

## **AGRONOMY PROGRESS REPORT**

# **2013 CALIFORNIA ALFALFA VARIETY TRIAL YIELD RESULTS, INCLUDING ROUND-UP READY VARIETIES**

Dan Putnam, Craig Giannini, Francisco Maciel, Steve Orloff, Darrin Culp, Chris DeBen, Dale Pattigan<sup>1</sup>

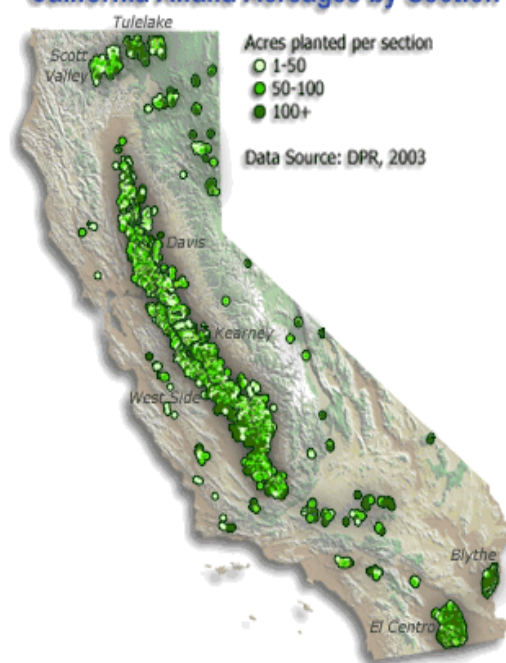
### **ABSTRACT**

This publication details alfalfa yield trial data for single harvest, single year, and multiple-year summaries for the year 2013. Both conventional and Roundup-Ready (RR) lines have been tested. Yield trials were conducted in 6 regions in California: the Intermountain area (2 locations), the Sacramento Valley (1 location), the Stanislaus Valley (1 location), the San Joaquin Valley (2 locations) and the Imperial Valley (low desert, Figure 1). The alfalfa variety trial data from the University of California is placed online; often well in advance of this published report (<http://alfalfa.ucdavis.edu/>).

### **INTRODUCTION**

Choosing superior varieties of alfalfa is a significant economic factor for alfalfa growers. A large number of commercial varieties are currently available, enabling wide range of options for producers. These UC trials provide unbiased data from a wide range of environments related to variety performance of alfalfa. In California, alfalfa is grown from the Oregon border to the Mexican border, and throughout the Great Central Valley, which consists of the Sacramento and San Joaquin Valleys (Figure 1). These sites represent 3-4 cut systems (dormant varieties) in the **Intermountain Region**, 6-8 cut systems (dormant, semi-dormant, or non-dormant 90% varieties) in the **Northern Central Valley**, 7-8 cut systems (semi-dormant to non-dormant varieties) in the **Southern Central**

**California Alfalfa Acreages by Section**



**Figure 1. California alfalfa acreage. The Intermountain region is represented by Tulelake and Scott Valley, Sacramento Valley by Davis, San Joaquin Valley by Kearney and West Side Locations, high desert by the Lancaster trial, and Low Desert by the El Centro trial.**

<sup>1</sup> D. Putnam, Extension Agronomist UC Davis (One Shields Ave., Department of Crop Sciences, University of California, Davis, CA 95616 ([dhputnam@ucdavis.edu](mailto:dhputnam@ucdavis.edu)); Craig Giannini, Staff Research Associate, UC Davis, ([cgiannini@ucdavis.edu](mailto:cgiannini@ucdavis.edu)); F. Maciel, SRA, El Centro; Steve Orloff, UCCE Farm Advisor, Siskiyou and Modoc Counties, Darrin Culp, Ag. Superintendent, Tulelake; Chris DeBen, Staff Research Associate, UCD; D. Pattigan, SRA, Kearney Research & Extension Center, SRA. See <http://alfalfa.ucdavis.edu> for comprehensive UC Alfalfa Variety data.

**Valley** and 8-11 cut systems (non-dormant varieties) in the **Low Desert Environment** in the south. The **High Desert environment** generally is a 5-6 cut system.

Both private and public varieties and experimental lines are tested. These data are frequently 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 2013.

## **2013 ALFALFA PRODUCTION YEAR**

The 2013 production season was generally characterized by a much more moderate winter season followed by a mild spring and summer season, with moderate to warmer temperatures in July and August. California is in its 3<sup>rd</sup> year of drought conditions, with increased water limitations in most regions due to low water supplies for irrigation. The remainder of the season (August-October) was much milder than typical. Winter rainfall was 50% below normal which caused the reservoirs to be diminished from their previous highs. This was followed by seasonably cooler temperatures in the summer months. The minimal rainfall during the early spring allowed earlier harvests from the growers in the San Joaquin Valley and southern regions. The Intermountain areas also had a fairly dry spring. The moderate and dry fall months enabled excellent late production (high yields and high quality) for many growers.

Record prices occurred in 2013 and were well above the 10-year average, rising to over \$250/ton in some of the key dairy areas of Central California. This situation continued through the summer and fall months. Currently, hay stocks are down, demand is high and hay prices are starting to increase. New plantings of alfalfa are down. As we moved into the new year the price of alfalfa remains upwards of \$250-300.00/ton.

## **TESTING ALFALFA VARIETIES - METHODS**

**Yield Trials.** The California Alfalfa Cultivar Yield, Fall Dormancy, and Forage Quality Trials are open to any certified alfalfa cultivar, which is sold or is likely to be sold in California. Blends or brands (unless they are certified blends) are not included in these trials. Experimental cultivars with a high likelihood of release within the next few years are tested as space permits. Seven alfalfa variety yield trials were harvested from Tulelake, Scott Valley, Davis, Modesto, Parlier, West Side Field Station and El Centro in 2013.

In the fall of 2013 (Tulelake and Kearney Research and Extension Center) two new trials were established. Also, a new salinity trial was established at the West Side Research and Experiment Center. In the fall of 2012 we installed drip irrigation lines and established a new Imperial Valley variety trial.

All the varietal trial plantings were at approximately 25 lbs./acre live seed. Plots were 3' to 4' wide and 13 to 20 feet long, depending upon location and specific layout. Four to six replicates of each cultivar were planted at each location, depending upon the expected variation at that site. Experimental design was a randomized complete block design. Harvests for yield estimation were obtained from approximately a 3' x 18' area per plot using a flail-type or cutter-bar type

forage harvester, and dry matter yield determined by oven-drying sub samples to a constant weight. A representative group of 5-6 varieties were taken at each harvest, and the average dry matter used for yield determination. Three to four harvests were taken in the intermountain region, while up to ten cuttings were taken in the Imperial Valley. Cutting schedules were determined by the most common practice in that region and are the same for all varieties within a trial. The data is obtained from each of the locations and analyzed and summarized at the UC Davis campus.

**Note on Statistical Inference:** In 2006, we elected to analyze and report significance of variety testing data (calculation of F-test and LSD Values) based upon a probability value of 10% vs. the traditional 5%. In doing so, we are accepting a 90% confidence level vs. a 95% confidence level. This is due to the fact that growers routinely base decisions based upon degrees of confidence that are far lower than 95% confidence levels we have routinely used. A 10% probability level (the probability that the declared difference is based solely upon chance) is sufficiently conservative to prevent choosing varieties based upon false differences—such decisions are always a compromise between practical factors and statistical vigor. The practical implication of this decision: it does not change the rankings or yield averages, but it makes the groups that are considered similar (those that share the same letter A,B,C designations based upon LSD values) smaller in number. To put this in non-technical language: We report that variety X is significantly different than variety Y, and have accepted a 10% chance that the apparent difference is due to random variation, not due to the variety. We feel a 90% confidence level is sufficient for making decisions on alfalfa varieties.

## **2013 YIELD RESULTS**

### **Intermountain Region**

**2010 UC Tulelake Yield Trial** – A new trial was planted with 32 entries on August 17, 2010. Single year results from four 2013 harvests are provided in Table 1 with the first cutting taking place on June 12, 2013. Yield differences from highest to lowest yielding variety were approximately 1.6 tons/acre. The average yield across all varieties was 8.5 tons/acre. The CVs were relatively low; indicating control of varieties was stable over each cut in this trial. Yields averaged over the three years were 8.3 tons/acre (Table 2). The yearly yield average between high and low varieties was nearly 1.3 tons/acre difference averaged over the three years.

### **Sacramento Valley**

**2011 UC Davis Yield Trial**– In the fall of 2011 we installed drip irrigation lines in preparation of a new variety trial. On November 2 we established a new variety trial with 47 varieties. The plantings were at approximately 25 lbs./acre live seed. This is the second year of harvests for this UC Davis Yield Trial. Seven cuttings were conducted during the season with the first cutting early in the season on March 27, 2013. Single year results from the seven harvests are provided in Table 3 and multiple year results in Table 4. The yield across all varieties was nearly 11 tons/acre. The yearly yield average between high and low varieties was 3.3 tons/acre difference. A few of the harvests mid summer were relatively high due to irrigation imbalances in the replications. Multiple year yield differences from highest to lowest yielding variety were approximately 2.4 tons/acre. The average yield across all varieties was 8.63 tons/acre.

## Stanislaus County

**2011 UC Stanislaus Yield Trial--** – A new trial was planted with 52 entries on November 7, 2011 in Modesto. Eight cuttings were conducted during the 2013 season with the first cutting taking place on March 19, 2013. Single year results from the 2013 harvests are provided in Table 5. The average yield across all varieties was 14 tons/acre. The yearly yield averages between high and low varieties were about 4.3 tons/acre difference, and CVs were moderate, indicating average control of variation in this trial. The fall dormancy ranges were from 6-9. Multiple year yield (Table 6) differences from highest to lowest yielding variety were approximately 2.6 tons/acre. The average yield across all varieties was 9.75 tons/acre.

