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2003 CALIFORNIA ALFALFA VARIETY TRIALS: YIELD AND FALL DORMANCY 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 2003, and results from the 2003 Alfalfa Fall Dormancy trials. Yield trials are conducted in 7 trials at 5 locations in the Intermountain area, the Sacramento Valley, The San Joaquin Valley, and the Imperial Valley. Fall Dormancy Data was collected from three locations 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" link to access UC variety trial data. Additionally, a database has been developed and placed on the web, containing 35-years of data on alfalfa variety performance in California (http://alfalfa.ucdavis.edu/search.html).

INTRODUCTION

These 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. These sites represent 3-4 cut alfalfa cropping systems (dormant varieties) in the 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. Choice of superior varieties is a significant economic factor for alfalfa growers. A large number of commercial varieties are currently available—complicating the variety choice for producers.

These data are used by growers to choose varieties, and by breeders to help guide further selection. We test both private and public varieties, and experimental lines destined for release within the next few years. This report provides single year and over-the year summary from alfalfa trials harvested in California in 2003.

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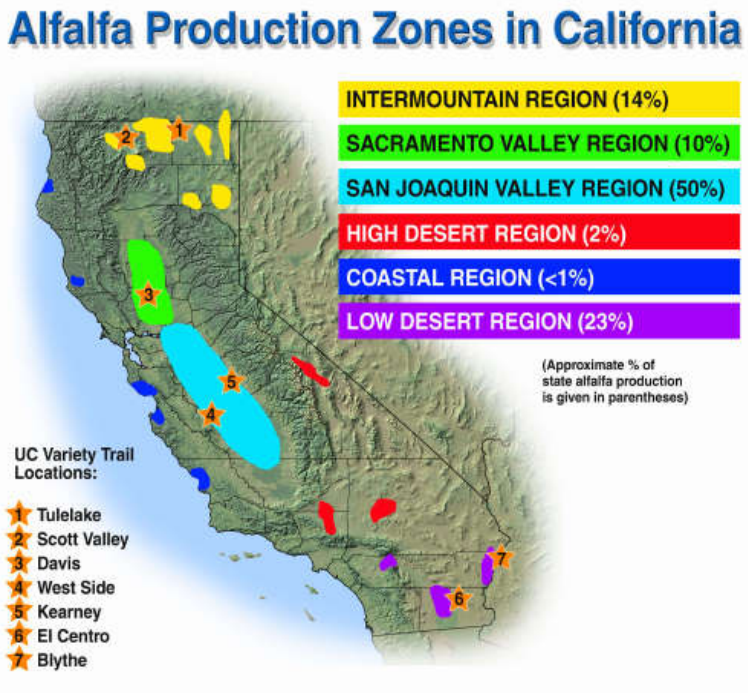
IMPORTANCE OF FALL DORMANCY

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, Larry Teuber and Ken Taggard conduct a comprehensive trial 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 the wrong fall dormancy is chosen. Our trials include standard check cultivars and uniform methods across three environments and are reported below.

2003 ALFALFA PRODUCTION YEAR

The 2003 California cropping year was characterized by a very wet spring in much of the Sacramento and San Joaquin Valleys, limiting quality of the first two harvests for many growers. California had much greater alfalfa acreage in 2002-03 than in previous years, up approximately 15% statewide from 2001. Additionally, dairy prices were depressed in early 2003. This resulted in moderate to depressed hay prices (depending upon the area), though prices for higher quality categories, horse hay and export hay remained fairly strong. Alfalfa market prices were at very high levels in 2001, certainly compared with the previous 3 years, and the subsequent reduction of price was not totally unexpected. As the 2004 production year gets underway, mean prices are about $25/ton less that last year, and a greater amount from the previous year (2001). The production season was generally 'average' in terms of crop response to the environment in 2003, although rainfall and water supply limited production in some locations of the state. Continued and steady increases in demand from the dairy and horse sector were a major factor in maintaining demand up though 2003, but dairy has since experienced record low prices in late 2002 and 2003, significantly softening demand for hay during that period. Outlook has improved since mid-2003, driven by improvements in the dairy price situation, and the potential for attractiveness of other crops, particularly cotton, in 2004.



EXPERIMENTAL 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. Alfalfa variety yield trials were harvested in Tulelake (2 trials), Scott Valley, Davis (2 trials), Parlier, and El Centro, CA in 2003. A new trial at Davis was established Fall, 2002; first year result will be presented here. Two new trials were planted in spring, 2003 at Tulelake and Kearney Ag Center, Parlier; first year results will also be presented here. 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. 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. Harvests for yield estimation are obtained from approximately a 3' x 18' area using a flail-type 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 northern 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 underway at Davis campus and are reported in the 2003 California Alfalfa Symposium Proceedings. Data is assembled from each of the locations and analyzed and summarized at UC Davis.

Fall Dormancy Trial. The 2003 dormancy tests were conducted in three locations in California (Intermountain Research and Extension Center, Tulelake, CA - 41^{o}53'N, Mean Temp. 44.2^{o}F; the Agronomy and Range Science Field Research Facility Davis, CA - 38^{o}32'N, Mean Temp. 60.3^{o}F, and the Desert Research and Extension Center, Imperial, CA - 32^{o}48'N, Mean Temp.72.7^{o} F). The three-location trial represents Intermountain (Tulelake), Mediterranean (Davis), and Desert (El Centro) environments. Planting dates this year were May 1 at Imperial, May 20 at Tulelake, and May 29 at Davis. Plot characteristics were as follows: 1) Single row plots established on 30" centers. 2) Each plot is 30' in length separated by a 5' alley. 3) Individual plants within a plot are 18" apart. The 2003 trial had 60 entries. Included in the list of entries are the 11 standard check cultivars adopted in 1998. 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 in the area of establishment. The first clipping, if taken, occurs between July 1 and July 15 (no data are taken at this time). The plot remains well watered and weed and rodent free until fall clipping. Fall clipping occurred on September 5, Tulelake; October 3, Davis; and October 27, Imperial. On these respective dates, the study is mechanically clipped to 5 cm (2 inches) and any uncut stems removed by hand. Water application continued in amounts appropriate for forage production. Approximately, three and one-half weeks after clipping, individual plants were evaluated for fall 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 are 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 of the check cultivars is 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 Methods. In the spring, plants from fall dormancy test at Tulelake are evaluated for winter injury (winter survival). The standard test for winter survival in alfalfa is based on a subjective scoring system on 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.

2003 YIELD RESULTS

Intermountain Region

1999 UC Tulelake Yield Trial **-** Four cuttings were made on this 1999-planted stand of alfalfa, now in it's 5th year of production (Tables 1 and 2). Only two cuttings were made the first year because of spring planting at this location. This year, yield average decreased by up to two tons /acre comparing to highest seasonal yield at 2002. Varieties were not significantly different in 2003. Higher Coefficients of Variation (CV) occurred in this year; it might cause by the out of the ordinary weather in the spring and summer. The rankings of the varieties appear to be fairly consistent with previous years, with some exceptions: some varieties tend to fall apart in later years of testing and are worth noting.

2003 UC Tulelake Yield Trial **-** This newly planted trial on May 19, 2003 has 40 entries at UC Intermountain Research and Extension Center, Tulelake, CA. and single year results are reported in Table 3. Only two cuttings were made in the first year of 2003. There was nearly half-ton difference in 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.

1999 UC Scott Valley Yield Trial **–** This trial has being into its 5th year of production. This trial was conducted as a 4-cut system in 2000, and as a 3-cut system from 2001 to 2003 (Tables 4 and 5). This schedule followed grower practices at this site, since it is located in a production field. Even though one more cutting was made in 2000, the total yields for the two years were about the same (Table 4). Average trial yields were about 1 ton less in 2003 than in 2000 or 2001; similar yield result for 2002 and 2003 - results that are contradictory to the Tulelake intermountain trial. Some ranking shift has been seen over the five years of this trial. There are some varieties which started out in this trial near the bottom, but now are high yielding relative to other lines.

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 X variety interaction trial 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 2nd year in 2003 (Table 6 and 7). In 2003, yield average was 10.73 tons/acre, which is very close to the average in 2002. Coefficients of Variation for this trial were higher due to only 3 replications in this trial. This year data showed a large yield differences (~5 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 **-** A multiple dormancy trial (with fall dormancies ranging from 3 to 9) 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 six harvests were completed for the first year yield data (Table 8). Due to the large range of Fall Dormancy, the differences between high and low yields across the varieties were up to two tons/acre.

San Joaquin Valley

2003 UC Kearney Yield Trial – In year 2003, a new 42-entry varieties trial was planted on late spring of May 12, 2003 and only 5 cuttings were concluded during the season (Table 9). For multiple year trial results, see http://alfalfa.ucdavis.edu for the completed 1999 planted trial, plus trial results from West Side Field Station. We will expect about 7 cutting for the next growing season in 2004. The yearly yield average across the high and low varieties has about 2.9 tons/acre difference. IT IS A MIS-USE OF UNIVERSITY DATA TO USE SINGLE YEAR DATA TO CHOOSE ALFALFA VARIETIES.

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.

2000 UC Imperial Yield Trial - Third-year yields were collected on this trial planted in October of 2000 (Tables 10 and 11). Yields were approximately 3.8 tons and 1.3 tons less in 2003 than in 2001 and 2002 of production. The overall field variability was also higher 2003 than in 2001 and 2002, with grant CV value higher than 10%. A new trial has been planted to replace on fall of October 2003, and results should be available in 2004.

2003 FALL DORMANCY RESULTS

The results of the 2003 Fall Dormancy Trial are presented on Table 12. The FDR regression equation used for the 2003 was 6.562(NPH)-8.0237 with a r^2 of 0.985. Tulelake, Davis, and El Centro had very few management or weather problems and looked very good. The C.V.s for the three locations varied between 4.68 and 8.53. Importantly, the relative ranking of the check cultivars remained constant and this years' FDR regression line did not deviate significantly from the historical equation. This is a very important finding because fall temperatures this year throughout California were 6 to 10 degrees Fahrenheit higher than the long-term average. Normal temperature conditions did not occur until mid November to early December.

2002/2003 WINTER SURVIVAL RESULTS

Winter survival rating results from the 2002 and 2003 season at the Tulelake location are provided in Table 13. Winter temperatures are insufficiently cold at other California locations to test for winter survival, but below-freezing temperatures at Tulelake are sufficient to differentiate among varieties. Fall dormancy ratings (FDR) from the 2002 Fall Dormancy Trial across three

locations along with scores for 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. Under conditions that occurred during the 2002-2003 winter at Tulelake produced severe injury for most of the non-dormant entries. In the Intermountain Region of California cultivars equal to the check cultivars with fall dormancy ratings (FDR) of 6 or greater would be severely damaged or dead at the end of most winters. Cultivars with a FDR of 5 or less are not likely to experience severe winter injury most years in the intermountain alfalfa production areas of California.

INTERPRETING YIELD TRIAL RESULTS

Assessing 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 ¼ 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 under 10% are usually considered acceptable.

