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2002 CALIFORNIA ALFALFA VARIETY TRIALS: YIELD AND FALL DORMANCY RESULTS

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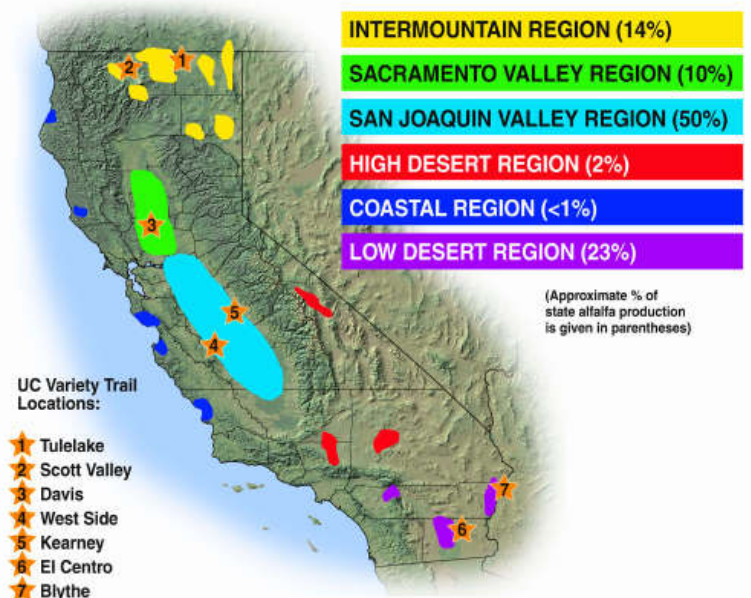
ABSTRACT

Alfalfa varieties were grown in experiments and yields measured at 5 locations in California in 2002. Fall dormancy tests were performed at 4 locations. This publication details yield and stand data for single harvest, single year, and multiple-year summaries for the year 2002, and results from the 2002 Alfalfa Fall Dormancy trials. **NOTE:** 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, both from current and previous years. Additionally, a database has been developed and placed on the web, containing 35-years worth of data on alfalfa variety performance in California (<http://alfalfa.ucdavis.edu/search.html>).

INTRODUCTION

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 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.

Alfalfa Production Zones in California



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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 2002.

IMPORTANCE OF FALL DORMANCY

Alfalfa scientists generally agree that Fall Dormancy is the single most important factor in determining the adaptation of an alfalfa cultivar. The Fall Dormancy trait is more important in the varied climatic zones of California than in other, more uniform climates. Therefore, we conduct a comprehensive trial each year comparing and defining Fall Dormancy characteristics of alfalfa lines across environments. Dormancy is defined as the reduction in growth during the fall that is associated with reducing photoperiod (day length) and temperature. 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. Since 1998, we have used the revised set of standard check cultivars adopted by the North American Alfalfa Improvement Conference (<http://www.naaic.org/stdtests/Dormancy2.html>). The 11 standard check cultivars [Maverick (1), Vernal (2), 5246 (3), Legend (4), Archer (5), ABI 700 (6), Donna Ana (7) Pierce (8), CUF 101 (9), UC-1887 (10), UC-1465 (11)] were selected because they demonstrated stable performance across years and locations. These standards are used to define the fall dormancy reaction of an unknown cultivar.

2002 ALFALFA PRODUCTION YEAR

The 2002 California cropping year was characterized by much greater alfalfa acreage than previous years. Acreage increased in California approximately 15% statewide from 2001-2002. This caused important changes (reduction) in price during the year, but some marketers noted that the decline was not as great as one would predict. 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 2003 production year gets underway, mean prices are at least \$25/ton less than 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 2002, 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 through 2002, but dairy has since experienced record low prices in late 2002 and 2003, significantly softening demand for hay.

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, Scott Valley, Davis, Parlier, El Centro, CA in 2002. A

new trial at Davis was established Fall, 2002; first year results will be presented in 2003. Two new trials are schedule for spring, 2003 plantings at Tulelake and Kearney Ag Center. Specific planting dates for each trial are given on the results table for that trial. Seed is planted at approximately 25 lb/a live seed. Plots are 3' to 5' wide and approximately 20 feet long, depending upon location. Four 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. Data is assembled from each of the locations and analyzed and summarized at UC Davis.

Fall Dormancy Trials

Fall dormancy tests were conducted in four locations in California in 2002. Sites were: 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, the Kearney Agricultural Center, Parlier, CA - 36°35'N, Mean Temp.63.0° F, and the Desert Research and Extension Center, Imperial, CA - 32°48'N, Mean Temp.72.7° F. The four-location trial represents Intermountain (Tulelake), Mediterranean (Davis and Kearney), and Desert (El Centro) environments.

Planting dates this year were May 8 at Tulelake, May 10 at Kearney, May 14 at Imperial, and May 29 at Davis. Single row plots were established on 30" centers. Each plot was 30' in length separated by a 5' alley. Individual plants within a plot were 18" apart. The 2002 trial had 64 entries at all locations. Included in the list of entries were the 11 standard check cultivars adopted in 1998. When plants reach the second or third trifoliolate leaf stage the plot was thinned to the spacing above. Irrigation water was applied in a manner appropriate for a forage production field. The first clipping, if taken, occurred between July 1 and July 15 (no data are taken at this time). The plots remained well watered and weed and rodent free until fall clipping. Fall clipping occurred September 7, Tulelake; October 3, Davis; October 3, Kearney; and October 23, Imperial. On these respective dates, the study was clipped to 5 cm (2 inches) and any uncut stems removed. 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 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 of the check cultivars was then regressed against the NPH value across locations. The resulting regression was 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). These tests are described by the North American Alfalfa Improvement Council: Standard Tests to Characterize Alfalfa Cultivars-NAAIC, 1995. See website for further information: <http://www.naaic.org/stdtests/wintersurvival.htm>.

2002 YIELD RESULTS

Intermountain Region

1999 UC Tulelake Yield Trial. Four cuttings were made on this 1999-planted stand of alfalfa, now in its 4th year of production (Tables 1 and 2). Only two cuttings were made the first year because of spring planting at this location. The average seasonal yields varied by less than one ton between the second and third years, but increased about 1.5 tons/acre in 2002. 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. Most of the varieties in this trial are duplicated in the 1999 Scott Valley Trial. Most of the varieties in the two trials performed similarly based on the three year average, but there were some notable exceptions. A new trial is scheduled for Tulelake, to be planted Spring, 2003.

1999 UC Scott Valley Yield Trial. This trial was conducted as a 4-cut system in 2000, and as a 3-cut system in 2001 and 2002 (Tables 3 and 4). 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 2002 than in 2001—results that are contradictory to the Tulelake intermountain trial. Only a moderate amount of ranking shift is seen over the first four years of this trial with most of that occurring in the middle rankings. This trial will be continued one more year.

Sacramento Valley

1999 UC Davis Yield Trial A multiple dormancy trial (with fall dormancies ranging from 4 through 9) was established in the fall of 1999 at the UC Davis Agronomy Research Farm, and harvested for the final year in 2002 (Table 5). In the second year of this trial we see an increase of almost 2 dry tons per acre over the yields reported for the first year of this trial, on the average (Table 6), with only a small increase in the overall variability (%CV). In 2002, yields were again up for the third year stand, approximately 1 ton/a more than the previous year. We see a tendency for the cultivars with the lower Fall Dormancy Ratings to appear lower in the yield rankings, which is typical; the highest yielding varieties yielded more than 4 tons/acre more than the lowest yielding variety, a result mostly due to FD characteristics. However, some growers are interested in variety characteristics of persistence and quality, which may be favored by the lower-dormancy varieties. Further work is being conducted to characterize the quality differences between these lines in relationship to their yield potential.

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, and harvested for the first

year in 2002 (Table 7). In 2002, yields were again up for the third year stand, approximately 1 ton/a more than the previous year. Coefficients of Variation for this trial were higher due to the 3 replications of this trial. First year data showed large yield differences between top and bottom varieties, with a large effect of Fall Dormancy on yield. First year data should not normally be used for selection of alfalfa varieties.

San Joaquin Valley

The San Joaquin Valley production area is represented by one trial located at Kearney Agricultural Center (Parlier, CA), on the East Side of the San Joaquin Valley. The east side of the Valley has sandy-textured soils, while soils on the west side are mostly clays and clay-loams. We frequently have trials located at West Side Research and Extension Center (Five Points, CA), but not in 2002 (see previous Agronomy Progress Reports at website: <http://alfalfa.ucdavis.edu>). Temperature and weather patterns are typically similar between these sites in most years.

1999 UC Kearney Yield Trial. This 45 entry trial performed well during its third year (Tables 8 and 9), but yields declined about 2 tons/acre from the previous year. One more cutting was made the second year, compared with the first, and the yields increased well over 2 dry tons per acre to an average of 12.6 tons/acre (Table 8). The stand and uniformity remained strong and no boron deficiency symptoms, that were observed the first year, were present the second year or third year. This is the final year of this trial—a new trial is scheduled for planting spring, 2003.

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, and the Palo Verde Valley plots at Blythe, CA, are managed by UC Riverside County Farm Advisor Mike Rethwisch.

2000 UC Imperial Yield Trial. Second-year yields were collected on this trial planted in October of 2000 (Tables 10-11). Yields were approximately 2.5 tons less in 2002 than in the first year of production. The overall field variability was also higher in 2002 than in 2001, with C.V.s above 10% in most cuttings, probably due partly to the lower yields in 2002. This trial will continue for a third year, and be replaced by a new trial, Fall, 2003..

2002 FALL DORMANCY RESULTS

The results of the 2002 Fall Dormancy Trial are presented in Table 12. Natural plant height (NPH) was not presented for Tulelake due to a hard freeze the night before the trial was to be scored. Therefore, Tulelake data were not included in the Fall Dormancy Rating regression (FDR). The FDR regression equation used for the 2002 was $6.087(\text{NPH}) - 7.145$ with a r^2 of 0.995. Davis, Kearney, and El Centro had very few management or weather problems and looked very good. The C.V.s for the three locations varied between 4.98 and 6.83. Importantly, the relative ranking of the check cultivars remained constant and this years' FDR regression line did not deviate significantly from the historical equation.

WINTER SURVIVAL RESULTS

Winter survival rating results from the 2001 and 2002 season at the Tulelake location are provided in Table 13. Winter temperatures were 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 2001 Fall Dormancy Trial across all locations along with the Winter Survival 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. Cultivars equal to the check cultivars ranked 6 would be severely damaged or dead at the end of most winters. Conditions that occurred during the 2001-2002 winter at Tulelake produced severe injury for most of the non-dormant entries. Only the very dormant entries had a rating of one.

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 growers are 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. 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 (C.V.) is an estimation of the overall level of uncontrolled variation in the experiment. Coefficients of Variation under 10-12% are usually considered acceptable.

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Table 1. UC TULELAKE ALFALFA CULTIVAR TRIAL 2002 YIELDS. TRIAL PLANTED 5/13/99

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

	Cut 1 6/1/02	Cut 2 7/9/02	Cut 3 8/7/02	Cut 4 9/18/2002	YEAR TOTAL		% OF VERNAL %
			Dry t/a				
Released Cultivars							
WL 325 HQ	3.16 (7)	2.53 (1)	2.20 (5)	1.93 (5)	9.82 (1)	A	110.90
WL 327	3.19 (6)	2.42 (3)	2.15 (8)	1.88 (14)	9.64 (2)	A B	108.90
Innovator +Z	3.44 (2)	2.30 (10)	2.03 (31)	1.79 (33)	9.56 (3)	A B C	108.00
Dura 512	2.95 (25)	2.39 (4)	2.22 (1)	1.98 (3)	9.54 (4)	A B C D	107.80
Plumas (3L102)	3.31 (3)	2.16 (31)	2.09 (18)	1.91 (11)	9.47 (5)	A B C D E	106.90
53V08	3.11 (11)	2.44 (2)	2.11 (15)	1.78 (36)	9.43 (7)	A B C D E F	106.50
Ascend (CW75044)	2.89 (29)	2.38 (6)	2.21 (3)	1.87 (17)	9.35 (9)	A B C D E F G H	105.50
Archer II	2.89 (28)	2.37 (7)	2.12 (14)	1.96 (4)	9.34 (10)	A B C D E F G H I	105.50
Affinity +Z	3.19 (4)	2.17 (25)	2.12 (13)	1.84 (23)	9.33 (11)	A B C D E F G H I	105.30
Tristar	3.19 (5)	2.11 (35)	2.10 (16)	1.92 (7)	9.32 (12)	A B C D E F G H I	105.20
Forecast 1001	2.89 (30)	2.36 (8)	2.16 (7)	1.86 (21)	9.26 (14)	B C D E F G H I J	104.60
forecast 3001	2.96 (24)	2.30 (11)	2.14 (11)	1.81 (32)	9.20 (15)	B C D E F G H I J	103.90
Key 2	3.09 (12)	2.21 (16)	2.07 (24)	1.81 (31)	9.19 (16)	B C D E F G H I J	103.80
Wintergold (CW5440)	3.06 (15)	2.26 (13)	2.02 (34)	1.84 (27)	9.17 (18)	B C D E F G H I J	103.60
Sentry	3.07 (14)	2.21 (18)	2.07 (21)	1.83 (29)	9.18 (17)	B C D E F G H I J	103.70
Amerigraze 401+Z	3.14 (9)	2.19 (23)	2.06 (26)	1.77 (37)	9.17 (19)	B C D E F G H I J	103.50
Select	3.02 (20)	2.17 (28)	2.06 (25)	1.91 (9)	9.16 (20)	B C D E F G H I J	103.40
Gold Plus	2.99 (22)	2.21 (17)	2.08 (20)	1.86 (20)	9.14 (21)	B C D E F G H I J	103.20
Spirit	2.90 (27)	2.27 (12)	2.09 (17)	1.87 (16)	9.14 (22)	B C D E F G H I J	103.20
Blazer XL	3.13 (10)	2.05 (37)	2.02 (32)	1.93 (6)	9.13 (23)	B C D E F G H I J	103.10
Blazer	3.05 (16)	2.11 (36)	2.12 (12)	1.84 (26)	9.12 (24)	B C D E F G H I J	103.00
Reno	2.87 (31)	2.20 (21)	2.14 (9)	1.88 (15)	9.08 (25)	B C D E F G H I J	102.60
Aggressor	3.04 (17)	2.14 (32)	2.05 (27)	1.84 (24)	9.07 (26)	C D E F G H I J	102.40
329	3.07 (13)	2.21 (19)	1.95 (38)	1.83 (28)	9.06 (28)	C D E F G H I J	102.30
DK 142	3.03 (18)	2.14 (33)	1.96 (36)	1.91 (10)	9.04 (29)	C D E F G H I J	102.10
Magnum V	3.00 (21)	2.17 (27)	2.02 (33)	1.84 (25)	9.03 (30)	C D E F G H I J	101.90
Leaf Master	3.03 (19)	2.16 (29)	1.94 (39)	1.86 (19)	9.00 (32)	D E F G H I J	101.60
Fortress	2.95 (26)	2.19 (22)	2.04 (29)	1.79 (34)	8.98 (33)	E F G H I J	101.30
AlfaStar	2.84 (34)	2.16 (30)	2.16 (6)	1.74 (38)	8.90 (34)	F G H I J K	100.50
Vernal	3.45 (1)	1.97 (40)	1.86 (40)	1.58 (40)	8.86 (36)	G H I J K	100.00
330	2.83 (35)	2.13 (34)	2.05 (28)	1.79 (35)	8.80 (37)	H I J K	99.40
Dura 400	2.82 (36)	2.04 (38)	2.03 (30)	1.90 (12)	8.79 (38)	I J K	99.20
WL 334 RK	2.78 (37)	1.98 (39)	1.96 (37)	1.69 (39)	8.41 (40)	K	95.00
Experimental Cultivars							
DS9705HYB	2.97 (23)	2.34 (9)	2.22 (2)	1.92 (8)	9.44 (6)	A B C D E F	106.60
DS9707HYB	3.14 (8)	2.25 (15)	2.08 (19)	1.89 (13)	9.37 (8)	A B C D E F G	105.80
ZX 9853	2.86 (32)	2.26 (14)	2.20 (4)	1.99 (2)	9.31 (13)	A B C D E F G H I	105.10
DS9704HYB	2.86 (33)	2.20 (20)	2.14 (10)	1.87 (18)	9.06 (27)	C D E F G H I J	102.30
ZX 9451	2.76 (38)	2.38 (5)	2.07 (23)	1.81 (30)	9.02 (31)	C D E F G H I J	101.90
CW6539	2.65 (40)	2.18 (24)	2.07 (22)	1.99 (1)	8.90 (35)	F G H I J K	100.50
ZG 9650A	2.70 (39)	2.17 (26)	2.01 (35)	1.86 (22)	8.74 (39)	J K	98.70
MEAN	3.01	2.22	2.08	1.85	9.16		
CV	7.10	7.40	6.00	5.80	4.40		
LSD (.05)	0.30	0.23	0.17	0.15	0.56		