## San Joaquin Valley

**2011 UC Kearney Yield Trial** – A new trial was planted with 48 entries September 14, 2010 at the Kearney Research and Extension Center. This was the third and final year to produce yield data in this trial. A new trial was established in the fall of 2013. Eight cuttings were conducted during the 2013 season with the first cutting taking place on April 23, 2013. Single year results from the 2013 harvests are provided in Table 7. The average yield across all varieties was 12.8 tons/acre. The yearly yield averages between high and low varieties were about 5.1 tons/acre difference, and CVs were moderate, indicating average control of variation in this trial. The fall dormancy ranges were from 6-10. Yields averaged over the three years were over 12 tons/acre (Table 8). The yearly yield average between high and low varieties was nearly 3.4 tons/acre difference averaged over the three years.

## Low Desert

**2012 UC Imperial Yield Trial** – In the 2012 season we established a new trial in the fall. This trial was planted with 36 varieties on October 8, 2012. The planting was a well-established stand and has drip tape installed to insure better irrigation management. This is the first year of yield data on this trial. Nine cuttings were conducted during the 2013 season with the first cutting taking place on Feb. 21, 2013. Single year results from the 2013 harvests are provided in Table 9. The average yield across all varieties was nearly 15 tons/acre. The yearly yield averages between high and low varieties was nearly 2.5 tons/acre difference, and CVs were moderate, indicating average control of variation in this trial. The fall dormancy ranges were from 9-10.

## INTERPRETING YIELD TRIAL RESULTS

*We suggest the following procedure for selecting varieties:*

1. **Select a group of high-yielding varieties** for your region (generally the top ¼ to 1/3 of a trial which is closest to your area) from Tables 1-9 over-the years summaries (or from our website). Since this report contains single-year summaries, we recommend that you see the over-the years summaries from the relevant locations which is on our website: <http://alfalfa.ucdavis.edu>

2. **Determine the Pest Resistance and Fall Dormancy needs** for your region. The FD scores are provided on these tables and in the Alfalfa Alliance Website (see #3).
3. **Consider the Fall Dormancy and Pest resistance Ratings** of individual varieties – available at the Alfalfa Alliance Website ([www.alfalfa.org](http://www.alfalfa.org)).
4. **Choose those high yielding varieties** with the best Pest Resistance package for your region.
5. **Consider evidence for high quality** if available (such information is not always widely available, but generally more dormant varieties tend to be higher in quality).
6. **Consider Biotech Traits** such as the Glyphosate-Resistance that could be available in the near future. This should be compared as a comprehensive weed control strategy, not just a variety.
7. **Test a variety on portions of your farm** to see how it does under your soil conditions.
8. **Consider the price of seed, availability and Service.**

### ACKNOWLEDGMENTS

The authors are grateful for the help of Dale Pattigan for help with the field plots at UC Kearney Ag Center, Rafael Solorio and crews for help with the field plots at Westside Research and Extension Center, Rob Wilson's crew at the Intermountain Research and Extension Center, Francisco Maciel's crew at the Desert Research and Extension Center, and Jim Jackson for help on the U.C. Davis plots.

*In accordance with applicable State and Federal laws and University policy, the University of California does not discriminate in any of its policies, procedures, or practices on the basis of race, religion, color, national origin, sex, marital status, sexual orientation, age, veteran status, medical condition, or handicap. Inquiries regarding this policy may be addressed to the Affirmative Action Director, University of California, Agriculture and Natural Resources, 300 Lakeside Drive, 6<sup>th</sup> Floor, Oakland, CA 94612-3560. (415) 987-0097. University of California and United States Department of Agriculture Cooperating.*

**TABLE 1. 2013 YIELDS, TULELAKE ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 8/17/10**

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

		Cut 1	Cut 2	Cut 3	Cut 4	YEAR		% of
		12-Jun	12-Jul	14-Aug	20-Sep	TOTAL		VERNAL
	FD	Dry t/a						%
DG4210	4	3.1 ( 9)	2.5 ( 1)	2.1 ( 2)	1.4 ( 8)	9.1 ( 1)	A	110.2
Integra 8400	4	3.4 ( 1)	2.3 (20)	2.0 (21)	1.3 (20)	9.0 ( 2)	AB	108.9
Archer III	5	3.1 (11)	2.4 (10)	2.0 (10)	1.4 ( 5)	8.9 ( 3)	AB	107.8
WL 363 HQ	5	3.0 (18)	2.5 ( 3)	2.1 ( 5)	1.4 ( 4)	8.8 ( 4)	ABC	107.5
R46Bx162	4	3.0 (13)	2.4 ( 6)	2.0 (12)	1.3 (14)	8.8 ( 5)	ABCD	107.1
Integra 8300	3	3.1 ( 7)	2.4 ( 8)	2.0 ( 8)	1.2 (26)	8.8 ( 6)	ABCD	107.1
Syngenta 6422Q	4	2.9 (22)	2.5 ( 2)	2.1 ( 3)	1.4 ( 6)	8.8 ( 7)	ABCD	107.0
Rebound 6.0	4	3.0 (15)	2.4 (11)	2.0 (14)	1.3 (10)	8.7 ( 8)	ABCDE	106.3
WL 357 HQ	4	3.1 (10)	2.3 (17)	2.0 ( 6)	1.3 (17)	8.7 ( 9)	ABCDE	106.3
R57M129 FG	5	2.9 (21)	2.4 ( 4)	2.0 (11)	1.3 (16)	8.7 (10)	BCDEF	105.8
GrandStand	4	3.1 ( 6)	2.3 (18)	1.9 (22)	1.3 (22)	8.7 (11)	BCDEF	105.6
Lightening IV	4	2.9 (24)	2.4 ( 5)	2.0 ( 9)	1.3 ( 9)	8.7 (12)	BCDEFG	105.5
R47M120 FG	4	2.9 (20)	2.4 ( 9)	2.0 (19)	1.3 (11)	8.7 (13)	BCDEFG	105.4
AmeriStand407TQ	4	3.0 (14)	2.3 (16)	2.0 (13)	1.3 (19)	8.6 (14)	BCDEFG	105.0
MasterPiece II	4	2.7 (29)	2.4 (12)	2.2 ( 1)	1.4 ( 1)	8.6 (15)	BCDEFG	105.0
Syngenta 6422Q-EMD	4	2.9 (23)	2.4 ( 7)	2.1 ( 4)	1.3 (24)	8.6 (16)	BCDEFG	104.8
R46Bx163	4	2.9 (19)	2.4 (13)	2.0 ( 7)	1.3 (25)	8.6 (17)	BCDEFG	104.8
HybriForce 2400	4	3.3 ( 4)	2.1 (25)	1.9 (28)	1.2 (27)	8.5 (18)	CDEFCH	103.5
MS Sunstra 803	4	3.3 ( 3)	2.0 (28)	1.8 (30)	1.3 (23)	8.5 (19)	DEFGHI	103.1
R48M153 FG	4	2.8 (26)	2.3 (14)	2.0 (15)	1.3 (15)	8.5 (20)	DEFGHI J	103.0
PGI 459	4	3.1 ( 8)	2.2 (24)	1.9 (25)	1.2 (28)	8.4 (21)	EFCHI JK	102.6
R47M312 FG	4	2.8 (25)	2.3 (19)	2.0 (18)	1.3 (21)	8.4 (22)	EFCHI JK	102.2
R57M130 FG	5	2.7 (27)	2.3 (15)	2.0 (17)	1.3 (12)	8.4 (23)	FGHI JK	101.7
R56Bx212	5	2.7 (28)	2.3 (22)	2.0 (16)	1.4 ( 3)	8.3 (24)	GHI JK	101.3
Minerva	5	2.7 (30)	2.3 (21)	1.9 (23)	1.4 ( 2)	8.3 (25)	HI JK	100.5
Vernal	2	3.4 ( 2)	2.0 (29)	1.8 (31)	1.1 (31)	8.2 (26)	HI JK	100.0
Xtra-3	4	3.0 (12)	2.1 (27)	1.9 (24)	1.2 (29)	8.2 (27)	HI JKL	99.7
R48W224 FG	4	2.6 (31)	2.2 (23)	2.0 (20)	1.4 ( 7)	8.2 (28)	I JKL	99.2
Dura 512	5	3.0 (17)	2.0 (30)	1.9 (26)	1.3 (18)	8.1 (29)	JKL	98.8
Mountaneer II	5	3.0 (16)	2.1 (26)	1.9 (27)	1.2 (30)	8.1 (30)	KL	98.7
Rugged	3	3.3 ( 5)	1.9 (31)	1.7 (32)	1.0 (32)	7.8 (31)	L	95.5
R65BD278	6	2.4 (32)	1.8 (32)	1.8 (29)	1.3 (13)	7.5 (32)	M	90.8
MEAN		2.97	2.28	1.96	1.29	8.50		
CV		5.8	5.1	5.3	7.1	3.8		
LSD (0.1)		0.19	0.12	0.11	0.10	0.35		

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

Entries followed by the same letter are not significantly different at the 10% probability level according to Fisher's (protected) LSD.

FD = Fall Dormancy reported by seed companies.