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Table 1. UC TULELAKE ALFALAFA CULTIVAR TRIAL 2003 YIELDS. TRIAL PLANTED 5/13/99
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE
ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 6/9	Cut 2 7/10	Cut 3 8/11	Cut 4 9/15	YEAR TOTAL	% OF VERNAL
	----------Dry tons/acre----------					%
Released Cultivars						
Dura 512	2.67 (4)	2.12 (1)	1.49 (3)	1.09 (9)	7.38 (1)	105.9
53V08	2.73 (2)	2.04 (3)	1.44 (9)	1.08 (13)	7.28 (2)	104.5
Spirit	2.64 (6)	1.91 (15)	1.42 (15)	1.09 (10)	7.07 (4)	101.5
Aggressor	2.56 (10)	1.82 (31)	1.48 (4)	1.15 (3)	7.02 (5)	100.8
CW75044	2.36 (35)	2.10 (2)	1.44 (11)	1.10 (8)	7.00 (6)	100.6
WL 325 HQ	2.53 (15)	1.96 (9)	1.49 (2)	1.01 (26)	6.99 (8)	100.4
Blazer XL	2.60 (8)	1.82 (33)	1.45 (6)	1.12 (6)	6.99 (9)	100.4
Forecast 1001	2.49 (22)	1.98 (8)	1.44 (7)	1.07 (14)	6.98 (10)	100.3
Vernal	2.99 (1)	1.75 (38)	1.26 (39)	0.96 (32)	6.96 (11)	100.0
Magnum V	2.48 (23)	2.00 (6)	1.36 (23)	1.08 (12)	6.92 (12)	99.4
DK 142	2.50 (21)	1.90 (20)	1.36 (26)	1.15 (2)	6.91 (13)	99.2
WL 327	2.65 (5)	1.79 (35)	1.44 (10)	1.02 (25)	6.90 (14)	99.1
Forecast 3001	2.59 (9)	1.91 (18)	1.34 (31)	1.06 (16)	6.89 (15)	99.0
Sentry	2.51 (20)	1.93 (12)	1.51 (1)	0.95 (34)	6.89 (16)	99.0
Innovator +Z	2.70 (3)	1.92 (13)	1.29 (36)	0.94 (37)	6.85 (17)	98.3
Tristar	2.51 (18)	1.88 (22)	1.32 (33)	1.13 (4)	6.85 (18)	98.3
Select	2.38 (31)	1.91 (16)	1.40 (16)	1.15 (1)	6.84 (19)	98.3
AlfaStar	2.38 (29)	1.94 (10)	1.44 (8)	1.05 (21)	6.81 (20)	97.7
Fortress	2.56 (11)	1.82 (32)	1.38 (21)	1.04 (22)	6.79 (21)	97.6
CW5440	2.52 (16)	1.94 (11)	1.36 (25)	0.97 (29)	6.79 (22)	97.5
329	2.63 (7)	1.84 (28)	1.36 (28)	0.96 (33)	6.78 (23)	97.4
Reno	2.32 (38)	2.01 (5)	1.39 (19)	1.05 (20)	6.77 (24)	97.2
Leaf Master	2.43 (26)	1.87 (25)	1.39 (20)	1.06 (15)	6.75 (25)	96.9
Plumas (3L102)	2.54 (13)	1.88 (23)	1.33 (32)	0.96 (30)	6.72 (27)	96.5
Affinity +Z	2.54 (12)	1.81 (34)	1.40 (17)	0.95 (35)	6.70 (28)	96.3
Gold Plus	2.38 (30)	1.87 (24)	1.32 (34)	1.05 (18)	6.62 (31)	95.1
Key 2	2.51 (17)	1.86 (27)	1.43 (12)	0.81 (40)	6.61 (32)	94.9
Archer II	2.32 (37)	1.88 (21)	1.34 (30)	1.05 (17)	6.60 (35)	94.8
Dura 400	2.45 (25)	1.76 (37)	1.36 (27)	1.00 (27)	6.57 (36)	94.3
Amerigraze 401+Z	2.46 (24)	1.72 (40)	1.31 (35)	0.94 (36)	6.44 (37)	92.5
Blazer	2.35 (36)	1.74 (39)	1.37 (22)	0.91 (38)	6.37 (38)	91.5
WL 334 RK	2.37 (33)	1.83 (29)	1.25 (40)	0.88 (39)	6.33 (39)	90.9
Experimental Cultivars						
ZX 9853	2.51 (19)	2.02 (4)	1.47 (5)	1.11 (7)	7.11 (3)	102.1
DS9707HYB	2.54 (14)	1.91 (17)	1.42 (14)	1.13 (5)	7.00 (7)	100.5
DS9704HYB	2.39 (28)	1.99 (7)	1.36 (24)	1.00 (28)	6.73 (26)	96.7
ZG 9650A	2.40 (27)	1.78 (36)	1.39 (18)	1.09 (11)	6.66 (29)	95.7
ZX 9451	2.28 (39)	1.90 (19)	1.43 (13)	1.02 (23)	6.64 (30)	95.3
DS9705HYB	2.37 (32)	1.86 (26)	1.35 (29)	1.02 (24)	6.61 (33)	94.9
CW6539	2.36 (34)	1.92 (14)	1.27 (38)	1.05 (19)	6.61 (34)	94.9
330	2.23 (40)	1.82 (30)	1.28 (37)	0.96 (31)	6.30 (40)	90.5
MEAN	2.49	1.89	1.38	1.03	6.8	
CV	7	9	8.3	17.3	5.9	
LSD (.05)	0.25	NS	NS	NS	NS	

Trial seeded at 25 lb/acre viable seed 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 Fisher's (protected) LSD.

Table 2. TULELAKE ALFALFA CULTIVAR TRIAL 1999-2003 YIELDS. TRIAL PLANTED 5/13/1999

	1999	2000	2001	2002	2003	Average		% OF Vernal
	Yield							
	Dry tons/acre							%
Released Varieties								
Dura 512	4.41 (4)	9.00 (1)	8.03 (1)	9.54 (4)	7.38 (1)	7.67 (1)	A	109.9
WL 325 HQ	4.40 (5)	8.65 (7)	7.67 (8)	9.82 (1)	6.99 (8)	7.51 (2)	A B	107.6
53V08	4.16 (26)	8.61 (8)	7.96 (2)	9.43 (7)	7.28 (2)	7.49 (3)	A B C	107.3
CW75044	4.18 (24)	8.72 (4)	7.92 (3)	9.35 (9)	7.00 (6)	7.43 (4)	A B C D	106.5
CW5440	4.45 (3)	8.82 (3)	7.76 (6)	9.17 (18)	6.79 (22)	7.40 (5)	A B C D E	106.0
Innovator +Z	4.34 (7)	8.71 (5)	7.53 (21)	9.56 (3)	6.85 (17)	7.40 (6)	A B C D E	106.0
329	4.63 (1)	8.83 (2)	7.67 (9)	9.06 (28)	6.78 (23)	7.39 (7)	A B C D E	105.9
Plumas (3L102)	4.33 (8)	8.57 (10)	7.61 (12)	9.47 (5)	6.72 (27)	7.34 (8)	B C D E F	105.2
Forecast 1001	4.18 (23)	8.58 (9)	7.60 (13)	9.26 (14)	6.98 (10)	7.32 (9)	B C D E F G	104.9
WL 327	4.31 (10)	8.08 (35)	7.63 (11)	9.64 (2)	6.90 (14)	7.31 (10)	B C D E F G H	104.8
Sentry	4.28 (13)	8.20 (28)	7.87 (4)	9.18 (17)	6.89 (16)	7.28 (12)	B C D E F G H	104.3
Tristar	4.23 (18)	8.44 (13)	7.49 (24)	9.32 (12)	6.85 (18)	7.27 (13)	B C D E F G H	104.1
Gold Plus	4.25 (15)	8.41 (15)	7.83 (5)	9.14 (21)	6.62 (31)	7.25 (14)	B C D E F G H I	103.9
DK 142	4.16 (27)	8.38 (17)	7.73 (7)	9.04 (29)	6.91 (13)	7.24 (15)	B C D E F G H I	103.8
Select	4.20 (21)	8.36 (19)	7.59 (14)	9.16 (20)	6.84 (19)	7.23 (16)	B C D E F G H I	103.6
forecast 3001	4.21 (20)	8.27 (22)	7.56 (16)	9.20 (15)	6.89 (15)	7.23 (17)	B C D E F G H I	103.5
Blazer XL	4.32 (9)	8.22 (25)	7.43 (31)	9.13 (23)	6.99 (9)	7.22 (18)	C D E F G H I	103.4
Aggressor	4.28 (12)	8.22 (24)	7.47 (28)	9.07 (26)	7.02 (5)	7.21 (19)	C D E F G H I J	103.3
Leaf Master	4.46 (2)	8.35 (20)	7.44 (30)	9.00 (32)	6.75 (25)	7.20 (20)	D E F G H I J	103.1
Magnum V	4.17 (25)	8.17 (29)	7.54 (19)	9.03 (30)	6.92 (12)	7.17 (22)	D E F G H I J	102.7
Key 2	4.28 (11)	8.28 (21)	7.37 (34)	9.19 (16)	6.61 (32)	7.15 (25)	E F G H I J	102.4
AlfaStar	4.27 (14)	8.14 (30)	7.52 (22)	8.90 (34)	6.81 (20)	7.13 (26)	E F G H I J	102.1
Reno	3.94 (35)	8.46 (12)	7.35 (35)	9.08 (25)	6.77 (24)	7.12 (27)	E F G H I J	102.0
Affinity +Z	4.03 (33)	8.13 (31)	7.40 (33)	9.33 (11)	6.70 (28)	7.12 (28)	E F G H I J	102.0
Archer II	3.89 (38)	8.20 (27)	7.48 (26)	9.34 (10)	6.60 (35)	7.10 (29)	F G H I J	101.8
Spirit	3.80 (40)	7.94 (38)	7.54 (17)	9.14 (22)	7.07 (4)	7.10 (30)	F G H I J	101.7
Dura 400	4.21 (19)	8.25 (23)	7.64 (10)	8.79 (38)	6.57 (36)	7.09 (31)	F G H I J	101.6
Fortress	4.18 (22)	7.93 (39)	7.49 (25)	8.98 (33)	6.79 (21)	7.07 (34)	F G H I J	101.3
Amerigraze 401+Z	4.12 (28)	7.98 (36)	7.47 (29)	9.17 (19)	6.44 (37)	7.04 (36)	H I J	100.8
Vernal	4.25 (16)	7.51 (40)	7.32 (38)	8.86 (36)	6.96 (11)	6.98 (37)	I J	100.0
Blazer	3.94 (36)	8.11 (34)	7.32 (37)	9.12 (24)	6.37 (38)	6.97 (39)	I J	99.9
WL 334 RK	4.24 (17)	8.39 (16)	7.27 (40)	8.41 (40)	6.33 (39)	6.93 (40)	J	99.3
Experimental Varieties								
DS9707HYB	4.39 (6)	8.13 (32)	7.58 (15)	9.37 (8)	7.00 (7)	7.29 (11)	B C D E F G H	104.5
ZX 9853	4.07 (30)	8.12 (33)	7.31 (39)	9.31 (13)	7.11 (3)	7.18 (21)	D E F G H I J	102.9
DS9704HYB	4.07 (31)	8.43 (14)	7.50 (23)	9.06 (27)	6.73 (26)	7.16 (23)	D E F G H I J	102.6
CW6539	4.03 (32)	8.66 (6)	7.54 (18)	8.90 (35)	6.61 (34)	7.15 (24)	E F G H I J	102.4
DS9705HYB	3.90 (37)	7.95 (37)	7.48 (27)	9.44 (6)	6.61 (33)	7.08 (32)	F G H I J	101.4
ZG 9650A	4.08 (29)	8.36 (18)	7.54 (20)	8.74 (39)	6.66 (29)	7.08 (33)	F G H I J	101.4
ZX 9451	4.03 (34)	8.21 (26)	7.33 (36)	9.02 (31)	6.64 (30)	7.05 (35)	G H I J	100.9
330	3.88 (39)	8.49 (11)	7.42 (32)	8.80 (37)	6.30 (40)	6.98 (38)	I J	100.0
Mean	4.19	8.33	7.56	9.16	6.8	7.21		
CV	6.7	3.6	4.3	4.4	5.9	5.1		
LSD (.05)	0.39	0.42	NS	0.56	NS	0.28		

