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2004 CALIFORNIA ALFALFA VARIETY TRIALS: YIELD AND FALL DORMANCY RESULTS and ROUNDUP READY YIELD AND QUALITY RESULTS

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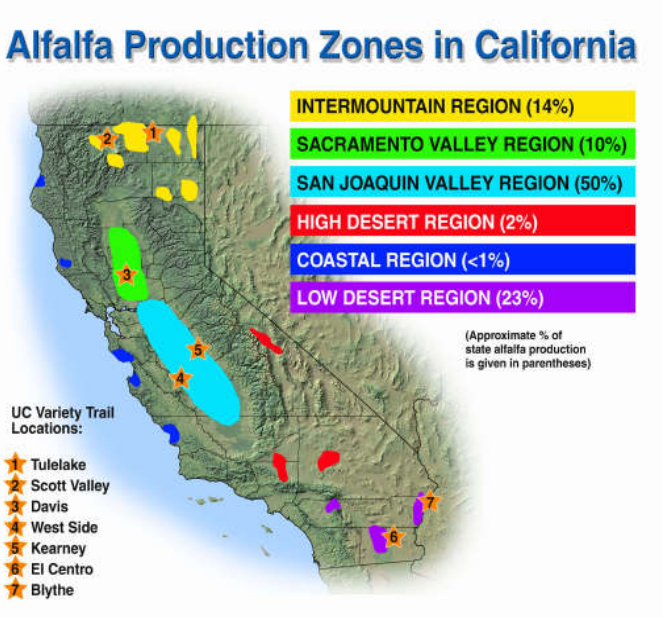
ABSTRACT

This publication details alfalfa yield trial data for single harvest, single year, and multiple-year summaries for the year 2004, and results from the 2004 Alfalfa Fall Dormancy trials. Yield trials are conducted in 6 trials at 4 locations in the Intermountain area, the Sacramento Valley, The San Joaquin Valley, and the Imperial Valley. The results of a yield and quality test of Roundup-Resistant experimental lines conducted at Davis, CA are also presented. Fall Dormancy Data was collected from three locations (Tulelake, Davis, and Imperial Valley) in California. The alfalfa variety trial data from the University of California are routinely placed on the World Wide Web; often well in advance of this published Agronomy Progress Report. See http://alfalfa.ucdavis.edu/ and click on the "Varieties" "Variety Trials Main" link to access UC variety trial data (or http://alfalfa.ucdavis.edu/variety/). Additionally, a database has been developed and placed on the web, containing 36-years of data on alfalfa variety performance in California (http://alfalfa.ucdavis.edu/variety/search.html).

INTRODUCTION

Choice of superior varieties is a significant economic factor for alfalfa growers. A large number of commercial varieties are currently available—enabling a wide range of options for producers. However, independent data to judge the value of these varieties is needed. These UC trials provide unbiased data from a wide range of environments related to variety performance of alfalfa. In California, alfalfa is grown from the Oregon border to the Mexican border, and throughout the Great Central Valley, which consists of the Sacramento and San Joaquin Valleys. These sites represent 3-4 cut alfalfa cropping systems (dormant varieties) in the



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Intermountain Region, 6-8 cut systems (semi-dormant varieties) in the Northern Central Valley, and 8-10-cut systems (non-dormant varieties) in the Southern Central Valley and Desert Environments.

We test both private and public varieties, and experimental lines destined for release within the next few years. These data are used by growers to choose varieties, and by breeders to help guide further selection. This report provides single year and over-the year summary from alfalfa trials harvested in California in 2004.

IMPORTANCE OF FALL DORMANCY

Fall Dormancy (FD) is probably the single most important factor in determining the adaptation of an alfalfa cultivar. Dormancy is defined as the reduction in growth during the fall that is associated with reducing photoperiod (day length) and temperature. Fall Dormancy is more important in the varied climatic zones of California than in other, more uniform climates. Therefore, comprehensive trials are conducted each year comparing and defining Fall Dormancy characteristics for alfalfa lines across different environments. Evaluation of fall dormancy in a single year and or a single location, can lead to misclassification of some cultivars, resulting in either serious winter-kill or loss of the production potential if a cultivar from the wrong fall dormancy group is chosen. Our trials include standard check cultivars and uniform methods across three environments and are reported below.

2004 ALFALFA PRODUCTION YEAR

The 2004 California cropping year was probably one of the best alfalfa growing seasons we've seen in many years for most parts of California. It was characterized by a very dry spring in much of the Sacramento and San Joaquin Valleys, and a moderate cool summer. As a result, some excellent early production (high yields and high quality) was obtained for many growers in the Central Valley. Quite a few growers obtained one additional cutting than in less-favorable years. Our research plots had the first harvesting at the end of March, which normally would be April or May, at both Kearney and Davis. Additionally, the price for alfalfa hay rebounded in 2004 compared with previous years, and as the year draws to a close, hay stocks are down, demand is good, and hay prices appear to be moderate to high. The Imperial Valley and Intermountain saw improved prices for 2004, but not to the same degree as the Central Valley.

TESTING ALFALFA VARIETIES - METHODS

Yield Trials. The California Alfalfa Cultivar Yield, Fall Dormancy, and Forage Quality Trials are open to any certified alfalfa cultivar, which is sold or is likely to be sold in California. Blends or brands (unless they are certified blends) are not included in these trials. Experimental cultivars with a high likelihood of release within the next few years are tested as space permits. Six alfalfa variety yield trials were harvested from Tulelake, Davis (3 trials), Parlier, and El Centro, CA in 2004. One new trial at El Centro was established Fall 2003 and one new trial established at Tulelake this year. Specific planting dates for each trial are given on the results table for that trial. Seed is planted at approximately 25 lbs/acre live seed. Plots are 3' to 4' wide and 15 to 20 feet long, depending upon location and specific layout. Three to six replicates of each cultivar are planted at each location, depending upon the expected variation at that site.

Experimental design is a randomized complete block design. Harvests for yield estimation are obtained from approximately a 3' x 18' area using a flail-type or cutter-bar type forage harvester, and dry matter yield determined by oven-drying sub samples to a constant weight. A representative group of 5-6 varieties are taken at each harvest, and the average dry matter used for yield determination. Three to four harvests are taken in intermountain California while up to ten cuttings are taken in the Imperial Valley. Cutting schedules are determined by the most common practice in that region and are the same for all varieties within a trial. A separate trial comparing varieties and cutting schedules is completed at Davis campus, and will be reported in subsequent reports. Data is assembled from each of the locations and analyzed and summarized at UC Davis campus.

Fall Dormancy Trials. The 2004 Fall dormancy trials were conducted at three locations in California (Intermountain Research and Extension Center, Tulelake, CA - 41°53'N, Mean Temp. 44.2°F; the Agronomy and Range Science Field Research Facility Davis, CA - 38°32'N, Mean Temp. 60.3°F, and the Desert Research and Extension Center, El Centro, CA (Imperial Valley site) - 32°48'N, Mean Temp.72.7° F). The three-location trial represents Intermountain (Tulelake), Mediterranean (Davis), and Desert (El Centro) environments. Planting dates this year were May 5 at Tulelake, June 19 at Davis, and May 14 at Imperial. Single row plots are be established on 30" centers. Each plot is 30' in length separated by a 5' alley. Individual plants within a plot are 18" apart. The 2004 trial had 54 entries. Included in the list of entries are the 11 standard check cultivars adopted by the North American Alfalfa Improvement Conference in 1998 (http://www.naaic.org/stdtests/Dormancy2.html). When plants reached the second or third trifoliolate leaf stage the plot was thinned to the spacing above. Watering was appropriate for a forage production field. The first clipping, if taken, occurred between July 1 and July 15 (no data were taken at this time). The studies at each location remain well watered with weed and rodent control until the fall clipping date. Each year, fall clip-back occurs as near as possible to September 7, Tulelake; October 3, Davis; and October 23, Imperial. On these respective dates, the study was swathed to a height of 5 cm (2 inches) and any uncut stems on individual plants were removed by hand. Water application continues in amounts appropriate for forage production at each location. Approximately, three and one-half weeks after clipping, individual plants were evaluated for fall (re)growth on a 1 to "n" scale. Each increment in the scale is equal to 5 cm (2 inches) of growth, measured as a score. These data were then transformed using the square root to remove any heterogeneity of variance. Transformed values are reported as natural plant height (NPH). The fall dormancy class (as designated in the standard evaluation protocol) of the check cultivars was then regressed against the NPH value across locations. The resulting regression is used to assign a Fall Dormancy Rating (FDR) to each of the entries in the trial based on their average NPH over locations.

Winter Survival. In the spring, plants from the previous years fall dormancy trial at Tulelake are evaluated for winter injury (winter survival). The standard test for winter survival in alfalfa is based on a subjective visual rating system with a 1 to 5 scale (1 = no injury, 2 = some injury, 3 = significant injury, 4 = severe injury, and 5 = dead plant) (Standard Tests to Characterize Alfalfa Cultivars-NAAIC, 1995). See website for further information: http://www.naaic.org/stdtests/wintersurvival.htm.

2004 YIELD RESULTS

Intermountain Region

2004 UC Tulelake Yield Trial - This newly planted trial on May 21, 2004 has 36 entries at UC Intermountain Research and Extension Center, Tulelake, CA. This trial was planted following a failure of a 2003-planted trial which was destroyed by rodents. Single year results from the '04 Tulelake trial are stated in Table 1. Three cuttings were completed in the first year of production, and only relatively small differences among all the different varieties. We observed about half-ton difference in between the highest and lowest yield average of varieties. IT IS A MIS-USE OF UNIVERSITY DATA TO USE SINGLE-YEAR DATA TO COMPARE ALFALFA VARIETIES.

Sacramento Valley

2001 UC Davis Yield Trial - A multiple dormancy trial (with fall dormancies ranging from 4 through 9) was established in the fall of 2001. This trial was combined with a cutting schedule with variety interaction experiment at the UC Davis Agronomy Research Farm (See Putnam & Orloff, 2003 California Alfalfa Symposium Proceedings on http://alfalfa.ucdavis.edu website). This trial has entered its 3rd year of data collection in 2004 (see Table 2 and 3). Here, we present only the data from the 'Medium' cutting schedule, or the 28-day interval cutting schedule. In 2004, yield average was 9.6 tons/acre, which was about 1 ton per acre less than the yield averages in 2002 and 2003. Coefficients of Variation for this trial were higher, perhaps due to only 3 replications in this trial. This year data showed a large yield differences (about 3 tons/acre) between top and bottom varieties, with a large effect of Fall Dormancy on yield. Some moderate amount of ranking shift is observed over the two years of this trial.

2002 UC Davis Yield Trial – This trial has entered its 2nd year of this multiple dormancy trial (with fall dormancies ranging from 3 to 9), which was established in the fall of September 30, 2002. This trial was combination of variety and wheel traffic interaction trial located at the UC Davis Agronomy Research Farm (only those which did not receive wheel traffic are reported here). Total of seven cuttings were concluded in the 2004 season (Table 4). Total yield average was 12.1 tons/acre comparing to 9.6 tons/acre in 2003 (only six cuttings) (see Table 5). Due to the large range of Fall Dormancy, the differences between high and low yields across the varieties were up to 3 tons/acre. There is some slight shift of yield rank between the total tonnages 1st and 2nd years.

San Joaquin Valley

2003 UC Kearney Yield Trial – This is the 2nd year of this variety trial, which was planted on late spring, May 12, 2003 at UC Kearney Research Center. Seven cuttings were conducted during the season, as we expected from last year. The yield average across all the varieties was about 11.5 tons/acre (Table 6). The yearly yield average between the high and low varieties is greater than 5 tons/acre difference. The rankings of varieties had some major changes between 2003 and 2004 (Table 7).

Low Desert

Alfalfa is grown on the low desert of California, consisting of about 24% of the state's production, and on the high desert, consisting of about 1-3% of the state's production. Trials for non-dormant cultivars commonly grown on the low deserts of California are conducted at El

Centro and sometimes Blythe, CA. The UC Desert Research and Extension Center, El Centro plots are managed by UC Staff Research Associate Larry Gibbs.

2003 UC Imperial Yield Trial – This new variety trial was planted and established on October 3, 2003. The first year production had 8 cuttings with average of 8.7 tons/acre (Table 8). The overall field variability was also high in 2004, especially towards to end of season when the CV value increased higher than 10%. The difference between high and low yield entries was only 2.2 tons/acre, while the FD merely ranging from 7-9. IT IS A MIS-USE OF UNIVERSITY DATA TO USE SINGLE YEAR DATA TO CHOOSE ALFALFA VARIETIES.

ROUNDUP READY VARIETY TEST

The first year yield results of a roundup ready (RR) trial grown at UC Davis campus is presented here. Included in this trial are RR lines, several of which will likely be commercialized in 2005. This trial is the same in most respects to the variety trials that are routinely part of the Statewide UC Variety testing program, with the exception that regulatory requirements for GMO test varieties, as required by USDA and EPA are followed. These plots were managed according to Best Management Practices, with similar cutting schedules and irrigation techniques as are practiced on non-GMO plots.

Yields of RR varieties for the first year of this trial were generally no different than the yields of non-RR varieties (Table 9). Differences in yield potential as related to Fall Dormancy Rating of those varieties were observed, but this was an effect that was independent of whether the variety was RR or not (Table 9). It is important to remember that yields during the first year of production are not always predictive of yields over a 2-3 year period. Therefore, choosing varieties should be based upon multiple-year tests, ideally from multiple locations. IT IS A MIS-USE OF UNIVERSITY DATA TO SOLELY USE SINGLE YEAR DATA TO CHOOSE ALFALFA VARIETIES.