**TABLE 2. 2011-2013 YIELDS, TULELAKE ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 8/17/10**

		2011	2012	2013	Average		% of
	FD	Yield	Yield	Yield			VERNA
		Dry t/a					%
Integra 8400	4	8.2 ( 8)	8.9 ( 1)	9.0 ( 2)	8.7 ( 1)	A	110
Archer III	5	8.0 (14)	8.9 ( 2)	8.9 ( 3)	8.6 ( 2)	A B	109
DG4210	4	8.2 ( 5)	8.4 (20)	9.1 ( 1)	8.6 ( 3)	A B	109
WL 363 HQ	5	8.2 (10)	8.7 ( 8)	8.8 ( 4)	8.6 ( 4)	A B	108
WL 357 HQ	4	8.2 ( 7)	8.7 ( 7)	8.7 ( 9)	8.6 ( 5)	A B C	108
R57M129 FG	5	8.3 ( 2)	8.5 (17)	8.7 (10)	8.5 ( 6)	A B C	108
Syngenta 6422Q	4	8.0 (17)	8.7 ( 5)	8.8 ( 7)	8.5 ( 7)	A B C	108
MS Sunstra 803	4	8.8 ( 1)	8.2 (23)	8.5 (19)	8.5 ( 8)	A B C	108
R46Bx162	4	8.0 (13)	8.6 (11)	8.8 ( 5)	8.5 ( 9)	A B C	108
HybriForce 2400	4	8.3 ( 3)	8.6 (12)	8.5 (18)	8.5 (10)	A B C	107
R57M130 FG	5	8.3 ( 4)	8.8 ( 4)	8.4 (23)	8.5 (11)	A B C	107
AmeriStand407TQ	4	8.1 (12)	8.6 (13)	8.6 (14)	8.4 (12)	B C D	107
GrandStand	4	8.2 ( 6)	8.3 (22)	8.7 (11)	8.4 (13)	B C D	107
Lightening IV	4	7.7 (25)	8.8 ( 3)	8.7 (12)	8.4 (14)	B C D	107
R46Bx163	4	7.9 (20)	8.7 ( 6)	8.6 (17)	8.4 (15)	B C D	107
PGI 459	4	8.2 ( 9)	8.5 (16)	8.4 (21)	8.4 (16)	B C D	106
Rebound 6.0	4	7.9 (19)	8.5 (18)	8.7 ( 8)	8.4 (17)	B C D	106
R47M120 FG	4	7.8 (24)	8.6 (10)	8.7 (13)	8.4 (18)	B C D E	106
Syngenta 6422Q-EMD	4	7.8 (23)	8.7 ( 9)	8.6 (16)	8.4 (19)	B C D E	106
MasterPiece II	4	7.9 (21)	8.5 (19)	8.6 (15)	8.3 (20)	B C D E	106
Integra 8300	3	7.8 (22)	8.4 (21)	8.8 ( 6)	8.3 (21)	B C D E	106
R47M312 FG	4	8.0 (15)	8.5 (15)	8.4 (22)	8.3 (22)	C D E	105
R48M153 FG	4	7.6 (29)	8.6 (14)	8.5 (20)	8.2 (23)	D E F	104
R56Bx212	5	7.9 (18)	8.2 (25)	8.3 (24)	8.1 (24)	E F G	103
Dura 512	5	8.1 (11)	7.9 (29)	8.1 (29)	8.1 (25)	F G H	102
Xtra-3	4	7.7 (26)	8.2 (24)	8.2 (27)	8.0 (26)	F G H	102
Mountaneer II	5	8.0 (16)	8.0 (28)	8.1 (30)	8.0 (27)	F G H	102
R48W224 FG	4	7.7 (27)	8.2 (26)	8.2 (28)	8.0 (28)	F G H	101
Minerva	5	7.4 (31)	8.1 (27)	8.3 (25)	7.9 (29)	G H	100
Vernal	2	7.6 (28)	7.8 (30)	8.2 (26)	7.9 (30)	H	100
Rugged	3	7.4 (32)	7.4 (31)	7.8 (31)	7.6 (31)	I	95.8
R65BD278	6	7.4 (30)	7.2 (32)	7.5 (32)	7.4 (32)	I	93.3
MEAN		7.96	8.41	8.50	8.29		
CV		4.0	4.1	3.8	2.7		
LSD (0.1)		0.34	0.37	0.35	0.24		

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

Entries followed by the same letter are not significantly different at the 10% probability level according to Fisher's (protected) LSD.

FD = Fall Dormancy reported by seed companies.

**TABLE 3. 2013 Yields, UC Davis Alfalfa Cultivar Trial (Trial planted Nov. 2, 2011)**

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

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	YEAR
		27-Mar	9-May	11-Jun	8-Jul	5-Aug	3-Sep	29-Oct	TOTAL
	FD	Dry t/a							
<b>Released Varieties</b>									
Catalina	9	1.2 (36)	1.6 (27)	2.2 ( 6)	2.3 ( 1)	2.0 ( 1)	1.2 (20)	1.6 ( 9)	12.2 ( 1)
6610N	6	1.4 ( 9)	2.0 ( 4)	2.3 ( 1)	1.8 (18)	1.5 (28)	1.4 ( 6)	1.7 ( 3)	12.2 ( 2)
Integra 8600	6	1.4 (10)	2.2 ( 1)	2.3 ( 1)	1.8 (22)	1.7 (13)	1.3 (15)	1.5 (13)	12.1 ( 3)
Saltana	9	1.3 (31)	1.7 (25)	2.3 ( 3)	2.1 ( 2)	1.7 ( 7)	1.4 ( 7)	1.6 ( 7)	12.1 ( 4)
WL 440HQ	6	1.4 ( 7)	2.1 ( 2)	2.2 ( 6)	1.8 (16)	1.8 ( 6)	1.3 (10)	1.4 (25)	12.0 ( 6)
FGI R96Bx308	ND	1.3 (33)	2.0 ( 6)	2.2 ( 8)	2.0 ( 5)	1.7 (10)	1.3 (18)	1.6 (12)	12.0 ( 7)
Westar	8	1.2 (38)	1.9 (13)	2.2 (13)	2.0 (10)	1.5 (25)	1.5 ( 1)	1.6 ( 6)	11.9 ( 8)
Gunner	5	1.3 (25)	1.7 (21)	2.2 (11)	1.7 (31)	1.9 ( 2)	1.3 (10)	1.7 ( 2)	11.9 ( 9)
FGI R66Bx311	ND	1.3 (29)	1.9 ( 8)	2.1 (17)	1.8 (21)	1.7 ( 9)	1.4 ( 4)	1.6 ( 9)	11.8 (10)
6R100	6	1.2 (40)	1.9 ( 9)	2.2 ( 4)	1.9 (12)	1.7 (14)	1.3 (18)	1.6 ( 9)	11.8 (11)
AmeriStand 803T -EM09	9	1.3 (32)	1.6 (34)	2.2 ( 5)	1.9 (11)	1.8 ( 4)	1.3 (12)	1.7 ( 4)	11.7 (12)
GrandSlam	8	1.2 (46)	1.9 ( 7)	2.2 (13)	2.0 ( 4)	1.7 (11)	1.3 (15)	1.4 (21)	11.7 (13)
HybriForce-2600	6	1.3 (16)	2.1 ( 3)	2.1 (16)	2.0 ( 9)	1.6 (18)	1.1 (34)	1.3 (32)	11.5 (14)
WL 454HQ.RR	6	1.4 ( 2)	1.7 (18)	2.0 (23)	1.8 (13)	1.7 ( 7)	1.3 (15)	1.4 (21)	11.5 (15)
Arriba II	6	1.4 ( 6)	2.0 ( 5)	2.0 (23)	1.8 (26)	1.6 (17)	1.2 (24)	1.4 (21)	11.5 (17)
FGI R57W213	ND	1.2 (47)	1.7 (19)	2.2 (12)	2.1 ( 3)	1.6 (19)	1.1 (27)	1.5 (17)	11.4 (19)
DS611	6	1.3 (14)	1.6 (26)	2.2 (13)	1.8 (23)	1.6 (22)	1.3 (12)	1.4 (21)	11.3 (23)
AmeriStand 803T (Opt-Gold+)	9	1.3 (23)	1.4 (42)	2.1 (17)	2.0 ( 5)	1.6 (23)	1.4 ( 9)	1.5 (17)	11.2 (24)
DKA65-10RR	6	1.3 (20)	1.6 (29)	2.0 (26)	2.0 ( 7)	1.5 (35)	1.1 (30)	1.4 (25)	10.9 (27)
La Jolla	9	1.4 ( 4)	1.7 (22)	1.9 (33)	1.5 (40)	1.5 (28)	1.0 (38)	1.5 (15)	10.5 (30)
FGI R65BD279	ND	1.4 (11)	1.6 (31)	1.8 (35)	1.8 (13)	1.4 (43)	1.1 (35)	1.3 (32)	10.4 (33)
AmeriStand 803T	8	1.4 ( 5)	1.5 (41)	1.8 (40)	1.6 (35)	1.5 (33)	1.1 (29)	1.3 (32)	10.2 (34)
FGI R57K337	ND	1.3 (18)	1.6 (34)	1.8 (44)	1.5 (42)	1.5 (25)	1.1 (35)	1.2 (36)	10.0 (35)
Revolt (RR)	6	1.3 (28)	1.4 (44)	1.8 (39)	1.7 (33)	1.5 (31)	1.1 (31)	1.2 (36)	10.0 (36)
Tango	6	1.3 (24)	1.6 (30)	1.7 (45)	1.8 (26)	1.4 (42)	1.0 (42)	1.2 (43)	10.0 (37)
FGI R47OK215	ND	1.2 (44)	1.3 (47)	1.9 (30)	1.7 (31)	1.5 (28)	1.0 (41)	1.3 (31)	9.9 (39)
FGI R57K138	ND	1.3 (25)	1.6 (36)	1.9 (29)	1.5 (43)	1.4 (43)	1.0 (44)	1.2 (40)	9.9 (41)
Pacifico	8	1.2 (43)	1.5 (37)	1.8 (41)	1.6 (36)	1.4 (38)	1.0 (39)	1.2 (40)	9.8 (42)
4R200	4	1.4 ( 8)	1.8 (16)	1.9 (31)	1.5 (40)	1.3 (45)	0.8 (47)	1.0 (46)	9.7 (43)
FGI R56Bx214	ND	1.2 (38)	1.8 (17)	1.9 (31)	1.4 (45)	1.3 (46)	0.9 (45)	1.1 (44)	9.6 (44)
8R100	8.5	1.2 (42)	1.3 (46)	1.8 (35)	1.6 (38)	1.4 (39)	1.0 (42)	1.2 (36)	9.6 (45)
DS815	8	1.2 (36)	1.7 (19)	1.7 (47)	1.4 (45)	1.4 (36)	0.8 (46)	1.1 (44)	9.4 (46)
Integra 8800	8	1.2 (45)	1.6 (33)	1.7 (46)	1.4 (47)	1.2 (47)	1.0 (37)	0.8 (47)	8.9 (47)
<b>Experimental Varieties</b>									
SW 9106	9	1.3 (34)	1.9 (14)	2.2 ( 8)	2.0 ( 8)	1.7 (15)	1.4 ( 5)	1.7 ( 5)	12.0 ( 5)
SW 920	9	1.4 ( 3)	1.9 (10)	2.2 ( 8)	1.7 (29)	1.6 (24)	1.2 (21)	1.5 (17)	11.5 (16)
UC-410	9	1.3 (13)	1.6 (32)	2.0 (28)	1.8 (25)	1.7 (12)	1.5 ( 2)	1.6 ( 7)	11.4 (18)
DS107444	7	1.3 (21)	1.5 (38)	2.1 (22)	1.8 (26)	1.8 ( 3)	1.4 ( 3)	1.5 (13)	11.4 (20)
UC-412	9	1.3 (35)	1.8 (15)	2.1 (17)	1.8 (13)	1.6 (20)	1.2 (21)	1.5 (17)	11.3 (21)
SW 910	9	1.3 (30)	1.5 (39)	2.1 (20)	1.6 (37)	1.8 ( 5)	1.3 (12)	1.7 ( 1)	11.3 (22)
UC-413	9	1.3 (21)	1.9 (11)	2.1 (21)	1.7 (34)	1.5 (34)	1.4 ( 7)	1.4 (25)	11.2 (25)
SW 8105	8	1.3 (19)	1.9 (11)	2.0 (23)	1.8 (16)	1.6 (21)	1.1 (32)	1.2 (40)	11.0 (26)
UC-409	9	1.3 (12)	1.6 (28)	2.0 (26)	1.8 (18)	1.5 (31)	1.2 (26)	1.3 (29)	10.8 (28)
SW 900	9	1.4 ( 1)	1.5 (40)	1.9 (33)	1.8 (23)	1.4 (37)	1.2 (21)	1.5 (15)	10.7 (29)
SW 9107	9	1.3 (27)	1.7 (23)	1.8 (38)	1.8 (18)	1.5 (25)	1.1 (33)	1.3 (35)	10.5 (31)
UC-411	9	1.2 (41)	1.4 (45)	1.8 (35)	1.7 (29)	1.7 (15)	1.2 (25)	1.4 (25)	10.4 (32)
UC-414	9	1.3 (14)	1.4 (42)	1.8 (41)	1.6 (38)	1.4 (40)	1.1 (27)	1.3 (30)	10.0 (38)
UC-415	9	1.3 (16)	1.7 (23)	1.8 (41)	1.5 (43)	1.4 (41)	1.0 (39)	1.2 (39)	9.9 (40)
MEAN		1.31	1.70	2.01	1.77	1.57	1.18	1.39	10.94
CV		12.7	24.9	15.5	19.2	20.2	30.4	23.5	14.6
LSD (0.1)		NS	NS	0.37	NS	NS	NS	0.39	NS