Trial seeded at 25lb/acre viable seed 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 3. UC TULELAKE ALFALFA CULTIVAR TRIAL 2003 YIELDS. TRIAL PLANTED 5/19/03
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE
ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 7/16	Cut 2 9/11	YEAR TOTAL		% OF VERNAL
	----------Dry tons/acre----------				%
Released Varieties					
BlazerXL	2.61 (2)	2.22 (3)	4.83 (1)	A	110.5
XTRA-3	2.41 (21)	2.41 (1)	4.81 (3)	A B	110.1
WL319HQ	2.50 (5)	2.23 (2)	4.74 (4)	A B C	108.3
CW5440	2.47 (10)	2.20 (5)	4.67 (5)	A B C D	106.9
RewardII	2.50 (7)	2.15 (10)	4.65 (6)	A B C D E	106.3
Plumas	2.55 (3)	2.06 (25)	4.61 (8)	A B C D E	105.5
C316Lot9078	2.41 (20)	2.20 (6)	4.60 (10)	A B C D E	105.3
Recover	2.47 (12)	2.13 (15)	4.60 (11)	A B C D E	105.2
WL325HQ	2.42 (15)	2.18 (7)	4.60 (12)	A B C D E	105.2
Vitro	2.50 (6)	2.08 (22)	4.58 (13)	A B C D E	104.8
Reno	2.43 (14)	2.12 (16)	4.55 (16)	A B C D E F	104.2
WL357HQ	2.42 (18)	2.12 (17)	4.54 (17)	A B C D E F	103.8
Innovator+Z	2.54 (4)	1.99 (30)	4.53 (18)	A B C D E F	103.5
9429	2.40 (22)	2.12 (19)	4.52 (19)	B C D E F	103.3
LegenDairyYPQ	2.35 (25)	2.14 (14)	4.49 (20)	C D E F	102.6
54Q25	2.42 (16)	2.06 (24)	4.48 (21)	C D E F	102.6
Magna601	2.36 (24)	2.11 (21)	4.46 (22)	C D E F	102.0
AlfalfaStar II	2.34 (26)	2.12 (18)	4.45 (23)	C D E F	101.9
LM459WD	2.42 (17)	2.03 (27)	4.45 (24)	C D E F	101.9
Masterpiece	2.42 (19)	2.03 (28)	4.44 (25)	C D E F	101.6
53V08	2.26 (31)	2.16 (9)	4.42 (26)	D E F	101.1
SW4A135	2.29 (29)	2.11 (20)	4.41 (27)	D E F	100.8
Dura512	2.49 (8)	1.91 (32)	4.40 (28)	D E F	100.6
Vernal	2.33 (28)	2.05 (26)	4.37 (29)	D E F	100.0
Hybriforce-420-wet	2.33 (27)	2.01 (29)	4.34 (31)	E F	99.3
Expedition	2.28 (30)	1.99 (31)	4.27 (32)	F	97.6
Experimental Varieties					
DS218Hyb	2.68 (1)	2.14 (13)	4.82 (2)	A B	110.3
4M124	2.45 (13)	2.18 (8)	4.62 (7)	A B C D E	105.7
DS309Hyb	2.47 (11)	2.14 (12)	4.61 (9)	A B C D E	105.4
CW94023	2.36 (23)	2.21 (4)	4.57 (14)	A B C D E F	104.5
4M125	2.49 (9)	2.08 (23)	4.56 (15)	A B C D E F	104.3
CW05009	2.22 (32)	2.14 (11)	4.36 (30)	E F	99.7
MEAN	2.42	2.12	4.54		
CV	6.3	9	5.4		
LSD (.05)	0.19	NS	0.31		

Trial seeded at 25 lb/acre viable seed on 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 Fisher's (protected) LSD.

Table 4. UC SCOTT VALLEY ALFALFA CULTIVAR TRIAL 2003 YIELDS. TRIAL PLANTED 4/22/99
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE
ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 6/11	Cut 2 7/22	Cut 3 9/10	YEAR TOTAL		% OF VERNAL
	----------Dry tons/acre----------					%
Released Varieties						
Reno	3.48 (1)	2.30 (2)	1.94 (2)	7.73 (1)	A	126.8
Plumas (3L102)	3.18 (3)	2.18 (5)	1.81 (5)	7.16 (2)	A B	117.4
Forecast 1001	3.05 (8)	2.31 (1)	1.85 (4)	7.08 (3)	A B C	116.1
WL 334 RK	3.05 (9)	2.24 (3)	1.79 (7)	7.03 (4)	A B C D	115.4
Dura 512	3.21 (2)	2.09 (9)	1.66 (11)	6.96 (6)	B C D E	114.2
Blazer XL	3.06 (6)	2.10 (8)	1.76 (8)	6.93 (7)	B C D E	113.7
Sentry	3.16 (4)	1.98 (17)	1.60 (17)	6.67 (9)	B C D E F	109.5
WL 325 HQ	2.94 (16)	2.15 (6)	1.66 (12)	6.66 (10)	B C D E F	109.3
Select	3.09 (5)	2.03 (14)	1.68 (9)	6.63 (11)	B C D E F G	108.8
Dura 400	2.95 (15)	2.05 (12)	1.62 (15)	6.55 (12)	B C D E F G H	107.5
Magnum V	2.86 (20)	2.13 (7)	1.39 (30)	6.52 (13)	B C D E F G H I	106.9
Forecast 3001	3.02 (11)	2.01 (15)	1.55 (20)	6.51 (14)	B C D E F G H I	106.7
329	3.04 (10)	1.96 (20)	1.50 (23)	6.49 (15)	B C D E F G H I	106.4
Spirit	2.91 (17)	2.03 (13)	1.61 (16)	6.48 (16)	B C D E F G H I	106.2
Fortress	3.05 (7)	2.05 (11)	1.59 (19)	6.44 (17)	B C D E F G H I J	105.6
Key 2	2.74 (24)	1.89 (25)	1.87 (3)	6.42 (18)	C D E F G H I J	105.3
53V08	2.99 (12)	1.96 (18)	1.48 (24)	6.38 (19)	C D E F G H I J K	104.7
TriStar	2.96 (13)	1.92 (23)	1.64 (13)	6.32 (20)	D E F G H I J K	103.7
330	2.68 (27)	1.96 (19)	1.66 (10)	6.29 (21)	E F G H I J K	103.2
Gold Plus	2.91 (18)	1.86 (27)	1.60 (18)	6.28 (22)	E F G H I J K	103.1
WL 327	2.86 (19)	2.00 (16)	1.38 (31)	6.12 (23)	F G H I J K	100.4
Vernal	2.66 (28)	1.93 (22)	1.43 (27)	6.10 (24)	F G H I J K	100.0
DK 142	2.74 (25)	1.87 (26)	1.40 (29)	5.99 (25)	F G H I J K	98.2
AlfaStar	2.70 (26)	1.94 (21)	1.55 (21)	5.98 (26)	F G H I J K	98.2
Leaf Master	2.80 (22)	1.89 (24)	1.40 (28)	5.94 (27)	G H I J K	97.4
Innovator+Z	2.76 (23)	1.80 (29)	1.34 (32)	5.87 (29)	H I J K	96.4
Amerigraze 401+Z	2.65 (29)	1.81 (28)	1.43 (26)	5.83 (30)	I J K	95.6
Affinity+Z	2.50 (31)	1.80 (30)	1.48 (25)	5.72 (31)	J K	93.9
Archer II	2.42 (32)	1.77 (31)	1.54 (22)	5.68 (32)	K	93.2
Experimental Varieties						
ZG 9650A	2.83 (21)	2.19 (4)	1.94 (1)	6.98 (5)	B C D E	114.6
ZX 9853	2.96 (14)	2.09 (10)	1.79 (6)	6.88 (8)	B C D E	112.9
ZX 9451	2.63 (30)	1.76 (32)	1.62 (14)	5.89 (28)	H I J K	96.7
MEAN	2.90	2.00	1.61	6.45		
CV	6.40	7.50	9.00	5.50		
LSD (.05)	0.30	0.30	0.30	0.72		

Trial seeded at 25 lb/acre viable seed at Scott Valley, CA.

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

Table 5. UC SCOTT VALLEY ALFALFA CULTIVAR TRIAL 1999-2003 YIELDS. TRIAL PLANTED 4/22/99

	1999	2000	2001	2002	2003	Average		% OF Vernal
	----------Yield----------							
	----------Dry tons/acre----------							%
Released Varieties								
Reno	4.16 (4)	7.67 (8)	7.89 (6)	7.62 (1)	7.73 (1)	6.96 (1)	A	112.6
Plumas (3L102)	4.03 (11)	7.75 (5)	7.87 (8)	7.39 (2)	7.16 (2)	6.82 (2)	A B	110.3
Dura 512	4.20 (2)	8.08 (1)	7.55 (17)	7.36 (4)	6.96 (6)	6.82 (3)	A B	110.3
Select	4.15 (5)	7.79 (3)	7.88 (7)	7.17 (10)	6.63 (11)	6.79 (4)	A B	109.8
Blazer XL	4.11 (7)	7.76 (4)	7.59 (15)	7.26 (6)	6.93 (7)	6.74 (5)	A B C	109.0
Forecast 3001	3.58 (25)	7.72 (7)	7.97 (5)	7.30 (5)	6.51 (14)	6.63 (6)	B C D	107.3
53V08	3.51 (28)	7.57 (10)	8.22 (2)	7.22 (8)	6.38 (19)	6.61 (7)	B C D E	106.9
WL 334 RK	3.47 (32)	7.23 (28)	8.26 (1)	7.18 (9)	7.03 (4)	6.60 (8)	B C D E	106.8
Sentry	4.07 (9)	7.82 (2)	7.46 (21)	6.98 (13)	6.67 (9)	6.56 (9)	B C D E F	106.1
Forecast 1001	3.51 (29)	7.28 (25)	7.98 (3)	7.38 (3)	7.08 (3)	6.56 (10)	B C D E F	106.1
330	4.01 (14)	7.47 (17)	7.64 (11)	7.01 (11)	6.29 (21)	6.54 (11)	B C D E F G	105.8
WL 327	4.26 (1)	7.56 (11)	7.67 (10)	6.70 (22)	6.12 (23)	6.53 (12)	B C D E F G H	105.7
329	3.97 (15)	7.58 (9)	7.51 (18)	6.88 (17)	6.49 (15)	6.46 (15)	C D E F G H I	104.4
Spirit	3.80 (20)	7.38 (19)	7.62 (13)	6.98 (12)	6.48 (16)	6.45 (16)	C D E F G H I	104.3
WL 325 HQ	3.80 (19)	7.53 (14)	7.49 (19)	6.83 (18)	6.66 (10)	6.44 (17)	C D E F G H I	104.2
Dura 400	4.02 (13)	7.51 (15)	7.47 (20)	6.88 (15)	6.55 (12)	6.42 (18)	C D E F G H I	103.9
Fortress	3.72 (21)	7.35 (23)	7.41 (24)	6.98 (14)	6.44 (17)	6.42 (19)	C D E F G H I	103.9
Key 2	4.06 (10)	7.49 (16)	7.32 (27)	6.46 (26)	6.42 (18)	6.39 (20)	D E F G H I J	103.3
Gold Plus	4.08 (8)	7.73 (6)	7.16 (29)	6.38 (30)	6.28 (22)	6.33 (21)	D E F G H I J K	102.4
TriStar	3.65 (23)	7.36 (21)	7.63 (12)	6.76 (21)	6.32 (20)	6.32 (22)	D E F G H I J K	102.2
AlfaStar	3.90 (16)	7.38 (20)	7.44 (22)	6.78 (19)	5.98 (26)	6.31 (23)	E F G H I J K	102.0
Magnum V	3.58 (26)	7.09 (30)	7.56 (16)	6.43 (27)	6.52 (13)	6.26 (24)	F G H I J K	101.3
Innovator+Z	4.03 (12)	7.36 (22)	7.37 (26)	6.63 (25)	5.87 (29)	6.26 (25)	F G H I J K	101.3
DK 142	4.12 (6)	7.55 (13)	7.00 (32)	6.43 (28)	5.99 (25)	6.25 (26)	F G H I J K	101.0
Leaf Master	4.20 (3)	7.47 (18)	7.07 (30)	6.41 (29)	5.94 (27)	6.21 (28)	H I J K	100.5
Affinity+Z	3.60 (24)	7.29 (24)	7.41 (23)	6.77 (20)	5.72 (31)	6.19 (29)	I J K	100.1
Vernal	3.55 (27)	7.24 (27)	7.25 (28)	6.35 (32)	6.10 (24)	6.18 (30)	I J K	100.0
Amerigraze 401+Z	3.80 (18)	7.24 (26)	7.06 (31)	6.38 (31)	5.83 (30)	6.08 (31)	J K	98.4
Archer II	3.48 (30)	6.91 (32)	7.41 (25)	6.70 (23)	5.68 (32)	6.06 (32)	K	98.0
Experimental Varieties								
ZX 9853	3.82 (17)	7.55 (12)	7.81 (9)	6.88 (16)	6.88 (8)	6.52 (13)	B C D E F G H	105.4
ZG 9650A	3.47 (31)	7.06 (31)	7.98 (4)	7.26 (7)	6.98 (5)	6.50 (14)	B C D E F G H I	105.2
ZX 9451	3.66 (22)	7.13 (29)	7.60 (14)	6.67 (24)	5.89 (28)	6.24 (27)	G H I J K	100.9
Mean	3.85	7.47	7.58	6.89	6.45	6.47		
CV	4.8	4.6	5.3	7.8	5.5	4.8		
LSD (.05)	0.23	0.43	0.5	0.67	0.72	0.32		