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 Fishers (protected) LSD.

Preliminary Data

Table 2. UC TULELAKE ALFALFA CULTIVAR TRIAL 1999-2002 YIELDS. TRIAL PLANTED 5/13/99

	1999	2000	2001	2002	AVERAGE		% OF	
	YIELD	YIELD	YIELD	YIELD			VERNAL	
			DRY T/AC					%
Released Cultivars								
Dura 512	4.41 (4)	9.00 (1)	8.03 (1)	9.54 (4)	7.75 (1)	A	110.90	
WL 325 HQ	4.40 (5)	8.65 (7)	7.67 (8)	9.82 (1)	7.64 (2)	A B	109.30	
Wintergold (CW5440)	4.45 (3)	8.82 (3)	7.76 (6)	9.17 (18)	7.55 (3)	A B C	108.10	
329	4.63 (1)	8.83 (2)	7.67 (9)	9.06 (28)	7.55 (4)	A B C	108.10	
53V08	4.16 (26)	8.61 (8)	7.96 (2)	9.43 (7)	7.54 (5)	A B C D	108.00	
Ascend (CW75044)	4.18 (24)	8.72 (4)	7.92 (3)	9.35 (9)	7.54 (6)	A B C D	108.00	
Innovator +Z	4.34 (7)	8.71 (5)	7.53 (21)	9.56 (3)	7.53 (7)	A B C D E	107.90	
Plumas (3L102)	4.33 (8)	8.57 (10)	7.61 (12)	9.47 (5)	7.50 (8)	A B C D E F	107.30	
WL 327	4.31 (10)	8.08 (35)	7.63 (11)	9.64 (2)	7.41 (9)	B C D E F G	106.20	
Gold Plus	4.25 (15)	8.41 (15)	7.83 (5)	9.14 (21)	7.41 (10)	B C D E F G	106.10	
Forecast 1001	4.18 (23)	8.58 (9)	7.60 (13)	9.26 (14)	7.41 (11)	B C D E F G	106.00	
Sentry	4.28 (13)	8.20 (28)	7.87 (4)	9.18 (17)	7.38 (12)	B C D E F G H	105.70	
Tristar	4.23 (18)	8.44 (13)	7.49 (24)	9.32 (12)	7.37 (13)	B C D E F G H	105.50	
DK 142	4.16 (27)	8.38 (17)	7.73 (7)	9.04 (29)	7.33 (15)	C D E F G H I	104.90	
Select	4.20 (21)	8.36 (19)	7.59 (14)	9.16 (20)	7.33 (16)	C D E F G H I	104.90	
Leaf Master	4.46 (2)	8.35 (20)	7.44 (30)	9.00 (32)	7.31 (17)	C D E F G H I	104.70	
forecast 3001	4.21 (20)	8.27 (22)	7.56 (16)	9.20 (15)	7.31 (18)	C D E F G H I	104.70	
Key 2	4.28 (11)	8.28 (21)	7.37 (34)	9.19 (16)	7.28 (20)	C D E F G H I	104.30	
Blazer XL	4.32 (9)	8.22 (25)	7.43 (31)	9.13 (23)	7.28 (21)	C D E F G H I	104.20	
Aggressor	4.28 (12)	8.22 (24)	7.47 (28)	9.07 (26)	7.26 (23)	E F G H I J	104.00	
Archer II	3.89 (38)	8.20 (27)	7.48 (26)	9.34 (10)	7.23 (24)	F G H I J	103.50	
Magnum V	4.17 (25)	8.17 (29)	7.54 (19)	9.03 (30)	7.23 (25)	F G H I J	103.50	
Dura 400	4.21 (19)	8.25 (23)	7.64 (10)	8.79 (38)	7.22 (26)	F G H I J	103.40	
Affinity +Z	4.03 (33)	8.13 (31)	7.40 (33)	9.33 (11)	7.22 (27)	F G H I J	103.40	
Reno	3.94 (35)	8.46 (12)	7.35 (35)	9.08 (25)	7.21 (28)	G H I J	103.20	
AlfaStar	4.27 (14)	8.14 (30)	7.52 (22)	8.90 (34)	7.21 (29)	G H I J	103.20	
Amerigraze 401+Z	4.12 (28)	7.98 (36)	7.47 (29)	9.17 (19)	7.18 (32)	G H I J	102.90	
330	3.88 (39)	8.49 (11)	7.42 (32)	8.80 (37)	7.15 (35)	G H I J	102.30	
Fortress	4.18 (22)	7.93 (39)	7.49 (25)	8.98 (33)	7.14 (36)	G H I J	102.30	
Blazer	3.94 (36)	8.11 (34)	7.32 (37)	9.12 (24)	7.12 (37)	H I J	102.00	
Spirit	3.80 (40)	7.94 (38)	7.54 (17)	9.14 (22)	7.11 (38)	H I J	101.80	
WL 334 RK	4.24 (17)	8.39 (16)	7.27 (40)	8.41 (40)	7.08 (39)	I J	101.40	
Vernal	4.25 (16)	7.51 (40)	7.32 (38)	8.86 (36)	6.98 (40)	J	100.00	
Experimental Cultivars								
DS9707HYB	4.39 (6)	8.13 (32)	7.58 (15)	9.37 (8)	7.37 (14)	B C D E F G H	105.50	
CW6539	4.03 (32)	8.66 (6)	7.54 (18)	8.90 (35)	7.28 (19)	C D E F G H I	104.30	
DS9704HYB	4.07 (31)	8.43 (14)	7.50 (23)	9.06 (27)	7.27 (22)	D E F G H I	104.00	
ZX 9853	4.07 (30)	8.12 (33)	7.31 (39)	9.31 (13)	7.20 (30)	G H I J	103.10	
DS9705HYB	3.90 (37)	7.95 (37)	7.48 (27)	9.44 (6)	7.19 (31)	G H I J	103.00	
ZG 9650A	4.08 (29)	8.36 (18)	7.54 (20)	8.74 (39)	7.18 (33)	G H I J	102.80	
ZX 9451	4.03 (34)	8.21 (26)	7.33 (36)	9.02 (31)	7.15 (34)	G H I J	102.30	
MEAN	4.19	8.33	7.56	9.16	7.31			
CV	6.70	3.60	4.30	4.40	5.00			
LSD (.05)	0.39	0.42		0.56	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 SCOTT VALLEY ALFALFA CULTIVAR TRIAL 2002 YIELDS. TRIAL PLANTED 4/22/99

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

	Cut 1 6/8/02	Cut 2 7/20/02	Cut 3 9/21/02	YEAR TOTAL		% OF VERNAL
	Dry t/a					%
Released Varieties						
Reno	3.06 (2)	2.67 (1)	1.89 (2)	7.62 (1)	A	120.10
Plumas (3L102)	2.95 (8)	2.63 (2)	1.81 (4)	7.39 (2)	AB	116.40
Forecast 1001	3.05 (4)	2.53 (6)	1.80 (6)	7.38 (3)	AB	116.20
Dura 512	3.15 (1)	2.50 (10)	1.71 (15)	7.36 (4)	ABC	115.90
Forecast 3001	3.01 (6)	2.55 (5)	1.74 (12)	7.30 (5)	ABCD	115.00
Blazer XL	2.99 (7)	2.47 (12)	1.80 (5)	7.26 (6)	ABCDE	114.40
53V08	3.06 (3)	2.55 (4)	1.61 (24)	7.22 (8)	ABCDE	113.80
WL 334 RK	2.85 (11)	2.52 (7)	1.81 (3)	7.18 (9)	ABCDE	113.10
Select	3.02 (5)	2.40 (17)	1.75 (10)	7.17 (10)	ABCDE	113.00
330	2.78 (17)	2.48 (11)	1.76 (9)	7.01 (11)	ABCDEF	110.40
Spirit	2.80 (14)	2.52 (8)	1.67 (19)	6.98 (12)	ABCDEF	110.00
Sentry	2.78 (15)	2.50 (9)	1.70 (16)	6.98 (13)	ABCDEF	110.00
Fortress	2.82 (12)	2.37 (21)	1.78 (8)	6.98 (14)	ABCDEF	109.90
Dura 400	2.78 (16)	2.38 (19)	1.73 (14)	6.88 (15)	BCDEF	108.40
329	2.90 (9)	2.37 (20)	1.60 (25)	6.88 (17)	BCDEF	108.30
WL 325 HQ	2.77 (18)	2.45 (13)	1.61 (22)	6.83 (18)	BCDEF	107.70
AlfaStar	2.61 (29)	2.43 (14)	1.74 (11)	6.78 (19)	BCDEF	106.80
Affinity+Z	2.73 (19)	2.42 (16)	1.62 (20)	6.77 (20)	BCDEF	106.70
TriStar	2.66 (24)	2.42 (15)	1.68 (18)	6.76 (21)	BCDEF	106.50
WL 327	2.69 (21)	2.39 (18)	1.62 (21)	6.70 (22)	CDEF	105.50
Archer II	2.67 (22)	2.33 (23)	1.70 (17)	6.70 (23)	CDEF	105.50
Innovator+Z	2.86 (10)	2.28 (27)	1.49 (32)	6.63 (25)	EF	104.40
Key 2	2.62 (27)	2.26 (29)	1.58 (29)	6.46 (26)	F	101.70
Magnum V	2.53 (30)	2.32 (25)	1.58 (26)	6.43 (27)	F	101.30
DK 142	2.52 (31)	2.34 (22)	1.58 (27)	6.43 (28)	F	101.30
Leaf Master	2.65 (26)	2.15 (32)	1.61 (23)	6.41 (29)	F	101.00
Gold Plus	2.62 (28)	2.20 (30)	1.56 (30)	6.38 (30)	F	100.60
Amerigraze 401+Z	2.65 (25)	2.18 (31)	1.54 (31)	6.38 (31)	F	100.50
Vernal	2.45 (32)	2.32 (24)	1.58 (28)	6.35 (32)	F	100.00
Experimental Varieties						
ZG 9650A	2.72 (20)	2.56 (3)	1.98 (1)	7.26 (7)	ABCDE	114.30
ZX 9853	2.80 (13)	2.29 (26)	1.78 (7)	6.88 (16)	BCDEF	108.30
ZX 9451	2.66 (23)	2.28 (28)	1.73 (13)	6.67 (24)	DEF	105.10
MEAN	2.79	2.41	1.69	6.89		
CV	11.20	9.70	7.90	7.80		
LSD (.05)	0.39	NS	0.17	0.67		

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 4. UC SCOTT VALLEY ALFALFA CULTIVAR TRIAL 1999-2000 YIELDS. TRIAL PLANTED 4/22/99