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 10% probability level according to Fishers (protected) LSD.

FD = Fall Dormancy reported by seed companies.

Cuf 101 was included in this trial, but data was eliminated due to doubts about the source of the seed.



**TABLE 4. 2012-2013 YIELDS. UC DAVIS ALFALFA CULTIVAR TRIAL. Trial planted Nov. 2, 2011.**

		2012	2013	Average	
	FD	Yield	Yield		
			Dry t/a		
<b>Released Varieties</b>					
Catalina	9	7.2 ( 3)	12.2 ( 1)	9.7 ( 2)	A
WL 440HQ	6	7.2 ( 2)	12.0 ( 6)	9.6 ( 3)	A
Saltana	9	7.0 ( 7)	12.1 ( 4)	9.5 ( 4)	A
FGI R96Bx308	ND	7.1 ( 6)	12.0 ( 7)	9.5 ( 5)	A
Westar	8	7.1 ( 4)	11.9 ( 8)	9.5 ( 6)	A
6610N	6	6.7 (11)	12.2 ( 2)	9.5 ( 7)	AB
Integra 8600	6	6.6 (12)	12.1 ( 3)	9.4 ( 8)	ABC
6R100	6	6.9 ( 8)	11.8 (11)	9.3 ( 9)	ABC
GrandSlam	8	6.8 ( 9)	11.7 (13)	9.2 (10)	ABCD
FGI R66Bx311	ND	6.6 (13)	11.8 (10)	9.2 (11)	ABCDE
HybriForce-2600	6	6.6 (15)	11.5 (14)	9.0 (13)	ABCDEF
WL 454HQ.RR	6	6.4 (20)	11.5 (15)	9.0 (15)	ABCDEF
Gunner	5	6.0 (34)	11.9 ( 9)	8.9 (16)	ABCDEFGHI
AmeriStand 803T (Opt-Gold+)	9	6.6 (17)	11.2 (24)	8.9 (17)	ABCDEFGHI
FGI R57W213	ND	6.3 (22)	11.4 (19)	8.9 (18)	ABCDEFGHI
Arriba II	6	6.3 (25)	11.5 (17)	8.9 (19)	ABCDEFGHIJ
DS611	6	6.5 (19)	11.3 (23)	8.9 (20)	ABCDEFGHIJ
AmeriStand 803T -EM09	9	5.7 (42)	11.7 (12)	8.7 (25)	ABCDEFGHIJK
DKA65-10RR	6	6.3 (23)	10.9 (27)	8.6 (26)	ABCDEFGHIJK
AmeriStand 803T	8	6.4 (21)	10.2 (34)	8.3 (31)	BCDEFGHIJKL
La Jolla	9	5.9 (37)	10.5 (30)	8.2 (32)	CDEFGHIJKL
FGI R65BD279	ND	6.0 (33)	10.4 (33)	8.2 (33)	CDEFGHIJKL
FGI R56Bx214	ND	6.6 (16)	9.6 (44)	8.1 (34)	DEFGHIJKL
4R200	4	6.3 (26)	9.7 (43)	8.0 (35)	EFGHIJKL
Revolt (RR)	6	6.0 (31)	10.0 (36)	8.0 (36)	EFGHIJKL
FGI R57K138	ND	6.1 (29)	9.9 (41)	8.0 (37)	FGHIJKL
FGI R47OK215	ND	5.9 (36)	9.9 (39)	7.9 (39)	FGHIJKL
FGI R57K337	ND	5.6 (44)	10.0 (35)	7.8 (42)	GHIJKL
8R100	8.5	6.0 (35)	9.6 (45)	7.8 (43)	H IJKL
DS815	8	6.0 (32)	9.4 (46)	7.7 (44)	IJKL
Tango	6	5.3 (47)	10.0 (37)	7.7 (45)	JKL
Pacifico	8	5.5 (46)	9.8 (42)	7.6 (46)	KL
Integra 8800	8	5.7 (43)	8.9 (47)	7.3 (47)	L
<b>Experimental Varieties</b>					
SW 9106	9	7.4 ( 1)	12.0 ( 5)	9.7 ( 1)	A
SW 920	9	6.7 (10)	11.5 (16)	9.1 (12)	ABCDEF
DS107444	7	6.6 (14)	11.4 (20)	9.0 (14)	ABCDEF
UC-412	9	6.3 (24)	11.3 (21)	8.8 (21)	ABCDEFGHIJ
UC-410	9	6.2 (28)	11.4 (18)	8.8 (22)	ABCDEFGHIJK
SW 9107	9	7.1 ( 5)	10.5 (31)	8.8 (23)	ABCDEFGHIJK
SW 8105	8	6.5 (18)	11.0 (26)	8.8 (24)	ABCDEFGHIJK
UC-413	9	6.1 (30)	11.2 (25)	8.6 (27)	ABCDEFGHIJK
SW 910	9	5.9 (38)	11.3 (22)	8.6 (28)	ABCDEFGHIJK
UC-409	9	6.2 (27)	10.8 (28)	8.5 (29)	ABCDEFGHIJK
SW 900	9	5.9 (39)	10.7 (29)	8.3 (30)	BCDEFGHIJKL
UC-411	9	5.5 (45)	10.4 (32)	8.0 (38)	FGHIJKL
UC-414	9	5.8 (41)	10.0 (38)	7.9 (40)	FGHIJKL
UC-415	9	5.9 (40)	9.9 (40)	7.9 (41)	GHIJKL
MEAN		6.32	10.94	8.63	
CV		11.3	14.6	11.8	
LSD (0.1)		0.85	NS	1.21	

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 10% probability level according to Fishers (protected) LSC

FD = Fall Dormancy reported by seed companies.