Note: VARIETY X YEAR INTERACTION IS SIGNIFICANT

Trial seeded at 25 lb/acre viable seed at Scott Valley, CA

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

Table 6. UC DAVIS 2001 ALFALFA CULTIVAR TRIAL 2003 YIELDS. TRIALS PLANTED 9/17/2001
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 5/13	Cut 2 6/9	Cut 3 7/7	Cut 4 8/5	Cut 5 9/3	Cut 6 9/30	Cut 7 10/28	YEAR TOTAL		% OF CUF101
	Dry tons/acre									%
Released Varieties										
AL999Plus	2.00 (15)	2.28 (4)	2.38 (1)	2.03 (1)	1.68 (2)	1.24 (1)	1.06 (2)	12.66 (1)	A	112.0
WL625HQ	1.86 (28)	2.24 (8)	2.33 (2)	1.93 (3)	1.54 (13)	1.15 (3)	0.95 (4)	11.99 (4)	A B C	106.0
Magna801FQ (DS681FQ)	1.96 (18)	2.21 (13)	2.13 (5)	1.91 (4)	1.70 (1)	1.14 (6)	0.85 (7)	11.90 (5)	A B C	105.3
WL711WF	1.80 (30)	2.45 (1)	2.15 (3)	1.93 (2)	1.46 (18)	1.04 (11)	0.83 (9)	11.66 (6)	A B C D	103.2
59N49	1.87 (27)	2.15 (20)	2.07 (8)	1.85 (6)	1.52 (16)	1.12 (7)	0.94 (5)	11.52 (8)	A B C D	101.9
CW704 (CW57104)	1.88 (25)	2.25 (7)	2.13 (4)	1.81 (8)	1.54 (12)	1.05 (10)	0.76 (12)	11.42 (9)	A B C D	101.1
SW7410	1.99 (16)	2.27 (5)	2.02 (13)	1.74 (13)	1.60 (6)	1.04 (12)	0.76 (13)	11.41 (10)	A B C D	101.0
CUF 101	1.88 (25)	2.19 (17)	2.06 (12)	1.78 (10)	1.54 (14)	1.02 (16)	0.83 (8)	11.30 (11)	A B C D E	100.0
Achiever	2.07 (9)	2.26 (6)	2.07 (10)	1.69 (16)	1.42 (22)	1.02 (17)	0.62 (22)	11.16 (14)	A B C D E F	98.7
58N57	2.04 (11)	2.06 (26)	1.92 (22)	1.70 (15)	1.61 (5)	1.03 (13)	0.74 (14)	11.10 (17)	A B C D E F	98.2
Sedona	1.88 (23)	2.06 (25)	1.95 (17)	1.71 (14)	1.59 (7)	1.07 (8)	0.81 (11)	11.07 (18)	A B C D E F	98.0
El Tigre Verde	2.03 (12)	2.08 (24)	1.90 (24)	1.61 (23)	1.50 (17)	1.02 (15)	0.83 (10)	10.95 (19)	A B C D E F	96.9
Fiesta	2.12 (7)	2.02 (27)	1.94 (18)	1.65 (20)	1.40 (23)	0.98 (21)	0.72 (17)	10.83 (20)	A B C D E F G	95.8
SW9720	1.83 (29)	1.94 (30)	1.92 (21)	1.78 (11)	1.56 (8)	1.14 (4)	0.66 (20)	10.83 (21)	A B C D E F G	95.8
Tango	1.70 (33)	1.74 (35)	1.67 (32)	1.41 (31)	1.33 (26)	0.77 (32)	2.07 (1)	10.69 (22)	B C D E F G	94.6
Magna601	1.93 (21)	2.19 (16)	1.96 (16)	1.50 (25)	1.27 (32)	0.88 (25)	0.51 (28)	10.25 (27)	B C D E F G H I	90.7
Sutter	1.71 (32)	2.15 (19)	1.94 (19)	1.48 (28)	1.38 (24)	0.88 (26)	0.65 (21)	10.20 (28)	C D E F G H I	90.2
Dura765	1.95 (20)	2.01 (28)	1.72 (31)	1.49 (27)	1.27 (31)	0.89 (24)	0.58 (25)	9.92 (29)	D E F G H I	87.7
54Q53	1.91 (22)	2.11 (23)	1.84 (27)	1.44 (29)	1.33 (25)	0.76 (33)	0.47 (32)	9.87 (30)	D E F G H I	87.3
Tahoe	1.88 (24)	1.89 (31)	1.73 (30)	1.38 (32)	1.25 (33)	0.84 (28)	0.56 (26)	9.54 (31)	E F G H I	84.4
Aspire	1.98 (17)	1.97 (29)	1.62 (33)	1.21 (36)	1.30 (29)	0.82 (29)	0.54 (27)	9.45 (32)	F G H I	83.6
WL325HQ	1.69 (34)	1.84 (33)	1.79 (28)	1.43 (30)	1.24 (34)	0.72 (34)	0.41 (34)	9.11 (33)	G H I J	80.6
Dura 512	1.77 (31)	1.85 (32)	1.46 (35)	1.31 (34)	1.30 (30)	0.71 (35)	0.40 (35)	8.79 (34)	H I J	77.7
Archer II	1.63 (35)	1.81 (34)	1.48 (34)	1.29 (35)	1.20 (35)	0.79 (31)	0.42 (33)	8.63 (35)	I J	76.4
Plumas	1.16 (36)	1.70 (36)	1.41 (36)	1.32 (33)	1.02 (36)	0.62 (36)	0.34 (36)	7.57 (36)	J	67.0
Experimental Varieties										
ADF 01-70	1.95 (19)	2.39 (2)	2.09 (7)	1.90 (5)	1.62 (4)	1.14 (5)	0.96 (3)	12.05 (2)	A B	106.6
DS189	2.29 (1)	2.20 (14)	2.07 (9)	1.79 (9)	1.64 (3)	1.15 (2)	0.88 (6)	12.03 (3)	A B C	106.4
DS187	2.23 (2)	2.23 (10)	2.07 (11)	1.75 (12)	1.55 (9)	1.05 (9)	0.73 (16)	11.61 (7)	A B C D	102.7
DS186	2.06 (10)	2.19 (15)	2.01 (14)	1.82 (7)	1.53 (15)	1.02 (14)	0.67 (19)	11.30 (12)	A B C D E	100.0
UN628	2.14 (5)	2.21 (12)	1.90 (25)	1.69 (17)	1.55 (10)	1.02 (18)	0.73 (15)	11.24 (13)	A B C D E F	99.4
CW76098	2.02 (13)	2.28 (3)	2.10 (6)	1.66 (18)	1.45 (19)	1.00 (20)	0.62 (23)	11.11 (15)	A B C D E F	98.3
GP99AL2	2.00 (14)	2.22 (11)	1.98 (15)	1.66 (19)	1.55 (11)	1.01 (19)	0.69 (18)	11.10 (16)	A B C D E F	98.2
C316	2.11 (8)	2.13 (21)	1.93 (20)	1.64 (21)	1.45 (21)	0.90 (23)	0.48 (30)	10.63 (23)	B C D E F G	94.0
C241	2.18 (3)	2.12 (22)	1.74 (29)	1.52 (24)	1.45 (20)	0.95 (22)	0.59 (24)	10.55 (24)	B C D E F G H	93.3
OK 49	2.16 (4)	2.16 (18)	1.88 (26)	1.61 (22)	1.31 (28)	0.86 (27)	0.49 (29)	10.48 (25)	B C D E F G H	92.7
UN576	2.13 (6)	2.23 (9)	1.91 (23)	1.50 (26)	1.33 (27)	0.82 (30)	0.48 (31)	10.39 (26)	B C D E F G H I	91.9
MEAN	1.94	2.11	1.92	1.64	1.44	0.96	0.71	10.73		
CV	9.90	10.60	11.00	12.70	13.50	11.70	72.20	10.50		
LSD (.05)	0.31	0.36	0.34	0.34	0.32	0.18	NS	1.83		

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

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

Table 7. UC DAVIS ALFALFA CULTIVAR TRIAL 2002-2003 YIELDS. TRIAL PLANTED 9/17/01

	2002	2003	Average		% OF CUF 101
	Yield				
	Dry tons/acre				%
Released Varieties					
AL999Plus	11.60 (2)	12.66 (1)	12.13 (1)	A	112.4
WL625HQ	11.21 (10)	11.99 (4)	11.60 (3)	A B C	107.5
DS681FQ	11.23 (8)	11.90 (5)	11.56 (4)	A B C	107.2
59N49	11.46 (5)	11.52 (8)	11.49 (6)	A B C D	106.5
WL711WF	11.22 (9)	11.66 (6)	11.44 (7)	A B C D E	106.0
SW7410	11.32 (6)	11.41 (10)	11.37 (8)	A B C D E F	105.4
CW57104	11.28 (7)	11.42 (9)	11.35 (9)	A B C D E F	105.2
Achiever	10.94 (13)	11.16 (14)	11.05 (13)	A B C D E F G H	102.4
Fiesta	11.05 (12)	10.83 (20)	10.94 (15)	A B C D E F G H	101.4
SW9720	10.93 (14)	10.83 (21)	10.88 (16)	A B C D E F G H	100.9
58N57	10.51 (21)	11.10 (17)	10.81 (18)	B C D E F G H	100.2
Sedona	10.54 (19)	11.07 (18)	10.80 (19)	B C D E F G H	100.1
CUF 101	10.27 (25)	11.30 (11)	10.79 (20)	B C D E F G H	100.0
Dura765	10.61 (16)	9.92 (29)	10.26 (24)	D E F G H I J	95.1
El Tigre Verde	9.39 (33)	10.95 (19)	10.17 (25)	E F G H I J K	94.3
Magna601	10.02 (28)	10.25 (27)	10.13 (26)	F G H I J K	93.9
Tahoe	10.46 (22)	9.54 (31)	10.00 (27)	G H I J K	92.7
Sutter	9.78 (29)	10.20 (28)	9.99 (28)	G H I J K	92.6
54Q53	10.05 (27)	9.87 (30)	9.96 (29)	G H I J K	92.3
Tango	9.17 (35)	10.69 (22)	9.93 (30)	H I J K	92.0
Aspire	10.26 (26)	9.45 (32)	9.86 (32)	H I J K	91.3
WL325HQ	9.63 (30)	9.11 (33)	9.37 (33)	I J K L	86.8
Dura 512	9.47 (31)	8.79 (34)	9.13 (34)	J K L	84.6
Archer II	9.18 (34)	8.63 (35)	8.91 (35)	K L	82.5
Plumas	8.98 (36)	7.57 (36)	8.27 (36)	L	76.7
Experimental Varieties					
DS187	12.02 (1)	11.61 (7)	11.82 (2)	A B	109.5
DS189	11.08 (11)	12.03 (3)	11.55 (5)	A B C	107.1
CW76098	11.55 (3)	11.11 (15)	11.33 (10)	A B C D E F	105.0
GP99AL2	11.55 (4)	11.10 (16)	11.33 (11)	A B C D E F	105.0
ADF 01-70	10.43 (24)	12.05 (2)	11.24 (12)	A B C D E F G	104.2
DS186	10.61 (15)	11.30 (12)	10.96 (14)	A B C D E F G H	101.6
UN628	10.52 (20)	11.24 (13)	10.88 (17)	A B C D E F G H	100.8
C241	10.56 (18)	10.55 (24)	10.55 (21)	B C D E F G H I	97.8
C316	10.45 (23)	10.63 (23)	10.54 (22)	B C D E F G H I	97.7
OK 49	10.57 (17)	10.48 (25)	10.53 (23)	C D E F G H I	97.6
UN576	9.42 (32)	10.39 (26)	9.90 (31)	H I J K	91.8
Mean	10.54	10.73	10.63		
CV	7.5	10.5	8.7		
LSD (.05)	1.28	1.83	1.28		