	1999	2000	2001	2002	AVERAGE		% OF
	YIELD	YIELD	YIELD	YIELD			VERNAL
	DRY T/AC						%
Released Varieties							
Reno	4.16 (4)	7.67 (8)	7.89 (6)	7.62 (1)	6.84 (1)	A	112.10
Dura 512	4.20 (2)	8.08 (1)	7.55 (17)	7.36 (4)	6.80 (2)	A B	111.50
Plumas (3L102)	4.03 (11)	7.75 (5)	7.87 (8)	7.39 (2)	6.76 (3)	A B C	110.90
Select	4.15 (5)	7.79 (3)	7.88 (7)	7.17 (10)	6.75 (4)	A B C	110.70
Blazer XL	4.11 (7)	7.76 (4)	7.59 (15)	7.26 (6)	6.68 (5)	A B C D	109.60
Forecast 3001	3.58 (25)	7.72 (7)	7.97 (5)	7.30 (5)	6.64 (6)	A B C D E	109.00
53V08	3.51 (28)	7.57 (10)	8.22 (2)	7.22 (8)	6.63 (7)	A B C D E F	108.80
Sentry	4.07 (9)	7.82 (2)	7.46 (21)	6.98 (13)	6.58 (8)	A B C D E F G	108.00
WL 327	4.26 (1)	7.56 (11)	7.67 (10)	6.70 (22)	6.57 (9)	A B C D E F G	107.80
Forecast 1001	3.51 (29)	7.28 (25)	7.98 (3)	7.38 (3)	6.54 (10)	A B C D E F G	107.20
WL 334 RK	3.47 (32)	7.23 (28)	8.26 (1)	7.18 (9)	6.53 (11)	A B C D E F G	107.10
330	4.01 (14)	7.47 (17)	7.64 (11)	7.01 (11)	6.53 (12)	A B C D E F G	107.10
329	3.97 (15)	7.58 (9)	7.51 (18)	6.88 (17)	6.48 (14)	A B C D E F G H	106.30
Spirit	3.80 (20)	7.38 (19)	7.62 (13)	6.98 (12)	6.46 (15)	B C D E F G H I	105.90
Dura 400	4.02 (13)	7.51 (15)	7.47 (20)	6.88 (15)	6.45 (16)	B C D E F G H I	105.80
WL 325 HQ	3.80 (19)	7.53 (14)	7.49 (19)	6.83 (18)	6.41 (18)	C D E F G H I J	105.20
AlfaStar	3.90 (16)	7.38 (20)	7.44 (22)	6.78 (19)	6.38 (19)	D E F G H I J	104.60
Fortress	3.72 (21)	7.35 (23)	7.41 (24)	6.98 (14)	6.37 (20)	D E F G H I J	104.40
TriStar	3.65 (23)	7.36 (21)	7.63 (12)	6.76 (21)	6.35 (21)	D E F G H I J	104.20
Innovator+Z	4.03 (12)	7.36 (22)	7.37 (26)	6.63 (25)	6.35 (22)	D E F G H I J	104.10
Gold Plus	4.08 (8)	7.73 (6)	7.16 (29)	6.38 (30)	6.33 (23)	D E F G H I J	103.90
Key 2	4.06 (10)	7.49 (16)	7.32 (27)	6.46 (26)	6.33 (24)	E F G H I J	103.80
Leaf Master	4.20 (3)	7.47 (18)	7.07 (30)	6.41 (29)	6.29 (25)	F G H I J	103.10
DK 142	4.12 (6)	7.55 (13)	7.00 (32)	6.43 (28)	6.28 (26)	G H I J	102.90
Affinity+Z	3.60 (24)	7.29 (24)	7.41 (23)	6.77 (20)	6.27 (28)	G H I J	102.80
Magnum V	3.58 (26)	7.09 (30)	7.56 (16)	6.43 (27)	6.16 (29)	H I J	101.10
Archer II	3.48 (30)	6.91 (32)	7.41 (25)	6.70 (23)	6.12 (30)	I J	100.40
Amerigraze 401+Z	3.80 (18)	7.24 (26)	7.06 (31)	6.38 (31)	6.12 (31)	I J	100.40
Vernal	3.55 (27)	7.24 (27)	7.25 (28)	6.35 (32)	6.10 (32)	J	100.00
Experimental Varieties							
ZX 9853	3.82 (17)	7.55 (12)	7.81 (9)	6.88 (16)	6.49 (13)	A B C D E F G H	106.40
ZG 9650A	3.47 (31)	7.06 (31)	7.98 (4)	7.26 (7)	6.44 (17)	C D E F G H I J	105.60
ZX 9451	3.66 (22)	7.13 (29)	7.60 (14)	6.67 (24)	6.27 (27)	G H I J	102.80
MEAN	3.85	7.47	7.58	6.89	6.47		
CV	4.80	4.60	5.30	7.80	4.80		
LSD (.05)	0.23	0.43	0.50	0.67	0.35		

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 5. UC DAVIS ALFALFA CULTIVAR TRIAL 2002 YIELDS. TRIAL PLANTED 10/4/1999

NOTE: Single year data should not be used to choose or evaluate alfalfa varieties.

ENTRY	FD	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	YEAR	% OF MOAPA 69
		18-Apr	23-May	20-Jun	18-Jul	15-Aug	12-Sep	8-Oct	TOTAL	
Dry Tons/acre										
Released Varieties										
Dura 843	8	1.67 (19)	1.97 (26)	2.05 (8)	1.92 (6)	1.52 (3)	1.57 (4)	1.22 (1)	11.92 (3) ABC	114.4
El Tigre Verde	8	1.66 (21)	2.14 (11)	2.24 (2)	1.97 (2)	1.36 (10)	1.57 (3)	0.95 (14)	11.89 (4) ABCD	114.1
Pershing	8	1.88 (5)	2.19 (9)	2.15 (4)	1.81 (11)	1.40 (9)	1.41 (9)	0.98 (10)	11.82 (6) ABCDEF	113.4
DynaGro AL999	9	1.72 (16)	2.10 (16)	2.26 (1)	2.11 (1)	1.28 (14)	1.13 (26)	0.99 (9)	11.60 (8) ABCDEFG	111.3
57Q77	7	1.79 (8)	2.16 (10)	1.97 (12)	1.85 (8)	1.42 (7)	1.44 (8)	0.95 (13)	11.59 (9) ABCDEFGH	111.2
SW 7410	7	1.74 (14)	2.33 (1)	2.02 (9)	1.85 (10)	1.40 (8)	1.28 (20)	0.96 (12)	11.57 (10) ABCDEFGH	111.0
58N57	8	1.76 (10)	2.06 (17)	1.90 (19)	1.59 (25)	1.23 (18)	1.30 (18)	0.91 (16)	10.77 (17) ABCDEFGHIJKLM	103.3
Tulare	8	1.70 (18)	2.32 (2)	1.86 (24)	1.53 (30)	1.34 (11)	1.15 (25)	0.81 (27)	10.71 (18) ABCDEFGHIJKLM	102.8
Moapa 69	8	1.56 (31)	1.99 (24)	1.81 (28)	1.63 (21)	1.16 (22)	1.33 (15)	0.93 (15)	10.42 (20) CDEFGHIJKLMNO	100.0
Rio Grande	8	1.79 (9)	2.28 (3)	1.82 (27)	1.66 (18)	1.00 (30)	1.04 (37)	0.82 (24)	10.41 (21) DEFGHIJKLMNOP	99.9
TruTest (UN 632)	6	2.02 (1)	2.22 (5)	1.95 (14)	1.28 (37)	0.94 (33)	1.11 (28)	0.80 (32)	10.32 (23) FGHJKLMNOP	99.1
ADF 98-801	7	1.62 (24)	2.05 (19)	1.87 (22)	1.67 (17)	1.27 (15)	0.97 (42)	0.86 (19)	10.31 (24) GHIJKLMNOP	98.9
WL 530HQ (UN 612)	8	1.80 (7)	2.05 (18)	1.87 (21)	1.66 (19)	1.00 (31)	1.02 (38)	0.84 (21)	10.24 (25) GHIJKLMNOP	98.3
Fiesta (8G519)	8	1.76 (12)	1.95 (28)	1.72 (32)	1.50 (32)	0.85 (41)	1.34 (12)	0.82 (26)	9.94 (27) IJKLMNPOQR	95.4
SW 7403	7	1.56 (30)	1.82 (37)	1.71 (33)	1.61 (23)	1.15 (23)	1.21 (22)	0.85 (20)	9.91 (28) IJKLMNPOQR	95.1
Achiever	7	1.39 (41)	2.11 (13)	1.88 (20)	1.41 (33)	1.13 (24)	1.19 (23)	0.81 (31)	9.91 (29) IJKLMNPOQR	95.1
Sutter	7	1.37 (42)	1.84 (36)	1.77 (31)	1.62 (22)	1.07 (28)	1.36 (11)	0.81 (29)	9.84 (30) IJKLMNPOQR	94.4
Magna 601	6	1.64 (22)	1.99 (25)	1.77 (30)	1.59 (26)	1.09 (26)	0.91 (46)	0.75 (36)	9.73 (31) JKLMNPOQR	93.4
Dura 765	7	1.52 (33)	1.96 (27)	1.68 (34)	1.57 (28)	0.99 (32)	1.07 (33)	0.77 (34)	9.56 (32) KLMNOPQRS	91.7
Archer	5	1.63 (32)	1.94 (30)	1.61 (37)	1.22 (40)	0.93 (36)	1.06 (35)	0.64 (42)	8.93 (36) OPQRSTU	85.7
CUF 101	9	1.48 (37)	1.58 (47)	1.34 (46)	1.68 (16)	0.93 (35)	1.09 (31)	0.81 (28)	8.91 (37) PQRSTU	85.5
54Q53	4	1.58 (28)	1.70 (45)	1.51 (38)	1.25 (38)	0.87 (37)	1.09 (32)	0.72 (37)	8.72 (38) QRSTUVW	83.7
Tango (6B99)	6	1.51 (34)	1.79 (39)	1.45 (42)	1.24 (39)	0.87 (38)	0.92 (45)	0.67 (40)	8.47 (40) RSTUVW	81.2
Magnum V	4	1.60 (26)	1.86 (35)	1.39 (44)	1.16 (43)	0.86 (40)	0.99 (39)	0.61 (44)	8.46 (41) RSTUVW	81.2
Highline	9	1.15 (48)	1.36 (50)	1.49 (39)	1.40 (34)	1.07 (27)	0.97 (43)	0.78 (33)	8.22 (42) STUVWXY	78.9
Tahoe	7	1.32 (43)	1.76 (41)	1.47 (40)	1.06 (45)	0.69 (44)	0.98 (41)	0.81 (30)	8.08 (43) STUVWXY	77.6
Dura 400	4	1.47 (38)	1.81 (38)	1.46 (41)	0.95 (48)	0.66 (46)	1.11 (29)	0.58 (46)	8.04 (44) TUVWXY	77.2
WL 442	7	1.27 (44)	1.58 (46)	1.43 (43)	1.18 (42)	0.93 (34)	0.76 (50)	0.68 (39)	7.84 (45) UVWXY	75.2
Dura 512	5	1.17 (47)	1.72 (44)	1.27 (47)	0.99 (47)	0.66 (45)	0.98 (40)	0.59 (45)	7.37 (47) WXY	70.7
Graze King	2	1.50 (35)	1.72 (43)	1.13 (49)	0.83 (50)	0.51 (49)	0.77 (49)	0.47 (50)	6.94 (48) XY	66.6
Blazer XL	3	1.09 (49)	1.37 (49)	1.19 (48)	0.93 (49)	0.61 (48)	1.04 (36)	0.50 (49)	6.73 (49) XY	64.6
Plumas (3L 102)	4	1.09 (50)	1.46 (48)	1.12 (50)	1.09 (44)	0.49 (50)	0.83 (48)	0.52 (48)	6.61 (50) Y	63.4
Experimental Varieties										
UC-2212		1.59 (27)	2.24 (4)	2.15 (5)	1.95 (5)	1.50 (4)	1.60 (2)	1.13 (3)	12.16 (1) A	116.7
UC-408		1.61 (25)	2.00 (23)	1.97 (13)	1.95 (3)	1.66 (1)	1.72 (1)	1.08 (4)	11.98 (2) AB	115.0
UC-2589		1.88 (4)	2.02 (21)	2.07 (7)	1.95 (4)	1.45 (6)	1.34 (13)	1.14 (2)	11.84 (5) ABCDE	113.7
CW 67080	7	1.88 (3)	2.13 (12)	2.17 (3)	1.89 (7)	1.32 (12)	1.33 (16)	0.98 (11)	11.70 (7) ABCDEFG	112.2
SW 8829	8	1.76 (11)	2.02 (22)	2.01 (10)	1.85 (9)	1.52 (2)	1.30 (19)	1.06 (5)	11.51 (11) ABCDEFGH	110.5
CW 55067	6	1.82 (6)	2.21 (7)	2.07 (6)	1.60 (24)	1.26 (16)	1.44 (7)	0.89 (17)	11.30 (12) ABCDEFGHI	108.4
UC-407		1.73 (15)	1.89 (33)	1.92 (17)	1.69 (15)	1.30 (13)	1.51 (5)	1.02 (7)	11.07 (13) ABCDEFGHIJ	106.3
CW 77093	5	1.89 (2)	2.22 (6)	1.93 (15)	1.78 (12)	1.25 (17)	1.17 (24)	0.83 (23)	11.06 (14) ABCDEFGHIJK	106.2
CW 78059	8	1.62 (23)	2.20 (8)	1.92 (16)	1.65 (20)	1.17 (20)	1.36 (10)	1.06 (6)	10.98 (15) ABCDEFGHIJKL	105.4
UC-406		1.47 (39)	1.89 (34)	1.90 (18)	1.76 (13)	1.48 (5)	1.46 (6)	0.99 (8)	10.94 (16) ABCDEFGHIJKL	105.0
CW 66099	6	1.70 (17)	1.94 (29)	2.00 (11)	1.52 (31)	1.17 (21)	1.31 (17)	0.88 (18)	10.53 (19) BCDEFGHIJKLMN	101.0
SW 8730	8	1.74 (13)	1.79 (40)	1.83 (26)	1.71 (14)	1.11 (25)	1.34 (14)	0.83 (22)	10.35 (22) EFGHIJKLMNOP	99.3
DS 961	6	1.48 (36)	2.11 (15)	1.86 (23)	1.56 (29)	1.04 (29)	1.26 (21)	0.75 (35)	10.08 (26) HIJKLMNPOQ	96.8
DS 973	7	1.26 (46)	1.93 (32)	1.83 (25)	1.57 (27)	1.21 (19)	0.90 (47)	0.82 (25)	9.53 (33) LMNOPQRST	91.5
DS 9706 HYB	4	1.57 (29)	2.04 (20)	1.78 (29)	1.29 (36)	0.85 (42)	1.07 (34)	0.69 (38)	9.28 (34) MNOPQRSTU	89.1
DS 9705 HYB	4	1.67 (20)	1.93 (31)	1.62 (35)	1.29 (35)	0.87 (39)	1.10 (30)	0.65 (41)	9.14 (35) NOPQRSTUV	87.7
DS 9707 HYB	4	1.39 (40)	2.11 (14)	1.62 (36)	1.20 (41)	0.65 (47)	1.11 (27)	0.54 (47)	8.62 (39) QRSTUVW	82.7
CW 65039	5	1.27 (45)	1.74 (42)	1.35 (45)	1.05 (46)	0.74 (43)	0.96 (44)	0.61 (43)	7.71 (46) VWXY	74.0
MEAN		1.58	1.95	1.76	1.52	1.09	1.18	0.82	9.91	
CV		20.20	13.20	14.00	15.20	22.70	21.50	16.70	10.90	
LSD (.05)		0.45	0.36	0.34	0.32	0.35	0.36	0.19	1.51	

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 Fishers (protected) LSD.