Cuf 101 w as included in this trial, but data w as eliminated due to doubts about the source of the seed.

**TABLE 5. 2013 Yields, Modesto Alfalfa Cultivar Trial (Trial planted Nov 7, 2011)**

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

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	Cut 8	YEAR	
	FD	19-Mar	26-Apr	27-May	25-Jun	16-Jul	13-Aug	20-Sep	22-Oct	TOTAL	
Released Varieties											
Westar	8	2.3 ( 2)	1.7 ( 1)	2.3 ( 2)	2.1 ( 4)	2.3 ( 1)	1.7 ( 5)	2.2 ( 2)	1.4 ( 2)	16.0 ( 1)	A
Integra 8600	6	2.2 (15)	1.3 (25)	2.2 (11)	2.1 ( 2)	2.2 ( 3)	1.6 ( 7)	2.3 ( 1)	1.3 ( 5)	15.1 ( 4)	ABC
AmeriStand 803T	8	2.2 (10)	1.3 (31)	2.1 (12)	1.9 (17)	2.1 ( 5)	1.8 ( 1)	2.1 ( 5)	1.3 (10)	14.8 ( 6)	ABCD
Saltana	9	2.0 (29)	1.5 ( 6)	2.3 ( 1)	2.0 ( 8)	2.1 ( 9)	1.5 (25)	2.1 (10)	1.3 ( 7)	14.8 ( 7)	ABCDE
DS815	8	2.4 ( 1)	1.4 (14)	2.2 ( 9)	2.0 ( 9)	2.0 (16)	1.6 (20)	2.1 ( 7)	1.2 (32)	14.8 ( 8)	ABCDE
Pacifico	8	2.1 (16)	1.3 (21)	2.1 (18)	1.9 (16)	2.1 ( 7)	1.6 ( 9)	2.1 ( 8)	1.3 (10)	14.6 ( 9)	ABCDEF
Arriba II (EM-09)	6	2.2 (11)	1.3 (30)	2.1 (19)	2.0 ( 5)	2.0 (19)	1.5 (23)	2.2 ( 3)	1.2 (23)	14.5 (10)	ABCDEF
DS919	9	2.0 (31)	1.4 (12)	2.1 (21)	2.0 (11)	2.0 (10)	1.6 (12)	2.1 ( 5)	1.2 (14)	14.5 (11)	ABCDEF
Artesia Sunrise	7	2.1 (27)	1.5 ( 4)	2.3 ( 5)	2.0 (10)	1.9 (24)	1.5 (22)	2.0 (15)	1.1 (37)	14.4 (12)	ABCDEF
DS611	6	2.1 (17)	1.5 ( 2)	2.2 (10)	1.8 (22)	1.8 (42)	1.6 (14)	1.9 (24)	1.2 (21)	14.2 (15)	BCDEFGHI
4C810	8	2.2 (13)	1.4 (11)	2.2 ( 8)	1.9 (15)	1.9 (33)	1.5 (23)	1.9 (24)	1.2 (32)	14.2 (16)	BCDEFGHI
Dura 843	8	2.3 ( 5)	1.4 (15)	2.0 (27)	1.8 (33)	2.0 (18)	1.4 (31)	2.0 (19)	1.2 (14)	14.1 (17)	BCDEFGHI
Integra 8800	8	2.3 ( 4)	1.2 (42)	2.0 (28)	1.8 (27)	1.9 (27)	1.8 ( 3)	1.8 (37)	1.3 ( 7)	14.1 (18)	BCDEFGHI
AmeriStand 901TS	9	2.3 ( 7)	1.2 (36)	1.8 (46)	1.8 (32)	2.0 (12)	1.6 (10)	2.0 (17)	1.2 (19)	14.0 (19)	BCDEFGHIJ
WL 454HQ.RR	6	2.2 (12)	1.4 (17)	2.1 (20)	1.9 (20)	2.0 (13)	1.6 (14)	1.9 (24)	1.0 (44)	14.0 (20)	BCDEFGHIJ
Arriba II	6	2.1 (20)	1.5 ( 8)	2.1 (15)	1.8 (23)	1.9 (30)	1.5 (25)	1.9 (34)	1.3 (12)	14.0 (21)	BCDEFGHIJ
6610N	6	2.3 ( 8)	1.3 (20)	2.1 (23)	2.0 ( 6)	1.8 (35)	1.4 (34)	1.9 (32)	1.2 (23)	14.0 (22)	BCDEFGHIJ
Transition 6.1	6	2.1 (19)	1.3 (26)	2.1 (16)	1.9 (13)	1.9 (23)	1.5 (30)	1.9 (22)	1.2 (31)	14.0 (23)	BCDEFGHIJK
Tango	6	2.2 (13)	1.5 ( 5)	2.1 (14)	1.9 (12)	1.8 (36)	1.4 (31)	1.9 (28)	1.1 (40)	14.0 (24)	BCDEFGHIJK
Arriba II(Optimize Gold+)	6	2.1 (23)	1.3 (34)	1.9 (39)	1.9 (18)	2.0 (11)	1.6 (17)	2.0 (20)	1.2 (14)	14.0 (26)	BCDEFGHIJK
La Jolla	9	2.0 (34)	1.4 (18)	2.1 (22)	1.9 (19)	1.9 (31)	1.6 (17)	1.9 (24)	1.2 (19)	13.9 (27)	BCDEFGHIJK
GrandSlam	8	2.1 (21)	1.3 (35)	2.0 (28)	1.7 (39)	1.9 (28)	1.5 (21)	1.9 (22)	1.2 (22)	13.7 (32)	CDEFGHIJKL
Catalina	9	1.9 (44)	1.2 (48)	2.0 (26)	1.7 (44)	1.9 (22)	1.5 (25)	2.1 (10)	1.2 (18)	13.6 (33)	CDEFGHIJKLM
6R100	6	2.0 (31)	1.3 (22)	1.9 (36)	1.7 (41)	1.9 (29)	1.4 (40)	1.8 (36)	1.2 (23)	13.3 (34)	DEFGHIJKLMN
HybridForce-800	8	2.1 (18)	1.3 (19)	1.9 (40)	1.7 (40)	1.8 (46)	1.4 (40)	1.7 (46)	1.1 (39)	13.2 (36)	DEFGHIJKLMN
Revolt	6	2.1 (22)	1.2 (43)	1.9 (34)	1.8 (35)	1.7 (48)	1.4 (31)	1.7 (48)	1.2 (35)	13.0 (40)	F GHI JKLMN
Desert Sun 8.10RR	8	1.8 (49)	1.2 (47)	1.8 (48)	1.8 (37)	1.9 (20)	1.4 (34)	1.8 (37)	1.3 ( 6)	13.0 (41)	F GHI JKLMN
DKA65-10RR	6	2.0 (39)	1.2 (45)	1.9 (38)	1.6 (50)	1.9 (32)	1.4 (40)	1.9 (29)	1.2 (23)	13.0 (42)	F GHI JKLMN
WL 440HQ	6	2.0 (37)	1.2 (46)	1.9 (43)	1.8 (25)	1.8 (43)	1.4 (40)	1.9 (30)	1.0 (42)	12.9 (43)	F GHI JKLMN
Dura 512	5	1.9 (41)	1.3 (27)	2.0 (30)	1.7 (45)	1.7 (47)	1.3 (47)	1.7 (45)	1.0 (46)	12.7 (44)	GHI JKLMN
WL 550.RR	8	1.9 (43)	1.0 (51)	1.8 (49)	1.7 (43)	1.8 (38)	1.4 (37)	1.8 (35)	1.3 (12)	12.7 (45)	HI JKLMN
8R100	8.5	1.8 (50)	1.1 (50)	1.6 (51)	1.7 (42)	1.8 (38)	1.4 (37)	1.8 (43)	1.1 (38)	12.3 (48)	KLMN
Trifecta II	4	1.8 (47)	1.4 ( 9)	1.9 (35)	1.6 (49)	1.7 (49)	1.1 (51)	1.5 (50)	1.0 (50)	12.2 (49)	LMN
Trifecta	4	1.7 (51)	1.2 (37)	1.8 (47)	1.7 (46)	1.6 (51)	1.3 (46)	1.6 (49)	1.0 (48)	11.9 (50)	MN
Gunner	5	1.8 (45)	1.2 (44)	1.7 (50)	1.5 (51)	1.7 (50)	1.2 (49)	1.5 (50)	1.0 (50)	11.7 (51)	N
Experimental Varieties											
FGI R97T710		2.3 ( 3)	1.5 ( 7)	2.3 ( 4)	2.1 ( 3)	2.1 ( 6)	1.8 ( 1)	2.1 ( 8)	1.3 ( 7)	15.4 ( 2)	AB
FGI R66Bx311		2.3 ( 6)	1.4 (10)	2.3 ( 3)	1.9 (21)	2.1 ( 8)	1.6 (10)	2.1 (10)	1.4 ( 1)	15.1 ( 3)	ABC
DS098217	7	2.2 ( 9)	1.4 (16)	2.2 ( 7)	2.1 ( 1)	1.9 (21)	1.8 ( 3)	2.2 ( 4)	1.2 (27)	15.0 ( 5)	ABC
SW 9107	9	2.0 (36)	1.1 (49)	2.1 (13)	1.8 (24)	2.2 ( 2)	1.7 ( 6)	2.1 (10)	1.4 ( 4)	14.4 (13)	ABCDEF G
FGI R57K337		2.0 (33)	1.5 ( 3)	2.2 ( 6)	1.8 (36)	1.9 (25)	1.6 ( 7)	2.1 (10)	1.2 (29)	14.4 (14)	ABCDEF GH
SW 900	9	1.9 (42)	1.4 (13)	2.1 (25)	1.7 (38)	2.0 (14)	1.6 (14)	2.0 (16)	1.2 (14)	14.0 (25)	BCDEFGHIJK
SW 8105	8	2.1 (26)	1.2 (39)	1.9 (42)	1.8 (28)	2.0 (17)	1.6 (12)	1.9 (32)	1.4 ( 3)	13.8 (28)	BCDEFGHIJKL
SW 920	9	2.1 (25)	1.2 (38)	2.0 (32)	1.8 (34)	2.1 ( 4)	1.5 (29)	2.0 (21)	1.2 (28)	13.8 (29)	BCDEFGHIJKL
FGI R97T715		2.0 (28)	1.3 (32)	2.1 (17)	1.8 (30)	2.0 (15)	1.6 (17)	1.8 (42)	1.2 (29)	13.8 (30)	BCDEFGHIJKL
SW 910	9	2.0 (40)	1.3 (28)	1.9 (37)	2.0 ( 7)	1.8 (37)	1.5 (25)	2.0 (18)	1.2 (35)	13.7 (31)	BCDEFGHIJKL
FGI R57W213		2.1 (24)	1.3 (23)	2.1 (24)	1.8 (26)	1.8 (41)	1.3 (44)	1.8 (39)	1.0 (42)	13.3 (35)	DEFGHIJKLMN
SW 9106	9	1.8 (48)	1.3 (29)	1.9 (33)	1.9 (14)	1.9 (34)	1.4 (37)	1.9 (30)	1.0 (45)	13.1 (37)	DEFGHIJKLMN
FGI R96Bx308		2.0 (38)	1.3 (32)	2.0 (31)	1.8 (29)	1.8 (44)	1.4 (34)	1.8 (39)	1.1 (40)	13.1 (38)	EF GHI JKLMN
FGI R65BD279		2.0 (35)	1.2 (40)	1.9 (41)	1.8 (31)	1.9 (26)	1.3 (45)	1.8 (41)	1.2 (32)	13.1 (39)	EF GHI JKLMN
FGI R57K138		2.0 (30)	1.3 (24)	1.8 (45)	1.7 (47)	1.8 (40)	1.2 (50)	1.7 (46)	1.0 (48)	12.6 (46)	I JKLMN
FGI R56Bx214		1.8 (46)	1.2 (41)	1.9 (44)	1.7 (48)	1.8 (45)	1.3 (48)	1.8 (44)	1.0 (46)	12.4 (47)	J KLMN
MEAN		2.06	1.32	2.02	1.84	1.92	1.50	1.92	1.19	13.77	
CV		12.3	18.3	14.6	10.1	12.1	15.2	14.3	14.9	10.4	
LSD (0.1)		0.30	NS	NS	0.22	0.27	0.27	0.33	0.21	1.70	