Quality data from selected cuttings from the RR trial are reported in Table 10. Significant differences between varieties were observed (Table 10). However, these differences were fairly clearly aligned with the differences between Fall Dormancy groups, as has previously been observed in research trials (Orloff and Putnam, 2003). That is: the more non-dormant lines (e.g. CUF 101 or varieties that have Fall Dormancies of 9-11) have generally lower quality than more dormant lines (e.g. WL325HQ or lines with Fall Dormancies of 3-7). This effect was apparently independent of whether the lines were RR or not. This yield-quality tradeoff is commonly observed, as a function of fall dormancy, at the Davis site.

It should be noted that the Fall Dormancy scores reported in Tables 9-10 are those estimated by the company, not those measured in the UC multiple-location Fall Dormancy trial. More careful measurements of Fall Dormancy may enable better prediction of adaptation of a variety.

2004 FALL DORMANCY RESULTS

Results from the 2004 Fall Dormancy Trial are presented on Table 11. Throughout California the 2004 production season was cooler than normal. However the fall (after the first of September) was warmer than normal through the end of October—with the exception of one major storm

which occurred between September 29 and October 2 in central California (affecting Davis). Overall trails at all three locations experienced no management problems and fall growth was excellent. This years regression equation was 6.289(NPH)-8.080 with an r^2 of 0.996. This is not statistically different from the long term average regression. The C.V.s for the three locations varied between 4.16 and 5.45. With the exception of 'Legend' and 5246 the ranking of the check cultivars was as expected. These two cultivars ranked as would be expected at Tulelake and Imperial, but were reversed at Davis. The difference at Davis was significant and large enough to influence the overall ranking of these two check cultivars. We do not feel this is a major concern. It is likely that this is related to the storm that occurred in Davis just prior to scoring the trial. However we will pay close attention to this relationship at Davis in future years.

2004 WINTER SURVIVAL RESULTS

Winter survival rating results from the 2003 and 2004 winter at the Tulelake location are provided in Table 12. Winter temperatures are insufficiently cold at other California locations to test for winter survival, but below-freezing temperatures at Tulelake are frequently sufficient to differentiate between varieties. Fall dormancy ratings (FDR) from the 2003 Fall Dormancy Trial across all locations and the FDR scores in the same year at Tulelake are provided for a reference. Check cultivars for winter survival are ranked from 1-6. Under severe Midwestern winter conditions with a winter survival rating equal to the check cultivars ranked 1 would not be damaged most winters. Cultivars equal to the check cultivars ranked 6 would be severely damaged or dead at the end of most winters. The 2003-04 winter at Tulelake was very mild. For the first time in many years there was virtually no winter kill in cultivars of any fall dormancy rating. Even cultivars with fall dormancy ratings greater than 9 exhibited little winter injury. We rarely scored individual plants within these cultivars any lower than 3 (significant but not sever damage). Most years we would see significant (rating = 3) or greater damage at Tulelake to most plants from cultivars with a FDR of 6 or greater.

INTERPRETING YIELD TRIAL RESULTS

Assessing Yield Differences between Varieties. Although varieties are ranked from highest to lowest in yield, it is important to consider whether there are statistical differences between individual lines. The Least Significant Difference (LSD), which is reported at the bottom of each column of numbers on each table, determines a "critical difference", beyond which a variety is judged to be truly different. For convenience, we have placed the letters, "A", "B", "C", etc. next to the yields. Varieties with the same letter are considered similar to each other with a 95% confidence level. If one is willing to accept a lower confidence level (a higher chance of being wrong), choose a narrower group of varieties (e.g. the top 10-12 lines). However, there are typically a group of varieties with acceptably high yields for a region, and we often recommend choosing the top 1/3 to 1/4 of the trial for a starting place. This grouping of high yielding cultivars should then be coupled with consideration of disease resistance, fall dormancy, persistence, and forage quality to aid in the variety decision. The Coefficient of Variation (CV) is an estimation of the overall level of uncontrolled variation in the experiment. Coefficients of Variation less than 10% are usually considered acceptable.

Choosing Varieties to Resist Pests. Often the ONLY strategy to combat specific pests is the choice of alfalfa variety. Growers should take advantage of decades of plant breeding which will

enable them to plant crops more resistant to diseases insects and nematodes than older varieties. While pest resistance is important, pests do not occur every year. But even if pests or diseases occur only 1 year out of 10, choice of a resistant variety will pay for itself.

Table 13 lists the recommended pest resistance ratings for alfalfa varieties for the different regions of California. This will guide you in choosing varieties which have resistance to important pests. Data on the Fall Dormancy and Pest Resistance Ratings of Alfalfa Varieties is at: http://www.alfalfa.org/falldormancy.html and is updated each year for new varieties.

We suggest the following procedure for selecting varieties:

1. Select a group of high-yielding varieties for your region (generally the top 1/3 of a trial which is closest to your area) from Tables 1-9. List these varieties as candidates for consideration.
2. Determine the Pest Resistance and Fall Dormancy needs for your region (Table 13).
3. Order a copy or view on the web the current information on Fall Dormancy and Pest resistance at the Alfalfa Alliance Website (see above URL).
4. Double-check those fall dormancy scores with those on Tables 11-12.
5. Choose those high yielding varieties with the best Pest Resistance package for your region.
6. Consider evidence for high quality if available (such information is not always widely available, but generally more dormant varieties tend to be higher in quality).
7. Last consideration is the price of seed or whether the seed sales person buys you lunch.

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Table 1. UC TULELAKE ALFALFA CULTIVAR TRIAL 2004 YIELDS. TRIAL PLANTED 5/21/2004.
Note: Single year data should not be used to evaluate alfalfa varieties or choose alfalfa cultivars

		Cut 1 7/13	Cut 2 8/17	Cut 3 9/17	YEAR TOTAL		% OF VERNAL
	FD	----------	Dry t/a	----------	Dry t/a		%
Released Varieties							
Mountaineer2.0	5	1.8 (1)	2.3 (1)	1.4 (11)	5.4 (1)	A	116.7
Magna601	6	1.8 (4)	2.1 (20)	1.5 (6)	5.3 (5)	A B C D	114.7
Expedition	5	1.7 (15)	2.1 (21)	1.5 (7)	5.3 (6)	A B C D E	113.3
WL325HQ	3	1.7 (19)	2.3 (2)	1.3 (15)	5.3 (7)	A B C D E	113.1
Recover	5	1.7 (13)	2.1 (18)	1.4 (9)	5.2 (9)	A B C D E	112.5
DS309Hyb	4	1.7 (14)	2.1 (19)	1.4 (8)	5.2 (10)	A B C D E	112.4
MasterPiece	4	1.7 (16)	2.2 (12)	1.4 (12)	5.2 (12)	A B C D E F	112.2
Vitro	3	1.8 (3)	2.2 (4)	1.2 (26)	5.2 (13)	A B C D E F	112.1
DS218	6	1.7 (11)	2.1 (22)	1.4 (10)	5.2 (14)	A B C D E F	112.0
Hybriforce-420Wet	4	1.7 (18)	2.2 (6)	1.4 (14)	5.2 (15)	A B C D E F	112.0
Rebound5.0	4	1.7 (17)	2.2 (3)	1.3 (20)	5.2 (16)	A B C D E F	111.9
SW435(SW4A135)	4	1.8 (7)	2.1 (16)	1.3 (19)	5.2 (17)	A B C D E F	111.6
AlfaStarII	4	1.8 (2)	2.1 (14)	1.3 (23)	5.2 (18)	A B C D E F	111.3
LM459WD	5	1.6 (32)	1.9 (36)	1.6 (2)	5.1 (20)	A B C D E F G	110.3
54Q25	4	1.7 (9)	2.1 (15)	1.2 (27)	5.1 (21)	A B C D E F G H	109.6
Xtra-3	4	1.7 (22)	2.1 (13)	1.3 (24)	5.1 (23)	B C D E F G H I	108.7
CW5440	4	1.8 (8)	2.2 (11)	1.2 (32)	5.1 (24)	B C D E F G H I	108.4
WL319HQ	3	1.7 (26)	2.2 (7)	1.2 (29)	5.1 (25)	C D E F G H I	108.4
RewardII	4	1.7 (20)	2.2 (9)	1.2 (31)	5.0 (26)	D E F G H I	107.9
Boulder(4M125)	5	1.7 (25)	2.1 (30)	1.3 (22)	5.0 (27)	D E F G H I	107.6
BlazerXL	3	1.7 (12)	2.1 (25)	1.2 (30)	5.0 (28)	D E F G H I	107.6
Dura512	5	1.7 (27)	2.1 (24)	1.2 (25)	5.0 (29)	E F G H I J	107.1
WL357HQ	3	1.6 (33)	2.0 (35)	1.3 (16)	4.9 (30)	E F G H I J	106.1
C316	4	1.6 (30)	2.1 (28)	1.2 (28)	4.9 (31)	E F G H I J	106.0
LegenDairy5.0	3	1.5 (36)	2.1 (32)	1.3 (21)	4.9 (32)	F G H I J	105.0
Plumas	4	1.8 (6)	2.0 (34)	1.1 (34)	4.8 (33)	G H I J	103.9
9429	4	1.6 (35)	2.1 (26)	1.1 (33)	4.8 (34)	H I J	102.4
Innovator+Z	3	1.7 (23)	2.1 (27)	1.0 (36)	4.8 (35)	I J	102.0
Vernal	2	1.6 (34)	2.0 (33)	1.0 (35)	4.7 (36)	J	100.0
Experimental Varieties							
SW5307	5	1.7 (24)	2.2 (5)	1.6 (4)	5.4 (2)	A B	115.8
SW4310	4	1.6 (31)	2.2 (10)	1.6 (3)	5.4 (3)	A B C	115.3
SW6330	6	1.7 (28)	2.1 (23)	1.6 (1)	5.3 (4)	A B C D	114.7
SW4328	4	1.7 (29)	2.1 (17)	1.5 (5)	5.3 (8)	A B C D E	112.6
SW5329	5	1.7 (10)	2.2 (8)	1.3 (17)	5.2 (11)	A B C D E F	112.3
CW94023	4	1.8 (5)	2.1 (29)	1.3 (18)	5.2 (19)	A B C D E F G	110.6
CW05009	5	1.7 (21)	2.1 (31)	1.4 (13)	5.1 (22)	B C D E F G H I	109.1
MEAN		1.7	2.1	1.3	5.1		
CV		7.6	7.9	8	5.4		
LSD (.05)		NS	NS	0.13	0.34		

Trial seeded at 25 lb/acre viable seed at UC Intermountain Research and Extension Center, Tulelake, CA.

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

Table 2. '01 UC DAVIS 2001 ALFALFA CULTIVAR 2004 YIELDS. TRIAL PLANTED 9/17/01
Note: Single year data should not be used to evaluate alfalfa varieties or choose alfalfa cultivars