Table 6. UC DAVIS ALFALFA CULTIVAR TRIAL 2000-2002 YIELDS. TRIAL PLANTED 10/4/99

ENTRY	FD	Dry Tons/Acre				AVERAGE		% OF
	Score	2000	2001	2002	MOAPA 69			
								%
Released Varieties								
DynaGro AL999	9	8.97 (5)	12.35 (1)	11.60 (8)	10.97 (1)	A		113.1
El Tigre Verde	8	8.75 (9)	12.01 (2)	11.89 (4)	10.88 (3)	A B C		112.2
Pershing	8	8.56 (12)	11.49 (5)	11.82 (6)	10.62 (4)	A B C D		109.6
SW 7410	7	8.38 (17)	11.30 (8)	11.57 (10)	10.41 (8)	A B C D E F		107.4
Tulare	8	8.96 (6)	10.80 (14)	10.71 (18)	10.16 (11)	A B C D E F G H		104.7
Dura 843	8	8.00 (30)	10.53 (19)	11.92 (3)	10.15 (12)	A B C D E F G H		104.7
Rio Grande	8	9.40 (1)	10.46 (20)	10.41 (21)	10.09 (14)	A B C D E F G H I		104.0
58N57	8	8.48 (14)	11.00 (12)	10.77 (17)	10.08 (15)	A B C D E F G H I		104.0
57Q77	7	8.28 (19)	10.33 (26)	11.59 (9)	10.06 (16)	A B C D E F G H I		103.8
WL 530HQ (UN 612)	8	9.03 (4)	10.79 (15)	10.24 (25)	10.02 (17)	A B C D E F G H I J		103.4
ADF 98-801	7	8.41 (16)	11.15 (9)	10.31 (24)	9.96 (18)	B C D E F G H I J K		102.7
TruTest (UN 632)	6	8.71 (10)	10.41 (23)	10.32 (23)	9.81 (21)	D E F G H I J K L		101.2
Moapa 69	8	8.09 (25)	10.58 (18)	10.42 (20)	9.70 (24)	D E F G H I J K L		100.0
Achiever	7	8.89 (7)	10.26 (27)	9.91 (29)	9.68 (25)	D E F G H I J K L		99.9
Fiesta (8G519)	8	8.82 (8)	9.84 (33)	9.94 (27)	9.53 (27)	E F G H I J K L M		98.3
Dura 765	7	8.43 (15)	10.03 (30)	9.56 (32)	9.34 (29)	G H I J K L M N		96.3
SW 7403	7	7.61 (39)	10.34 (24)	9.91 (28)	9.29 (30)	H I J K L M N		95.8
Sutter	7	8.16 (22)	9.33 (35)	9.84 (30)	9.11 (32)	I J K L M N O		93.9
CUF 101	9	8.14 (23)	10.06 (29)	8.91 (37)	9.04 (33)	J K L M N O P		93.2
Magna 601	6	7.59 (40)	9.58 (34)	9.73 (31)	8.97 (34)	K L M N O P Q		92.5
Tango (6B99)	6	8.09 (26)	9.23 (36)	8.47 (40)	8.60 (36)	M N O P Q R		88.6
Highline	9	7.65 (37)	9.91 (32)	8.22 (42)	8.60 (37)	M N O P Q R		88.6
54Q53	4	7.49 (44)	9.18 (37)	8.72 (38)	8.47 (38)	N O P Q R S		87.3
Archer	5	7.62 (38)	8.78 (39)	8.93 (36)	8.44 (39)	N O P Q R S		87.1
Magnum V	4	7.33 (46)	8.37 (43)	8.46 (41)	8.06 (42)	P Q R S T		83.1
WL 442	7	7.89 (32)	8.42 (41)	7.84 (45)	8.05 (43)	P Q R S T		83.0
Tahoe	7	7.56 (42)	8.37 (42)	8.08 (43)	8.01 (44)	Q R S T		82.6
Dura 400	4	7.54 (43)	8.12 (44)	8.04 (44)	7.90 (45)	R S T		81.5
Dura 512	5	7.35 (45)	7.93 (46)	7.37 (47)	7.55 (47)	S T U		77.9
Graze King	5	7.33 (47)	7.56 (48)	6.94 (48)	7.28 (48)	T U		75.0
Plumas (3L 102)	4	6.52 (50)	7.54 (49)	6.61 (50)	6.89 (49)	U		71.0
Blazer XL	3	7.14 (48)	6.78 (50)	6.73 (49)	6.88 (50)	U		71.0
Experimental Varieties								
UC-2589		9.06 (3)	11.90 (3)	11.84 (5)	10.94 (2)	A B		112.8
UC-408		8.65 (11)	10.99 (13)	11.98 (2)	10.54 (5)	A B C D		108.7
CW 55067	6	9.10 (2)	11.04 (11)	11.30 (12)	10.48 (6)	A B C D E		108.1
SW 8829	8	8.04 (29)	11.73 (4)	11.51 (11)	10.43 (7)	A B C D E F		107.6
UC-2212		7.58 (41)	11.37 (7)	12.16 (1)	10.37 (9)	A B C D E F		107.0
UC-407		8.55 (13)	11.39 (6)	11.07 (13)	10.34 (10)	A B C D E F G		106.6
CW 78059	8	8.27 (20)	11.05 (10)	10.98 (15)	10.10 (13)	A B C D E F G H I		104.2
CW 67080	7	7.71 (36)	10.34 (25)	11.70 (7)	9.92 (19)	C D E F G H I J K		102.3
UC-406		8.07 (27)	10.68 (16)	10.94 (16)	9.90 (20)	C D E F G H I J K L		102.1
CW 77093	5	8.13 (24)	10.08 (28)	11.06 (14)	9.76 (22)	D E F G H I J K L		100.6
CW 66099	6	8.17 (21)	10.42 (22)	10.53 (19)	9.70 (23)	D E F G H I J K L		100.1
SW 8730	7	8.05 (28)	10.64 (17)	10.35 (22)	9.68 (26)	D E F G H I J K L		99.8
DS 961	5	7.80 (33)	10.42 (21)	10.08 (26)	9.43 (28)	F G H I J K L M N		97.3
DS 973	6	7.95 (31)	9.96 (31)	9.53 (33)	9.15 (31)	I J K L M N O		94.3
DS 9706 HYB	4	8.30 (18)	9.15 (38)	9.28 (34)	8.91 (35)	L M N O P Q		91.9
DS 9707 HYB	4	7.79 (34)	8.04 (45)	8.62 (39)	8.15 (40)	O P Q R S T		84.0
DS 9705 HYB	4	6.53 (49)	8.64 (40)	9.14 (35)	8.10 (41)	P Q R S T		83.5
CW 65039	5	7.76 (35)	7.87 (47)	7.71 (46)	7.78 (46)	R S T U		80.2
MEAN		8.09	9.97	9.91	9.33			
CV		8.60	9.50	10.90	7.60			
LSD (.05)		0.98	1.32	1.51	1.00			

VARIETY X YEAR INTERACTION IS SIGNIFICANT

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 Fishers (protected) LSD.

Table 7. UC DAMS '01 ALFALFA CULTIVAR TRIAL 2002 YIELDS. TRIAL PLANTED 9/17/01

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

ENTRY	FD	Out 1 4/17	Out 2 5/15	Out 3 6/12	Out 4 7/11	Out 5 8/8	Out 6 9/5	Out 7 10/9	YEAR TOTAL	% OF CUF 101
Dy/ta										
Released Varieties										
AL99Plus	9	1.88 (26)	1.57 (20)	1.63 (9)	1.96 (5)	1.56 (3)	1.66 (1)	1.32 (1)	11.60 (2) A B	112.9
59N49	9	1.90 (25)	1.61 (13)	1.64 (8)	1.99 (4)	1.50 (4)	1.53 (2)	1.28 (3)	11.46 (5) A B C D	111.6
SW7410	7	2.14 (11)	1.66 (5)	1.85 (2)	1.72 (25)	1.41 (9)	1.40 (15)	1.15 (11)	11.32 (6) A B C D E	110.2
OW704 (OW57104)	7	2.02 (18)	1.60 (15)	1.67 (7)	1.88 (10)	1.36 (13)	1.53 (3)	1.20 (6)	11.28 (7) A B C D E F	109.7
Magna801FQ (DS681FQ)	8	1.73 (30)	1.63 (8)	1.99 (1)	1.91 (8)	1.43 (7)	1.41 (13)	1.12 (13)	11.23 (8) A B C D E F	109.3
WL711WF	10	1.97 (22)	1.53 (27)	1.51 (19)	2.03 (3)	1.45 (6)	1.50 (5)	1.24 (4)	11.22 (9) A B C D E F	109.2
WL625HQ	9	1.76 (29)	1.54 (25)	1.83 (3)	1.74 (22)	1.67 (1)	1.47 (7)	1.20 (7)	11.21 (10) A B C D E F	109.1
Fiesta	8	2.22 (6)	1.67 (4)	1.57 (12)	1.81 (18)	1.26 (21)	1.41 (12)	1.09 (16)	11.05 (12) A B C D E F G	107.5
Achiever	7	2.31 (3)	1.53 (26)	1.50 (22)	1.83 (13)	1.34 (15)	1.29 (22)	1.14 (12)	10.94 (13) A B C D E F G	106.4
SW9720	9	1.67 (32)	1.58 (18)	1.47 (25)	1.89 (9)	1.67 (2)	1.36 (16)	1.31 (2)	10.93 (14) A B C D E F G	106.4
Dura765	7	2.14 (10)	1.64 (6)	1.36 (30)	1.83 (16)	1.18 (24)	1.41 (14)	1.04 (21)	10.61 (16) B C D E F G H	103.3
Sedona	10	2.03 (16)	1.48 (31)	1.50 (20)	1.80 (19)	1.31 (18)	1.34 (19)	1.08 (18)	10.54 (19) B C D E F G H	102.5
58N57	8	1.73 (31)	1.55 (22)	1.44 (27)	1.91 (7)	1.37 (12)	1.42 (11)	1.10 (15)	10.51 (21) B C D E F G H	102.3
Tahoe	6	2.21 (7)	1.62 (11)	1.47 (24)	1.76 (20)	1.26 (20)	1.22 (28)	0.91 (30)	10.46 (22) B C D E F G H I	101.8
CUF 101	9	1.64 (34)	1.42 (36)	1.50 (23)	1.73 (23)	1.34 (14)	1.47 (8)	1.18 (8)	10.27 (25) C D E F G H I J	100
Aspire	6	2.11 (12)	1.49 (30)	1.55 (13)	1.74 (21)	1.17 (25)	1.26 (25)	0.94 (25)	10.26 (26) D E F G H I J	99.9
54Q53	4	2.23 (5)	1.45 (35)	1.57 (11)	1.70 (27)	1.03 (31)	1.21 (31)	0.86 (35)	10.05 (27) E F G H I J K	97.8
Magna601	6	2.07 (14)	1.63 (9)	1.50 (21)	1.53 (36)	1.22 (23)	1.14 (35)	0.93 (27)	10.02 (28) F G H I J K	97.5
Sutter	7	2.00 (20)	1.58 (16)	1.25 (33)	1.66 (30)	1.04 (30)	1.22 (29)	1.03 (24)	9.78 (29) G H I J K	95.2
WL325HQ	3	1.79 (28)	1.55 (23)	1.54 (16)	1.70 (28)	0.91 (35)	1.27 (24)	0.88 (32)	9.63 (30) H I J K	93.7
Dura 512	5	1.88 (27)	1.57 (21)	1.20 (35)	1.68 (29)	1.05 (29)	1.21 (30)	0.89 (31)	9.47 (31) H I J K	92.2
El Tigre Verde	8	1.58 (36)	1.54 (24)	1.35 (31)	1.58 (33)	1.24 (22)	1.16 (32)	0.93 (26)	9.39 (33) H I J K	91.4
Archer II	5	2.01 (19)	1.45 (34)	1.23 (34)	1.54 (35)	0.97 (33)	1.12 (36)	0.86 (34)	9.18 (34) I J K	89.3
Tango	6	1.65 (33)	1.52 (28)	1.31 (32)	1.60 (31)	0.95 (34)	1.23 (27)	0.91 (28)	9.17 (35) J K	89.3
Plumas	4	1.99 (21)	1.45 (33)	1.16 (36)	1.58 (32)	0.84 (36)	1.16 (33)	0.80 (36)	8.98 (36) K	87.4
Experimental Varieties										
DS187HYB		2.41 (1)	1.72 (1)	1.76 (4)	2.03 (2)	1.37 (10)	1.53 (4)	1.21 (5)	12.02 (1) A	117
OW76098		2.19 (8)	1.69 (2)	1.62 (10)	2.07 (1)	1.37 (11)	1.49 (6)	1.12 (14)	11.55 (3) A B C	112.4
GP99AL2		2.31 (2)	1.58 (19)	1.72 (5)	1.93 (6)	1.41 (8)	1.45 (9)	1.16 (9)	11.55 (4) A B C	112.4
DS189		2.09 (13)	1.69 (3)	1.71 (6)	1.87 (11)	1.32 (17)	1.33 (20)	1.06 (19)	11.08 (11) A B C D E F	107.8
DS186		2.06 (15)	1.61 (14)	1.53 (17)	1.83 (14)	1.30 (19)	1.26 (26)	1.04 (22)	10.61 (15) B C D E F G H	103.3
OK49		2.03 (17)	1.64 (7)	1.54 (14)	1.83 (12)	1.15 (27)	1.34 (18)	1.04 (23)	10.57 (17) B C D E F G H	102.9
C241		2.18 (9)	1.62 (12)	1.51 (18)	1.72 (26)	1.10 (28)	1.35 (17)	1.09 (17)	10.56 (18) B C D E F G H	102.8
UN628		2.26 (4)	1.62 (10)	1.40 (29)	1.72 (24)	1.33 (16)	1.28 (23)	0.91 (29)	10.52 (20) B C D E F G H	102.4
C316		1.93 (23)	1.58 (17)	1.46 (26)	1.83 (15)	1.16 (26)	1.42 (10)	1.06 (20)	10.45 (23) B C D E F G H I J	101.7
ADF 01-70		1.60 (35)	1.52 (29)	1.54 (15)	1.82 (17)	1.46 (5)	1.33 (21)	1.16 (10)	10.43 (24) B C D E F G H I J	101.5
UN576		1.91 (24)	1.47 (32)	1.42 (28)	1.58 (34)	1.02 (32)	1.15 (34)	0.87 (33)	9.42 (32) H I J K	91.6
MEAN		1.99	1.57	1.52	1.79	1.26	1.34	1.06	10.54	
CV		13.20	7.50	14.90	12.60	12.70	13.90	13.30	7.50	
LSD (.05)		0.43	NS	0.37	NS	0.26	NS	0.23	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 Fishers (Protected) LSD.