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

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

Table 8. UC DAVIS ALFALFA CULTIVAR TRIAL 2003 YIELDS. TRIAL PLANTED 9/30/02.
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 5/27	Cut 2 6/23	Cut 3 7/22	Cut 4 8/19	Cut 5 9/18	Cut 6 10/20	YEAR TOTAL		% OF CUF101
	----------Dry tons/acre----------								%
Released Varieties									
Dura765	1.80 (3)	2.07 (5)	2.32 (8)	1.64 (13)	1.32 (15)	1.14 (21)	10.29 (4)	A B C D	113.9
Magna901	1.53 (21)	1.96 (14)	2.28 (12)	1.85 (1)	1.32 (17)	1.32 (2)	10.25 (6)	A B C D E	113.5
Magna801FQ	1.55 (19)	1.93 (15)	2.27 (13)	1.75 (3)	1.37 (7)	1.21 (9)	10.07 (7)	A B C D E F	111.5
WL525HQ	1.42 (29)	1.91 (17)	2.31 (9)	1.72 (6)	1.40 (3)	1.28 (3)	10.04 (8)	A B C D E F	111.2
Tulare	1.64 (10)	1.91 (16)	2.37 (4)	1.63 (16)	1.32 (16)	0.99 (34)	9.85 (12)	A B C D E F G H I	109.1
59N49	1.41 (31)	1.89 (23)	2.25 (16)	1.65 (12)	1.37 (8)	1.21 (10)	9.77 (14)	A B C D E F G H I	108.1
Pershing	1.49 (24)	1.79 (31)	2.26 (15)	1.69 (9)	1.33 (11)	1.20 (16)	9.75 (15)	A B C D E F G H I	108.0
Moapa69	1.49 (25)	1.90 (21)	2.25 (17)	1.64 (14)	1.26 (28)	1.20 (14)	9.74 (16)	A B C D E F G H I	107.8
58N57	1.45 (26)	1.91 (18)	2.16 (29)	1.60 (20)	1.30 (20)	1.16 (20)	9.59 (20)	B C D E F G H I	106.2
Dura843	1.49 (23)	1.77 (34)	2.24 (18)	1.62 (18)	1.18 (35)	1.23 (7)	9.54 (21)	B C D E F G H I J	105.6
Sequoia	1.33 (35)	1.75 (35)	2.17 (28)	1.59 (22)	1.38 (4)	1.26 (5)	9.49 (26)	D E F G H I J	105.0
WL530HQ	1.42 (30)	1.83 (28)	2.24 (19)	1.60 (21)	1.30 (19)	1.09 (24)	9.48 (27)	D E F G H I J	105.0
Beacon	1.40 (32)	1.73 (37)	2.26 (14)	1.54 (25)	1.27 (22)	1.18 (18)	9.38 (29)	F G H I J	103.9
WL325HQ	1.79 (4)	2.02 (10)	2.22 (22)	1.37 (35)	1.12 (38)	0.80 (40)	9.32 (31)	F G H I J	103.1
Dura512	1.80 (2)	2.07 (6)	2.05 (35)	1.31 (39)	1.14 (37)	0.92 (37)	9.29 (32)	F G H I J	102.8
CUF101	1.39 (34)	1.77 (33)	1.92 (39)	1.59 (24)	1.27 (23)	1.10 (23)	9.03 (38)	I J	100.0
Recover	1.52 (22)	1.81 (29)	1.99 (38)	1.26 (40)	1.26 (26)	0.93 (36)	8.76 (39)	J K	97.0
Sutter	1.32 (36)	1.80 (30)	1.80 (40)	1.31 (38)	0.94 (40)	0.82 (39)	8.00 (40)	K	88.6
Experimental Varieties									
DS288	1.69 (8)	2.16 (1)	2.41 (1)	1.74 (4)	1.36 (9)	1.18 (19)	10.53 (1)	A	116.6
CW55067	1.58 (14)	2.12 (2)	2.32 (6)	1.71 (7)	1.41 (2)	1.20 (15)	10.35 (2)	A B	114.5
DS788	1.58 (15)	1.99 (12)	2.33 (5)	1.78 (2)	1.37 (5)	1.27 (4)	10.32 (3)	A B C	114.2
DS282	1.64 (9)	2.07 (4)	2.32 (7)	1.70 (8)	1.33 (12)	1.20 (13)	10.27 (5)	A B C D E	113.7
ZX9894	1.55 (17)	1.87 (26)	2.38 (2)	1.63 (15)	1.34 (10)	1.21 (10)	9.98 (9)	A B C D E F G	110.5
Y56S82	1.91 (1)	2.00 (11)	2.23 (21)	1.54 (27)	1.23 (31)	1.05 (29)	9.96 (10)	A B C D E F G	110.3
SW8718	1.45 (27)	1.91 (19)	2.21 (25)	1.73 (5)	1.33 (13)	1.24 (6)	9.87 (11)	A B C D E F G H	109.2
C-241	1.73 (5)	1.88 (25)	2.16 (31)	1.62 (17)	1.31 (18)	1.07 (27)	9.77 (13)	A B C D E F G H I	108.1
CW704	1.70 (7)	1.88 (24)	2.13 (34)	1.50 (30)	1.45 (1)	1.07 (26)	9.74 (17)	A B C D E F G H I	107.8
ABI700	1.57 (16)	2.05 (9)	2.23 (20)	1.48 (31)	1.26 (26)	1.10 (22)	9.69 (18)	B C D E F G H I	107.2
6R628	1.55 (18)	2.05 (8)	2.16 (30)	1.54 (26)	1.28 (21)	1.05 (28)	9.64 (19)	B C D E F G H I	106.8
DS266	1.59 (12)	1.90 (22)	2.38 (3)	1.37 (36)	1.24 (29)	1.05 (29)	9.54 (22)	B C D E F G H I J	105.6
CW86085	1.45 (28)	2.10 (3)	2.29 (11)	1.48 (32)	1.23 (33)	0.99 (33)	9.52 (23)	B C D E F G H I J	105.4
4S42	1.63 (11)	1.90 (20)	2.19 (26)	1.51 (29)	1.23 (32)	1.04 (31)	9.51 (24)	B C D E F G H I J	105.3
SW9217	1.22 (37)	1.70 (39)	2.21 (24)	1.66 (10)	1.37 (6)	1.33 (1)	9.49 (25)	C D E F G H I J	105.1
C-316	1.73 (6)	2.07 (6)	2.18 (27)	1.35 (37)	1.21 (34)	0.92 (38)	9.45 (28)	E F G H I J	104.6
LM459	1.55 (20)	1.98 (13)	2.13 (33)	1.47 (34)	1.24 (30)	0.98 (35)	9.34 (30)	F G H I J	103.3
UC-2589	1.16 (39)	1.77 (32)	2.16 (32)	1.65 (11)	1.27 (24)	1.18 (17)	9.19 (33)	G H I J	101.7
SW9218	1.19 (38)	1.69 (40)	2.22 (23)	1.61 (19)	1.26 (25)	1.21 (12)	9.18 (34)	G H I J	101.6
CW87089	1.58 (13)	1.84 (27)	2.03 (37)	1.47 (33)	1.18 (36)	1.01 (32)	9.12 (35)	H I J	100.9
Y57Q75	1.40 (33)	1.71 (38)	2.30 (10)	1.53 (28)	1.04 (39)	1.08 (25)	9.06 (36)	H I J	100.3
UC-2705	1.13 (40)	1.75 (36)	2.05 (36)	1.59 (23)	1.32 (14)	1.22 (8)	9.06 (37)	H I J	100.3
MEAN	1.52	1.91	2.21	1.58	1.28	1.12	9.61		
CV	15.4	11.4	7.5	8.9	11.8	7.5	6.2		
LSD (.05)	0.33	NS	0.23	0.2	0.21	0.12	0.83		

Trial seeded at 25 lb/acre viable seed on Hanford fine sandy loam soil at the Univ. of Cal., Davis, CA.
Entries followed by the same letter are not significantly different at the 5% probability level according to Fisher's (protected) LSD.

Table 9. UC KEARNEY ALFALFA CULTIVAR TRIAL 2003 YIELDS. TRIAL PLANTED 5/12/03
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE
ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 7/14	Cut 2 8/15	Cut 3 9/11	Cut 4 10/9	Cut 5 11/18	YEAR TOTAL		% OF CUF101
	----------Dry ton/ac----------							%
Released Varieties								
AL999	2.38 (1)	3.48 (1)	2.04 (1)	1.70 (5)	1.84 (1)	11.43 (1)	A	125.0
WL625HQ	2.05 (11)	3.11 (11)	1.91 (8)	1.71 (4)	1.74 (3)	10.52 (3)	A B C	115.0
Magna901	1.79 (34)	3.11 (12)	1.98 (3)	1.78 (1)	1.74 (4)	10.39 (5)	B C D E	113.6
Salado	2.32 (2)	3.32 (3)	1.79 (21)	1.54 (25)	1.40 (24)	10.36 (6)	B C D E	113.2
Sequoia	1.75 (38)	3.07 (15)	1.93 (5)	1.72 (3)	1.79 (2)	10.26 (9)	B C D E F	112.1
Westar	2.05 (10)	3.23 (7)	1.83 (17)	1.60 (15)	1.41 (23)	10.12 (10)	B C D E F G	110.6
MeccaIII	1.87 (27)	2.87 (32)	1.97 (4)	1.60 (14)	1.67 (8)	9.99 (11)	B C D E F G H	109.2
Pershing	1.90 (26)	3.05 (19)	1.91 (9)	1.61 (12)	1.51 (19)	9.97 (13)	B C D E F G H I	108.9
CW89064	1.96 (21)	2.90 (29)	1.82 (18)	1.57 (19)	1.63 (12)	9.88 (14)	B C D E F G H I	108.0
ArtesiaSunrise	1.86 (29)	3.29 (6)	1.86 (13)	1.60 (13)	1.25 (34)	9.87 (15)	B C D E F G H I	107.8
FG03-01	2.01 (12)	3.08 (14)	1.78 (23)	1.53 (26)	1.47 (21)	9.86 (16)	B C D E F G H I	107.8
WL530HQ	1.93 (24)	3.30 (4)	1.79 (20)	1.50 (31)	1.29 (32)	9.81 (19)	C D E F G H I J	107.2
SW100(SW101)	1.72 (41)	2.94 (27)	1.86 (14)	1.67 (8)	1.60 (13)	9.79 (20)	C D E F G H I J	107.0
Magna801fq	1.93 (23)	2.93 (28)	1.77 (24)	1.58 (17)	1.51 (17)	9.73 (24)	C D E F G H I J K L	106.3
59N49	1.85 (30)	2.90 (30)	1.75 (29)	1.56 (20)	1.56 (15)	9.61 (26)	C D E F G H I J K L	105.1
58N57	2.09 (5)	2.96 (24)	1.76 (27)	1.43 (37)	1.31 (31)	9.55 (27)	D E F G H I J K L	104.4
Westan	2.07 (7)	2.99 (22)	1.76 (25)	1.44 (35)	1.28 (33)	9.54 (28)	D E F G H I J K L	104.2
Dura843	1.91 (25)	2.79 (36)	1.70 (38)	1.56 (21)	1.51 (18)	9.47 (29)	E F G H I J K L M	103.5
C-241	2.00 (14)	3.04 (20)	1.93 (7)	1.41 (38)	1.08 (38)	9.45 (31)	E F G H I J K L M	103.3
CW704	1.98 (19)	2.95 (26)	1.73 (33)	1.46 (33)	1.14 (36)	9.27 (33)	G H I J K L M	101.3
CW907	1.74 (39)	2.84 (34)	1.74 (32)	1.49 (32)	1.44 (22)	9.25 (34)	G H I J K L M	101.1
CUF101	1.78 (35)	2.66 (42)	1.62 (41)	1.50 (30)	1.59 (14)	9.15 (36)	H I J K L M	100.0
WI325HQ	2.24 (3)	3.34 (2)	1.61 (42)	1.10 (42)	0.55 (42)	8.85 (39)	K L M	96.7
DelRio	1.98 (18)	2.79 (37)	1.71 (36)	1.37 (40)	0.96 (41)	8.81 (41)	L M	96.3
Dura765	1.79 (33)	2.76 (38)	1.69 (39)	1.30 (41)	1.00 (39)	8.54 (42)	M	93.3
Experimental Varieties								
9052	2.00 (16)	3.20 (8)	1.83 (15)	1.61 (11)	1.69 (6)	10.32 (7)	B C D E	112.9
SW9215	1.94 (22)	3.08 (13)	1.88 (11)	1.73 (2)	1.64 (10)	10.28 (8)	B C D E F	112.4
58073	2.22 (4)	3.14 (9)	1.78 (22)	1.52 (28)	1.32 (30)	9.98 (12)	B C D E F G H	109.1
00I11PN1	2.01 (13)	3.00 (21)	1.87 (12)	1.58 (18)	1.39 (25)	9.85 (17)	B C D E F G H I J	107.6
00I10PN1	1.87 (28)	3.06 (17)	1.90 (10)	1.62 (10)	1.37 (26)	9.83 (18)	B C D E F G H I J	107.4
DS8181	1.99 (17)	3.07 (16)	1.81 (19)	1.55 (24)	1.34 (27)	9.75 (21)	C D E F G H I J K	106.6
CW58073	2.06 (8)	3.06 (18)	1.74 (30)	1.55 (22)	1.34 (28)	9.75 (22)	C D E F G H I J K L	106.5
SW9217	1.74 (40)	2.86 (33)	1.83 (16)	1.66 (9)	1.64 (11)	9.73 (23)	C D E F G H I J K L	106.3
DS788	2.08 (6)	2.98 (23)	1.75 (28)	1.51 (29)	1.34 (29)	9.65 (25)	C D E F G H I J K L	105.5
CW09052	1.76 (36)	2.88 (31)	1.76 (26)	1.55 (23)	1.50 (20)	9.46 (30)	E F G H I J K L M	103.4
SW9218	1.72 (42)	2.66 (41)	1.73 (34)	1.59 (16)	1.65 (9)	9.36 (32)	F G H I J K L M	102.3
UC450	1.76 (37)	2.68 (39)	1.71 (37)	1.52 (27)	1.52 (16)	9.18 (35)	G H I J K L M	100.3
Y56582	1.98 (20)	2.96 (25)	1.74 (31)	1.38 (39)	0.98 (40)	9.03 (37)	I J K L M	98.7
Y57Q75	1.80 (32)	2.83 (35)	1.73 (35)	1.46 (34)	1.10 (37)	8.92 (38)	J K L M	97.5
DS288	1.83 (31)	2.67 (40)	1.68 (40)	1.44 (36)	1.20 (35)	8.82 (40)	K L M	96.4
DS995	2.05 (9)	3.29 (5)	1.99 (2)	1.69 (6)	1.73 (5)	10.76 (2)	A B	117.6
UC445	2.00 (15)	3.14 (10)	1.93 (6)	1.68 (7)	1.68 (7)	10.43 (4)	B C D	114.0
MEAN	1.95	3.01	1.81	1.55	1.42	9.73		
CV	11.9	9.6	9.6	8.1	7.7	6.9		
LSD (.05)	0.32	0.4	NS	0.17	0.15	0.94		