		Cut 1 3/25	Cut 2 4/28	Cut 3 5/26	Cut 4 6/22	Cut 5 7/20	Cut 6 8/18	Cut 7 9/14	Cut 8 10/15	YEAR TOTAL		% OF CUF 101
	FD	----------	----------	----------	----------	Dry t/a	----------	----------	----------	Dry t/a		%
Released Varieties												
AL999Plus	9	0.6 (4)	1.5 (4)	1.6 (24)	1.8 (2)	1.8 (2)	1.6 (1)	1.4 (2)	1.2 (1)	11.4 (1)	A	132.3
Magna801FQ(DS681FQ)	8	0.4 (12)	1.5 (7)	1.6 (18)	1.8 (3)	1.6 (3)	1.5 (4)	1.4 (3)	1.1 (4)	10.9 (3)	A B C	126.3
El Tigre Verde	8	0.5 (7)	1.5 (6)	1.9 (1)	1.8 (4)	1.5 (6)	1.2 (27)	1.3 (8)	1.0 (8)	10.7 (5)	A B C D	124.2
WL625HQ	9	0.7 (2)	1.4 (10)	1.9 (2)	1.6 (18)	1.5 (4)	1.3 (12)	1.3 (15)	1.0 (5)	10.7 (6)	A B C D	123.9
SW9720	9	0.6 (6)	1.3 (19)	1.7 (8)	1.6 (20)	1.5 (8)	1.5 (5)	1.2 (28)	1.1 (3)	10.4 (7)	B C D E	120.2
SW7410	7	0.4 (21)	1.4 (9)	1.7 (10)	1.7 (9)	1.4 (11)	1.3 (14)	1.3 (12)	1.0 (7)	10.1 (10)	C D E F G	117.7
59N49	9	0.3 (24)	1.2 (31)	1.7 (5)	1.6 (13)	1.4 (13)	1.4 (6)	1.4 (4)	1.0 (6)	10.1 (11)	C D E F G	117.2
Achiever	8	0.4 (20)	1.4 (12)	1.8 (3)	1.7 (11)	1.3 (24)	1.3 (23)	1.3 (14)	0.9 (15)	9.9 (12)	C D E F G H	114.8
Sedona	10	0.3 (27)	1.3 (18)	1.7 (14)	1.6 (21)	1.5 (7)	1.4 (9)	1.3 (17)	0.9 (10)	9.9 (15)	D E F G H I	114.3
58N57	8	0.3 (34)	1.3 (21)	1.6 (20)	1.8 (7)	1.4 (15)	1.3 (10)	1.3 (11)	0.9 (11)	9.9 (16)	D E F G H I	114.3
CW704(CW57104)	7	0.4 (22)	1.2 (27)	1.6 (21)	1.7 (10)	1.4 (10)	1.4 (7)	1.3 (10)	0.9 (16)	9.8 (17)	D E F G H I	114.2
Fiesta	8	0.4 (14)	1.2 (29)	1.6 (22)	1.7 (12)	1.3 (25)	1.3 (19)	1.3 (16)	0.8 (20)	9.5 (18)	E F G H I J	109.8
Dura765	7	0.3 (32)	1.3 (22)	1.7 (7)	1.6 (16)	1.4 (16)	1.3 (11)	1.2 (27)	0.8 (23)	9.5 (19)	E F G H I J	109.8
Tahoe	6	0.4 (16)	1.3 (15)	1.6 (17)	1.4 (32)	1.2 (28)	1.3 (24)	1.4 (7)	0.8 (19)	9.4 (20)	E F G H I J	108.5
C241	6	0.3 (26)	1.3 (17)	1.6 (15)	1.6 (17)	1.3 (23)	1.3 (16)	1.2 (23)	0.7 (24)	9.3 (21)	E F G H I J K	108.3
WL711WF	10	0.2 (35)	1.2 (33)	1.4 (35)	1.5 (24)	1.4 (12)	1.2 (30)	1.3 (9)	0.9 (12)	9.2 (23)	G H I J K L M	106.3
Sutter	7	0.3 (33)	1.2 (32)	1.5 (26)	1.7 (8)	1.4 (17)	1.2 (28)	1.3 (19)	0.7 (28)	9.1 (24)	G H I J K L M	106.1
Dura 512	5	0.4 (19)	1.4 (14)	1.7 (6)	1.5 (25)	1.3 (22)	1.1 (31)	1.1 (34)	0.6 (32)	9.1 (26)	H I J K L M	105.2
C316	4	0.5 (8)	1.3 (16)	1.5 (28)	1.6 (22)	1.1 (31)	1.3 (21)	1.2 (30)	0.6 (33)	9.1 (27)	H I J K L M	105.0
Magna601	6	0.4 (15)	1.2 (25)	1.5 (33)	1.5 (23)	1.2 (30)	1.2 (25)	1.1 (31)	0.7 (26)	8.9 (29)	I J K L M	102.7
Archer II	5	0.3 (25)	1.4 (11)	1.5 (30)	1.4 (31)	1.1 (33)	1.1 (32)	1.2 (20)	0.6 (31)	8.7 (30)	J K L M	100.6
CUF 101	9	0.2 (36)	1.0 (36)	1.4 (36)	1.4 (34)	1.3 (20)	1.3 (15)	1.2 (26)	0.8 (22)	8.6 (31)	J K L M	100.0
54Q53	4	0.4 (18)	1.2 (30)	1.5 (32)	1.5 (30)	1.1 (34)	1.2 (26)	1.2 (29)	0.6 (30)	8.6 (32)	J K L M	99.7
Aspire	6	0.3 (29)	1.3 (24)	1.4 (34)	1.4 (36)	1.3 (26)	1.2 (29)	1.0 (36)	0.7 (27)	8.4 (33)	J K L M	97.9
WL325HQ	3	0.3 (30)	1.1 (35)	1.7 (12)	1.5 (26)	1.0 (35)	1.1 (33)	1.0 (35)	0.6 (34)	8.3 (34)	K L M	96.6
Tango	6	0.3 (31)	1.2 (34)	1.5 (29)	1.4 (33)	1.1 (32)	1.1 (34)	1.1 (33)	0.6 (35)	8.3 (35)	L M	95.9
Plumas	4	0.4 (23)	1.3 (23)	1.5 (31)	1.5 (29)	1.0 (36)	1.0 (36)	1.2 (25)	0.5 (36)	8.2 (36)	M	95.0
Experimental Varieties												
ADF 01-70	7	0.6 (3)	1.5 (1)	1.6 (16)	1.8 (1)	1.8 (1)	1.5 (3)	1.3 (18)	1.1 (2)	11.3 (2)	A B	131.2
DS189	8	0.4 (11)	1.5 (3)	1.7 (13)	1.8 (6)	1.5 (5)	1.6 (2)	1.4 (6)	0.9 (9)	10.7 (4)	A B C D	124.6
CW76098	6	0.7 (1)	1.4 (13)	1.8 (4)	1.8 (5)	1.4 (14)	1.3 (13)	1.2 (21)	0.8 (21)	10.3 (8)	B C D E	119.9
DS186	6	0.6 (5)	1.4 (8)	1.6 (25)	1.6 (19)	1.4 (9)	1.4 (8)	1.4 (1)	0.8 (18)	10.2 (9)	C D E F	118.5
DS187	7	0.4 (13)	1.5 (2)	1.7 (11)	1.6 (14)	1.3 (21)	1.3 (20)	1.2 (22)	0.9 (13)	9.9 (13)	C D E F G H	114.8
UN628	6	0.4 (17)	1.5 (5)	1.5 (27)	1.6 (15)	1.3 (18)	1.3 (17)	1.4 (5)	0.9 (14)	9.9 (14)	C D E F G H	114.7
GP99AL2	8	0.3 (28)	1.2 (26)	1.6 (19)	1.4 (35)	1.3 (19)	1.3 (18)	1.3 (13)	0.8 (17)	9.3 (22)	F G H I J K L	107.8
OK 49	6	0.5 (10)	1.2 (28)	1.6 (23)	1.5 (28)	1.3 (27)	1.3 (22)	1.2 (24)	0.6 (29)	9.1 (25)	H I J K L M	105.2
UN576	5	0.5 (9)	1.3 (20)	1.7 (9)	1.5 (27)	1.2 (29)	1.0 (35)	1.1 (32)	0.7 (25)	9.0 (28)	H I J K L M	104.3
MEAN		0.4	1.3	1.6	1.6	1.3	1.3	1.2	0.8	9.6		
CV		33.5	10.1	12.1	9.7	15.2	12.1	10.2	11.4	6.6		
LSD (.05)		0.22	0.22	NS	0.25	0.33	0.25	0.21	0.15	1.03		

Trial seeded at 25 lb/acre viable seed on Yolo clay loam soil at the Univ. of California Agronomy Farms, Davis, CA.
Entries followed by the same letter are not significantly different at the 5% probability level according to Fishers (protected) LSD.

Table 3. '01 UC DAVIS ALFALFA CULTIVAR TRIAL 2002-2004 YIELDS. TRIAL PLANTED 9/17/01

		2002	2003	2004			% OF
		----------Yield----------			AVERAGE		CUF 101
	FD	----------Dry t/a----------			Dry t/a		%
Released Varieties							
AL999Plus	9	11.6 (2)	12.7 (1)	11.4 (1)	11.9 (1)	A	118.1
Magna801FQ(DS681FQ)	8	11.2 (8)	11.9 (5)	10.9 (3)	11.3 (2)	A B	112.6
WL625HQ	9	11.2 (10)	12.0 (4)	10.7 (6)	11.3 (3)	A B	112.2
59N49	9	11.5 (5)	11.5 (8)	10.1 (11)	11.0 (7)	A B C D	109.5
SW7410	7	11.3 (6)	11.4 (10)	10.1 (10)	11.0 (9)	A B C D	108.9
CW704(CW57104)	7	11.3 (7)	11.4 (9)	9.8 (17)	10.9 (10)	A B C D	107.8
SW9720	9	10.9 (14)	10.8 (21)	10.4 (7)	10.7 (12)	B C D E	106.4
WL711WF	10	11.2 (9)	11.7 (6)	9.2 (23)	10.7 (13)	B C D E	106.1
Achiever	8	10.9 (13)	11.2 (14)	9.9 (12)	10.7 (14)	B C D E	105.9
58N57	8	10.5 (21)	11.1 (17)	9.9 (16)	10.5 (17)	B C D E F G	104.2
Sedona	10	10.5 (19)	11.1 (18)	9.9 (15)	10.5 (18)	B C D E F G	104.2
Fiesta	8	11.1 (12)	10.8 (20)	9.5 (18)	10.5 (19)	B C D E F G	103.8
El Tigre Verde	8	9.4 (33)	11.0 (19)	10.7 (5)	10.4 (20)	B C D E F G H	102.8
C241	6	10.6 (18)	10.6 (24)	9.3 (21)	10.2 (21)	C D E F G H I	100.8
CUF 101	9	10.3 (25)	11.3 (11)	8.6 (31)	10.1 (22)	D E F G H I J	100.0
C316	4	10.5 (23)	10.6 (23)	9.1 (27)	10.0 (23)	D E F G H I J	99.8
Dura765	7	10.6 (16)	9.9 (29)	9.5 (19)	10.0 (25)	D E F G H I J	99.3
Tahoe	6	10.5 (22)	9.5 (31)	9.4 (20)	9.8 (26)	E F G H I J K	97.2
Magna601	6	10.0 (28)	10.3 (27)	8.9 (29)	9.7 (27)	E F G H I J K	96.4
Sutter	7	9.8 (29)	10.2 (28)	9.1 (24)	9.7 (28)	E F G H I J K	96.4
54Q53	4	10.1 (27)	9.9 (30)	8.6 (32)	9.5 (30)	G H I J K	94.4
Aspire	6	10.3 (26)	9.5 (32)	8.4 (33)	9.4 (31)	H I J K	93.2
Tango	6	9.2 (35)	10.7 (22)	8.3 (35)	9.4 (32)	H I J K	93.1
Dura 512	5	9.5 (31)	8.8 (34)	9.1 (26)	9.1 (33)	I J K L	90.5
WL325HQ	3	9.6 (30)	9.1 (33)	8.3 (34)	9.0 (34)	J K L	89.6
Archer II	5	9.2 (34)	8.6 (35)	8.7 (30)	8.8 (35)	K L	87.7
Plumas	4	9.0 (36)	7.6 (36)	8.2 (36)	8.2 (36)	L	81.9
Experimental Varieties							
DS189	8	11.1 (11)	12.0 (3)	10.7 (4)	11.3 (4)	A B	112.1
ADF 01-70	7	10.4 (24)	12.1 (2)	11.3 (2)	11.3 (5)	A B	111.9
DS187	7	12.0 (1)	11.6 (7)	9.9 (13)	11.2 (6)	A B C	111.0
CW76098	6	11.6 (3)	11.1 (15)	10.3 (8)	11.0 (8)	A B C D	109.3
DS186	6	10.6 (15)	11.3 (12)	10.2 (9)	10.7 (11)	B C D E	106.4
GP99AL2	8	11.6 (4)	11.1 (16)	9.3 (22)	10.7 (15)	B C D E F	105.8
UN628	6	10.5 (20)	11.2 (13)	9.9 (14)	10.6 (16)	B C D E F G	104.8
OK 49	6	10.6 (17)	10.5 (25)	9.1 (25)	10.0 (24)	D E F G H I J	99.7
UN576	5	9.4 (32)	10.4 (26)	9.0 (28)	9.6 (29)	F G H I J K	95.4
Mean		10.5	10.7	9.6	10.3		
CV		7.5	10.5	6.6	8.2		
LSD (.05)		1.28	1.83	1.03	1.06		

Trial seeded at 25 lb/acre viable seed on Yolo clay loam soil at the Univ. of California Agronomy Farms, Davis, CA.

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

Table 4. '02 UC DAVIS ALFALFA CULTIVAR TRIAL 2004 YIELDS. TRIAL PLANTED 9/30/02
Note: Single year data should not be used to evaluate alfalfa varieties or choose alfalfa cultivars