* Fall Dormancy Score as listed by company. Please see UC Data for measured FD scores.

Table 8. UC KEARNEY ALFALFA CULTIVAR TRIAL 2002 YIELDS. TRIAL PLANTED 9/16/99

Note: SINGLE YEAR DATA SHOULD NOT BE USED TO CHOOSE OR EVALUATE ALFALFA CULTIVARS.

ENTRY	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	YEAR	% OF
	10-Apr	13-May	10-Jun	8-Jul	5-Aug	3-Sep	1-Oct	TOTAL	CUF 101
	Dry tons/acre								%
Released Varieties									
WL 625 HQ	1.74 (1)	2.24 (2)	2.24 (2)	1.87 (1)	1.89 (3)	1.32 (1)	1.07 (3)	12.37 (2) A	125.0
SW 8718	1.50 (32)	2.23 (3)	2.23 (3)	1.78 (4)	2.06 (1)	1.24 (4)	1.12 (2)	12.15 (3) AB	122.8
Mecca II	1.57 (15)	2.15 (10)	2.11 (12)	1.73 (6)	1.84 (6)	1.20 (8)	0.94 (8)	11.53 (5) ABCD	116.5
DynaGro AL999	1.60 (8)	1.97 (25)	2.18 (7)	1.71 (7)	1.76 (10)	1.14 (16)	0.99 (6)	11.36 (8) BCDEF	114.8
Dura 843	1.52 (27)	2.01 (21)	2.05 (16)	1.74 (5)	1.80 (7)	1.22 (5)	0.93 (9)	11.27 (9) BCDEFG	113.9
Pershing	1.72 (4)	2.08 (15)	2.20 (5)	1.52 (20)	1.56 (29)	1.09 (27)	0.80 (26)	10.98 (12) CDEFGHIJ	111.0
57Q77	1.59 (9)	2.22 (6)	2.20 (6)	1.42 (31)	1.57 (25)	1.10 (22)	0.81 (24)	10.93 (13) CDEFGHIJ	110.5
Ameristand 802 (ZX9886)	1.49 (34)	1.99 (22)	2.05 (15)	1.57 (14)	1.75 (11)	1.14 (17)	0.91 (10)	10.92 (14) CDEFGHIJ	110.3
Magna 901	1.57 (12)	1.97 (24)	2.07 (14)	1.49 (22)	1.64 (19)	1.11 (21)	0.90 (14)	10.74 (18) DEFGHIJKLM	108.6
SW 9500	1.59 (10)	2.09 (14)	2.00 (20)	1.46 (24)	1.61 (23)	1.17 (13)	0.80 (28)	10.72 (19) DEFGHIJKLM	108.3
El Tigre Verde	1.56 (16)	2.18 (8)	1.98 (24)	1.55 (16)	1.61 (22)	1.00 (40)	0.80 (27)	10.69 (20) DEFGHIJKLM	108.0
WestStar	1.72 (2)	1.94 (28)	1.98 (23)	1.43 (30)	1.52 (37)	1.04 (33)	0.77 (32)	10.41 (25) GHIJKLMNO	105.2
Achiever	1.72 (3)	2.04 (19)	1.67 (42)	1.24 (41)	1.67 (16)	1.15 (15)	0.83 (20)	10.32 (27) IJKLMNO	104.3
SW 9301	1.51 (30)	1.76 (43)	1.87 (32)	1.59 (13)	1.60 (24)	1.08 (28)	0.87 (17)	10.28 (28) IJKLMNQP	103.9
ADF 98-801	1.53 (25)	1.91 (31)	1.98 (22)	1.45 (26)	1.55 (32)	0.98 (42)	0.79 (30)	10.19 (31) IJKLMNQPQ	103.0
Yolo	1.45 (38)	1.83 (37)	1.68 (41)	1.63 (11)	1.77 (9)	1.09 (24)	0.73 (37)	10.18 (32) IJKLMNQPQ	102.9
58N57	1.50 (33)	2.03 (20)	1.97 (26)	1.29 (38)	1.54 (33)	1.03 (35)	0.74 (35)	10.09 (34) JKLMNQPQ	102.0
Falcon	1.54 (23)	1.90 (32)	1.94 (28)	1.36 (34)	1.51 (38)	1.03 (36)	0.73 (39)	10.00 (35) KLMNQPQ	101.1
CUF 101	1.57 (13)	1.73 (44)	1.76 (38)	1.45 (27)	1.51 (39)	1.07 (29)	0.81 (25)	9.89 (36) LMNQPQ	100.0
ADF 99-801	1.40 (43)	1.90 (33)	1.76 (37)	1.29 (37)	1.57 (26)	1.15 (14)	0.82 (23)	9.89 (37) LMNQPQ	99.9
Tulare	1.65 (6)	1.85 (36)	1.79 (36)	1.32 (36)	1.47 (43)	0.96 (43)	0.71 (42)	9.74 (39) NOPQR	98.5
Magna 8	1.39 (44)	1.88 (34)	1.80 (34)	1.35 (35)	1.53 (36)	1.00 (39)	0.72 (41)	9.66 (40) OPQR	97.7
Dura 765	1.45 (39)	1.97 (26)	1.80 (35)	1.21 (42)	1.48 (42)	1.10 (23)	0.66 (44)	9.66 (41) OPQR	97.6
Fiesta (8G519)	1.42 (41)	1.79 (42)	1.56 (44)	1.20 (44)	1.40 (45)	0.94 (44)	0.61 (45)	8.92 (44) R	90.1
Highline	1.40 (42)	1.59 (45)	1.54 (45)	1.18 (45)	1.43 (44)	0.99 (41)	0.72 (40)	8.85 (45) R	89.5
Experimental Varieties									
UC-2212	1.57 (14)	2.28 (1)	2.34 (1)	1.82 (3)	1.94 (2)	1.31 (2)	1.13 (1)	12.40 (1) A	125.3
92-296	1.53 (24)	2.15 (9)	2.15 (8)	1.83 (2)	1.84 (5)	1.20 (7)	1.00 (4)	11.72 (4) ABC	118.4
C 252	1.60 (7)	2.22 (4)	2.09 (13)	1.71 (8)	1.75 (12)	1.20 (6)	0.94 (7)	11.51 (6) ABCDE	116.4
CW 78101	1.54 (22)	2.22 (7)	2.13 (9)	1.64 (9)	1.88 (4)	1.20 (9)	0.90 (13)	11.50 (7) ABCDE	116.3
DS 991	1.54 (20)	2.22 (5)	2.20 (4)	1.63 (10)	1.69 (15)	1.05 (32)	0.91 (11)	11.24 (10) CDEFGH	113.6
CW 68081	1.50 (31)	1.99 (23)	1.99 (21)	1.56 (15)	1.77 (8)	1.25 (3)	1.00 (5)	11.06 (11) CDEFGHI	111.8
PGI 481	1.66 (5)	2.07 (16)	2.04 (18)	1.48 (23)	1.65 (17)	1.12 (19)	0.85 (19)	10.88 (15) CDEFGHIJK	110.0
ZX9889B	1.52 (26)	2.05 (18)	2.12 (11)	1.54 (17)	1.64 (18)	1.18 (11)	0.82 (22)	10.86 (16) CDEFGHIJK	109.8
CW 68092	1.58 (11)	2.14 (11)	1.95 (27)	1.43 (29)	1.69 (14)	1.20 (10)	0.78 (31)	10.77 (17) DEFGHIJKL	108.9
CW 78100	1.54 (21)	2.11 (13)	2.00 (19)	1.41 (33)	1.63 (20)	1.13 (18)	0.82 (21)	10.64 (21) DEFGHIJKLM	107.6
SW 8829	1.55 (18)	1.96 (27)	1.87 (31)	1.50 (21)	1.70 (13)	1.17 (12)	0.88 (15)	10.63 (22) EFGHIJKLMN	107.4
FG 615	1.54 (19)	2.05 (17)	2.13 (10)	1.42 (32)	1.55 (31)	1.05 (31)	0.79 (29)	10.54 (23) FGHIJKLMNO	106.5
UC-402	1.49 (35)	1.82 (39)	2.05 (17)	1.60 (12)	1.56 (30)	1.02 (37)	0.91 (12)	10.44 (24) GHIJKLMNO	105.6
UC-400	1.48 (36)	1.92 (30)	1.97 (25)	1.46 (25)	1.53 (35)	1.11 (20)	0.88 (16)	10.36 (26) HIJKLMNO	104.7
ZL9889A	1.55 (17)	2.13 (12)	1.90 (30)	1.28 (39)	1.56 (28)	1.09 (25)	0.74 (34)	10.25 (29) IJKLMNQPQ	103.6
UC-401	1.51 (28)	1.86 (35)	1.83 (33)	1.44 (28)	1.62 (21)	1.07 (30)	0.87 (18)	10.20 (30) IJKLMNQPQ	103.1
ZX9888	1.44 (40)	1.93 (29)	1.93 (29)	1.54 (19)	1.53 (34)	1.03 (34)	0.74 (36)	10.15 (33) JKLMNQPQ	102.6
C 345	1.38 (45)	1.82 (41)	1.74 (39)	1.54 (18)	1.56 (27)	1.09 (26)	0.75 (33)	9.87 (38) MNQPQ	99.7
FG 206	1.51 (29)	1.82 (40)	1.70 (40)	1.26 (40)	1.50 (40)	0.92 (45)	0.70 (43)	9.41 (42) PQR	95.1
SW 8730	1.46 (37)	1.83 (38)	1.65 (43)	1.21 (43)	1.50 (41)	1.01 (38)	0.73 (38)	9.37 (43) QR	94.7
MEAN	1.54	2.00	1.96	1.49	1.64	1.11	0.84	10.57	
CV	9.80	9.90	10.30	11.60	11.00	10.00	13.00	6.10	
LSD (.05)	NS	0.28	0.28	0.24	0.25	0.15	0.15	0.9	

Trial seeded at 25 lb/acre viable seed on Hanford fine sandy loam soil at the Univ. of Calif. Kearney Agricultural Center, Parlier, CA. Entries followed by the same letter are not significantly different at the 5% probability level according to Fishers (protected) LSD.