Trial seeded at 25 lb/acre viable seed on Stanislaus sandy soil at Stanislaus Farm Supply, Modesto CA.

Entries followed by the same letter are not significantly different at the 10% probability level according to Fishers (protected) LSD.

FD = Fall Dormancy reported by seed companies.

Cuf 101 w as included in this trial, but the data was eliminated due to doubts about the source of the seed.

**TABLE 6. 2012-2013 YIELDS. MODESTO ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 11/7/2011.**

		2012	2013	Average	
	FD	Yield	Yield		
			Dry t/a		
<b>Released Varieties</b>					
Westar	8	6.3 ( 4)	16.0 ( 1)	11.1 ( 1)	A
Integra 8600	6	6.2 ( 7)	15.1 ( 4)	10.6 ( 4)	A B C D
Arriba II (EM-09)	6	6.3 ( 3)	14.5 (10)	10.4 ( 6)	A B C D E
Saltana	9	6.0 (10)	14.8 ( 7)	10.4 ( 7)	A B C D E F
Artesia Sunrise	7	6.4 ( 2)	14.4 (12)	10.4 ( 8)	A B C D E F
DS815	8	6.0 (11)	14.8 ( 8)	10.4 ( 9)	A B C D E F
AmeriStand 803T	8	5.9 (14)	14.8 ( 6)	10.4 (10)	A B C D E F
DS919	9	5.8 (16)	14.5 (11)	10.2 (11)	B C D E F G
Pacifico	8	5.7 (30)	14.6 ( 9)	10.1 (12)	B C D E F G H
Tango	6	6.2 ( 6)	14.0 (24)	10.1 (13)	B C D E F G H I
DS611	6	5.9 (15)	14.2 (15)	10.1 (15)	B C D E F G H I J
Dura 843	8	6.0 (12)	14.1 (17)	10.0 (16)	B C D E F G H I J
Transition 6.1	6	6.1 ( 9)	14.0 (23)	10.0 (17)	B C D E F G H I J
La Jolla	9	6.2 ( 8)	13.9 (27)	10.0 (18)	B C D E F G H I J
4C810	8	5.7 (26)	14.2 (16)	9.9 (19)	C D E F G H I J
AmeriStand 901TS	9	5.8 (17)	14.0 (19)	9.9 (20)	C D E F G H I J
WL 454HQ.RR	6	5.7 (24)	14.0 (20)	9.9 (21)	C D E F G H I J K
6610N	6	5.7 (25)	14.0 (22)	9.9 (22)	C D E F G H I J K L
Integra 8800	8	5.6 (32)	14.1 (18)	9.9 (24)	C D E F G H I J K L
Arriba II	6	5.6 (34)	14.0 (21)	9.8 (26)	D E F G H I J K L M
Arriba II(Optimize Gold+)	6	5.7 (29)	14.0 (26)	9.8 (27)	D E F G H I J K L M
6R100	6	6.0 (13)	13.3 (34)	9.6 (31)	E F G H I J K L M N
GrandSlam	8	5.5 (41)	13.7 (32)	9.6 (32)	E F G H I J K L M N
Catalina	9	5.4 (44)	13.6 (33)	9.5 (34)	G H I J K L M N O
HybridForce-800	8	5.6 (31)	13.2 (36)	9.4 (36)	G H I J K L M N O
DKA65-10RR	6	5.7 (28)	13.0 (42)	9.3 (37)	G H I J K L M N O P
WL 440HQ	6	5.7 (23)	12.9 (43)	9.3 (38)	G H I J K L M N O P
Revolt	6	5.6 (33)	13.0 (40)	9.3 (39)	G H I J K L M N O P
Dura 512	5	5.8 (18)	12.7 (44)	9.3 (41)	H I J K L M N O P
Desert Sun 8.10RR	8	5.5 (37)	13.0 (41)	9.3 (42)	I J K L M N O P
WL 550.RR	8	5.4 (45)	12.7 (45)	9.0 (45)	K L M N O P
Trifecta II	4	5.4 (43)	12.2 (49)	8.8 (48)	N O P
8R100	8.5	5.1 (50)	12.3 (48)	8.7 (49)	O P
Trifecta	4	5.4 (42)	11.9 (50)	8.7 (50)	O P
Gunner	5	5.3 (48)	11.7 (51)	8.5 (51)	P
<b>Experimental Varieties</b>					
FGI R97T710		6.2 ( 5)	15.4 ( 2)	10.8 ( 2)	A B
DS098217	7	6.4 ( 1)	15.0 ( 5)	10.7 ( 3)	A B C
FGI R66Bx311		5.8 (22)	15.1 ( 3)	10.4 ( 5)	A B C D E
FGI R57K337		5.8 (20)	14.4 (14)	10.1 (14)	B C D E F G H I J
SW 9107	9	5.4 (46)	14.4 (13)	9.9 (23)	C D E F G H I J K L
SW 900	9	5.7 (27)	14.0 (25)	9.8 (25)	D E F G H I J K L M
SW 910	9	5.8 (21)	13.7 (31)	9.7 (28)	D E F G H I J K L M
SW 8105	8	5.5 (36)	13.8 (28)	9.7 (29)	E F G H I J K L M
SW 920	9	5.5 (40)	13.8 (29)	9.6 (30)	E F G H I J K L M N
FGI R57W213		5.8 (19)	13.3 (35)	9.5 (33)	F G H I J K L M N O
FGI R97T715		5.2 (49)	13.8 (30)	9.5 (35)	G H I J K L M N O
FGI R65BD279		5.5 (39)	13.1 (39)	9.3 (40)	G H I J K L M N O P
FGI R96Bx308		5.3 (47)	13.1 (38)	9.2 (43)	J K L M N O P
FGI R57K138		5.5 (38)	12.6 (46)	9.1 (44)	K L M N O P
SW 9106	9	4.9 (51)	13.1 (37)	9.0 (46)	L M N O P
FGI R56Bx214		5.6 (35)	12.4 (47)	9.0 (47)	M N O P
MEAN		5.73	13.77	9.75	
CV		8.5	10.0	7.5	
LSD (0.1)		0.58	1.64	0.87	

Trial seeded at 25 lb/acre viable seed on Stanislaus sandy soil at Stanislaus Farm Supply, Modesto CA.

Entries followed by the same letter are not significantly different at the 10% probability level according to Fishers (protected) LSD.

FD = Fall Dormancy reported by seed companies.

Cuf 101 w as included in this trial, but the data w as eliminated due to doubts about the source of the seed.