		Cut 1 3/24	Cut 2 5/5	Cut 3 6/2	Cut 4 6/30	Cut 5 7/29	Cut 6 8/25	Cut 7 9/28	YEAR TOTAL	% OF CUF101
	FD	----------Dry t/a----------							Dry t/a	%
Released Varieties										
Magana788(DS788)	8	2.4 (3)	1.9 (4)	2.1 (11)	2.1 (1)	2.1 (3)	1.6 (5)	1.4 (4)	13.6 (1) A	109.5
WL525HQ	8	2.3 (5)	1.8 (14)	2.1 (9)	2.1 (8)	2.1 (4)	1.5 (10)	1.4 (6)	13.3 (2) A B	107.5
Moapa69	8	2.7 (1)	1.7 (35)	2.1 (18)	2.0 (13)	2.0 (15)	1.6 (6)	1.4 (11)	13.3 (3) A B	107.3
Magna901	9	2.0 (13)	1.9 (8)	2.2 (5)	2.1 (3)	2.1 (2)	1.6 (3)	1.4 (9)	13.2 (6) A B C	106.1
Dura843	8	2.3 (4)	1.9 (11)	2.0 (24)	2.0 (16)	2.0 (11)	1.5 (9)	1.4 (5)	13.1 (7) A B C	105.8
Sequoia	9	1.9 (16)	1.8 (20)	2.1 (6)	2.0 (11)	2.1 (7)	1.6 (2)	1.5 (1)	13.0 (8) A B C	104.8
58N57	8	1.7 (28)	1.9 (2)	2.2 (2)	2.1 (2)	2.1 (5)	1.5 (12)	1.3 (16)	12.9 (10) A B C D	103.7
Beacon	9	1.8 (26)	1.9 (12)	2.1 (16)	2.1 (7)	2.0 (10)	1.5 (7)	1.4 (7)	12.7 (13) A B C D E	102.6
Magna801FQ	6	1.8 (23)	1.8 (22)	2.1 (12)	2.1 (4)	2.1 (8)	1.5 (8)	1.4 (10)	12.7 (14) A B C D E	102.6
Pershing	8	1.8 (22)	1.9 (13)	2.2 (3)	2.0 (10)	2.0 (12)	1.5 (15)	1.3 (15)	12.6 (16) A B C D E F	101.9
DelRio(CW55067)	6	2.1 (8)	1.9 (5)	2.2 (4)	2.0 (18)	1.8 (22)	1.3 (24)	1.2 (22)	12.6 (17) A B C D E F G	101.4
CUF101	9	2.1 (9)	1.7 (33)	2.0 (26)	1.9 (26)	2.0 (19)	1.5 (13)	1.3 (13)	12.4 (18) B C D E F G H	100.0
WL530HQ	8	1.9 (15)	1.8 (29)	2.1 (10)	2.0 (17)	1.9 (20)	1.4 (18)	1.2 (23)	12.3 (20) C D E F G H	99.0
Dura765	7	2.0 (10)	1.9 (3)	2.0 (21)	1.9 (21)	1.8 (27)	1.3 (30)	1.2 (24)	12.2 (21) C D E F G H I	98.2
CW704	7	1.8 (20)	1.8 (26)	2.0 (28)	2.0 (12)	1.8 (23)	1.3 (23)	1.2 (25)	11.9 (23) D E F G H I J K	96.2
C-241	6	1.7 (32)	1.9 (7)	2.0 (22)	1.9 (29)	1.8 (26)	1.3 (27)	1.2 (26)	11.8 (26) E F G H I J K	95.0
59N49	9	1.5 (37)	1.7 (38)	2.0 (24)	1.9 (28)	2.0 (14)	1.4 (21)	1.3 (17)	11.8 (28) E F G H I J K L	94.6
LM459	5	1.8 (24)	1.8 (22)	2.0 (30)	1.8 (34)	1.5 (35)	1.3 (32)	1.1 (31)	11.2 (32) I J K L M	90.4
Tulare	8	1.4 (40)	1.8 (32)	1.9 (35)	1.9 (30)	1.7 (31)	1.2 (34)	1.1 (32)	11.0 (35) K L M	88.3
C-316	4	1.7 (29)	1.8 (15)	1.9 (34)	1.6 (37)	1.4 (38)	1.2 (36)	1.0 (37)	10.8 (36) L M	86.8
Recover	5	1.6 (36)	1.7 (34)	1.8 (38)	1.7 (36)	1.5 (37)	1.1 (38)	1.0 (39)	10.3 (37) M N	83.3
Dura512	5	1.6 (35)	1.7 (36)	1.9 (33)	1.6 (39)	1.4 (40)	1.1 (39)	1.0 (38)	10.3 (38) M N	82.8
Sutter	7	1.5 (39)	1.7 (37)	1.8 (39)	1.6 (38)	1.5 (36)	1.2 (37)	1.0 (36)	10.3 (39) M N	82.8
WL325HQ	3	1.5 (38)	1.6 (39)	1.7 (40)	1.6 (40)	1.4 (39)	1.1 (40)	0.9 (40)	9.7 (40) N	78.4
Experimental Varieties										
DS288	8	2.2 (7)	1.9 (6)	2.2 (1)	2.1 (5)	2.0 (13)	1.4 (16)	1.3 (14)	13.2 (4) A B C	106.3
SW9217	9	2.0 (12)	1.8 (30)	2.1 (14)	2.1 (6)	2.2 (1)	1.7 (1)	1.5 (2)	13.2 (5) A B C	106.3
DS282	8	2.6 (2)	1.8 (25)	2.1 (7)	2.0 (14)	1.9 (21)	1.4 (20)	1.2 (21)	13.0 (9) A B C D	104.3
SW8718	8	2.0 (11)	1.8 (18)	2.1 (15)	2.0 (14)	2.1 (6)	1.5 (11)	1.4 (8)	12.9 (11) A B C D	103.7
SW9218	9	1.9 (14)	1.8 (17)	2.0 (28)	2.1 (9)	2.1 (9)	1.6 (4)	1.5 (3)	12.9 (12) A B C D	103.6
UC-2589	9	2.3 (6)	1.8 (31)	2.0 (20)	1.9 (22)	2.0 (18)	1.5 (14)	1.3 (19)	12.7 (15) A B C D E F	102.3
ZX9894		1.8 (18)	1.9 (10)	2.1 (19)	2.0 (20)	2.0 (16)	1.4 (19)	1.3 (18)	12.4 (19) B C D E F G H	99.6
Y56S82	6	1.8 (17)	2.0 (1)	2.1 (17)	1.9 (24)	1.8 (29)	1.3 (29)	1.2 (29)	12.0 (22) D E F G H I J	96.5
Y57Q75	7	1.6 (34)	1.8 (19)	2.1 (12)	2.0 (18)	1.8 (28)	1.3 (25)	1.2 (20)	11.8 (24) E F G H I J K	95.0
DS266	4	1.7 (27)	1.9 (9)	2.1 (8)	1.9 (23)	1.7 (30)	1.3 (28)	1.1 (30)	11.8 (25) E F G H I J K	95.0
CW87089	7	1.8 (21)	1.8 (27)	2.0 (23)	1.9 (26)	1.8 (25)	1.4 (22)	1.2 (28)	11.8 (27) E F G H I J K L	94.9
UC-2705	9	1.7 (31)	1.5 (40)	1.8 (37)	1.9 (25)	2.0 (17)	1.4 (17)	1.4 (12)	11.7 (29) F G H I J K L	94.3
6R628	6	1.7 (30)	1.8 (21)	2.0 (31)	1.9 (31)	1.8 (24)	1.3 (31)	1.2 (27)	11.6 (30) G H I J K L	93.5
4S42	4	1.8 (19)	1.8 (15)	2.0 (26)	1.8 (32)	1.6 (32)	1.3 (26)	1.1 (33)	11.5 (31) H I J K L	92.3
CW86085	6	1.8 (25)	1.8 (28)	1.9 (32)	1.8 (33)	1.6 (33)	1.2 (35)	1.1 (34)	11.2 (33) I J K L M	90.1
ABI700	6	1.7 (33)	1.8 (24)	1.9 (36)	1.8 (35)	1.6 (34)	1.2 (33)	1.1 (35)	11.0 (34) J K L M	88.4
MEAN		1.9	1.8	2.0	1.9	1.8	1.4	1.3	12.1	
CV		27.7	6.3	6.5	4.9	6.2	5.5	6.7	6	
LSD (.05)		NS	0.16	0.18	0.13	0.16	0.11	0.12	1.01	

Trial seeded at 25 lb/acre viable seed on Yolo clay loam soil at the UC Davis Agronomy Farms, CA
Entries followed by the same letter are not significantly different at the 5% probability according to Fishers (protected) LSD.

Table 5. '02 UC DAVIS ALFALFA CULTIVAR TRIAL 2003-2004 YIELDS. TRIAL PLANTED 9/30/02

		2003 Yield	2004 Yield	AVERAGE		% OF CUF101
	FD	----------Dry t/a----------		Dry t/a		%
Released Varieties						
Magna788(DS788)	8	10.3 (3)	13.6 (1)	12.0 (1)	A	111.5
Magna901	9	10.3 (6)	13.2 (6)	11.7 (3)	A B	109.2
WL525HQ	8	10.0 (8)	13.3 (2)	11.7 (4)	A B	109.0
Moapa69	8	9.7 (16)	13.3 (3)	11.5 (6)	A B C D	107.5
DelRio(CW55067)	6	10.4 (2)	12.6 (17)	11.5 (7)	A B C D E	106.9
Magna801FQ	6	10.1 (7)	12.7 (14)	11.4 (8)	A B C D E F	106.4
Dura843	8	9.5 (21)	13.1 (7)	11.3 (11)	A B C D E F	105.7
Sequoia	9	9.5 (26)	13.0 (8)	11.3 (12)	A B C D E F G	104.9
Dura765	7	10.3 (4)	12.2 (21)	11.2 (13)	A B C D E F G H	104.8
58N57	8	9.6 (20)	12.9 (10)	11.2 (14)	A B C D E F G H	104.8
Pershing	8	9.8 (15)	12.6 (16)	11.2 (15)	A B C D E F G H I	104.4
Beacon	9	9.4 (29)	12.7 (13)	11.1 (17)	B C D E F G H I J K	103.2
WL530HQ	8	9.5 (27)	12.3 (20)	10.9 (21)	C D E F G H I J K L	101.5
CW704	7	9.7 (17)	11.9 (23)	10.8 (22)	C D E F G H I J K L	101.1
C-241	6	9.8 (13)	11.8 (26)	10.8 (23)	D E F G H I J K L	100.5
59N49	9	9.8 (14)	11.8 (28)	10.8 (24)	D E F G H I J K L	100.3
CUF101	9	9.0 (38)	12.4 (18)	10.7 (25)	E F G H I J K L	100.0
Tulare	8	9.9 (12)	11.0 (35)	10.4 (31)	I J K L M	97.0
LM459	5	9.3 (30)	11.2 (32)	10.3 (35)	K L M N O	95.8
C-316	4	9.5 (28)	10.8 (36)	10.1 (36)	L M N O	94.3
Dura512	5	9.3 (32)	10.3 (38)	9.8 (37)	M N O P	91.3
Recover	5	8.8 (39)	10.3 (37)	9.6 (38)	N O P	89.0
WL325HQ	3	9.3 (31)	9.7 (40)	9.5 (39)	O P	88.8
Sutter	7	8.0 (40)	10.3 (39)	9.1 (40)	P	85.2
Experimental Varieties						
DS288	8	10.5 (1)	13.2 (4)	11.9 (2)	A	110.7
DS282	8	10.3 (5)	13.0 (9)	11.6 (5)	A B C	108.3
SW8718	8	9.9 (11)	12.9 (11)	11.4 (9)	A B C D E F	106.0
SW9217	9	9.5 (25)	13.2 (5)	11.3 (10)	A B C D E F	105.8
ZX9894		10.0 (9)	12.4 (19)	11.2 (16)	A B C D E F G H I J	104.2
SW9218	9	9.2 (34)	12.9 (12)	11.0 (18)	B C D E F G H I J K	102.8
Y56S82	6	10.0 (10)	12.0 (22)	11.0 (19)	B C D E F G H I J K	102.3
UC-2589	9	9.2 (33)	12.7 (15)	10.9 (20)	B C D E F G H I J K	102.0
DS266	4	9.5 (22)	11.8 (25)	10.7 (26)	F G H I J K L	99.5
6R628	6	9.6 (19)	11.6 (30)	10.6 (27)	F G H I J K L	99.1
4S42	4	9.5 (24)	11.5 (31)	10.5 (28)	G H I J K L M	97.8
CW87089	7	9.1 (35)	11.8 (27)	10.5 (29)	H I J K L M	97.5
Y57Q75	7	9.1 (36)	11.8 (24)	10.4 (30)	I J K L M	97.3
UC-2705	9	9.1 (37)	11.7 (29)	10.4 (32)	J K L M	96.8
CW86085	6	9.5 (23)	11.2 (33)	10.4 (33)	K L M	96.6
ABI700	6	9.7 (18)	11.0 (34)	10.3 (34)	K L M N	96.3
Mean		9.6	12.1	10.9		
CV		6.2	6	4.4		
LSD (.05)		0.83	1.01	0.8		

Trial seeded at 25 lb/acre viable seed on Yolo clay loam soil at the UC Davis Agronomy Farms, Davis.

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

Table 6.'03 UC KEARNEY ALFALFA CULTIVAR TRIAL 2004 YIELDS. TRIAL PLANTED 5/12/03

Note: Single year data should not be used to evaluate alfalfa varieties or choose alfalfa cultivars