Table 9. UC KERNEY ALFALFA CULTIVAR TRIAL 2000-02 YIELDS. TRIAL PLANTED 9/16/99

ENTRY	FD Score	Dry Ton/Acre				AVERAGE		% OF CUF 101 %
		2000	2001	2002				
Released Varieties								
WL 625 HQ	9	11.12 (1)	14.06 (3)	12.37 (2)	12.51 (1)	A	118.7	
SW 8718	8	11.00 (2)	14.19 (1)	12.15 (3)	12.45 (2)	A	118.1	
Mecca II	9	10.58 (10)	13.26 (8)	11.53 (5)	11.79 (7)	A B C D E	111.8	
DynaGro AL999	9	10.58 (7)	12.95 (12)	11.36 (8)	11.63 (9)	B C D E F G	110.3	
Dura 843	8	9.83 (35)	13.59 (7)	11.27 (9)	11.56 (11)	B C D E F G H	109.6	
PGI 481	8	10.28 (22)	13.26 (9)	10.88 (15)	11.48 (13)	B C D E F G H I	108.8	
Pershing	8	10.58 (8)	12.52 (24)	10.98 (12)	11.36 (14)	C D E F G H I J	107.8	
Ameristand802 (ZX9886)	8	10.48 (13)	12.63 (20)	10.92 (14)	11.34 (15)	C D E F G H I J	107.6	
SW 9500	9	10.35 (19)	12.72 (17)	10.72 (19)	11.26 (16)	C D E F G H I J K	106.8	
Magna 901	9	10.32 (20)	12.54 (23)	10.74 (18)	11.20 (18)	C D E F G H I J K L	106.2	
57Q77	7	10.14 (27)	12.43 (27)	10.93 (13)	11.17 (21)	D E F G H I J K L	105.9	
ADF 99-801	9	10.53 (12)	12.73 (16)	9.89 (37)	11.05 (25)	E F G H I J K L M N O	104.8	
WestStar	9	10.16 (25)	12.47 (26)	10.41 (25)	11.02 (26)	F G H I J K L M N O P	104.5	
El Tigre Verde	8	9.40 (41)	12.63 (21)	10.69 (20)	10.90 (29)	G H I J K L M N O P	103.4	
Achiever	7	10.17 (24)	11.96 (38)	10.32 (27)	10.82 (31)	H I J K L M N O P Q	102.6	
58N57	8	9.92 (32)	12.10 (34)	10.09 (34)	10.71 (33)	J K L M N O P Q	101.5	
Yolo	8	9.42 (40)	12.50 (25)	10.18 (32)	10.70 (34)	J K L M N O P Q	101.5	
Falcon	8	9.61 (38)	12.09 (36)	10.00 (35)	10.57 (35)	K L M N O P Q	100.2	
CUF 101	9	9.64 (37)	12.10 (35)	9.89 (36)	10.54 (36)	K L M N O P Q	100.0	
Magna 8	8	9.60 (39)	12.29 (31)	9.66 (40)	10.52 (37)	K L M N O P Q	99.7	
Highline	9	10.21 (23)	12.36 (30)	8.85 (45)	10.47 (38)	L M N O P Q	99.3	
SW 9301	9	8.87 (45)	11.90 (40)	10.28 (28)	10.35 (41)	N O P Q R	98.2	
ADF 98-801	7	9.04 (44)	11.66 (42)	10.19 (31)	10.30 (42)	O P Q R	97.7	
Dura 765	7	10.04 (30)	11.14 (44)	9.66 (41)	10.28 (43)	P Q R	97.5	
Tulare	8	9.15 (42)	11.41 (43)	9.74 (39)	10.10 (44)	Q R	95.8	
Fiesta (8G519)	8	9.13 (43)	11.05 (45)	8.92 (44)	9.70 (45)	R	92.0	
Experimental Varieties								
UC-2212		10.11 (28)	14.07 (2)	12.40 (1)	12.20 (3)	A B	115.7	
92-296	9	10.76 (5)	13.91 (4)	11.72 (4)	12.13 (4)	A B	115.0	
C 252	9	10.63 (6)	13.66 (6)	11.51 (6)	11.93 (5)	A B C	113.2	
DS 991	9	10.42 (16)	13.79 (5)	11.24 (10)	11.82 (6)	A B C D	112.1	
CW 68081	8	10.80 (4)	13.16 (10)	11.06 (11)	11.67 (8)	B C D E F	110.7	
CW 78101	8	10.28 (21)	13.02 (11)	11.50 (7)	11.60 (10)	B C D E F G	110.0	
ZX9889B	8	10.98 (3)	12.82 (14)	10.86 (16)	11.55 (12)	B C D E F G H	109.6	
CW 68092	8	10.40 (17)	12.56 (22)	10.77 (17)	11.24 (17)	C D E F G H I J K	106.7	
SW 8829	8	10.53 (11)	12.41 (28)	10.63 (22)	11.19 (19)	C D E F G H I J K L	106.1	
FG 615	8	10.36 (18)	12.66 (18)	10.54 (23)	11.19 (20)	C D E F G H I J K L	106.1	
ZX9888	8	10.44 (15)	12.77 (15)	10.15 (33)	11.12 (22)	D E F G H I J K L M	105.5	
C 345	8	10.58 (9)	12.83 (13)	9.87 (38)	11.09 (23)	D E F G H I J K L M N	105.2	
CW 78100	9	10.47 (14)	12.07 (37)	10.64 (21)	11.06 (24)	D E F G H I J K L M N O	104.9	
UC-402		9.90 (33)	12.63 (19)	10.44 (24)	10.99 (27)	F G H I J K L M N O P	104.3	
UC-400		10.14 (26)	12.26 (32)	10.36 (26)	10.92 (28)	F G H I J K L M N O P	103.6	
ZL9889A	8	10.09 (29)	12.36 (29)	10.25 (29)	10.90 (30)	G H I J K L M N O P	103.4	
UC-401		9.88 (34)	12.26 (33)	10.20 (30)	10.78 (32)	I J K L M N O P Q	102.2	
SW 8730	8	10.00 (31)	11.72 (41)	9.37 (43)	10.37 (39)	M N O P Q R	98.3	
FG 206	8	9.75 (36)	11.92 (39)	9.41 (42)	10.36 (40)	M N O P Q R	98.3	
MEAN		10.15	12.61	10.57	11.11			
CV		6.90	5.70	6.10	6.20			
LSD (.05)		0.98	1.01	0.90	0.76			

Variety X Year interaction is significant

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

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

Table 10. UC IMPERIAL ALFALFA CULTIVAR TRIAL 2002 YIELDS. TRIAL PLANTED 10/11/00

Note: Do not use single-year data to choose alfalfa varieties or to evaluate alfalfa cultivars.

	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	Cut 8	Cut 9	YEAR	%OF
	1/19/02	3/21/02	4/29/02	6/6/02	7/5/02	7/31/02	9/5/02	10/4/02	11/14/02	TOTAL	CUF 101
	Dry/t/a										%
Released Varieties											
SW100 (SW101)	0.81 (4)	1.48 (3)	1.73 (1)	2.00 (1)	1.28 (2)	0.61 (6)	0.64 (7)	0.69 (5)	0.74 (5)	9.99 (1) A	112.50
UC Cibola	0.69 (25)	1.41 (11)	1.59 (7)	1.93 (4)	1.28 (1)	0.66 (1)	0.67 (3)	0.74 (2)	0.76 (1)	9.74 (2) AB	109.80
59N49 (Y59N49)	0.71 (17)	1.34 (18)	1.57 (10)	1.89 (7)	1.12 (17)	0.62 (5)	0.69 (1)	0.59 (19)	0.67 (11)	9.21 (8) ABCDEF	103.80
WL 711 WF	0.78 (5)	1.47 (5)	1.60 (4)	1.94 (3)	1.00 (31)	0.55 (14)	0.50 (30)	0.61 (16)	0.64 (19)	9.09 (10) ABCDEFGH	102.40
Mecca III	0.63 (33)	1.36 (17)	1.47 (24)	1.72 (25)	1.21 (8)	0.59 (11)	0.63 (8)	0.64 (11)	0.64 (18)	8.90 (14) ABCDEFGHI	100.20
CUF 101	0.73 (14)	1.42 (9)	1.60 (6)	1.73 (23)	1.11 (18)	0.55 (15)	0.56 (18)	0.57 (28)	0.62 (23)	8.88 (17) ABCDEFGHI	100.00
Highline	0.84 (1)	1.47 (4)	1.54 (13)	1.72 (27)	0.98 (33)	0.51 (21)	0.52 (28)	0.58 (25)	0.61 (30)	8.77 (19) ABCDEFGHIJ	98.80
Magna 901	0.61 (38)	1.27 (30)	1.46 (26)	1.87 (10)	1.08 (21)	0.52 (20)	0.55 (21)	0.62 (13)	0.62 (21)	8.60 (21) BCDEFGHIJKL	96.90
UC Impalo WF	0.76 (11)	1.32 (22)	1.36 (40)	1.74 (22)	1.01 (30)	0.44 (38)	0.56 (16)	0.68 (6)	0.65 (16)	8.51 (25) BCDEFGHIJKL	95.90
SW9720	0.62 (36)	1.30 (24)	1.45 (28)	1.80 (11)	1.14 (15)	0.50 (24)	0.53 (25)	0.54 (32)	0.61 (28)	8.50 (27) BCDEFGHIJKL	95.70
59N57	0.54 (42)	1.18 (40)	1.44 (33)	1.78 (16)	1.19 (10)	0.53 (17)	0.58 (13)	0.61 (15)	0.59 (32)	8.44 (29) CDEFGHIJKL	95.10
El Tigre Verde	0.61 (37)	1.20 (38)	1.48 (23)	1.72 (26)	1.07 (23)	0.49 (27)	0.55 (19)	0.58 (21)	0.61 (25)	8.32 (30) DEFGHIJKL	93.80
WL625HQ	0.60 (39)	1.25 (32)	1.43 (34)	1.63 (36)	1.03 (27)	0.60 (9)	0.48 (34)	0.49 (41)	0.56 (38)	8.08 (34) EFGHIJKL	91.00
Prestige	0.56 (41)	1.24 (34)	1.44 (30)	1.67 (34)	1.08 (22)	0.42 (40)	0.48 (35)	0.51 (39)	0.55 (39)	7.95 (36) FGH IJKL	89.60
Pershing	0.50 (44)	1.25 (31)	1.44 (32)	1.72 (28)	0.97 (37)	0.46 (37)	0.46 (39)	0.48 (42)	0.53 (41)	7.81 (39) HIJKL	88.00
WL 525 HQ	0.58 (40)	1.05 (43)	1.37 (38)	1.61 (39)	0.97 (36)	0.44 (39)	0.45 (41)	0.52 (38)	0.52 (42)	7.51 (42) JKL	84.60
Salado	0.54 (43)	1.14 (41)	1.35 (41)	1.62 (38)	0.93 (39)	0.42 (42)	0.40 (43)	0.47 (43)	0.47 (44)	7.34 (44) L	82.70
Experimental Varieties											
DS985	0.70 (19)	1.54 (1)	1.50 (18)	1.90 (6)	1.27 (3)	0.61 (7)	0.65 (5)	0.70 (4)	0.75 (2)	9.63 (3) ABC	108.50
CV89061	0.78 (6)	1.46 (6)	1.58 (8)	1.88 (8)	1.17 (11)	0.60 (8)	0.67 (4)	0.66 (9)	0.75 (4)	9.55 (4) ABCD	107.60
UC-412	0.82 (2)	1.42 (10)	1.51 (15)	1.77 (18)	1.24 (6)	0.55 (13)	0.60 (9)	0.65 (10)	0.71 (7)	9.28 (5) ABCDE	104.50
SW8022	0.71 (16)	1.29 (27)	1.43 (35)	1.78 (17)	1.25 (4)	0.66 (2)	0.68 (2)	0.73 (3)	0.75 (3)	9.28 (6) ABCDE	104.50
SW1028	0.77 (7)	1.37 (16)	1.50 (19)	1.75 (21)	1.16 (13)	0.60 (10)	0.64 (6)	0.75 (1)	0.73 (6)	9.27 (7) ABCDE	104.50
ZS9995	0.76 (12)	1.44 (8)	1.72 (2)	1.97 (2)	1.00 (32)	0.62 (4)	0.49 (33)	0.54 (35)	0.59 (31)	9.13 (9) ABCDEFG	102.80
UC-411	0.77 (8)	1.39 (13)	1.52 (14)	1.79 (14)	1.07 (24)	0.54 (16)	0.59 (10)	0.66 (8)	0.69 (9)	9.01 (11) ABCDEFGHI	101.50
IVS9002	0.75 (13)	1.37 (15)	1.58 (9)	1.87 (9)	1.06 (25)	0.49 (31)	0.58 (11)	0.59 (18)	0.69 (8)	9.00 (12) ABCDEFGHI	101.40
CV89068	0.66 (29)	1.39 (12)	1.60 (5)	1.91 (5)	1.04 (26)	0.49 (28)	0.57 (15)	0.64 (12)	0.66 (13)	8.96 (13) ABCDEFGHI	100.90
UC-409	0.81 (3)	1.45 (7)	1.50 (17)	1.77 (19)	0.88 (42)	0.56 (12)	0.56 (17)	0.68 (7)	0.68 (10)	8.89 (15) ABCDEFGHI	100.20
ZS0001	0.69 (22)	1.34 (19)	1.45 (29)	1.79 (13)	1.20 (9)	0.64 (3)	0.58 (12)	0.57 (27)	0.62 (22)	8.88 (16) ABCDEFGHI	100.00
CV89064	0.68 (27)	1.29 (26)	1.51 (16)	1.80 (12)	1.23 (7)	0.50 (25)	0.57 (14)	0.58 (24)	0.65 (17)	8.82 (18) ABCDEFGHI	99.30
FG9710	0.77 (10)	1.50 (2)	1.55 (12)	1.71 (29)	0.98 (35)	0.47 (36)	0.54 (22)	0.54 (34)	0.65 (15)	8.69 (20) BCDEFGHIJK	97.90
UC-414	0.70 (20)	1.33 (20)	1.56 (11)	1.69 (32)	1.09 (20)	0.50 (23)	0.50 (31)	0.57 (26)	0.67 (12)	8.60 (22) BCDEFGHIJKL	96.90
CV79115	0.68 (26)	1.32 (23)	1.48 (22)	1.70 (30)	1.16 (12)	0.49 (34)	0.53 (26)	0.58 (23)	0.61 (26)	8.54 (23) BCDEFGHIJKL	96.30
FG9609	0.69 (23)	1.28 (28)	1.49 (20)	1.76 (20)	1.14 (16)	0.49 (33)	0.53 (27)	0.58 (22)	0.57 (35)	8.52 (24) BCDEFGHIJKL	96.00
FG9709	0.62 (35)	1.21 (37)	1.44 (31)	1.69 (33)	1.24 (5)	0.52 (19)	0.55 (20)	0.61 (17)	0.62 (24)	8.50 (26) BCDEFGHIJKL	95.70
IVM2000	0.77 (9)	1.38 (14)	1.60 (3)	1.78 (15)	0.96 (38)	0.40 (43)	0.45 (40)	0.56 (29)	0.57 (37)	8.48 (28) BCDEFGHIJKL	95.50
SW9031	0.70 (21)	1.30 (25)	1.37 (39)	1.63 (35)	1.10 (19)	0.53 (18)	0.49 (32)	0.56 (30)	0.61 (27)	8.30 (31) DEFGHIJKL	93.50
CV78118	0.63 (34)	1.21 (35)	1.48 (21)	1.73 (24)	1.03 (28)	0.49 (30)	0.51 (29)	0.58 (20)	0.61 (29)	8.28 (32) EFGHIJKL	93.20
DS991BR	0.71 (18)	1.19 (39)	1.40 (37)	1.70 (31)	1.02 (29)	0.49 (32)	0.47 (36)	0.53 (36)	0.58 (34)	8.21 (33) EFGHIJKL	92.40
UC-410	0.69 (24)	1.27 (29)	1.41 (36)	1.50 (44)	0.90 (40)	0.49 (29)	0.53 (23)	0.62 (14)	0.66 (14)	8.07 (35) EFGHIJKL	90.90
CV79084	0.64 (31)	1.33 (21)	1.46 (27)	1.60 (40)	0.87 (43)	0.42 (41)	0.46 (38)	0.52 (37)	0.59 (33)	7.90 (37) GHIJKL	89.00
DS994	0.64 (32)	1.03 (44)	1.34 (43)	1.63 (37)	0.98 (34)	0.51 (22)	0.53 (24)	0.56 (31)	0.63 (20)	7.85 (38) HIJKL	88.40
ZS0000	0.64 (30)	1.10 (42)	1.34 (42)	1.56 (42)	1.14 (14)	0.48 (35)	0.44 (42)	0.49 (40)	0.54 (40)	7.75 (40) IJKL	87.30
UC-413	0.72 (15)	1.24 (33)	1.30 (44)	1.56 (43)	0.84 (44)	0.50 (26)	0.47 (37)	0.54 (33)	0.57 (36)	7.74 (41) IJKL	87.20
ZS9992	0.66 (28)	1.21 (36)	1.47 (25)	1.59 (41)	0.89 (41)	0.37 (44)	0.36 (44)	0.44 (44)	0.49 (43)	7.48 (43) KL	84.30
MEAN	0.69	1.31	1.49	1.75	1.08	0.52	0.54	0.59	0.63	8.59	
CV	11.80	11.00	11.00	10.60	19.20	21.70	20.70	17.40	12.90	10.60	
LSD(.05)	0.11	0.20	NS	0.26	NS	0.16	0.16	0.14	0.11	1.27	