**TABLE 7. 2013 YIELDS, UC KEARNEY ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 9/14/10**

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

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	Cut 8	YEAR	% of	
	FD	3-Apr	1-May	30-May	26-Jun	24-Jul	21-Aug	18-Sep	23-Oct	TOTAL	CUF 101	
		Dry t/a									%	
<b>Released Varieties</b>												
Pacifico	8	2.6 ( 9)	1.7 ( 6)	1.9 ( 2)	2.1 ( 2)	2.0 ( 3)	1.6 ( 8)	1.4 (24)	1.1 (23)	14.4 ( 2)	AB	140.1
Mycogen 4N900	9	2.7 ( 4)	1.6 (16)	1.8 ( 9)	2.0 ( 3)	1.9 ( 6)	1.6 ( 5)	1.6 ( 7)	1.2 (13)	14.3 ( 3)	ABC	139.8
AmeriStand 803T	8	2.6 ( 8)	1.7 ( 3)	1.8 ( 6)	1.8 (11)	1.8 ( 9)	1.6 ( 7)	1.6 ( 4)	1.2 ( 3)	14.1 ( 6)	ABCD	137.7
WL 656HQ	9	2.6 (10)	1.6 (19)	1.8 ( 4)	1.8 (14)	1.8 ( 8)	1.6 ( 4)	1.5 ( 8)	1.2 ( 2)	14.0 ( 8)	ABCDE	136.5
SW 9821	9	2.5 (15)	1.6 (18)	1.8 (10)	1.9 ( 6)	1.8 (10)	1.6 ( 9)	1.5 (10)	1.2 ( 6)	13.9 (10)	ABCDEF	135.2
AmeriStand 901TS	9	2.5 (16)	1.7 ( 4)	1.8 ( 7)	1.7 (16)	1.6 (20)	1.6 ( 6)	1.6 ( 3)	1.2 ( 8)	13.7 (11)	ABCDEF	133.8
Integra 8900	9	2.7 ( 6)	1.6 (11)	1.8 ( 8)	1.6 (25)	1.7 (18)	1.5 (11)	1.6 ( 6)	1.2 (16)	13.6 (12)	BCDEF	132.8
Integra 8800	8	2.7 ( 3)	1.6 (15)	1.7 (19)	1.8 (10)	1.7 (16)	1.5 (22)	1.5 (18)	1.1 (25)	13.5 (13)	BCDEF	131.9
Sunquest	9.5	2.4 (27)	1.6 (13)	1.7 (23)	1.7 (20)	1.7 (14)	1.5 (13)	1.5 (12)	1.1 (31)	13.1 (18)	BCDEF	128.0
SW 9812	9	2.4 (21)	1.5 (25)	1.7 (20)	1.3 (45)	1.7 (17)	1.5 (21)	1.5 (15)	1.2 ( 6)	12.8 (24)	BCDEF	124.7
SW 900	9	2.1 (42)	1.5 (34)	1.6 (29)	1.5 (33)	1.7 (12)	1.5 (15)	1.4 (26)	1.2 (10)	12.6 (29)	BCDEF	123.1
SW 9828	9	2.2 (41)	1.5 (23)	1.7 (27)	1.5 (31)	1.5 (32)	1.5 (25)	1.4 (21)	1.2 (11)	12.6 (30)	CDEF	122.4
HybriForce-800	8	2.6 (11)	1.4 (37)	1.5 (41)	1.6 (26)	1.6 (26)	1.4 (37)	1.2 (48)	0.9 (43)	12.2 (34)	EF	119.2
SW 9803	9	2.3 (37)	1.4 (38)	1.7 (17)	1.6 (29)	1.5 (34)	1.4 (36)	1.3 (40)	1.0 (39)	12.1 (36)	GHI	118.5
UC Impalo	9	2.5 (19)	1.4 (39)	1.6 (35)	1.4 (44)	1.4 (45)	1.4 (29)	1.3 (37)	1.1 (27)	12.1 (37)	HI	117.7
SW 9711	9	2.2 (38)	1.4 (41)	1.6 (37)	1.5 (37)	1.6 (30)	1.4 (33)	1.4 (30)	1.0 (37)	12.1 (38)	HI	117.5
SW 9816	9	2.1 (44)	1.5 (33)	1.6 (39)	1.5 (35)	1.5 (42)	1.4 (41)	1.4 (33)	1.0 (35)	11.9 (40)	I	115.8
6610N	6	2.2 (39)	1.3 (47)	1.5 (44)	1.6 (24)	1.6 (29)	1.4 (42)	1.3 (41)	0.9 (46)	11.8 (41)	J	114.8
SW 9813	9	2.3 (33)	1.4 (44)	1.5 (46)	1.3 (46)	1.5 (39)	1.4 (32)	1.4 (32)	1.1 (30)	11.8 (43)	J	114.6
NuMex	7	2.3 (36)	1.4 (41)	1.5 (42)	1.6 (27)	1.5 (41)	1.3 (48)	1.2 (47)	0.9 (47)	11.6 (44)	KL	112.8
Grand Slam	4	2.0 (46)	1.4 (40)	1.5 (45)	1.4 (43)	1.4 (46)	1.4 (40)	1.3 (36)	1.0 (38)	11.4 (45)	L	111.2
Dura 843	8	1.9 (47)	1.3 (46)	1.3 (47)	1.4 (42)	1.5 (38)	1.3 (45)	1.3 (35)	0.9 (45)	11.1 (47)	NO	108.1
CUF 101	9	1.8 (48)	1.2 (48)	1.3 (48)	1.2 (48)	1.2 (48)	1.3 (47)	1.3 (46)	1.0 (42)	10.3 (48)	O	100.0
<b>Experimental Varieties</b>												
FG 96T706	9	3.3 ( 1)	1.8 ( 1)	2.0 ( 1)	1.9 ( 9)	2.0 ( 2)	1.7 ( 1)	1.6 ( 1)	1.2 ( 1)	15.4 ( 1)	A	150.6
FG R96Bx303	9	2.7 ( 7)	1.7 ( 5)	1.9 ( 3)	2.2 ( 1)	1.9 ( 7)	1.5 (17)	1.4 (27)	1.1 (22)	14.3 ( 4)	ABCD	139.3
FG R97T701	9	2.4 (23)	1.7 ( 7)	1.8 (14)	1.9 ( 5)	2.0 ( 1)	1.7 ( 2)	1.6 ( 5)	1.2 (14)	14.2 ( 5)	ABCD	138.0
FG R97T708	9	2.3 (30)	1.7 ( 2)	1.8 (12)	1.9 ( 8)	1.9 ( 5)	1.7 ( 3)	1.6 ( 2)	1.2 ( 4)	14.1 ( 7)	ABCD	137.7
FG R97T707	9	2.4 (25)	1.6 ( 8)	1.8 ( 5)	2.0 ( 4)	1.9 ( 4)	1.6 (10)	1.5 (16)	1.1 (20)	13.9 ( 9)	ABCDEF	135.9
DS097040	9	2.7 ( 5)	1.6 (12)	1.8 (11)	1.6 (30)	1.6 (22)	1.5 (20)	1.4 (22)	1.1 (26)	13.3 (14)	BCDEF	129.5
FG R97T704	9	2.4 (20)	1.6 (20)	1.7 (25)	1.7 (17)	1.6 (25)	1.5 (12)	1.5 (14)	1.2 ( 5)	13.3 (15)	BCDEF	129.3
DS385	8	2.5 (18)	1.6 (14)	1.7 (16)	1.8 (13)	1.6 (21)	1.5 (18)	1.4 (31)	1.1 (33)	13.2 (16)	BCDEF	128.5
FG R96Bx301	9	2.5 (12)	1.5 (29)	1.8 (13)	1.9 ( 7)	1.8 (11)	1.4 (30)	1.3 (45)	1.0 (40)	13.1 (17)	BCDEF	128.1
CW 059051	9	2.3 (31)	1.6 ( 9)	1.8 (15)	1.5 (32)	1.6 (31)	1.5 (14)	1.5 (13)	1.2 (12)	13.0 (19)	BCDEF	126.9
AmeriStand 901STQ(EMD)	9	2.3 (34)	1.6 (10)	1.7 (24)	1.6 (22)	1.6 (23)	1.5 (22)	1.5 (17)	1.2 (14)	13.0 (20)	BCDEF	126.4
UC 470	9	2.3 (32)	1.5 (23)	1.7 (18)	1.7 (15)	1.7 (15)	1.5 (26)	1.4 (29)	1.1 (21)	12.9 (21)	BCDEF	125.9
FG R97T715	9	2.8 ( 2)	1.5 (28)	1.6 (28)	1.7 (18)	1.5 (37)	1.4 (35)	1.3 (34)	1.1 (31)	12.9 (22)	BCDEF	125.9
UC 469	9	2.1 (43)	1.5 (22)	1.7 (22)	1.7 (21)	1.6 (24)	1.5 (16)	1.5 (11)	1.2 (18)	12.8 (23)	BCDEF	125.1
DS097645	10	2.4 (23)	1.5 (26)	1.6 (30)	1.7 (19)	1.7 (19)	1.4 (31)	1.4 (25)	1.1 (28)	12.8 (25)	BCDEF	124.5
FG R97T710	9	2.4 (26)	1.5 (30)	1.6 (32)	1.6 (23)	1.6 (28)	1.5 (22)	1.5 (19)	1.2 (17)	12.8 (26)	BCDEF	124.4
CW 068068	8	2.4 (28)	1.6 (21)	1.6 (36)	1.5 (40)	1.6 (27)	1.5 (19)	1.5 ( 9)	1.2 (19)	12.7 (27)	BCDEF	124.1
DS097643	9	2.4 (22)	1.4 (36)	1.7 (21)	1.8 (12)	1.7 (13)	1.5 (26)	1.3 (39)	0.9 (48)	12.7 (28)	BCDEF	123.7
UC 471	9	2.5 (17)	1.5 (30)	1.7 (26)	1.5 (38)	1.5 (36)	1.4 (34)	1.4 (28)	1.1 (24)	12.5 (31)	DEF	122.3
FG R96Bx308	9	2.3 (35)	1.6 (17)	1.6 (31)	1.5 (39)	1.5 (35)	1.4 (28)	1.5 (20)	1.2 ( 9)	12.5 (32)	DEF	122.2
FG R96Bx304	9	2.5 (13)	1.5 (32)	1.6 (37)	1.6 (28)	1.4 (43)	1.4 (43)	1.3 (37)	1.0 (36)	12.3 (33)	EF	120.0
UC 493	9	2.5 (14)	1.3 (45)	1.6 (33)	1.5 (34)	1.5 (33)	1.4 (44)	1.3 (44)	1.0 (34)	12.2 (35)	F	118.9
FG R97M711	9	2.0 (45)	1.5 (27)	1.5 (43)	1.5 (36)	1.5 (40)	1.4 (39)	1.4 (23)	1.1 (29)	11.9 (39)	I	115.8
DS097569	8	2.3 (29)	1.4 (35)	1.5 (40)	1.5 (41)	1.4 (44)	1.3 (46)	1.3 (43)	1.0 (41)	11.8 (42)	J	114.7
DS097041	9	2.2 (40)	1.4 (43)	1.6 (34)	1.2 (47)	1.3 (47)	1.4 (38)	1.3 (42)	0.9 (44)	11.3 (46)	MNO	110.4
MEAN		2.39	1.52	1.66	1.64	1.63	1.48	1.42	1.09	12.83		
CV		18.7	9.0	11.8	24.8	18.1	9.2	9.2	11.2	11.7		
LSD (0.1)		NS	0.16	0.23	NS	0.35	0.16	0.16	0.14	1.78		