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

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

Table 10. UC IMPERIAL ALFALFA CULTIVAR TRIAL 2003 YIELDS. TRIAL PLANTED 10/11/00
NOTE: SINGLE YEAR DATA SHOULD NOT BE USED TO EVAULATE ALFALFA VARIETIES OR CHOOSE ALFALFA CULTIVARS

	Cut 1 1/16	Cut 2 3/6	Cut 3 4/10	Cut 4 5/15	Cut 5 6/12	Cut 6 7/11	Cut 7 8/12	Cut 8 9/15	Cut 9 10/20	YEAR TOTAL		% OF CUF 101
	Dry tons/acre											%
Released Varieties												
SW100 (SW101)	0.67 (7)	1.26 (7)	1.21 (1)	1.20 (3)	1.25 (6)	1.01 (7)	0.58 (10)	0.61 (11)	0.37 (8)	8.16 (1)	A	107.2
UC Cibola	0.57 (21)	1.30 (3)	1.18 (3)	1.22 (2)	1.28 (4)	1.05 (3)	0.56 (12)	0.64 (4)	0.31 (28)	8.10 (2)	A B	106.4
59N49 (Y59N49)	0.58 (19)	1.17 (21)	1.05 (23)	1.17 (4)	1.22 (8)	1.04 (4)	0.54 (18)	0.60 (15)	0.34 (16)	7.72 (7)	A B C D E	101.4
Highline	0.70 (1)	1.19 (16)	1.13 (6)	1.10 (10)	1.04 (34)	0.87 (33)	0.51 (25)	0.65 (2)	0.48 (1)	7.67 (10)	A B C D E F	100.8
CUF 101	0.61 (15)	1.19 (15)	1.08 (14)	1.09 (11)	1.19 (13)	0.96 (13)	0.53 (20)	0.62 (10)	0.35 (12)	7.61 (12)	A B C D E F G	100.0
WL 711 WF	0.65 (9)	1.25 (9)	1.12 (9)	1.11 (9)	1.08 (25)	0.94 (15)	0.50 (29)	0.55 (27)	0.37 (7)	7.59 (14)	A B C D E F G H	99.7
Mecca III	0.53 (33)	1.15 (22)	1.07 (16)	1.07 (14)	1.21 (10)	0.99 (9)	0.59 (5)	0.60 (14)	0.32 (25)	7.54 (15)	A B C D E F G H I	99.1
Magna 901	0.52 (35)	1.14 (25)	1.04 (26)	1.03 (23)	1.19 (12)	0.94 (16)	0.56 (11)	0.53 (34)	0.35 (15)	7.30 (21)	A B C D E F G H I J	95.9
SW9720	0.54 (29)	1.15 (23)	1.12 (8)	1.06 (15)	1.03 (35)	0.91 (24)	0.51 (28)	0.60 (16)	0.33 (20)	7.24 (25)	A B C D E F G H I J	95.2
UC Impalo WF	0.67 (6)	1.17 (19)	0.94 (41)	0.92 (43)	1.02 (37)	0.92 (23)	0.58 (9)	0.58 (21)	0.36 (11)	7.16 (29)	A B C D E F G H I J	94.1
El Tigre Verde	0.47 (40)	1.12 (32)	1.04 (25)	1.01 (29)	1.06 (29)	0.88 (32)	0.55 (16)	0.53 (33)	0.31 (26)	6.98 (31)	C D E F G H I J	91.7
58N57	0.40 (44)	1.01 (43)	0.97 (38)	1.03 (22)	1.08 (24)	0.86 (35)	0.51 (27)	0.55 (30)	0.26 (34)	6.68 (38)	F G H I J K	87.8
WL 525 HQ	0.49 (37)	1.02 (41)	0.92 (43)	1.03 (19)	1.04 (33)	0.89 (31)	0.49 (34)	0.52 (36)	0.25 (38)	6.65 (39)	F G H I J K	87.4
WL625HQ	0.50 (36)	1.07 (36)	0.97 (39)	0.94 (39)	1.01 (39)	0.87 (34)	0.44 (41)	0.56 (26)	0.25 (39)	6.62 (40)	G H I J K	86.9
Prestige	0.45 (41)	1.07 (37)	0.98 (37)	0.97 (35)	1.10 (21)	0.81 (41)	0.49 (33)	0.46 (41)	0.24 (41)	6.57 (41)	H I J K	86.4
Pershing	0.44 (42)	1.06 (39)	0.97 (40)	0.92 (42)	1.02 (38)	0.84 (38)	0.45 (40)	0.53 (35)	0.33 (21)	6.54 (42)	I J K	86.0
Salado	0.41 (43)	1.02 (42)	0.71 (44)	0.87 (44)	0.94 (43)	0.79 (44)	0.40 (42)	0.45 (43)	0.20 (44)	5.79 (44)	K	76.1
Experimental Varieties												
SW9022	0.66 (8)	1.24 (11)	1.05 (21)	1.04 (17)	1.29 (3)	1.08 (1)	0.68 (1)	0.65 (1)	0.36 (9)	8.05 (3)	A B	105.8
CW89061	0.69 (2)	1.27 (5)	1.17 (4)	1.12 (8)	1.20 (11)	1.00 (8)	0.61 (3)	0.56 (25)	0.39 (6)	8.01 (4)	A B C	105.2
DS995	0.57 (22)	1.25 (10)	1.11 (10)	1.07 (13)	1.33 (1)	1.08 (2)	0.64 (2)	0.60 (12)	0.33 (19)	7.99 (5)	A B C	105.0
UC-412	0.68 (4)	1.29 (4)	1.13 (7)	0.99 (32)	1.12 (19)	0.95 (14)	0.59 (4)	0.63 (7)	0.42 (4)	7.80 (6)	A B C D	102.5
IVS9002	0.67 (5)	1.33 (1)	1.20 (2)	1.15 (5)	1.05 (31)	0.90 (26)	0.52 (24)	0.59 (18)	0.29 (31)	7.72 (8)	A B C D E	101.4
CW89068	0.53 (34)	1.17 (20)	1.10 (11)	1.07 (12)	1.11 (20)	1.02 (5)	0.59 (6)	0.60 (13)	0.48 (3)	7.68 (9)	A B C D E F	100.9
SW1028	0.65 (11)	1.19 (17)	1.07 (17)	0.97 (34)	1.23 (7)	1.02 (6)	0.55 (13)	0.57 (22)	0.42 (5)	7.67 (11)	A B C D E F	100.7
CW89064	0.55 (25)	1.14 (24)	1.05 (22)	1.14 (6)	1.22 (9)	0.98 (11)	0.59 (7)	0.62 (9)	0.30 (30)	7.60 (13)	A B C D E F G H	99.8
FGI9710	0.68 (3)	1.27 (6)	1.16 (5)	1.03 (20)	1.03 (36)	0.84 (37)	0.51 (26)	0.58 (20)	0.35 (13)	7.46 (16)	A B C D E F G H I	98.0
ZS0001	0.57 (24)	1.05 (40)	1.05 (20)	1.03 (21)	1.29 (2)	0.98 (10)	0.52 (23)	0.63 (6)	0.33 (23)	7.45 (17)	A B C D E F G H I	98.0
ZS9995	0.59 (18)	1.21 (12)	1.08 (15)	1.14 (7)	1.26 (5)	0.92 (21)	0.53 (21)	0.48 (38)	0.25 (37)	7.45 (18)	A B C D E F G H I	97.9
UC-411	0.64 (12)	1.11 (33)	1.02 (28)	1.04 (18)	1.10 (23)	0.89 (29)	0.59 (8)	0.57 (23)	0.48 (2)	7.44 (19)	A B C D E F G H I	97.7
DS991BR	0.60 (16)	1.18 (18)	1.02 (29)	1.03 (24)	1.16 (15)	0.93 (17)	0.53 (22)	0.55 (28)	0.33 (22)	7.33 (20)	A B C D E F G H I J	96.3
DS994	0.53 (32)	1.14 (28)	1.03 (27)	1.01 (27)	1.17 (14)	0.92 (20)	0.54 (17)	0.63 (5)	0.34 (17)	7.30 (22)	A B C D E F G H I J	95.9
UC-410	0.59 (17)	1.26 (8)	1.05 (24)	1.00 (30)	1.06 (30)	0.89 (30)	0.50 (30)	0.59 (17)	0.34 (18)	7.28 (23)	A B C D E F G H I J	95.6
UC-409	0.63 (13)	1.20 (13)	1.01 (30)	0.99 (33)	1.06 (28)	0.92 (19)	0.47 (37)	0.64 (3)	0.35 (14)	7.27 (24)	A B C D E F G H I J	95.6
SW9031	0.55 (26)	1.14 (26)	0.99 (36)	0.97 (36)	1.12 (18)	0.96 (12)	0.55 (14)	0.62 (8)	0.30 (29)	7.21 (26)	A B C D E F G H I J	94.7
CW79115	0.49 (38)	1.13 (30)	1.09 (12)	1.06 (16)	1.10 (22)	0.90 (28)	0.49 (32)	0.56 (24)	0.36 (10)	7.19 (27)	A B C D E F G H I J	94.4
UC-414	0.61 (14)	1.19 (14)	1.08 (13)	1.00 (31)	1.07 (27)	0.90 (27)	0.48 (36)	0.54 (32)	0.29 (32)	7.17 (28)	A B C D E F G H I J	94.2
FGI9709	0.54 (28)	1.07 (38)	1.00 (31)	1.03 (26)	1.15 (17)	0.93 (18)	0.54 (19)	0.54 (31)	0.29 (33)	7.10 (30)	B C D E F G H I J	93.3
FGI9609	0.57 (23)	1.11 (34)	0.99 (35)	1.03 (25)	1.15 (16)	0.92 (22)	0.50 (31)	0.47 (40)	0.24 (42)	6.98 (32)	C D E F G H I J	91.7
ZS0000	0.55 (27)	1.08 (35)	0.92 (42)	0.93 (41)	1.07 (26)	0.91 (25)	0.55 (15)	0.58 (19)	0.31 (27)	6.89 (33)	D E F G H I J	90.5
IVM2000	0.65 (10)	1.32 (2)	1.06 (19)	0.94 (40)	1.01 (41)	0.79 (43)	0.39 (43)	0.45 (42)	0.24 (40)	6.86 (34)	D E F G H I J	90.1
UC-413	0.58 (20)	1.13 (31)	1.00 (33)	0.97 (37)	0.95 (42)	0.83 (39)	0.45 (39)	0.55 (29)	0.32 (24)	6.78 (35)	D E F G H I J K	89.1
CW78118	0.48 (39)	1.14 (27)	1.00 (32)	1.01 (28)	1.05 (32)	0.84 (36)	0.48 (35)	0.48 (37)	0.23 (43)	6.73 (36)	E F G H I J K	88.4
CW79094	0.53 (31)	1.14 (29)	1.07 (18)	0.97 (38)	1.01 (40)	0.82 (40)	0.46 (38)	0.48 (39)	0.26 (35)	6.72 (37)	E F G H I J K	88.3
ZS9992	0.53 (30)	0.89 (44)	1.00 (34)	1.24 (1)	0.89 (44)	0.79 (42)	0.37 (44)	0.42 (44)	0.25 (36)	6.38 (43)	J K	83.9
MEAN	0.57	1.16	1.05	1.04	1.11	0.92	0.52	0.56	0.32	7.26		
CV	10.3	11.5	11.2	16	14.8	14.1	19.1	16.4	30.1	10.2		
LSD (.05)	0.08	0.19	0.16	NS	0.23	NS	0.14	0.13	0.14	1.04		

Trial planted at 25 lb/acre viable seed on Imperial clay loam soil at the UC Desert Research and Extension Center, Holtville, CA.
Entries followed by the same letter are not significantly different at the 5% probability level according to Fisher's (protected) LSD.