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 Fishers (protected)

Table 11. Imperial Valley Alfalfa Cultivar Trial 2001-02 Yields. Planted 10/11/00

	2001 Yield	2002 Yield	AVERAGE		% OF CUF 101
	dry t/ac				%
Released Varieties					
UC Cibola	11.83 (3)	9.74 (2)	10.79 (1)		107.70
SW100 (SW101)	11.38 (8)	9.99 (1)	10.68 (3)		106.70
59N49 (Y59N49)	11.93 (1)	9.21 (8)	10.57 (4)		105.60
Mecca III	11.26 (11)	8.90 (14)	10.08 (11)		100.60
CUF 101	11.16 (15)	8.88 (17)	10.02 (15)		100.00
WL 711 WF	10.85 (29)	9.09 (10)	9.97 (18)		99.50
UC Impalo WF	11.18 (14)	8.51 (25)	9.85 (22)		98.30
58N57	11.25 (12)	8.44 (29)	9.84 (23)		98.30
Highline	10.81 (32)	8.77 (19)	9.79 (24)		97.70
Magna 901	10.86 (28)	8.60 (21)	9.73 (26)		97.20
SW9720	10.70 (36)	8.50 (27)	9.60 (31)		95.80
El Tigre Verde	10.84 (31)	8.32 (30)	9.58 (32)		95.60
Prestige	11.10 (17)	7.95 (36)	9.53 (33)		95.10
WL625HQ	10.88 (26)	8.08 (34)	9.48 (34)		94.60
Pershing	10.67 (38)	7.81 (39)	9.24 (36)		92.30
Salado	10.46 (41)	7.34 (44)	8.90 (43)		88.90
WL 525 HQ	10.15 (44)	7.51 (42)	8.83 (44)		88.20
Experimental Varieties					
DS995	11.84 (2)	9.63 (3)	10.73 (2)		107.20
CW89061	11.12 (16)	9.55 (4)	10.33 (5)		103.20
ZS9995	11.54 (5)	9.13 (9)	10.33 (6)		103.20
IVS9002	11.41 (7)	9.00 (12)	10.20 (7)		101.90
UC-412	11.10 (18)	9.28 (5)	10.19 (8)		101.70
CW89064	11.47 (6)	8.82 (18)	10.15 (9)		101.30
FGI9609	11.21 (13)	8.52 (24)	10.13 (10)		101.10
SW9022	10.84 (30)	9.28 (6)	10.06 (12)		100.40
UC-411	11.07 (19)	9.01 (11)	10.04 (13)		100.20
FGI9710	11.37 (9)	8.69 (20)	10.03 (14)		100.10
UC-409	11.04 (21)	8.89 (15)	9.97 (16)		99.50
CW89068	10.98 (25)	8.96 (13)	9.97 (17)		99.50
SW1028	10.98 (24)	9.27 (7)	9.96 (19)		99.50
ZS0001	10.87 (27)	8.88 (16)	9.88 (20)		98.60
IVM2000	11.26 (10)	8.48 (28)	9.87 (21)		98.50
FGI9709	10.98 (23)	8.50 (26)	9.74 (25)		97.30
UC-414	10.77 (34)	8.60 (22)	9.72 (27)		97.00
CW78118	11.07 (20)	8.28 (32)	9.67 (28)		96.60
SW9031	11.02 (22)	8.30 (31)	9.66 (29)		96.40
CW79115	10.75 (35)	8.54 (23)	9.65 (30)		96.30
DS994	10.78 (33)	7.85 (38)	9.31 (35)		93.00
UC-410	10.37 (42)	8.07 (35)	9.22 (37)		92.10
CW79084	10.51 (40)	7.90 (37)	9.21 (38)		91.90
DS991BR	11.67 (4)	8.21 (33)	9.14 (39)		91.20
ZS0000	10.52 (39)	7.75 (40)	9.13 (40)		91.20
ZS9992	10.69 (37)	7.48 (43)	9.08 (41)		90.70
UC-413	10.34 (43)	7.74 (41)	9.04 (42)		90.30
Mean	11.02	8.59	9.82		
CV	5.60	10.60	13.50		
LSD (.05)	0.86	1.27			

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 12a. 2002 UC Alfalfa Fall Dormancy Trial results (Semi- and Non-Dormant Groups approximately 7 through 11). Average Fall Dormancy Rating (FDR) is shown in right column (box). Mean was based upon 3 locations due to frost damage to non-dormant varieties (shaded areas) at Tulelake. This four-location trial represents Intermountain (Tulelake), Mediterranean (Davis, and Kearney), and desert (El Centro) environments.

Fall Dormancy year	Multi- Class ¹	FDR ²	Name	Location												2002 FDR ⁵		
				Tulelake ^{3,8}			Davis ³			Kearney ³			El Centro ³				Across locations	
			Score	Score	NPH ⁴	Rank	Score	NPH ⁴	Rank	Score	NPH ⁴	Rank	Score	NPH ⁴	Rank	Score	NPH ⁴	Rank
			UC-1604	m	11.43	3.37	64	9.76	3.12	63	6.14	2.47	64	9.11	2.99	64	11.05	
11	11.2	UC-1465	8.95	10.40	3.22	62	10.10	3.17	64	5.90	2.43	63	8.80	2.94	63	10.76		
10	9.9	UC-1887	m	10.62	3.26	63	8.93	2.99	62	4.99	2.23	62	8.18	2.83	62	10.06		
		UC-1856	5.87	8.48	2.91	53	8.90	2.98	61	4.39	2.09	57	7.26	2.66	61	9.05		
		UC-2589	6.01	9.44	3.07	61	7.70	2.77	50	4.50	2.12	59	7.25	2.65	60	8.98		
		Highline	6.55	8.82	2.97	57	7.99	2.83	55	4.55	2.13	60	7.12	2.64	59	8.93		
9	8.9	CUF101	6.20	8.86	2.97	58	8.20	2.86	60	4.22	2.05	55	7.09	2.63	58	8.85		
		Mecca	6.05	9.40	3.06	60	8.16	2.85	59	3.66	1.91	48	7.07	2.61	57	8.73		
		Impalo	5.98	8.78	2.96	56	7.76	2.78	51	4.12	2.02	53	6.89	2.59	56	8.61		
		UC-2283	6.70	8.59	2.93	55	7.60	2.75	48	4.35	2.08	56	6.85	2.59	55	8.60		
		UC-2705	5.66	8.11	2.85	48	7.52	2.74	43	4.56	2.13	61	6.73	2.57	54	8.52		
		UC-2801	6.09	7.98	2.83	45	8.06	2.84	57	4.20	2.05	54	6.75	2.57	53	8.49		
		VL711WF	6.33	8.52	2.91	54	7.14	2.67	37	4.42	2.10	58	6.69	2.56	52	8.44		
		Sedona	6.06	7.83	2.80	42	8.13	2.85	58	3.92	1.98	52	6.63	2.54	51	8.32		
		DS681FQ	5.62	8.16	2.85	50	7.78	2.79	52	3.58	1.89	46	6.50	2.51	50	8.14		
		SW9720	6.32	8.13	2.85	49	7.43	2.72	42	3.78	1.94	50	6.44	2.50	49	8.10		
		59N49	5.81	8.03	2.82	44	7.53	2.74	44	3.78	1.94	51	6.45	2.50	48	8.09		
		AL999Plus	5.83	7.94	2.81	43	8.03	2.83	56	3.46	1.86	44	6.48	2.50	47	8.07		
		UC-2803	5.75	8.98	2.99	59	7.94	2.82	54	2.88	1.69	31	6.60	2.50	46	8.07		
		El Tigre Verde	5.94	8.43	2.90	52	7.55	2.75	46	3.31	1.82	39	6.43	2.49	45	8.00		
		SW9500	5.73	7.75	2.78	38	7.62	2.76	49	3.65	1.91	49	6.40	2.48	44	7.97		
8	7.8	Pierce	6.09	8.22	2.86	51	7.30	2.70	40	3.47	1.86	45	6.33	2.47	43	7.91		
		VL625HQ	6.02	8.04	2.83	46	7.20	2.68	38	3.62	1.90	47	6.29	2.47	42	7.88		
		Mbapa 69	5.48	8.04	2.83	47	7.31	2.70	41	3.45	1.86	43	6.27	2.46	41	7.85		
		5715	4.60	7.65	2.76	36	7.23	2.69	39	3.39	1.83	41	6.09	2.43	40	7.64		
		UC-2802	5.37	7.38	2.71	32	7.87	2.81	53	2.89	1.69	30	6.05	2.40	39	7.48		
		UC-2804	4.47	7.80	2.79	41	6.97	2.64	34	2.99	1.73	34	5.94	2.39	38	7.40		
		Corona	5.16	7.80	2.79	39	7.56	2.75	47	2.63	1.61	25	5.99	2.38	37	7.36		
		UC-2806	5.19	7.43	2.72	33	7.12	2.66	36	3.10	1.75	37	5.88	2.38	36	7.35		
		Salado	5.79	7.66	2.76	35	6.54	2.55	27	3.34	1.82	40	5.85	2.38	35	7.33		
		58N57	5.73	7.32	2.70	30	7.55	2.75	45	2.84	1.68	28	5.90	2.38	34	7.32		
		SW7410	5.04	7.17	2.67	25	6.60	2.56	29	3.43	1.85	42	5.73	2.36	33	7.22		
		Fiesta	5.16	7.79	2.79	40	6.69	2.58	30	2.90	1.70	32	5.79	2.36	32	7.21		
		UC-2808	5.03	7.23	2.68	26	6.94	2.63	32	3.04	1.74	35	5.74	2.35	31	7.17		
		UC-2807	5.10	7.36	2.71	31	6.97	2.64	33	2.83	1.68	29	5.72	2.34	30	7.12		
7	6.7	Dona Ana	5.33	7.70	2.77	37	6.22	2.48	23	3.06	1.75	36	5.66	2.33	29	7.07		

(Varieties continued on Table 12b)

LSD _{0.05} ⁶	0.23	0.18	0.16
CV(%)	6.34	4.98	6.83
LSD _{CV,0.05} ⁷	0.23		
CV(%)	7.16		

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

²=Published actual 4-year Fall Dormancy Rating of check cultivars using the Univ. of California regression equation (NAAIC, August 1998).

³=Dates planted - out - scored: Tulelake:5/8 - 9/5 - 10/1; Davis: 5/29 - 10/3 - 10/31; Kearney: 5/10 - 10/3 - 10/30; El Centro: 5/14 - 10/23 - 11/18/2002

⁴= Plant Height Score is transformed in to Natural Plant Height (NPH) using square root to remove heterogeneity of variance.

⁵=Suggested single year fall dormancy rating based on three location single year regression (FDR=6.087(NPH)-7.145) due to frost damage at Tulelake.

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.

⁸=Tulelake - Cultivar's in gray had the number of plants scored reduced due to frost on 9/30/02 - means were suspect. Therefore, no NPH was figured.

Table 12b. 2002 UC Alfalfa Fall Dormancy Trial results (Dormant and Semi-Dormant Groups approximately 2 through 7). Average Fall Dormancy Rating (FDR) is shown in right column (box). Mean was based upon 3 locations due to frost damage to non-dormant varieties (shaded areas) at Tullake. This four-location trial represents Intermountain (Tullake), Mediterranean (Davis, and Kearney), and desert (El Centro) environments.