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	YEAR		% OF
		4/20	5/6	6/3	7/11	7/29	8/26	9/23	TOTAL		CUF101
	FD	----------	----------	----------	Dry t/a	----------	----------	----------	Dry t/a		%
Released Varieties											
WL625HQ	9	2.1 (3)	1.6 (29)	1.9 (5)	2.1 (4)	2.0 (2)	1.8 (3)	1.5 (2)	12.8 (2)	A B	110.8
Magna901	9	2.1 (2)	1.8 (3)	1.5 (37)	1.6 (37)	1.9 (10)	2.6 (1)	1.3 (9)	12.7 (3)	A B C	110.2
Sequoia	9	2.0 (6)	1.8 (8)	1.8 (14)	1.9 (10)	1.9 (5)	1.8 (2)	1.4 (3)	12.6 (4)	A B C D	108.7
CW1010(CW89064)	10	2.0 (15)	1.7 (14)	2.0 (3)	2.0 (6)	1.9 (7)	1.7 (6)	1.3 (12)	12.5 (5)	A B C D E	108.5
AL999	9	2.0 (11)	1.5 (36)	1.9 (9)	2.1 (3)	2.0 (1)	1.7 (9)	1.4 (6)	12.4 (7)	A B C D E F	107.7
Magna995(DS995)	9	1.6 (39)	1.8 (9)	2.0 (1)	2.1 (2)	1.9 (4)	1.7 (11)	1.3 (10)	12.4 (9)	A B C D E F G	107.0
MeccaII	9	2.1 (1)	1.7 (10)	1.7 (18)	1.9 (13)	1.9 (9)	1.7 (8)	1.3 (14)	12.4 (10)	A B C D E F G	106.9
Dura843	8	1.9 (25)	1.7 (13)	1.9 (8)	1.9 (16)	1.8 (13)	1.6 (12)	1.3 (8)	12.1 (11)	A B C D E F G H	104.7
Westan	8	1.9 (18)	1.7 (11)	1.8 (15)	2.0 (8)	1.9 (8)	1.6 (20)	1.2 (22)	12.0 (13)	A B C D E F G H I	103.7
58N57	8	2.0 (12)	1.8 (6)	1.7 (23)	1.8 (23)	1.8 (21)	1.6 (23)	1.1 (26)	11.6 (17)	A B C D E F G H I J	100.7
Salado	9	1.7 (34)	1.7 (19)	1.7 (17)	1.8 (24)	1.8 (19)	1.6 (14)	1.3 (11)	11.6 (18)	A B C D E F G H I J	100.3
59N49	9	2.0 (16)	1.7 (15)	1.5 (32)	1.8 (17)	1.7 (25)	1.6 (15)	1.2 (17)	11.6 (19)	A B C D E F G H I J	100.1
CUF101	9	1.8 (29)	1.5 (30)	1.9 (7)	1.9 (11)	1.8 (16)	1.5 (25)	1.1 (29)	11.6 (20)	A B C D E F G H I J	100.0
Westar	8	2.0 (14)	1.7 (17)	1.8 (13)	1.8 (19)	1.7 (29)	1.5 (29)	1.2 (24)	11.6 (21)	A B C D E F G H I J	100.0
SW100(SW101)	10	1.9 (21)	1.6 (28)	1.6 (26)	1.8 (22)	1.7 (28)	1.6 (17)	1.2 (19)	11.4 (23)	A B C D E F G H I J	98.4
CW704	7	1.8 (27)	1.8 (4)	1.7 (19)	1.9 (15)	1.7 (30)	1.5 (33)	1.1 (33)	11.4 (24)	A B C D E F G H I J	98.2
WL530HQ	8	2.0 (5)	1.7 (16)	1.6 (28)	1.6 (33)	1.6 (31)	1.5 (28)	1.1 (31)	11.2 (26)	B C D E F G H I J	96.8
ArtesiaSunrise	7	2.0 (7)	1.7 (21)	1.7 (25)	1.8 (20)	1.6 (35)	1.4 (34)	1.0 (34)	11.2 (27)	B C D E F G H I J	96.6
CW907	9	1.9 (23)	1.6 (23)	1.6 (29)	1.7 (29)	1.8 (20)	1.6 (22)	1.0 (35)	11.1 (28)	C D E F G H I J	96.1
Magna788(DS788)	8	1.8 (30)	1.5 (33)	1.9 (10)	1.7 (25)	1.7 (27)	1.5 (32)	1.1 (32)	11.1 (29)	D E F G H I J	95.7
CW801(CW58073)	8	1.7 (35)	1.6 (25)	1.7 (22)	1.7 (31)	1.7 (26)	1.5 (27)	1.1 (28)	11.0 (30)	D E F G H I J	95.4
Magna801fq	8	1.8 (32)	1.4 (37)	1.5 (30)	1.7 (28)	1.8 (17)	1.6 (18)	1.2 (16)	10.9 (32)	D E F G H I J	94.5
Dura765	7	1.6 (38)	1.5 (32)	1.7 (24)	1.7 (32)	1.6 (37)	1.4 (36)	1.5 (1)	10.9 (33)	E F G H I J	94.3
FG03-01	8	2.0 (9)	1.5 (35)	1.6 (27)	1.7 (26)	1.6 (36)	1.4 (37)	1.1 (30)	10.9 (34)	F G H I J	94.0
Pershing	8	1.9 (20)	1.2 (39)	1.4 (38)	1.7 (30)	1.7 (23)	1.6 (19)	1.2 (18)	10.8 (35)	G H I J	93.1
DelRio	6	1.7 (36)	1.6 (26)	1.7 (20)	1.6 (35)	1.6 (38)	1.4 (35)	0.9 (38)	10.5 (37)	H I J	90.8
C-241	5	1.8 (33)	1.5 (34)	1.5 (35)	1.7 (27)	1.6 (34)	1.4 (38)	1.0 (37)	10.4 (38)	I J	89.9
WL325HQ	3	1.0 (40)	1.1 (40)	1.1 (40)	1.2 (40)	1.3 (40)	1.1 (40)	0.8 (40)	7.6 (40)	K	65.9
Experimental Varieties											
SW9218	9	2.0 (17)	1.7 (20)	2.0 (2)	2.2 (1)	1.9 (3)	1.7 (7)	1.4 (7)	12.9 (1)	A	111.5
SW9217	9	1.8 (28)	1.7 (18)	2.0 (4)	2.0 (5)	1.8 (15)	1.8 (4)	1.4 (5)	12.4 (6)	A B C D E F	107.7
00I11PN1	8	2.0 (8)	2.0 (1)	1.7 (16)	2.0 (7)	1.8 (14)	1.7 (10)	1.2 (20)	12.4 (8)	A B C D E F G	107.3
DS288	8	2.0 (13)	1.8 (5)	1.9 (6)	1.9 (9)	1.8 (22)	1.6 (21)	1.1 (27)	12.0 (12)	A B C D E F G H I	104.0
DS8181	8	1.8 (26)	1.8 (2)	1.8 (11)	1.9 (14)	1.8 (18)	1.5 (26)	1.2 (23)	11.8 (14)	A B C D E F G H I	102.0
CW09052	9	1.9 (24)	1.6 (24)	1.7 (21)	1.8 (18)	1.9 (11)	1.6 (13)	1.3 (15)	11.8 (15)	A B C D E F G H I	101.8
SW9215	9	1.9 (19)	1.7 (22)	1.5 (34)	1.6 (38)	1.9 (6)	1.8 (5)	1.4 (4)	11.7 (16)	A B C D E F G H I J	101.0
00I10PN1	9	2.0 (10)	1.8 (7)	1.5 (33)	1.9 (12)	1.7 (24)	1.5 (24)	1.1 (25)	11.5 (22)	A B C D E F G H I J	99.9
Y57Q75	7	1.9 (22)	1.7 (12)	1.8 (12)	1.8 (21)	1.6 (32)	1.5 (31)	1.0 (36)	11.3 (25)	A B C D E F G H I J	97.8
UC445	9	2.0 (4)	1.3 (38)	1.5 (36)	1.5 (39)	1.8 (12)	1.6 (16)	1.3 (13)	11.0 (31)	D E F G H I J	95.4
UC450	9	1.8 (31)	1.6 (27)	1.4 (39)	1.6 (34)	1.6 (33)	1.5 (30)	1.2 (21)	10.7 (36)	H I J	92.3
Y56582	6	1.7 (37)	1.5 (31)	1.5 (31)	1.6 (36)	1.5 (39)	1.3 (39)	0.9 (39)	10.1 (39)	J	87.2
MEAN		1.87	1.63	1.68	1.79	1.75	1.58	1.19	11.49		
CV		15.5	19.3	17.9	15.8	8.7	20.8	14.9	10.3		
LSD (.05)		0.41	NS	0.42	0.4	0.21	0.46	0.25	1.66		

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

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

Table 7. '03 UC KEARNEY ALFALFA CULTIVAR TRIAL 2003-2004 YIELDS. TRIAL PLANTED 5/12/03

		2003	2004				% OF
		----------Yield----------		AVERAGE			CUF101
	FD	----------Dry t/a----------					%
Released Varieties							
AL999	9	9.0 (1)	12.4 (7)	10.7 (1)	A		114.6
WL625HQ	9	8.3 (3)	12.8 (2)	10.5 (2)	A B		112.4
Magna901	9	8.1 (6)	12.7 (3)	10.4 (3)	A B C		111.2
Magna995(DS995)	9	8.4 (2)	12.4 (9)	10.4 (4)	A B C		111.0
Sequoia	9	8.0 (8)	12.6 (4)	10.3 (5)	A B C D		109.7
CW1010(CW89064)	10	7.8 (13)	12.5 (5)	10.2 (6)	A B C D E		108.4
MeccaIII	9	7.8 (10)	12.4 (10)	10.1 (8)	A B C D E		107.7
Salado	9	8.2 (4)	11.6 (18)	9.9 (11)	A B C D E F		105.8
Dura843	8	7.5 (28)	12.1 (11)	9.8 (13)	A B C D E F G		104.4
Westan	8	7.6 (25)	12.0 (13)	9.8 (14)	A B C D E F G		104.3
Westar	8	8.0 (9)	11.6 (21)	9.8 (15)	A B C D E F G		104.3
58N57	8	7.6 (24)	11.6 (17)	9.6 (18)	B C D E F G H		102.6
59N49	9	7.6 (26)	11.6 (19)	9.6 (21)	B C D E F G H		102.0
SW100(SW101)	10	7.7 (21)	11.4 (23)	9.5 (22)	B C D E F G H		101.5
ArtesiaSunrise	7	7.8 (15)	11.2 (27)	9.5 (24)	C D E F G H		101.0
WL530HQ	8	7.7 (16)	11.2 (26)	9.5 (25)	C D E F G H		101.0
CW801(CW58073)	8	7.7 (18)	11.0 (30)	9.4 (26)	D E F G H		100.0
CUF101	9	7.2 (35)	11.6 (20)	9.4 (27)	D E F G H		100.0
CW704	7	7.4 (30)	11.4 (24)	9.4 (28)	D E F G H		99.9
Magna788(DS788)	8	7.6 (22)	11.1 (29)	9.4 (29)	D E F G H		99.8
FG03-01	8	7.8 (12)	10.9 (34)	9.3 (30)	D E F G H		99.5
Magna801fq	8	7.7 (20)	10.9 (32)	9.3 (31)	D E F G H		99.2
Pershing	8	7.8 (11)	10.8 (35)	9.3 (32)	D E F G H		99.2
CW907	9	7.3 (32)	11.1 (28)	9.2 (33)	E F G H		98.0
C-241	5	7.5 (27)	10.4 (38)	8.9 (35)	F G H		95.5
Dura765	7	6.8 (40)	10.9 (33)	8.8 (37)	G H		94.3
DelRio	6	7.0 (38)	10.5 (37)	8.8 (38)	G H		93.5
WL325HQ	3	7.2 (36)	7.6 (40)	7.4 (40)		I	78.8
Experimental Varieties							
SW9218	9	7.3 (31)	12.9 (1)	10.1 (7)	A B C D E		107.8
00I11PN1	8	7.8 (14)	12.4 (8)	10.1 (9)	A B C D E		107.7
SW9217	9	7.6 (23)	12.4 (6)	10.0 (10)	A B C D E		107.0
SW9215	9	8.1 (7)	11.7 (16)	9.9 (12)	A B C D E F		105.3
DS8181	8	7.7 (19)	11.8 (14)	9.8 (16)	A B C D E F G		104.0
00I10PN1	9	7.7 (17)	11.5 (22)	9.6 (17)	B C D E F G H		102.8
UC445	9	8.2 (5)	11.0 (31)	9.6 (19)	B C D E F G H		102.5
CW09052	9	7.4 (29)	11.8 (15)	9.6 (20)	B C D E F G H		102.3
DS288	8	7.0 (39)	12.0 (12)	9.5 (23)	C D E F G H		101.4
Y57Q75	7	7.1 (37)	11.3 (25)	9.2 (34)	E F G H		98.0
UC450	9	7.2 (33)	10.7 (36)	8.9 (36)	F G H		95.4
Y56582	6	7.2 (34)	10.1 (39)	8.6 (39)	H		92.1
Mean		7.65	11.49	9.57			
CV		7.1	10.3	9.5			
LSD (.05)		0.76	1.66	1.03			

Trial seeded at 25 lb/acre viable seed on Hanford fine sandy loam soil at the UC 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 8. '02 UC IMPERIAL VALLEY ALFALFA CULTIVAR TRIAL, 2004 YIELDS. TRIAL PLANTED 10/3/2002
Note: Single year data should not be used to evaluate alfalfa varieties or choose alfalfa cultivars