Table 11. UC IMPERIAL VALLEY ALFALFA CULTIVAR TRIAL 2001-2003 YIELDS. TRIAL PLANTED 10/11/00

	2001	2002	2003	Average		% OF CUF 101
	----------Yield----------					
	----------Dry tons/acre----------					%
Released Varieties						
UC Cibola	11.83 (3)	9.63 (2)	8.10 (2)	9.85 (1)	A	106.4
SW100 (SW101)	11.38 (8)	9.73 (1)	8.16 (1)	9.75 (2)	A B	105.4
59N49 (Y59N49)	11.93 (1)	9.05 (10)	7.72 (7)	9.57 (4)	A B C D	103.3
CUF 101	11.16 (15)	9.01 (12)	7.61 (12)	9.26 (12)	A B C D E F G H I J	100.0
Mecca III	11.26 (11)	8.90 (15)	7.54 (15)	9.24 (13)	A B C D E F G H I J	99.8
WL 711 WF	10.85 (29)	8.91 (14)	7.59 (14)	9.11 (17)	B C D E F G H I J K	98.4
Highline	10.81 (32)	8.77 (16)	7.67 (10)	9.08 (21)	D E F G H I J K L	98.1
UC Impalo WF	11.18 (14)	8.64 (21)	7.16 (29)	9.00 (22)	D E F G H I J K L M	97.2
Magna 901	10.86 (28)	8.48 (26)	7.30 (21)	8.88 (23)	E F G H I J K L M N	95.9
58N57	11.25 (12)	8.61 (22)	6.68 (38)	8.84 (26)	F G H I J K L M N O	95.5
SW9720	10.70 (36)	8.54 (23)	7.24 (25)	8.83 (28)	F G H I J K L M N O	95.4
El Tigre Verde	10.84 (31)	8.02 (34)	6.98 (31)	8.61 (34)	I J K L M N O P	93.0
Prestige	11.10 (17)	7.82 (40)	6.57 (41)	8.50 (36)	K L M N O P Q	91.8
WL625HQ	10.88 (26)	8.00 (35)	6.62 (40)	8.50 (37)	K L M N O P Q	91.8
Pershing	10.67 (38)	7.77 (41)	6.54 (42)	8.33 (41)	N O P Q	90.0
WL 525 HQ	10.15 (44)	7.57 (42)	6.65 (39)	8.13 (43)	P Q	87.8
Salado	10.46 (41)	7.34 (44)	5.79 (44)	7.87 (44)	Q	85.0
Experimental Varieties						
DS995	11.84 (2)	9.43 (3)	7.99 (5)	9.75 (3)	A B C	105.3
CW89061	11.12 (16)	9.41 (4)	8.01 (4)	9.51 (5)	A B C D E	102.7
ZS9995	11.54 (5)	9.25 (6)	7.45 (18)	9.41 (6)	A B C D E F	101.7
IVS9002	11.41 (7)	9.08 (9)	7.72 (8)	9.40 (7)	A B C D E F	101.6
SW9022	10.84 (30)	9.15 (7)	8.05 (3)	9.35 (8)	A B C D E F G	101.0
UC-412	11.10 (18)	9.12 (8)	7.80 (6)	9.34 (9)	A B C D E F G	100.9
SW1028	10.98 (24)	9.30 (5)	7.67 (11)	9.31 (10)	A B C D E F G H	100.6
CW89064	11.47 (6)	8.75 (19)	7.60 (13)	9.27 (11)	A B C D E F G H I	100.2
FGI9710	11.37 (9)	8.76 (17)	7.46 (16)	9.20 (14)	A B C D E F G H I J	99.3
DS991BR	11.67 (4)	8.38 (31)	7.33 (20)	9.12 (15)	B C D E F G H I J K	98.5
CW89068	10.98 (25)	8.71 (20)	7.68 (9)	9.12 (16)	B C D E F G H I J K	98.5
UC-409	11.04 (21)	9.01 (11)	7.28 (24)	9.11 (18)	B C D E F G H I J K L	98.4
UC-411	11.07 (19)	8.76 (18)	7.44 (19)	9.09 (19)	C D E F G H I J K L	98.2
ZS0001	10.87 (27)	8.93 (13)	7.45 (17)	9.08 (20)	D E F G H I J K L	98.1
FGI9609	11.21 (13)	8.41 (28)	6.98 (32)	8.87 (24)	E F G H I J K L M N O	95.8
FGI9709	10.98 (23)	8.45 (27)	7.10 (30)	8.84 (25)	F G H I J K L M N O	95.5
IVM2000	11.26 (10)	8.38 (30)	6.86 (34)	8.83 (27)	F G H I J K L M N O	95.4
CW79115	10.75 (35)	8.53 (24)	7.19 (27)	8.82 (29)	F G H I J K L M N O	95.3
UC-414	10.77 (34)	8.49 (25)	7.17 (28)	8.81 (30)	F G H I J K L M N O	95.2
SW9031	11.02 (22)	8.17 (33)	7.21 (26)	8.80 (31)	F G H I J K L M N O	95.1
CW78118	11.07 (20)	8.41 (29)	6.73 (36)	8.73 (32)	G H I J K L M N O P	94.3
DS994	10.78 (33)	7.94 (36)	7.30 (22)	8.67 (33)	H I J K L M N O P	93.6
UC-410	10.37 (42)	8.17 (32)	7.28 (23)	8.61 (35)	J K L M N O P	93.0
ZS0000	10.52 (39)	7.93 (37)	6.89 (33)	8.45 (38)	L M N O P Q	91.2
CW79094	10.51 (40)	7.92 (39)	6.72 (37)	8.38 (39)	M N O P Q	90.5
UC-413	10.34 (43)	7.93 (38)	6.78 (35)	8.35 (40)	M N O P Q	90.2
ZS9992	10.69 (37)	7.55 (43)	6.38 (43)	8.21 (42)	O P Q	88.6
Mean	11.02	8.57	7.26	8.95		
CV	5.6	8.6	10.2	10.4		
LSD (.05)	0.86	1.03	1.04	0.66		

Trial planted at 25 lb/acre viable seed on Imperial clay loam soil at the UC Desery Research and Extension Center, Holtville, CA.
Entries followed by the same letter are not significantly different at the 5% probability level according to Fishers (protected) LSD.

Table 12. 2003 UC ALFALFA FALL DORMANCY TRIAL RESULTS. THE THREE-LOCATION TRIAL REPRESENTS INTERMOUNTAIN (TULELAKE), MEDITERRANEAN (DAVIS), AND DESERT (EL CENTRO) ENVIRONMENTS. THE OVERALL 2003 AVERAGE RANK IS LIKELY TO BE THE MOST USEFUL ESTIMATE.