Fall Dormancy year	Multi- Class ¹	FDR ²	Name	Location									Across locations			2002 FDR ⁵		
				Tullake ^{3b}			Davis ³			Kearney ³			El Centro ³				Score	NH ⁴
			Score	Score	NH ⁴	Rank	Score	NH ⁴	Rank	Score	NH ⁴	Rank	Score	NH ⁴	Rank			
<i>(Varieties continued from Table 12a)</i>																		
7	67	Dona Ana	5.33	7.70	2.77	37	6.22	2.48	23	3.06	1.75	36	5.66	2.33	29			7.07
		UC2800	5.82	7.32	2.70	29	6.48	2.54	25	3.09	1.76	38	5.63	2.33	28			7.07
		UC2805	5.35	7.44	2.72	34	6.55	2.55	26	2.98	1.72	33	5.65	2.33	27			7.06
		Royal	4.48	7.27	2.69	27	7.05	2.65	35	2.66	1.63	27	5.66	2.33	26			7.01
		Achiever	4.64	7.34	2.70	28	6.78	2.60	31	2.35	1.53	22	5.49	2.28	25			6.72
		Dura 765	4.95	6.93	2.63	22	6.57	2.56	28	2.35	1.53	21	5.30	2.25	24			6.55
		UC-1547	4.94	7.00	2.64	24	6.11	2.47	22	2.40	1.55	23	5.17	2.22	23			6.36
		Aspire	5.25	6.94	2.63	23	5.78	2.40	19	2.64	1.62	26	5.12	2.22	22			6.35
6	63	ABI 700	4.59	6.70	2.58	21	6.39	2.53	24	2.29	1.51	19	5.13	2.21	21			6.28
		Belmont	4.46	6.60	2.56	20	5.88	2.42	20	2.53	1.59	24	5.00	2.19	20			6.18
		Magne601	4.45	6.18	2.47	18	5.97	2.44	21	2.31	1.52	20	4.82	2.15	19			5.92
		OK49	4.51	6.21	2.49	19	5.66	2.37	18	2.15	1.47	16	4.67	2.11	18			5.70
		Tahoe	4.90	6.13	2.47	17	5.52	2.34	17	2.20	1.48	17	4.62	2.10	17			5.63
5	53	Archer	4.21	5.79	2.41	14	5.06	2.24	15	2.23	1.48	18	4.36	2.04	16			5.30
		Tango	4.17	5.91	2.43	16	5.00	2.23	14	2.04	1.43	14	4.31	2.03	15			5.19
		Sutter	3.83	5.87	2.41	15	4.81	2.19	12	1.88	1.37	12	4.18	1.99	14			4.97
		Archer II	4.06	4.74	2.17	11	5.16	2.27	16	2.11	1.45	15	4.00	1.96	13			4.79
		54Q53	3.78	4.54	2.13	10	4.88	2.21	13	1.97	1.39	13	3.79	1.91	12			4.47
		Blazer XL	3.45	5.14	2.26	13	4.71	2.17	11	1.63	1.27	8	3.83	1.90	11			4.43
		Reno	3.75	4.14	2.02	6	4.58	2.13	10	1.72	1.31	11	3.45	1.83	10			3.98
		Fortress	3.38	4.92	2.21	12	4.07	2.01	6	1.56	1.25	6	3.52	1.82	9			3.94
		WL325HQ	3.76	4.36	2.09	9	4.46	2.11	7	1.58	1.26	7	3.47	1.82	8			3.92
		Dura 512	4.28	4.10	2.02	7	4.50	2.11	8	1.70	1.30	9	3.43	1.81	7			3.87
4	38	Legend	3.79	4.23	2.04	8	4.56	2.13	9	1.56	1.25	5	3.45	1.81	6			3.86
3	34	5246	2.99	3.76	1.93	4	3.66	1.91	3	1.71	1.30	10	3.04	1.71	5			3.29
		Flumas	3.79	3.76	1.93	5	4.03	2.00	5	1.40	1.18	4	3.06	1.71	4			3.24
		Geneva	3.34	3.28	1.81	3	3.85	1.96	4	1.37	1.16	3	2.65	1.62	3			2.70
2	20	Vernal	1.96	3.05	1.74	2	3.27	1.81	2	1.15	1.07	2	2.30	1.51	2			2.06
1	08	Maverick	1.54	1.59	1.25	1	2.27	1.50	1	1.11	1.05	1	1.66	1.27	1			0.58
		LSD _{0.05} ⁶			0.23		0.18			0.16								
		CV(%)			6.34		4.98			6.83								
		LSD _{0.10,0.05} ⁷					0.23											
		CV(%)					7.16											

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

²Actual 4-year Fall Dormancy Rating of check cultivars using the Univ. of California regression equation (NARC August 1998).

³Location: Date planted - out - scored: Tullake 5/8 - 9/5 - 10/1; Davis 5/29 - 10/3 - 10/31; Kearney 5/10 - 10/3 - 10/30; El Centro 5/14 - 10/23 - 11/18/2002

⁴Plant Height Score is transformed into Natural Plant Height (NH) using square root to remove heterogeneity of variance.

⁵Suggested single year fall dormancy rating based on three location single year regression (FDR=6.037(NH)-7.145) due to frost damage at Tullake.

⁶Fishers protected Least Significant Difference for comparison of NH means within locations.

⁷Fishers protected Least Significant Difference for comparison of NH means among locations.

⁸Tullake - Cultivar's in gray had the number of plants scored reduced due to frost 9/30 - means were suspect. Therefore, no NH was figured.

Table 13a. 2001-2002 UC Winter survival scores (Average Survival Index), Tulelake, CA (Semi- and Non-Dormant Groups, approximately 7-11 Fall Dormancy (FD) Class, ASI rating for check cultivars, and 2000 Across-location average Dormancy data are provided for reference.

FD Class ¹	Check Name	2001 Tulelake Data			Locations 2001 FDR ⁴	2001-2002 Average Survival Index (ASI) ⁵	
		Score	NPH ³	Rank		ASI	Letter
11	IVM2000	7.03	2.65	62	8.80	4.50	A ⁶
	UC-1604	9.72	3.11	78	11.79	4.41	AB
	UC-1465	9.18	3.03	77	10.91	4.41	AB
	UC-2515	8.12	2.84	72	10.37	4.28	ABC
	SW101	7.09	2.66	63	9.11	4.19	ABCD
	UC-2516	9.18	3.03	76	10.79	4.15	ABCD
	UC-1889	8.96	2.99	74	10.81	4.12	ABCD
	UC-2704	9.13	3.02	75	11.06	4.10	ABCDE
	UC-2674	8.59	2.93	73	10.09	4.08	BCDE
	IVS9002	6.68	2.58	51	8.74	4.05	BCDE
	9	6 CUF101	7.31	2.70	66	8.71	4.00
UC-2904		6.24	2.50	40	7.58	3.95	ODEFG
10	UC-1887	7.45	2.73	69	9.69	3.90	CDEFGH
	UC Cibola	6.58	2.56	46	7.96	3.88	CDEFGH
	Highline	6.84	2.61	56	8.48	3.84	DEFGHIJ
	UC-2670a	7.65	2.76	70	9.33	3.82	DEFGHIJ
	UC-2670b	7.92	2.81	71	9.38	3.79	DEFGHIJK
	ZS 0001	7.03	2.65	61	8.22	3.70	EFGHIJKL
	Magna 901	6.99	2.64	60	8.06	3.62	FGHIJKLM
	SW1028	7.44	2.73	68	9.05	3.61	FGHIJKLMN
	UC Impalo	6.83	2.61	55	8.57	3.59	FGHIJKLMN
	Mecca III	6.91	2.63	58	7.97	3.59	GHIJKLMNO
8	SW9628	7.65	2.76	70	8.79	3.56	GHIJKLMNO
	Pierce	6.95	2.64	59	7.89	3.52	HJKLMNQP
	WL 525 HQ	6.84	2.61	57	7.95	3.52	HJKLMNQP
	UC-2681	6.64	2.58	48	8.63	3.52	HJKLMNQP
	UC-2908	6.30	2.51	41	7.43	3.51	HJKLMNQP
	Prestige	6.67	2.58	49	8.30	3.51	IJKLMNQPQ
	UC-2705	7.35	2.71	67	8.80	3.49	JJKLMNQPQ
7	WL625HQ	6.80	2.61	54	7.97	3.46	KLMNQPQ
	Dona Ana	6.20	2.49	39	7.39	3.45	KLMNQPQ
<i>(Varieties continued on Table 13b)</i>							
LSD _{0.05}		0.13			0.40		
CV(%)		3.8			9.40		

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 heterogeneity of variance.

⁴= Suggested single year fall dormancy rating based on four location single year regression (FDR=7.4138(NPH)-11.241).

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=Fisher's protected Least Significant Difference for comparison of ASI means.

Table 13b. 2001-2002 UC Winter survival scores (Average Survival Index), Tulelake, CA (Dormant and Semidormant Varieties, approximately 2-7). Fall Dormancy (FD) Class, ASI rating for check cultivars, and 2000 Across-location average Dormancy data are provided for reference.

FD Class ¹	Check ASI rating ²	2001 Tulelake Data			Across Locations 2001 FDR ⁴	2001-2002				
		Name	Score	NPH ³		Rank	Average Survival Index (ASI) ⁵			
<i>(Varieties continued from Table 13a)</i>										
7		Dona Ana	6.20	2.49	39	7.39	3.45	KLMNOPQ		
		Salado	7.11	2.67	65	7.99	3.45	KLMNOPQ		
		SW9500	7.11	2.67	64	8.32	3.45	KLMNOPQ		
		UC-2906	6.07	2.46	38	7.55	3.45	KLMNOPQ		
		ZS 0000	6.76	2.60	53	7.84	3.39	LMNOPQ		
		58N57	6.43	2.54	43	7.17	3.30	MNOPQ		
		Pershing	6.58	2.56	47	7.17	3.29	MNOPQ		
		El Tigre Verde	6.36	2.52	42	8.02	3.24	MNOPQ		
		IK 9005	6.70	2.59	52	7.80	3.22	MNOPQ		
		Y57Q53	6.68	2.58	50	6.87	3.21	NOPQR		
		IK 9004	6.56	2.56	44	7.78	3.19	OPQRS		
		6		ABI 700	5.47	2.34	36	6.26	3.13	PQRS
				IK 9003	6.56	2.56	45	7.40	3.11	QRST
				Dura 400	5.10	2.26	31	5.05	2.81	RSTU
Blazer XL	4.97			2.23	27	4.37	2.78	TUV		
Leaf Maste	4.86			2.20	26	4.25	2.70	TUWV		
330	5.19			2.28	33	4.50	2.66	UWVX		
Fortress	4.63			2.15	18	4.54	2.65	UWVXY		
Key 2	4.68			2.16	20	4.70	2.64	UWVXY		
Dura 512	5.43			2.33	35	5.00	2.63	UWVXY		
5	5			Archer	5.50	2.34	37	5.53	2.61	UWVXY
				Innovator	4.09	2.02	5	3.13	2.61	UWVXY
				Reno	4.85	2.20	25	4.21	2.59	UWVXYZ
				Select	4.74	2.18	22	4.31	2.56	UWVXYZa
				WL 334 RK	5.11	2.26	32	5.11	2.54	UWVXYZa
		Plumas (3L	4.96	2.23	28	3.58	2.54	UWVXYZa		
		329	4.41	2.10	11	3.51	2.53	UWVXYZa		
		Archer II	5.21	2.28	34	5.35	2.51	UWVXYZab		
		Forecast 1	4.64	2.15	19	4.28	2.46	UWVXYZab		
		AlfaStar	4.83	2.20	24	3.63	2.44	UWVXYZab		
		3		5246	4.29	2.07	10	3.50	2.41	UWVXYZab
				Spirit	4.09	2.02	6	4.22	2.39	VWXYZab
				DK 142	4.78	2.18	23	3.70	2.36	VWXYZab
				Tristar	4.48	2.12	15	4.29	2.36	VWXYZab
WL 325 HQ	4.69			2.17	21	4.08	2.35	VWXYZab		
Magnum V	4.58			2.14	17	4.85	2.33	VWXYZab		
Affinity +	4.20			2.05	7	3.67	2.32	VWXYZab		
Gold Plus	5.07			2.25	29	4.32	2.31	WXYZab		
WL 327	4.44			2.11	13	4.14	2.28	XYZabc		
4				Legend	5.07	2.25	30	4.45	2.27	XYZabc
				Sentry	4.49	2.12	14	3.18	2.25	Zabc
				53V08	4.51	2.12	16	3.86	2.19	bode
				Amerigraze	4.24	2.06	8	3.62	2.18	cde
				Forecast 3	4.24	2.06	9	4.01	2.12	cdef
		UC-2907	3.09	1.76	4	2.19	1.89	def		
		UC-2905	2.84	1.68	3	1.81	1.82	ef		
		1	1	Maverick	2.20	1.47	1	0.55	1.81	ef
				2	2.23	1.49	2	1.35	1.77	f
				LSD _{0.05} ⁷			0.13			0.40
				CV(%)			3.8			9.40

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 heterogeneity of variance.

⁴= Suggested single year fall dormancy rating based on four location single year regression (FDR=7.4138(NPH)-11.241).

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=Fisher's protected Least Significant Difference for comparison of ASI means.

Table 14. Suggested minimum alfalfa cultivar pest resistance and fall dormancy ratings¹ for alfalfa pests found in six California climate zones².

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	Verticillium 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 resistant 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 environmental 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	nhays@psnw.com
ABI. Inc.	Don Miller	2323 11th Ave.	Nampa, ID.	83687	208-467-2191	208-467-9523	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	209-769-7570	209-826-8842	joem.abialfalfa@thegrid.net
Cal/West Seeds	Lauren Johnson	P.O. Box 1428	Woodland, CA	95776	530-666-3331	530-666-1464	ljohnson@calwestseeds.com
Dairyland Seed Co.	Dan Gardner	13147 Jackson Hwy.	Sloughhouse, CA	95683	916-682-3215	916-682-8435	dgardner@dairylandseed.com
Eureka/SeedTec	Craig Sharp	P.O. Box 1866	Woodland, CA	95776	530-661-6995	530-661-1575	eurekaseed@aol.com
Farm Valley Brand Seeds	Mike Reed	P.O. Box 2362	Ceres, CA	95307	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	208-466-3568	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	greatplainsresearch@worldnet.at
IK Seeds Research Inc.	Jeffrey Kawaguchi	208 Jalisco Place	Davis, CA	95616	530-753-0592		jbkawaguchi@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	1-800-521-7021	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	225 West 1 st . Street	Story City, Iowa	50248	1-800-247-3967	515-733-4788	dteslow@mbsgenetics.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
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