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	Cut 8	YEAR		% OF
		1/26	3/9	4/14	5/18	6/17	7/19	8/18	9/22	TOTAL		CUF101
	FD	----------	----------	----------	----------	Dry t/ac	----------	----------	----------	Dry t/a		%
Released Varieties												
59N49	9	1.1 (12)	1.1 (2)	1.3 (15)	1.6 (25)	2.0 (3)	1.3 (5)	0.6 (1)	0.4 (22)	9.4 (3)	A B	101.8
WL711	10	1.1 (13)	1.1 (9)	1.2 (27)	1.6 (23)	1.9 (11)	1.3 (3)	0.6 (3)	0.6 (4)	9.3 (4)	A B	101.1
UC Cibola	9	1.1 (7)	1.0 (15)	1.3 (23)	1.7 (13)	1.9 (7)	1.3 (10)	0.5 (11)	0.5 (8)	9.2 (5)	A B	100.1
CUF101	9	1.2 (3)	1.0 (14)	1.3 (24)	1.7 (7)	1.9 (5)	1.2 (14)	0.5 (27)	0.4 (34)	9.2 (6)	A B C	100.0
FG9S903	9	1.1 (5)	1.1 (3)	1.3 (4)	1.7 (4)	1.9 (9)	1.1 (27)	0.5 (20)	0.4 (17)	9.2 (7)	A B C	99.6
UN900	10	1.1 (8)	1.0 (18)	1.3 (12)	1.7 (11)	1.9 (10)	1.2 (15)	0.5 (21)	0.5 (7)	9.1 (8)	A B C	99.4
UC Impalo WF	9	1.0 (18)	1.1 (7)	1.3 (19)	1.6 (28)	1.9 (13)	1.3 (11)	0.6 (4)	0.5 (10)	9.1 (10)	A B C D	98.9
Highline	9	1.2 (2)	1.1 (5)	1.3 (6)	1.7 (10)	1.8 (26)	1.1 (20)	0.5 (23)	0.3 (36)	9.0 (12)	A B C D	97.6
WL625HQ	9	1.0 (21)	1.1 (8)	1.2 (30)	1.6 (22)	1.9 (6)	1.2 (13)	0.5 (14)	0.4 (24)	9.0 (13)	A B C D	97.5
FG9L400	10	1.1 (6)	1.1 (12)	1.4 (1)	1.7 (8)	1.8 (15)	1.1 (29)	0.4 (38)	0.4 (23)	9.0 (14)	A B C D	97.4
CW1010(CW89064)	10	1.0 (17)	1.0 (16)	1.3 (7)	1.7 (5)	1.8 (24)	1.2 (16)	0.5 (24)	0.4 (28)	8.9 (15)	A B C D	96.9
Magna995	9	0.7 (39)	1.0 (25)	1.3 (25)	1.7 (14)	1.8 (16)	1.3 (12)	0.5 (29)	0.5 (9)	8.6 (24)	B C D E F G	93.4
UAP999	9	0.9 (27)	1.0 (27)	1.3 (21)	1.6 (24)	1.9 (12)	1.1 (22)	0.5 (25)	0.4 (29)	8.5 (27)	B C D E F G	93.0
MeccaIII	9	0.9 (23)	1.0 (30)	1.2 (34)	1.6 (29)	1.7 (30)	1.1 (25)	0.5 (15)	0.6 (3)	8.5 (28)	B C D E F G	92.7
Magna901	9	0.9 (26)	1.0 (24)	1.3 (22)	1.5 (33)	1.8 (20)	1.1 (28)	0.5 (26)	0.4 (35)	8.4 (30)	B C D E F G	90.9
58N57	8	0.8 (36)	1.0 (32)	1.3 (3)	1.6 (30)	1.7 (27)	1.1 (26)	0.5 (16)	0.4 (26)	8.3 (32)	B C D E F G	90.5
Mecca	9	0.8 (29)	1.0 (20)	1.2 (37)	1.5 (35)	1.7 (31)	0.9 (37)	0.5 (19)	0.4 (21)	8.1 (34)	C D E F G	88.3
Salado	9	0.8 (33)	1.0 (28)	1.2 (29)	1.4 (38)	1.6 (37)	0.9 (38)	0.4 (39)	0.4 (33)	7.7 (38)	F G	83.9
Experimental Varieties												
IVM1	9	1.2 (4)	1.2 (1)	1.3 (11)	1.6 (26)	2.1 (1)	1.3 (2)	0.6 (5)	0.6 (1)	9.8 (1)	A	106.7
ZS0301		1.4 (1)	1.1 (6)	1.3 (14)	1.8 (3)	2.0 (2)	1.3 (6)	0.5 (8)	0.5 (14)	9.8 (2)	A	106.5
V920Xtra(999)	9	1.1 (9)	1.1 (4)	1.3 (10)	1.6 (18)	1.8 (18)	1.3 (8)	0.5 (18)	0.5 (11)	9.1 (9)	A B C D	99.1
SW9215	9	1.0 (16)	1.0 (22)	1.2 (40)	1.7 (12)	1.8 (14)	1.3 (4)	0.5 (10)	0.5 (6)	9.1 (11)	A B C D	98.4
SW9217	9	1.0 (19)	1.0 (21)	1.2 (35)	1.4 (40)	1.8 (19)	1.3 (7)	0.6 (2)	0.5 (12)	8.8 (16)	A B C D E	95.7
DS396	9	1.0 (22)	1.0 (17)	1.3 (5)	1.6 (20)	1.8 (17)	1.1 (18)	0.4 (32)	0.4 (18)	8.7 (17)	A B C D E F	95.1
SW9218	9	0.8 (34)	1.0 (31)	1.2 (39)	1.5 (37)	1.9 (8)	1.4 (1)	0.5 (9)	0.6 (2)	8.7 (18)	A B C D E F	95.0
CW99052	10	0.8 (35)	0.9 (35)	1.2 (31)	1.6 (19)	1.9 (4)	1.3 (9)	0.6 (6)	0.4 (19)	8.7 (19)	A B C D E F	95.0
CW99053	9	0.9 (24)	1.1 (11)	1.2 (28)	1.8 (1)	1.7 (29)	1.1 (30)	0.5 (22)	0.5 (15)	8.7 (20)	B C D E F	94.6
V940Xtra(899)	9	0.9 (25)	1.0 (26)	1.2 (33)	1.7 (16)	1.8 (22)	1.1 (21)	0.5 (13)	0.5 (5)	8.7 (21)	B C D E F	94.6
IVM2	9	0.8 (32)	0.9 (37)	1.3 (13)	1.8 (2)	1.8 (21)	1.2 (17)	0.5 (7)	0.4 (32)	8.6 (22)	B C D E F G	93.8
ZS0300		1.1 (10)	1.0 (29)	1.3 (18)	1.7 (6)	1.8 (23)	0.9 (39)	0.5 (17)	0.4 (30)	8.6 (23)	B C D E F G	93.5
CW99103	9	1.1 (11)	1.1 (10)	1.2 (38)	1.6 (21)	1.7 (32)	1.1 (24)	0.4 (30)	0.4 (25)	8.6 (25)	B C D E F G	93.2
FG101T407	10	1.0 (15)	1.0 (19)	1.3 (17)	1.5 (32)	1.7 (33)	1.1 (23)	0.5 (12)	0.4 (27)	8.6 (26)	B C D E F G	93.1
IVM4	9	1.1 (14)	1.0 (23)	1.2 (32)	1.5 (36)	1.7 (35)	1.1 (19)	0.4 (34)	0.4 (16)	8.4 (29)	B C D E F G	91.5
IVM3	9	0.8 (31)	1.1 (13)	1.2 (36)	1.7 (9)	1.8 (25)	1.1 (31)	0.4 (33)	0.3 (39)	8.3 (31)	B C D E F G	90.5
DSM1	9	0.8 (30)	0.9 (38)	1.3 (8)	1.7 (15)	1.7 (28)	1.0 (32)	0.5 (28)	0.5 (13)	8.3 (33)	B C D E F G	90.4
DSM4	9	1.0 (20)	0.9 (33)	1.3 (9)	1.5 (34)	1.7 (34)	1.0 (36)	0.4 (37)	0.3 (38)	8.1 (35)	D E F G	87.5
DSM2	9	0.9 (28)	0.9 (36)	1.3 (20)	1.6 (27)	1.6 (36)	0.8 (40)	0.4 (35)	0.3 (37)	7.8 (36)	E F G	84.8
DSM5	8	0.6 (40)	0.8 (40)	1.3 (16)	1.6 (17)	1.6 (39)	1.0 (34)	0.4 (36)	0.4 (20)	7.7 (37)	E F G	84.1
DS399	9	0.7 (38)	0.9 (34)	1.2 (26)	1.4 (39)	1.6 (38)	1.0 (33)	0.4 (31)	0.4 (31)	7.7 (39)	F G	83.5
DSM3	9	0.7 (37)	0.9 (39)	1.4 (2)	1.5 (31)	1.5 (40)	1.0 (35)	0.3 (40)	0.3 (40)	7.6 (40)	G	82.8
MEAN		1.0	1.0	1.3	1.6	1.8	1.1	0.5	0.4	8.7		
CV		15	8.3	6.4	11.5	13.2	18.6	23.8	26.4	8.9		
LSD (.05)		0.2	0.12	NS	NS	NS	0.3	NS	0.16	1.07		

Trial planted at 25 lb/acre viable seed in Imperial clay loam soil at the UC Desert Research and Extension Center, Holtville, CA.
Entries followed by the same letter are no significantly different at the 5% probability level according to Fishers (protected) LSD.

Table 09. '03 UC DAVIS ROUNDUP READY ALFALFA CULTIVAR TRIAL 2004 YIELDS. TRIAL PLANTED 8/28/03
Note: Single year data should not be used to evaluate alfalfa varieties or choose alfalfa cultivars

		Cut 1 3/30	Cut 2 5/6	Cut 3 6/3	Cut 4 7/1	Cut 5 7/29	Cut 6 8/30	Cut 7 10/1	YEAR TOTAL		% OF CUF101
	FD	----------Dry t/a----------							Dry t/a		%
Released Varieties											
Magna801FQ	9	1.6 (8)	2.0 (2)	2.0 (8)	2.2 (7)	1.9 (3)	1.7 (1)	1.0 (5)	12.5 (1)	A	108.1
TANGO	8	2.0 (1)	2.0 (1)	2.2 (1)	2.1 (9)	1.6 (15)	1.5 (14)	0.9 (14)	12.2 (2)	A B	105.6
SW7410	9	1.6 (7)	1.8 (5)	2.0 (11)	2.2 (5)	1.8 (14)	1.4 (16)	1.1 (2)	11.8 (4)	A B C	102.5
CUF101	10	1.2 (18)	1.7 (18)	1.9 (16)	2.1 (12)	2.0 (1)	1.7 (3)	1.1 (1)	11.6 (10)	B C D E	100.0
WL525HQ	8	1.5 (9)	1.8 (10)	1.9 (14)	2.0 (15)	1.8 (12)	1.5 (12)	1.0 (9)	11.4 (12)	B C D E F	98.7
PARADE	7	1.8 (2)	1.9 (4)	2.0 (13)	1.9 (16)	1.5 (16)	1.4 (15)	0.8 (17)	11.3 (14)	C D E F	97.7
Sutter	6	1.8 (3)	1.8 (6)	1.9 (19)	1.8 (19)	1.4 (18)	1.4 (17)	0.7 (18)	10.8 (18)	E F	93.3
WL325HQ	5	1.8 (4)	1.6 (19)	1.7 (20)	1.7 (20)	1.2 (20)	1.1 (20)	0.6 (20)	9.7 (20)	G	83.7
Roundup Ready® Varieties											
RR03BD176	10	1.3 (14)	1.8 (9)	2.1 (4)	2.2 (2)	1.9 (7)	1.7 (2)	1.0 (10)	11.9 (3)	A B C	102.9
RR03BD194	10	1.4 (11)	1.8 (7)	2.2 (2)	2.2 (4)	1.9 (10)	1.5 (11)	0.9 (13)	11.8 (5)	A B C	102.4
RR03BD181	11	1.2 (17)	1.7 (15)	2.1 (5)	2.3 (1)	1.9 (8)	1.6 (8)	1.1 (3)	11.8 (6)	A B C D	101.8
RR03BD164	10	1.3 (15)	1.7 (11)	1.9 (17)	2.2 (6)	1.9 (2)	1.7 (4)	1.0 (6)	11.7 (7)	A B C D	101.4
RR03BD140	10	1.4 (10)	1.9 (3)	2.1 (3)	2.1 (11)	1.8 (13)	1.5 (13)	0.9 (15)	11.7 (8)	A B C D E	100.9
RR03BD196	10	1.3 (12)	1.7 (17)	2.1 (6)	2.1 (8)	1.9 (4)	1.6 (6)	1.0 (8)	11.6 (9)	A B C D E	100.6
RR03BD101	9	1.3 (13)	1.7 (16)	2.0 (7)	2.2 (3)	1.9 (6)	1.6 (9)	0.9 (11)	11.5 (11)	B C D E	100.0
RR03B115	9	1.1 (19)	1.7 (12)	2.0 (9)	2.0 (13)	1.9 (9)	1.7 (5)	1.0 (7)	11.4 (13)	B C D E F	98.5
RR03B182	9	1.2 (16)	1.7 (14)	2.0 (10)	2.0 (14)	1.9 (5)	1.5 (10)	0.9 (12)	11.2 (15)	C D E F	97.0
RR03BD161	8	1.7 (6)	1.8 (8)	2.0 (12)	2.1 (10)	1.5 (17)	1.4 (18)	0.8 (16)	11.1 (16)	C D E F	96.5
RR03B189	9	1.1 (20)	1.6 (20)	1.9 (15)	1.9 (18)	1.9 (11)	1.6 (7)	1.1 (4)	10.9 (17)	D E F	94.7
RR03BD127	7	1.7 (5)	1.7 (13)	1.9 (18)	1.9 (17)	1.3 (19)	1.3 (19)	0.7 (19)	10.6 (19)	F	91.8
MEAN		1.5	1.8	2.0	2.0	1.7	1.5	0.9	11.4		
CV		9.7	9.3	8.3	7.9	7.7	10.6	13.5	5.5		
LSD (.05)		0.2	0.23	NS	0.23	0.19	0.23	0.18	0.88		

Trial seeded at 25 lb/acre viable seed on Yolo clay loam soil at the UC Davis Agronomy Farms, DAVIS, CA.

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

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Table 10. '03 UC DAVIS ROUNDUP READY ALFALFA CULTIVAR TRIAL 2004 QUALITY DATA. TIRLA PLANTED 8/28/03

		Cut 2 (5/6)				Cut 3 (6/3)				Cut 5 (7/29)				Cut 6 (8/30)				Cut 7 (10/1)			
	FD	CP	ADF	NDF	NDFD	CP	ADF	NDF	NDFD	CP	ADF	NDF	NDFD	CP	ADF	NDF	NDFD	CP	ADF	NDF	NDFD
		%																			
Released Varieties																					
CUF101	10	21.0	34.3	40.5	45.1	21.6	34.4	40.6	46.3	20.3	32.6	39.1	42.1	20.5	36.3	43.0	42.4	23.4	28.0	33.5	47.8
Magna801FQ	9	20.7	34.6	41.0	45.2	22.2	34.3	40.5	46.7	20.3	32.6	38.9	43.1	21.8	33.0	39.5	43.6	23.8	26.9	32.3	49.8
SW7410	9	21.8	32.6	38.3	47.0	21.3	35.2	41.5	45.5	20.9	31.3	37.4	44.9	22.1	33.6	39.7	45.5	25.3	25.7	31.0	52.1
TANGO	8	21.5	33.5	39.4	47.0	21.9	33.1	39.1	48.6	22.3	29.5	35.3	47.7	22.5	33.6	39.7	46.3	25.4	25.0	30.3	53.8
WL525HQ	8	20.5	33.3	39.5	45.8	21.8	34.2	40.6	44.3	20.5	31.8	38.0	43.3	21.9	32.7	39.1	43.8	24.3	25.9	31.3	50.4
PARADE	7	21.5	33.3	39.0	47.3	22.5	32.8	38.7	48.7	22.0	28.7	34.6	48.2	22.3	32.3	38.5	46.1	25.8	24.3	29.4	53.8
Sutter	6	22.2	32.6	38.3	48.3	22.5	32.8	38.6	48.7	21.9	28.3	34.3	47.9	22.7	31.6	37.7	46.5	25.2	24.7	30.0	53.2
WL325HQ	5	22.9	30.6	35.9	51.3	24.8	30.6	36.2	51.9	23.3	28.3	34.2	48.8	24.7	29.7	35.2	51.1	28.2	22.1	26.8	60.3
Roundup Ready® Varieties																					
RR03BD181	11	21.5	34.2	40.2	44.9	21.8	35.2	41.3	45.6	21.0	31.5	38.0	44.2	20.1	36.6	43.2	43.5	23.6	27.5	33.0	49.5
RR03BD176	10	20.9	33.9	39.9	45.7	21.3	35.3	41.4	45.2	20.6	31.8	37.9	45.0	22.2	34.4	40.8	43.6	24.6	26.3	31.6	51.6
RR03BD194	10	20.7	33.6	39.6	46.5	20.7	34.8	40.9	46.5	20.9	31.8	38.0	44.9	20.6	35.5	42.0	43.4	24.2	27.4	32.6	50.1
RR03BD164	10	21.4	32.6	38.8	45.8	21.6	33.5	39.6	45.7	21.4	31.3	37.5	43.9	21.4	34.0	40.5	44.3	24.5	28.8	34.3	47.7
RR03BD140	10	19.9	34.3	40.5	44.8	20.3	35.2	41.4	45.4	20.6	32.1	38.5	43.4	21.5	33.3	39.5	44.3	23.3	27.8	33.3	49.3
RR03BD196	10	21.6	33.1	39.3	44.2	21.2	34.0	40.1	44.3	21.0	30.4	36.4	44.4	21.1	34.4	41.0	43.1	24.4	26.6	32.0	48.8
RR03BD101	9	21.5	32.5	38.3	46.5	21.7	34.3	40.5	45.4	20.9	32.3	38.6	44.1	21.4	34.5	41.0	44.5	24.5	26.0	31.5	51.0
RR03B115	9	21.1	32.1	37.7	46.2	21.6	33.7	39.6	46.3	20.7	31.8	37.9	43.4	21.0	34.7	41.5	42.6	23.4	27.5	32.8	49.5
RR03B182	9	21.4	30.1	35.8	47.5	22.1	32.3	38.0	45.7	21.4	30.9	36.8	43.1	21.7	32.2	38.2	44.5	22.3	28.7	34.3	47.2
RR03B189	9	21.3	32.2	38.1	45.6	21.3	33.3	39.4	45.0	21.5	31.3	37.2	43.4	21.3	34.7	40.9	42.7	23.0	27.8	33.1	48.7
RR03BD161	8	22.2	32.3	37.7	49.8	23.4	32.8	38.7	48.6	22.5	28.5	33.9	50.5	22.3	33.1	39.3	46.1	25.5	24.9	29.9	53.1
RR03BD127	7	22.3	32.1	37.5	48.6	23.6	32.8	38.3	49.2	23.1	29.0	34.7	48.4	21.9	33.3	39.1	47.0	26.8	22.8	27.6	56.1
MEAN		21.38	32.89	38.75	46.64	21.96	33.73	39.75	46.67	21.34	30.77	36.85	45.23	21.75	33.65	39.96	44.74	24.56	26.22	31.51	51.18
CV		3.138	3.338	3.139	2.698	3.593	3.615	3.659	3.439	4.112	4.004	3.884	2.837	5.769	6.493	6.324	4.798	4.675	7.346	6.605	3.66
LSD (.05)		0.95	1.555	1.723	1.782	1.117	1.726	2.059	2.273	1.242	1.744	2.027	1.817	1.777	3.094	3.578	3.039	1.626	2.728	2.948	2.652
Pr>F		***	***	***	***	***	***	***	***	***	***	***	***	**	*	*	***	***	***	***	***

