed, Inc. - NC+ 6300	29,250	13.1	a	6.8	ab	69.8	29.99	30.09
PGI - MBS x1410	30,830	11.3	bcde	6.1	cdef	71.7	29.72	27.98
Seed Tec - 7624RR	27,610	11.1	cdef	5.9	defg	73.6	29.54	26.05
UAP - DG 5560	30,190	11.0	cdef	5.8	defg	71.5	29.45	27.91
Technology Seed - TS 518	28,860	11.5	bcde	6.3	bcde	72.1	29.39	27.26
ABI 9707	28,170	10.8	ef	5.8	efg	71.4	28.85	27.51
Asgrow - RX 953W	28,390	12.1	bcde	6.4	bcd	70.0	28.78	28.75
Mycogen - 8070	28,330	12.1	b	6.8	ab	68.7	28.73	29.79
Mycogen - 9027 (field variety)	28,640	11.8	bcde	5.6	fg	68.3	28.18	29.69
Sierra Seed - Sierra 8375	31,190	11.5	bcde	5.4	g	66.8	27.07	29.97
Stanislaus Farm Supply - Croplan Genetics DS 822CL	29,330	11.7	bcde	6.3	bcde	69.0	25.85	26.74
Pioneer Hi-Bred - Pioneer 32W86	29,360	12.1	bcde	6.1	cdef	66.4	25.45	28.27
Average for all plots	29,520	11.6		6.2		70.3	29.30	28.80
Coefficient of Variation %	2.3	2.9		4		2.9	9.16	8.67
Least Significant Difference @ 5% probability	1,139					3.3	NS	NS
Least Significant Difference @ 1% probability		0.75		0.56			NS	NS

Values are the average of 3 replications. Within a column values followed by a common letter do not differ significantly at the 5% level of probability, except for plant and ear height which is at the 1% level of probability.

The cooperater was Mike Silva. The trial was planted on June 13, 2002, and harvested on September 20 and 21, 2002, by Netto Ag Inc. Soil type was primarily a chino loam.

Table 4. 2002 Tulare County Silage Corn Variety Trial - Feed Analysis

BRAND	Crude Protein (%)	Crude Fiber (%)	Acid Detergent Fiber (%)	Neutral Detergent Fiber (%)	Calcium (%)		Phosphorus (%)	Net Energy for Lactation (Mcal/lb)	Total Digestible Nutrients (%)
Baglietto 5636RR	6.7	22.5	29.4	46.9	0.19	bcd	0.2	0.68	67.5
Hytest - 7815	6.6	20.8	27.7	44.0	0.20	bcd	0.2	0.70	68.6
DeKalb - DK 668	6.3	23.6	30.9	48.9	0.21	ab	0.2	0.66	66.5
Simplot - Golden Harvest H2641	5.9	23.1	30.3	48.0	0.21	abc	0.2	0.67	66.9
Western Ag Services - N91-R9	6.2	24.3	31.6	50.2	0.2	ab	0.2	0.65	66.0
Lockwood Seed, Inc. - NC+ 6300	6.0	23.2	30.1	47.6	0.22	ab	0.2	0.67	67.0
PGI - MBS x1410	6.3	23.2	30.4	48.4	0.2	ab	0.2	0.67	66.8
Seed Tec - 7624RR	6.6	23.9	31.4	49.1	0.21	abc	0.2	0.65	66.2
UAP - DG 5560	6.0	21.8	28.6	46.0	0.20	bcd	0.2	0.69	68.0
Technology Seed - TS 518	6.1	25.1	32.8	51.8	0.23	a	0.2	0.64	65.2
ABI 9707	6.4	22.8	29.6	47.2	0.21	abc	0.2	0.68	67.4
Asgrow - RX 953W	6.2	23.1	30.2	48.3	0.22	ab	0.2	0.67	67.0
Mycogen - 8070	5.6	21.8	28.4	45.6	0.18	cd	0.2	0.69	68.1
Mycogen - 9027 (field variety)	5.7	22.0	28.8	46.3	0.20	bcd	0.2	0.69	67.9
Sierra Seed - Sierra 8375	5.9	20.3	26.5	43.1	0.18	d	0.2	0.72	69.4
Stanislaus Farm Supply - Croplan	6.3	21.9	28.5	46.6	0.20	abcd	0.2	0.69	68.1
Pioneer Hi-Bred - Pioneer 32W86	5.7	22.3	29.0	46.5	0.20	bcd	0.2	0.69	67.7
Average for all plots	6.1	22.7	29.7	47.3	0.2		0.19	0.68	67.3
Coefficient of Variation %	8.29	6.96	6.83	5.99	7.08		10.2	3.79	1.98
LSD @ 5% Duncan's	NS	NS	NS	NS	0		NS	NS	NS
Probability %	26.0	7.5	8.0	10.1	1.2		12.5	8.3	8.2

Values are the average of 3 replications. Within a column values followed by a common letter do not differ significantly at the 5% level of probability. The grower cooperator was Mike Silva. The trial was planted on June 13, 2002, and harvested on September 20 and 21, 2002, by Netto Ag Inc. Soil type was primarily a chino loam. Analysis by Dairyland Lab using NIRS technology.

Corn Stunt Meeting

Tuesday, January 7, 2003



Tulare County

10 am to noon
Ag Auditorium
Ag Building
4437 S. Laspina St, Tulare
(559) 685-3309

Kings County

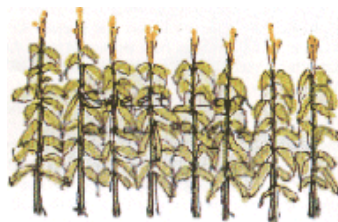
2 pm to 4 pm
Kings Co. Ag Center
Multi-Purpose Room
680 N. Campus Dr, Hanford
(559) 582-3211 ext. 2730



Results of research last winter and through the corn season of monitoring and mapping corn leafhopper activity, diagnostic tools for determining presence of the stunt pathogen, and results of insecticide trials will be presented.

- * Overview/Introduction
- * Overwintering Research Activities and Results
- * Results of GIS mapping
- * Diagnostic Capabilities for detection in plants and insects
- * Insecticide Studies
- * Research strategies for 2003
- * Grower management strategies for 2003

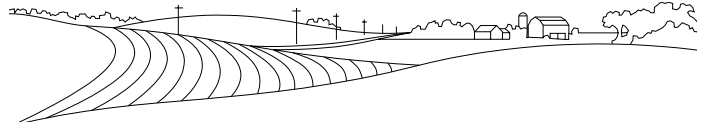
Speakers: **Dr. Charlie Summers**, U.C. Entomologist stationed at Kearney Ag Center
Dr. Dan Opgenorth, CDFA Plant Pathologist from Sacramento
Carol Collar, UCCE Farm Advisor, Kings County, and
Carol Frate, UCCE Farm Advisor, Tulare County.



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December 2002

Carol Frate
Carol Frate, Farm Advisor

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