Fall Dormancy Class[1]	Multi-year FDR[2]	Name	Tulelake[3] Score	Tulelake[3] NPH[4]	Tulelake[3] Rank	Davis[3] Score	Davis[3] NPH[4]	Davis[3] Rank	El Centro[3] Score	El Centro[3] NPH[4]	El Centro[3] Rank	Across locations Score	Across locations NPH[4]	Across locations Rank	2003 FDR[5]
		UC-1604	8.06	2.84	60	10.05	3.17	58	7.38	2.72	60	8.50	2.91	60	11.06
11	**11.2**	**UC-1465**	**7.72**	**2.78**	**59**	**10.67**	**3.27**	**60**	**6.81**	**2.61**	**59**	**8.40**	**2.88**	**59**	**10.90**
10	**9.9**	**UC-1887**	**7.07**	**2.66**	**57**	**10.07**	**3.17**	**59**	**5.26**	**2.29**	**58**	**7.46**	**2.71**	**58**	**9.73**
		SW101	7.08	2.66	58	9.37	3.06	57	4.74	2.17	56	7.06	2.63	57	9.24
		WL711WF	6.63	2.57	54	9.18	3.03	54	5.20	2.27	57	7.00	2.63	56	9.21
		CW89064	6.85	2.62	56	8.98	2.99	51	4.32	2.08	54	6.71	2.56	55	8.79
		FG03-01	6.38	2.52	52	9.35	3.06	56	4.23	2.05	53	6.65	2.55	54	8.68
9	**8.9**	**CUF101**	**6.44**	**2.54**	**53**	**9.05**	**3.01**	**52**	**4.35**	**2.08**	**55**	**6.61**	**2.54**	**53**	**8.66**
		00I10PN1	6.68	2.58	55	9.29	3.04	55	3.63	1.90	48	6.53	2.51	52	8.44
		CW907	6.22	2.49	49	9.14	3.02	53	3.93	1.98	51	6.43	2.50	51	8.37
8	**7.8**	**Pierce**	**6.10**	**2.47**	**48**	**8.80**	**2.97**	**50**	**3.78**	**1.94**	**50**	**6.23**	**2.46**	**50**	**8.11**
		Sequoia	6.30	2.51	50	8.63	2.94	49	3.66	1.91	49	6.20	2.45	49	8.06
		Magna801FG	6.04	2.46	47	7.88	2.81	41	3.62	1.90	47	5.85	2.39	48	7.65
		Westan	6.32	2.51	51	7.88	2.81	42	3.36	1.82	46	5.85	2.38	47	7.59
		SW-5403	5.94	2.44	45	8.16	2.86	45	3.22	1.79	45	5.77	2.36	46	7.47
		00I11PN1	5.98	2.45	46	8.39	2.90	47	2.87	1.69	43	5.75	2.34	45	7.36
		WL530HQ	5.49	2.34	41	7.93	2.81	44	3.04	1.74	44	5.49	2.30	44	7.06
7	**6.7**	**Dona Ana**	**5.20**	**2.28**	**38**	**8.62**	**2.94**	**48**	**2.73**	**1.65**	**41**	**5.52**	**2.29**	**43**	**6.99**
		Artesia Sunrise	5.83	2.41	44	7.85	2.80	40	2.64	1.62	39	5.44	2.28	42	6.93
		AL999Plus	5.03	1.94	10	8.22	2.86	46	4.06	2.01	52	5.77	2.27	41	6.88
		CW704	5.65	2.38	43	7.25	2.69	36	2.80	1.67	42	5.23	2.25	40	6.72
6	**6.3**	**ABI 700**	**5.08**	**2.25**	**36**	**7.92**	**2.81**	**43**	**2.67**	**1.63**	**40**	**5.23**	**2.23**	**39**	**6.63**
		C-241	5.54	2.35	42	7.59	2.75	38	2.43	1.55	38	5.18	2.22	38	6.54
		Y57Q53	5.21	2.28	39	7.73	2.78	39	2.30	1.51	37	5.08	2.19	37	6.34
		Y56S82	5.27	2.29	40	7.52	2.74	37	2.20	1.48	36	4.99	2.17	36	6.22
		Del Rio	5.18	2.28	37	6.82	2.61	34	2.00	1.41	35	4.67	2.10	35	5.75
		4M124	4.75	2.18	34	6.77	2.60	33	1.97	1.40	34	4.50	2.06	34	5.50
		LM 459 WD	4.41	2.10	29	7.21	2.68	35	1.81	1.34	30	4.48	2.04	32	5.38
		DS 218Hub Hyb	4.82	2.19	35	6.16	2.48	24	1.97	1.40	33	4.31	2.02	31	5.26
		TIF02	4.37	2.09	27	6.74	2.59	32	1.85	1.36	31	4.32	2.01	30	5.20
5	**5.3**	**Archer**	**4.45**	**2.11**	**30**	**6.70**	**2.59**	**30**	**1.58**	**1.26**	**29**	**4.24**	**1.98**	**29**	**4.99**
		Recover	4.62	2.15	32	6.27	2.50	26	1.48	1.21	28	4.12	1.95	28	4.80
		SW4A135	4.40	2.09	28	6.42	2.53	27	1.39	1.18	21	4.07	1.93	27	4.65
		VL02	4.48	2.11	31	6.02	2.45	21	1.45	1.20	26	3.98	1.92	26	4.60
		C 316 Lot 9078	3.85	1.96	14	6.53	2.56	29	1.44	1.19	24	3.94	1.90	25	4.45
		Fortress	4.10	2.02	23	6.25	2.49	25	1.39	1.18	20	3.91	1.90	24	4.43
		Masterpiece	3.98	1.99	18	6.51	2.55	28	1.30	1.14	13	3.93	1.89	23	4.40
		XTRA-3	4.32	2.07	25	5.82	2.41	20	1.32	1.14	14	3.82	1.88	22	4.29
		54Q25	4.02	2.00	21	6.12	2.47	23	1.34	1.15	17	3.83	1.88	21	4.29
		Expedition	4.36	2.08	26	5.47	2.34	15	1.38	1.17	18	3.73	1.86	20	4.20
		WL357HQ	4.23	2.05	24	5.51	2.34	16	1.40	1.18	22	3.72	1.86	19	4.18
		Hybriforce-420-w et	4.09	2.02	22	5.39	2.32	13	1.32	1.14	15	3.60	1.83	18	3.97
		CK2000	3.79	1.95	11	5.55	2.35	18	1.38	1.17	19	3.57	1.82	17	3.94
4	**3.8**	**Legend**	**3.88**	**1.97**	**16**	**5.79**	**2.40**	**19**	**1.19**	**1.09**	**5**	**3.62**	**1.82**	**16**	**3.91**
		Rew ard II	3.98	1.99	19	5.50	2.34	17	1.23	1.10	10	3.57	1.81	15	3.88
		Vitro	3.97	1.99	17	5.43	2.33	14	1.24	1.11	11	3.55	1.81	14	3.86
		Ranger	3.55	1.88	7	6.06	2.46	22	1.18	1.08	4	3.59	1.81	12	3.84
		CW5440	3.86	1.97	15	5.11	2.26	9	1.41	1.18	23	3.46	1.80	11	3.81
		WL325HQ	4.01	2.00	20	5.17	2.27	10	1.30	1.13	12	3.49	1.80	10	3.80
		53V08	3.77	1.94	9	5.28	2.30	12	1.31	1.14	16	3.45	1.79	9	3.75
		9429	3.81	1.95	12	4.64	2.15	5	1.19	1.09	7	3.21	1.73	8	3.33
		526	3.57	1.89	8	4.79	2.18	7	1.23	1.10	9	3.20	1.72	7	3.29
		Innovator + Z	3.18	1.78	3	5.18	2.27	11	1.19	1.09	6	3.18	1.72	6	3.23
3	**3.4**	**5246**	**3.45**	**1.86**	**6**	**4.65**	**2.15**	**6**	**1.21**	**1.10**	**8**	**3.10**	**1.70**	**5**	**3.15**
		LegenDairy YPQ	3.40	1.84	5	4.33	2.08	3	1.10	1.05	2	2.94	1.66	4	2.85
2	**2.0**	**Vernal**	**2.95**	**1.72**	**2**	**4.46**	**2.11**	**4**	**1.12**	**1.06**	**3**	**2.84**	**1.63**	**3**	**2.66**
		WL319HQ	3.26	1.80	4	3.83	1.96	2	1.46	1.20	25	2.67	1.62	2	2.59
1	**0.8**	**Maverick**	**1.79**	**1.34**	**1**	**2.58**	**1.59**	**1**	**1.08**	**1.03**	**1**	**1.57**	**1.26**	**1**	**0.27**
		$LSD_{0.05}$[6]		0.258			0.169			0.144					
		CV(%)		8.53			4.68			6.99					
		$LSD_{GXL0.05}$[7]											0.247		
		CV(%)											8.532		

[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:5/20 - 9/5 - 9/30; Davis: 5/28 - 10/6 - 11/3; El Centro: 5/1 - 10/27 - 11/24/2003.

[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=6.562(NPH)-8.0237).

[6]=Fishers protected Least Significant Difference for comparison of NPH means w ithin locations.

[7]=Fishers protected Least Significant Difference for comparison of NPH means among locations.

Table 13. 2002 - 2003 UC WINTER SURVIVAL SCORES (ASI) FOR ALFALFA CULTIVARS PLANTED AT TULELAKE, CA.
FALL DORMANCY CLASS, ASI RATING FOR CHECK CULTIVARS, AND 2002 ACROSS-LOCATION AVERAGE
DORMANCY DATA ARE PROVIDED FOR REFERENCES (SHADED VARIETIES HAD FROST DAMAGE IN '02).

Fall Dormancy Class[1]	Multi-year FDR[2]		<----------2002 Dormancy----------> Tulelake[3,8]	Across Locations				2002-2003 Winter Survival Score (1 = no injury, 5 = dead)
		Name	Score	Score	NPH[8]	Rank	2002 FDR[4]	Average Survival Index (ASI)[5]
11	**11.2**	**UC-1465**	**8.95**	**8.80**	**2.94**	**63**	**10.76**	**4.57** A[6]
		WL711WF	6.33	6.69	2.56	52	8.44	4.34 AB
		UC-1604	m	9.11	2.99	64	11.05	4.33 AB
		Highline	6.55	7.12	2.64	59	8.93	4.22 ABC
		UC-1856	5.87	7.26	2.66	61	9.05	4.20 ABC
10	**9.9**	**UC-1887**	**m**	**8.18**	**2.83**	**62**	**10.06**	**4.12** BCD
9	**8.9**	**CUF101**	**6.20**	**7.09**	**2.63**	**58**	**8.85**	**3.86** CDEF
		59N49	5.81	6.45	2.50	48	8.09	3.78 DEFG
		UC-2801	6.09	6.75	2.57	53	8.49	3.73 DEFGH
		SW9720	6.32	6.44	2.50	49	8.10	3.68 EFGHI
		SW 9500	5.73	6.40	2.48	44	7.97	3.60 FGHIJ
		Mecca	6.05	7.07	2.61	57	8.73	3.57 FGHIJK
		UC-2589	6.01	7.25	2.65	60	8.98	3.56 FGHIJK
		Sedona	6.06	6.63	2.54	51	8.32	3.51 FGHIJK
		UC-2283	6.70	6.85	2.59	55	8.60	3.49 FGHIJK
		5715	4.60	6.09	2.43	40	7.64	3.45 GHIJK
		UC-2802	5.37	6.05	2.40	39	7.48	3.44 GHIJKL
		Salado	5.79	5.85	2.38	35	7.33	3.38 GHIJKLM
		AL999Plus	5.83	6.48	2.50	47	8.07	3.34 HIJKLM
		WL625HQ	6.02	6.29	2.47	42	7.88	3.31 IJKLM
		Impalo	5.98	6.89	2.59	56	8.61	3.26 JKLMN
		UC-2803	5.75	6.60	2.50	46	8.07	3.24 JKLMN
8	**7.8**	**Pierce**	**6.09**	**6.33**	**2.47**	**43**	**7.91**	**3.23** JKLMNO
		Moapa 69	5.48	6.27	2.46	41	7.85	3.19 KLMNOP
		UC-2705	5.66	6.73	2.57	54	8.52	3.19 KLMNOP
		UC-2806	5.19	5.88	2.38	36	7.35	3.04 LMNOPQ
		Corona	5.16	5.99	2.38	37	7.36	3.02 MNOPQ
		UC-2804	4.47	5.94	2.39	38	7.40	3.00 MNOPQ
		UC-2805	5.35	5.65	2.33	27	7.06	2.97 MNOPQR
		Fiesta	5.16	5.79	2.36	32	7.21	2.87 NOPQR
		DS681FQ	5.62	6.50	2.51	50	8.14	2.83 OPQRS
		58N57	5.73	5.90	2.38	34	7.32	2.79 PQRST
		El Tigre Verde	5.94	6.43	2.49	45	8.00	2.64 QRSTU
		Dura 765	4.96	5.30	2.25	24	6.55	2.58 RSTUV
		UC-2807	5.10	5.72	2.34	30	7.12	2.57 RSTUV
7	**6.7**	**Dona Ana**	**5.33**	**5.66**	**2.33**	**29**	**7.07**	**2.56** RSTUV
		UC-1547	4.94	5.17	2.22	23	6.36	2.44 STUVW
		SW7410	5.04	5.73	2.36	33	7.22	2.40 TUVWX
		Aspire	5.25	5.12	2.22	22	6.35	2.36 UVWX
		UC-2808	5.03	5.74	2.35	31	7.17	2.32 UVWX
		UC-2800	5.82	5.63	2.33	28	7.07	2.27 UVWX
		Royal	4.48	5.66	2.33	26	7.01	2.25 UVWX
		Acheiver	4.64	5.49	2.28	25	6.72	2.20 VWXY
6	**6.3**	**ABI 700**	**4.59**	**5.13**	**2.21**	**21**	**6.28**	**2.17** VWXY
		Tahoe	4.90	4.62	2.10	17	5.63	2.05 WXYZ
		Belmont	4.46	5.00	2.19	20	6.18	2.02 XYZa
		OK 49	4.51	4.67	2.11	18	5.70	1.82 YZab
		Blazer XL	3.45	3.83	1.90	11	4.43	1.74 Zabc
		Magna601	4.45	4.82	2.15	19	5.92	1.73 Zabc
		Tango	4.17	4.31	2.03	15	5.19	1.64 abcd
		Fortress	3.38	3.52	1.82	9	3.94	1.64 abcd
5	**5.3**	**Archer**	**4.21**	**4.36**	**2.04**	**16**	**5.30**	**1.61** abcd
		Reno	3.75	3.45	1.83	10	3.98	1.61 abcd
		Archer II	4.06	4.00	1.96	13	4.79	1.58 bcd
		Sutter	3.83	4.18	1.99	14	4.97	1.58 bcd
		Dura 512	4.28	3.43	1.81	7	3.87	1.54 bcd
1	**0.8**	**Maverick**	**1.54**	**1.66**	**1.27**	**1**	**0.58**	**1.50** bcd
		54Q53	3.78	3.79	1.91	12	4.47	1.46 bcd
4	**3.8**	**Legend**	**3.79**	**3.45**	**1.81**	**6**	**3.86**	**1.43** bcd
2	**2.0**	**Vernal**	**1.96**	**2.30**	**1.51**	**2**	**2.06**	**1.39** cd
3	**3.4**	**5246**	**2.99**	**3.04**	**1.71**	**5**	**3.29**	**1.37** cd
		WL325HQ	3.76	3.47	1.82	8	3.92	1.35 cd
		Plumas	3.79	3.06	1.71	4	3.24	1.32 d
		Geneva	3.34	2.65	1.62	3	2.70	1.28 d
		$LSD_{0.05}$[7]						0.406
		CV(%)						10.69

[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]= 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=6.087(NPH)-7.145).

[5]= Average Survival Index is a w inter survival score based on a 1 to 5 scale 1=no injury and 5 = dead. The ASI w as scored May 20, 2003 at Tulelake.

[6]= Entries follow ed 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($p \leq 0.05$)

[8]=Tulelake - Cultivar's in gray had the number of plants scored reduced due to frost 9/30 - means suspect. Therefore, no NPH w as figured.

Table 14. Suggested minimum alfalfa cultivar pest resistance and fall dormancy 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 15. Listing of company contacts for further information on varieties.

Company	Name	Address	City & State	Zip	Phone	FAX	Email
ABI. Inc.	Neil Hays	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