Trial seeded at 25 lb/acre viable seed on Yolo clay loam soil at the UC Davis Agronomy Farms, DAVIS, CA.

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

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Table 11. 2004 UC ALFALFA FALL DORMANCY TRIAL RESULTS.
The three-location trial represents Intermountain (Tulelake), Mediterranean (Davis) and Desert (Imperial Valley) environments.

Fall Dormancy Class[1]	Multi-year FDR[2]		Tulelake[3]			Davis[3]			Imperial Valley[3]			Across locations			2004
		Name	Score	NPH[4]	Rank	Score	NPH[4]	Rank	Score	NPH[4]	Rank	Score	NPH[4]	Rank	FDR[5]
		UC-1604	8.06	2.84	54	8.24	2.87	53	6.75	2.60	53	7.70	2.77	54	9.34
		UC-2674-1	7.59	2.76	52	8.36	2.89	54	6.42	2.53	51	7.55	2.74	53	9.18
11	**11.2**	**UC-1465**	**7.95**	**2.82**	**53**	**7.67**	**2.77**	**52**	**6.76**	**2.60**	**54**	**7.49**	**2.74**	**52**	**9.13**
		UC-2674-2	7.20	2.67	51	7.37	2.72	49	6.44	2.54	52	6.91	2.62	51	8.39
		UC-2666	6.67	2.58	50	7.13	2.67	48	1.85	1.36	50	6.48	2.54	50	7.90
		UC-2670a-2	6.58	2.57	48	7.09	2.66	47	5.49	2.35	49	6.41	2.53	49	7.83
10	**9.9**	**UC-1887**	**6.59**	**2.56**	**47**	**7.68**	**2.77**	**51**	**5.08**	**2.25**	**44**	**6.33**	**2.50**	**48**	**7.67**
		UC-2670a-1	6.67	2.58	49	6.99	2.64	43	5.34	2.31	47	6.29	2.50	47	7.65
		UC-2670b-1	6.29	2.51	42	6.69	2.59	40	5.42	2.33	48	6.18	2.48	46	7.54
		UC-2828	5.94	2.43	36	7.55	2.75	50	4.96	2.23	43	6.20	2.48	45	7.51
		UC-2670b-2	6.12	2.47	40	7.09	2.66	46	4.74	2.18	41	5.98	2.43	44	7.23
		UC-2867	5.96	2.44	37	6.78	2.60	41	5.07	2.26	45	5.94	2.43	43	7.21
9	**8.9**	**CUF101**	**6.41**	**2.53**	**45**	**6.67**	**2.58**	**38**	**4.67**	**2.16**	**40**	**5.88**	**2.41**	**42**	**7.11**
		WL711WF	6.26	2.50	41	6.07	2.46	30	5.11	2.26	46	5.84	2.41	41	7.11
		UC-2840	6.11	2.47	39	6.94	2.63	42	4.46	2.11	39	5.86	2.41	40	7.07
		SW 9215	6.29	2.51	43	6.59	2.57	36	4.77	2.18	42	5.82	2.40	39	7.04
		SW 9332	6.32	2.51	44	6.68	2.58	39	4.13	2.03	35	5.76	2.39	38	6.93
		UC-2589	6.09	2.47	38	7.01	2.65	44	4.09	2.02	34	5.76	2.38	37	6.92
		SW 9720	5.66	2.38	32	7.06	2.66	45	4.05	2.01	33	5.59	2.35	36	6.69
		UC-2212	6.42	2.53	46	6.05	2.46	29	4.15	2.04	36	5.56	2.35	35	6.68
		UC-2839	5.87	2.42	35	6.61	2.57	37	4.16	2.04	37	5.52	2.34	34	6.63
		WL625HQ	5.80	2.41	33	6.14	2.47	31	4.21	2.05	38	5.34	2.30	33	6.38
8	**7.8**	**Pierce**	**5.16**	**2.27**	**28**	**6.42**	**2.53**	**35**	**3.85**	**1.96**	**32**	**5.22**	**2.27**	**32**	**6.21**
		UC-2832	5.45	2.34	30	6.41	2.53	34	3.26	1.80	30	5.07	2.23	31	5.94
		DS681FQ	5.83	2.42	34	5.69	2.38	25	3.48	1.86	31	5.00	2.22	30	5.87
		58N57	5.45	2.33	29	6.25	2.50	32	2.78	1.67	26	4.94	2.19	29	5.72
		Y59N59	5.11	2.26	26	6.32	2.52	33	3.11	1.76	29	4.82	2.17	28	5.60
		SW 7410	5.57	2.36	31	5.95	2.44	27	3.06	1.75	28	4.82	2.17	27	5.59
7	**6.7**	**Dona Ana**	**5.06**	**2.25**	**25**	**5.96**	**2.44**	**28**	**2.31**	**1.52**	**21**	**4.52**	**2.09**	**26**	**5.05**
		Y58N88	5.11	2.26	27	5.48	2.34	22	2.93	1.71	27	4.42	2.08	25	5.00
		Acheiver	4.70	2.17	20	5.78	2.40	26	2.76	1.66	25	4.39	2.07	24	4.93
		SW 6330	5.01	2.24	24	5.48	2.34	23	2.53	1.59	24	4.29	2.04	23	4.78
6	**6.3**	**ABI 700**	**4.87**	**2.20**	**23**	**5.60**	**2.37**	**24**	**2.46**	**1.57**	**23**	**4.32**	**2.04**	**22**	**4.78**
		Dura 765	4.82	2.19	21	5.45	2.33	21	2.39	1.54	22	4.31	2.04	21	4.76
		Y57Q53	4.85	2.20	22	4.90	2.21	18	1.68	1.29	15	3.85	1.90	20	3.89
		SW 5307	4.27	2.06	18	4.89	2.21	19	1.90	1.37	19	3.71	1.89	19	3.79
		SW 4310	4.31	2.08	19	4.74	2.17	17	1.94	1.39	20	3.54	1.84	18	3.51
		SW 4328	3.67	1.91	10	4.54	2.13	15	1.86	1.36	18	3.47	1.83	17	3.45
		SW 5329	3.97	1.99	16	5.16	2.27	20	1.50	1.22	10	3.54	1.83	16	3.42
		Magna601	4.26	2.06	17	4.71	2.17	16	1.63	1.27	12	3.46	1.81	15	3.30
		Tango	3.74	1.92	11	4.35	2.08	11	1.68	1.29	16	3.30	1.78	14	3.09
		SW 4316	3.79	1.95	19	4.50	2.12	1	1.64	1.28	13	3.28	1.77	13	3.05
5	**5.3**	**Archer**	**3.79**	**1.95**	**13**	**4.37**	**2.09**	**12**	**1.64**	**1.28**	**14**	**3.22**	**1.76**	**12**	**2.99**
		Archer II	3.57	1.89	9	3.86	1.96	7	1.85	1.36	17	3.14	1.75	11	2.92
		Sutter	3.32	1.82	6	4.47	2.11	13	1.51	1.23	11	3.08	1.71	10	2.68
		Dura 512	3.87	1.97	15	4.27	2.06	10	1.23	1.11	5	3.12	1.71	9	2.66
		SW 3304	3.77	1.93	12	4.02	2.00	9	1.30	1.14	8	3.08	1.70	8	2.59
		54Q53	3.52	1.87	8	3.90	1.97	8	1.39	1.18	9	2.93	1.67	7	2.40
		Plumas	3.26	1.81	5	3.72	1.93	6	1.24	1.12	6	2.75	1.62	6	2.09
		WL325HQ	3.43	1.85	7	3.32	1.82	4	1.27	1.12	7	2.69	1.60	5	1.98
3	**3.4**	**5246**	**2.81**	**1.68**	3	**3.62**	**1.90**	**5**	**1.24**	**1.11**	**4**	**2.62**	**1.58**	**4**	**1.87**
4	**3.8**	**Legend**	**3.24**	**1.80**	4	**3.26**	**1.80**	**3**	**1.11**	**1.05**	**3**	**2.52**	**1.54**	**3**	**1.63**
2	**2.0**	**Vernal**	**2.11**	**1.45**	2	**2.38**	**1.54**	**2**	**1.07**	**1.03**	**2**	**1.84**	**1.34**	**2**	**0.32**
1	**0.8**	**Maverick**	**1.71**	**1.30**	1	**1.68**	**1.29**	**1**	**1.02**	**1.01**	**1**	**1.51**	**1.21**	**1**	**-0.44**
		$LSD_{0.05}$[6]		0.17			0.14			0.12					
		CV(%)		5.45			4.16			5.18					
		$LSD_{GXL0.05}$[7]					0.23								
		CV(%)					7.80								

[1]=Number corresponds to Fall Dormancy Class of 11 check cultivars (in Bold Print) used by the Certified Alfalfa Seed Council.
[2]=Actual 4-year Fall Dormancy Rating of check cultivars using the Univ. of California regression equation (NAAIC, August 1998).
[3]=Location: Planted-cut-scored: Tulelake:5/5 - 9/8 - 10/5; Davis: 6/19 - 10/1 - 10/27; Imperial: 5/5 - 10/22 - 11/8/2004.
[4]= Plant Height Score is transformed in to Natural Plant Height (NPH) using square root to remove heterogenity of variance.
[5]=Suggested single year fall dormancy rating based on three location single year regression (FDR=6.2898(NPH)-8.0798).
[6]=Fishers protected Least Significant Difference for comparison of NPH means within locations.
[7]=Fishers protected Least Significant Difference for comparison of NPH means among locations.

Table 12. 2003-2004 UC WINTER SURVIVAL SCORES (Average Survival Index), TULELAKE, CA. Fall Dormancy (FD) Class, ASI rating for check cultivars, and 2003 Across-location average Dormancy data are provided for reference.

FD	Check		2003 Tulelake Data			Across Locations	2003-2004	
Class[1]	ASI rating[2]	**Name**	Score	NPH[3]	Rank	2003 FDR[4]	Average Survival Index (ASI)[5]	
11		**UC-1465**	**7.72**	**2.78**	**59**	**10.90**	**2.92**	A[6]
9	**6**	**CUF101**	**6.44**	**2.54**	**53**	**8.66**	**2.81**	AB
10		**UC-1887**	**7.07**	**2.66**	**57**	**9.73**	**2.77**	ABC
		00I11PN1	5.98	2.45	46	7.36	2.76	ABCD
		SW101	7.08	2.66	58	9.24	2.75	ABCD
		WL711 WF	6.63	2.57	54	9.21	2.75	ABCD
		CW907	6.22	2.49	49	8.37	2.65	ABCDE
		UC-1604	8.06	2.84	60	11.06	2.64	ABCDE
		FG03-01	6.38	2.52	52	8.68	2.62	ABCDEF
8		**Pierce**	**6.10**	**2.47**	**48**	**8.11**	**2.60**	ABCDEFG
7		**Dona Ana**	**5.20**	**2.28**	**38**	**6.99**	**2.52**	ABCDEFGH
		CW89064	6.85	2.62	56	8.79	2.44	BCDEFGHI
		Artesia Sunrise	5.83	2.41	44	6.93	2.42	BCDEFGHIJ
		Sequoia	6.30	2.51	50	8.06	2.41	CDEFGHIJ
		Y57Q53	5.21	2.28	39	6.34	2.39	CDEFGHIJK
		C-241	5.54	2.35	42	6.54	2.36	DEFGHIJK
		AL999Plus	5.03	1.94	10	6.88	2.36	DEFGHIJK
		00I10PN1	6.68	2.58	55	8.44	2.36	DEFGHIJKL
		CW704	5.65	2.38	43	6.72	2.32	EFGHIJKLM
6		**ABI 700**	**5.08**	**2.25**	**36**	**6.63**	**2.28**	EFGHIJKLMN
		SW-5403	5.94	2.44	45	7.47	2.23	FGHIJKLMN
		WL530HQ	5.49	2.34	41	7.06	2.21	GHIJKLMN
		Magna801FG	6.04	2.46	47	7.65	2.20	GHIJKLMNO
		Y56S82	5.27	2.29	40	6.22	2.14	HIJKLMNOP
		Del Rio	5.18	2.28	37	5.75	2.10	IJKLMNOPQ
		Westan	6.32	2.51	51	7.59	2.09	IJKLMNOPQR
		VL02	4.48	2.11	31	4.60	2.02	JKLMNOPQRS
4		**Legend**	**3.88**	**1.97**	**16**	**3.91**	**1.99**	KLMNOPQRST
		CW5440	3.86	1.97	15	3.81	1.96	LMNOPQRSTU
		SW4A135	4.40	2.09	28	4.65	1.95	MNOPQRSTU
5	**5**	**Archer**	**4.45**	**2.11**	**30**	**4.99**	**1.94**	MNOPQRSTUV
		TIF02	4.37	2.09	27	5.20	1.92	MNOPQRSTUV
		BL-395	4.67	2.16	33	5.40	1.91	NOPQRSTUVW
		Masterpiece	3.98	1.99	18	4.40	1.90	NOPQRSTUVW
		LM 459 WD	4.41	2.10	29	5.38	1.88	NOPQRSTUVWX
		Recover	4.62	2.15	32	4.80	1.86	OPQRSTUVWX
		4M124	4.75	2.18	34	5.50	1.85	OPQRSTUVWX
		Fortress	4.10	2.02	23	4.43	1.79	PQRSTUVWXY
		C 316 Lot 9078	3.85	1.96	14	4.45	1.76	PQRSTUVWXYZ
		DS 218Hub Hyb	4.82	2.19	35	5.26	1.75	PQRSTUVWXYZ
		Vitro	3.97	1.99	17	3.86	1.74	PQRSTUVWXYZ
		EXTRA3	4.32	2.07	25	4.29	1.74	QRSTUVWXYZ
		Reward II	3.98	1.99	19	3.88	1.69	RSTUVWXYZ
		9429	3.81	1.95	12	3.33	1.69	RSTUVWXYZ
		Agate	3.85	1.96	13	3.84	1.65	STUVWXYZ
		LegenDairy YPQ	3.40	1.84	5	2.85	1.62	TUVWXYZ
		Innovator + Z	3.18	1.78	3	3.23	1.61	TUVWXYZ
3		**5246**	**3.45**	**1.86**	**6**	**3.15**	**1.59**	TUVWXYZ
		WL325HQ	4.23	2.05	24	4.18	1.57	UVWXYZ
		54Q25	4.02	2.00	21	4.29	1.54	VWXYZ
		CK2000	3.79	1.95	11	3.94	1.52	WXYZ
		Expedition	4.36	2.08	26	4.20	1.51	WXYZ
		53V08	3.77	1.94	9	3.75	1.48	XYZ
		WL357HQ	4.01	2.00	20	3.80	1.43	YZ
1	**1**	**Maverick**	**1.79**	**1.34**	**1**	**0.27**	**1.42**	YZ
2	**2**	**Vernal**	**2.95**	**1.72**	**2**	**2.66**	**1.40**	YZ
		Ranger	3.55	1.88	7	3.84	1.40	YZ
		526	3.57	1.89	8	3.29	1.39	YZ
		WL319HQ	3.26	1.80	4	2.59	1.37	Z
		Hybriforce-420-wet	4.09	2.02	22	3.97	1.36	Z
		$LSD_{0.05}$[7]		0.26			0.40	
		CV(%)		8.53			14.21	

[1]=Number corresponds to Fall Dormancy Class of 11 check cultivars (in Bold Print) used by the Certified Alfalfa Seed Council.

[2]= Winter survival rating (1-6) is assigned based on the ASI relative to the standard check cultivars used in winter survival tests.

[3]= Plant Height Score is transformed in to Natural Plant Height (NPH) using square root to remove heterogenity of variance.

[4]= Suggested single year fall dormancy rating based on four location single year regression (FDR=6.5557(NPH)-8.0054).

[5]= Average Survival Index is a winter survival score based on a 1 to 5 scale 1=no injury and 5 = dead. The ASI was scored May 8, 2002 at Tulelake.

[6]= Entries followed by the same letter are not significantly different at the 5% probability level according to Fisher's Protected LSD.

[7]=Fishers protected Least Significant Difference for comparison of ASI means.

Table 13. SUGGESTED MINIMUM ALFALFA CULTIVAR PEST RESISTANCE AND FALL DOEMANCY RATINGS [1] FOR ALFALFA PESTS FOUND IN SIX CALIFORNIA CLIMATE ZONES [2].

Zone[2]	FD	SAA	PA	BAA	PRR	BW	FW	San	Stn	RKN	VW
Intermountain	2--4	S	R	MR	R	R	HR	R	R	R	R
Sacramento Valley	4--8	MR	HR	HR	HR	MR	HR	R	R	R	R
San Joaquin Valley	7--9	R	HR	HR	HR	MR	HR	R	HR	HR	R
Coastal	5--7	MR	HR	HR	HR	MR	HR	R	HR	HR	R
High Desert	4--7	R	R	R	R	MR	HR	MR	HR	HR	R
Low Desert	8--9	HR	HR	HR	HR	S	HR	HR	R	HR	S

[1] Pest Resistance abbreviations described below.

NOTE: These pest Resistance Recommendations were originally developed by Dr. Vern Marble, Extension Agronomist, UC Davis, based upon decades of experience with alfalfa varieties in various locations in California.

[2] Zones correspond to the principle regions of alfalfa Production in California.

Pests and Diseases	
SAA	Spotted alfalfa aphid
PA	Pea aphid
BAA	Blue alfalfa aphid
PRR	Phytophthora
BW	Bacterial wilt
FW	Fusarium wilt
San	Southern anthracnose
Stn	Stem nematode
RKN	Root-Knot nematode
VW	Verticulum wilt

Resistance Abbreviations		Percent resistance[1]
HR	Highly Resistant	>51%
R	Resistant	31-50%
MR	Moderately Resistant	15-30%
LR	Low Resistant	6-14%
S	Susceptible	<5%
T	Tolerance	(see definition)

[1] Percent of plants in a population resistant to a given pest

Definitions

I - Immune -- Not subject to attack for a specified pest. Immunity is absolute, and seldom occurs in alfalfa.

R - Resistant -- The ability of plants to withstand pest attack. Resistance is not absolute. Since alfalfa varieties consist of a population of plant types, resistance occurs in only a portion of plants in a field. Even highly reistant varieties will have some plants that are susceptible (see above percentages). NOTE: Very high insect populations or very severe disease conditions can overwhelm pest resistance in alfalfa.

S - Susceptible -- Damage commonly occurs when in the presence of a specified pest. Inability of a variety to withstand adverse disease or insect conditions.

T - Tolerance -- Ability of plants to sustain yields when confronted with a pest attack or enviornmental condition (e.g. salt or grazing). Tolerant varieties are affected by the condition, but still maintain yields at high levels relative to less tolerant varieties.

Table 14. LISTING OF COMPANY CONTACTS FOR FURTHER INFORMATION ON VARIETIES.

Company	Name	Address	City & State	Zip	Phone	FAX	Email
ABI. Inc.	Neil Hayes	2280 Ave. 7 ½	Kingsburg, CA	93631	559-897-7999	559-897-8761	hayes@abialfalfa.com
ABI. Inc.	Don Miller	2323 11th Ave. N. Ext.	Nampa,ID.	83687	208-467-9523	208-466-7595	miller@abialfalfa.com
Advanced Forages	Mark Brady	P.O. Box 883	Visalia, CA	93274	559-779-2676	559-688-1674	ADForages@aol.com
Allied Seed	Ron Schmidt	1917 E. Fargo Ave.	Nampa, ID	83687	208-466-9218	208-467-9953	rschmidt@allied.com
America's Alfalfa	Joe Machado	1041 Jackson Ave.	Los Banos, CA	93635	209-826-9442	209-826-8842	machado@americasalfalfa.com
Cal/West Seeds	Lauren Johnson	P.O. Box 1428	Woodland, CA	95776	530-666-3331	530-666-1464	L.Johnson@Calwestseeds.com
Croplan Genetics	Dennis Gehler	P. O. Box 64406	St. Paul, MN	55164	651-765-5710	651-765-5727	dgehl@landolakes.com
D&D Seeds, Klamath Falls							
Dairyland Seed Co.	Dan Gardner	13147 Jackson Hwy.	Sloughhouse, CA	95683	916-682-3215	916-682-8435	dgardner@dairylandseed.com
Desert Sun Marketing Co.	Mike Malin	P. O. Box 50817	Phoenix, AZ	85076	480-940-4431	480-940-4507	mike@desertsunmarketing.com
Eureka/SeedTec	Craig Sharp	P.O. Box 1866	Woodland, CA	95776	530-661-6995	530-661-1575	eurekaseed@aol.com
Farm Valley Seeds	Mike Reed/James Scallin	624 E Service Rd	Modesto, CA	95358	209-541-3144	209-541-3191	jscallin@aol.com
Forage Genetics Intrnl.	Bill Knipe	P.O. Box 339	Nampa, ID	83653	208-466-3568	208-466-3684	bknipe@forage-genetics.com
Forage Genetics Intrnl.	Jess W. Bice	P.O. Box 339	Nampa, ID	83653	800-635-5701	208-466-3684	jbice@forage-genetics.com
Germain's Seeds	Doug Elkins	4782 E. Jensen Ave.	Fresno, CA	93777	559-233-8823	559-233-8830	delkins@seedsolutions.com
Great Plains Research	Thad Busbice	3624 Kildaire Farm Rd	Apex, NC.	27502	1-800-874-7945	919-387-7918	alfalfa@greatplainsresearch.com
IK Seeds Research Inc.	Jeffrey Kawaguchi	208 Jalisco Place	Davis, CA	95616	530-753-0592		jbkawaguchi@earthlink.net
IV Milling	Ray Johnson	P. O. Box 389	Holtville, CA	92250	760-356-2914	760-356-2916	ivmray@earthlink.net
Kamprath Seed Co.	Alan Steigerwald	205 Stockton St.	Manteca, CA	95337	209-823-6242	209-823-2582	
Kellogg's Seed Service	W.L. Bill Kellogg	3367 Neal Rd.	Paradise, CA	95969	530-877-3366	530-877-0245	wlk242@cs.com
Lockhart Seeds, Inc.	Steve Tomley	3 N. Wilson Way	Stockton, CA	95201	209-466-4401	209-466-9766	
Lohse Mill Inc.	Jim Butala	P.O. Box 168	Artois,CA	95913	530-934-2157	530-930-9106	butalaconsult@juno.com
Monsanto Golbal Seed Group	Bill Cox	810 W. Main Suite C	Visalia, CA	93291	559-627-0666	559-627-0742	bill.cox@monsanto.com
Novartis Seeds Inc.	Terry Hobson	11939A Sugarmill Rd.	Longmont,CO	80501	800-521-7021	303-682-2482	terry.hobson@seeds.novartis.com
Peterson Seed Co.	Jerry Peterson	P.O. Box 346	Savage, MN	55378	612-445-2606	612-445-1679	
PGI / MBS, Inc.	Dean Teslow	409 North St.	Decorah, IA	52101	866-744-5710	563-382-2433	dean.teslow@seminis.com
Pioneer Hi-Bred	Mark Smith	1040 Settler Rd.	Connell, WA	99326	509-234-9046	509-234-3610	mark.a.smith@pioneer.com
Pioneer Hi-Bred	Roger Vinande	3605 Beyer Park Rd.	Modesto, CA	95355	209-578-3314	209-527-3336	vinander@phibred.com
Pioneer Hi-Bred	Gene Gengelbach	7100 NW 62nd Ave.	Johnston, IA	50131	515-334-6426	515-334-6370	gene.gengelbach@pioneer.com
Roth Seeds	Jim Roth	278 Magnolia Ave.	Millbrae, CA	94030	415-652-4866		
Royal Seeds	Ken May	27630 Llewellyn Rd.	Corvallis,OR	97333	1-800-228-4119	1-541-758-5305	kmay@forage-genetics.com
S & W Seeds	Bob Sheesley	P.O. Box 235	Five Points, CA	93624	559-291-6195	559-291-2605	swseedco@pacbell.net
Simplot Seeds	Mike Benson	19766 So. Hiway 99	Tulare, CA	93274	559-687-2767		Mbenson@Simplot.com
Syngenta Seeds	Terry Hobson	1525 Airport Rd.	Ames, IA	50010	800-258-0498	515-239-3536	terry.hobson@syngenta.com
Syngenta Seeds	Joe Waldo	7500 Olson Memorial Hwy	Golden Valley, MN	55427	763-59-7324	763-593-7203	joe.waldo@syngenta.com
UAP/United Agri Products	Jim Kautz	3173 S Chestnut St.	Fresno, CA	93725	559-487-1516	559-487-1518	Jim.Kautz@uap.com
Union Seed	Jess W. Bice	P.O. Box 339	Nampa, ID	83653	800-635-5701	208-466-3684	jbice@forage-genetics.com
WL Research	Mike Peterson	P. O. Box 8112	Madison, WI	53708	800-406-7662	608-240-0411	mpeterson@wlresearch.com