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 10% probability level according to Fisher's (protected) LSD.

FD = Fall Dormancy reported by seed companies.

**TABLE 8. 2011-2013 YIELDS. UC KEARNEY ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 9/14/2010**

		2011	2012	2013	Average		% of
	FD	Yield	Yield	Yield			Cuf 101
			Dry/t/a				%
<b>Released Varieties</b>							
Mycogen 4N900	9	13.5 ( 1)	12.2 (20)	14.3 ( 3)	13.3 ( 2)	A B	128.09
AmeriStand 803T	8	12.6 ( 9)	13.0 ( 5)	14.1 ( 6)	13.2 ( 3)	A B C	127.02
WL 656HQ	9	12.4 (15)	13.2 ( 3)	14.0 ( 8)	13.2 ( 4)	A B C	126.80
AmeriStand 901TS	9	12.8 ( 7)	12.7 ( 8)	13.7 (11)	13.0 ( 5)	A B C D	125.30
Integra 8800	8	13.3 ( 2)	12.3 (15)	13.5 (13)	13.0 ( 7)	A B C D	125.28
Integra 8900	9	12.1 (23)	13.3 ( 2)	13.6 (12)	13.0 ( 8)	A B C D E	125.12
Pacifico	8	12.3 (19)	12.3 (16)	14.4 ( 2)	13.0 (11)	A B C D E F	124.81
SW 9821	9	12.2 (20)	12.5 (14)	13.9 (10)	12.8 (13)	A B C D E F G	123.32
SW 9812	9	12.5 (12)	12.8 ( 7)	12.8 (24)	12.7 (16)	A B C D E F G H I	121.96
SW 9828	9	12.9 ( 6)	12.0 (26)	12.6 (30)	12.5 (22)	B C D E F G H I J	119.78
Sunquest	10	11.3 (45)	12.3 (17)	13.1 (18)	12.2 (28)	C D E F G H I J K L	117.39
SW 9813	9	12.0 (26)	11.9 (27)	11.8 (43)	11.9 (33)	F G H I J K L	114.20
SW 900	9	10.8 (48)	12.2 (21)	12.6 (29)	11.9 (34)	G H I J K L	114.10
SW 9711	9	11.5 (42)	11.7 (34)	12.1 (38)	11.8 (35)	G H I J K L	113.06
6610N	6	11.9 (29)	11.5 (38)	11.8 (41)	11.7 (37)	H I J K L	112.60
SW 9816	9	11.9 (30)	11.3 (43)	11.9 (40)	11.7 (40)	H I J K L	112.32
UC Impalo	9	11.6 (40)	11.4 (41)	12.1 (37)	11.7 (41)	H I J K L	112.23
Grand Slam	4	12.1 (25)	11.6 (37)	11.4 (45)	11.7 (42)	H I J K L	112.16
HybriForce-800	8	11.8 (33)	11.0 (47)	12.2 (34)	11.7 (43)	H I J K L	112.09
SW 9803	9	11.8 (34)	11.0 (46)	12.1 (36)	11.6 (44)	I J K L	111.84
NuMex	7	11.7 (35)	11.4 (39)	11.6 (44)	11.6 (45)	J K L	111.19
Dura 843	8	11.7 (37)	11.0 (45)	11.1 (47)	11.2 (47)	L M	107.98
CUF 101	9	11.0 (46)	10.0 (48)	10.3 (48)	10.4 (48)	M	100.00
<b>Experimental Varieties</b>							
FG 96T706	9	12.4 (17)	13.5 ( 1)	15.4 ( 1)	13.8 ( 1)	A	132.22
FG R97T704	9	13.3 ( 3)	12.6 (11)	13.3 (15)	13.0 ( 6)	A B C D	125.29
FG R97T708	9	11.9 (32)	13.1 ( 4)	14.1 ( 7)	13.0 ( 9)	A B C D E	125.09
DS097040	9	13.1 ( 4)	12.6 (10)	13.3 (14)	13.0 (10)	A B C D E	124.98
FG R96Bx303	9	12.5 (10)	11.7 (33)	14.3 ( 4)	12.8 (12)	A B C D E F G	123.38
FG R97T701	9	11.9 (31)	12.2 (18)	14.2 ( 5)	12.8 (14)	A B C D E F G H	122.72
FG R97T707	9	11.7 (38)	12.5 (13)	13.9 ( 9)	12.7 (15)	A B C D E F G H I	121.97
DS385	8	12.9 ( 5)	12.0 (25)	13.2 (16)	12.7 (17)	A B C D E F G H I	121.87
CW 059051	9	12.4 (16)	12.7 ( 9)	13.0 (19)	12.7 (18)	A B C D E F G H I J	121.83
CW 068068	8	12.1 (24)	12.8 ( 6)	12.7 (27)	12.5 (19)	B C D E F G H I J	120.44
Ameristand 901STQ(EMD)	9	12.0 (27)	12.5 (12)	13.0 (20)	12.5 (20)	B C D E F G H I J	120.05
UC 469		12.4 (13)	12.2 (19)	12.8 (23)	12.5 (21)	B C D E F G H I J	120.04
UC 470		12.2 (21)	12.1 (23)	12.9 (21)	12.4 (23)	B C D E F G H I J K	118.99
DS097645	10	12.4 (14)	11.8 (32)	12.8 (25)	12.3 (24)	B C D E F G H I J K L	118.22
FG R97T715	9	12.2 (22)	11.8 (29)	12.9 (22)	12.3 (25)	B C D E F G H I J K L	118.19
DS097643	9	12.5 (11)	11.7 (35)	12.7 (28)	12.3 (26)	B C D E F G H I J K L	118.13
FG R96Bx301	9	12.6 ( 8)	11.1 (44)	13.1 (17)	12.3 (27)	B C D E F G H I J K L	117.82
UC 471		12.0 (28)	12.0 (24)	12.5 (31)	12.2 (29)	C D E F G H I J K L	117.15
FG R97T710	9	11.7 (36)	11.8 (31)	12.8 (26)	12.1 (30)	D E F G H I J K L	115.98
FG R96Bx308	9	11.6 (41)	12.1 (22)	12.5 (32)	12.1 (31)	D E F G H I J K L	115.88
FG R96Bx304	9	11.6 (39)	11.9 (28)	12.3 (33)	11.9 (32)	E F G H I J K L	114.45
UC 493		11.3 (44)	11.7 (36)	12.2 (35)	11.7 (36)	G H I J K L	112.77
DS097569	8	11.5 (43)	11.8 (30)	11.8 (42)	11.7 (38)	H I J K L	112.42
DS097041	9	12.3 (18)	11.4 (40)	11.3 (46)	11.7 (39)	H I J K L	112.32
FG R97M711	9	10.9 (47)	11.3 (42)	11.9 (39)	11.3 (46)	K L M	108.95
MEAN		12.10	12.03	12.83	12.32		
CV		7.5	6.6	11.7	7.6		
LSD (0.1)		1.08	0.94	1.78	1.11		

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 10% probability level according to Fisher's (protected) LSD.

FD = Fall Dormancy reported by seed companies.

**TABLE 9. 2013 YIELDS, UC IMPERIAL VALLEY ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 10/8/2012**

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

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	Cut 8	Cut 9	YEAR	% of	
		21-Feb	4-Apr	2-May	3-Jun	1-Jul	30-Jul	4-Sep	10-Oct	10-Dec	TOTAL	CUF 101	
	FD	Dry t/a										%	
<b>Released Varieties</b>													
AmeriStand 901TS(Opt)	9	1.5 (13)	2.3 (4)	2.0 (9)	2.7 (2)	2.5 (2)	1.7 (3)	1.3 (4)	0.9 (22)	1.1 (9)	16.0 (1)	A	106.4
Un Padre	9	1.7 (2)	2.3 (6)	2.0 (12)	2.5 (13)	2.4 (8)	1.6 (9)	1.2 (8)	1.0 (2)	1.2 (2)	15.7 (4)	ABCD	104.8
Highline	9	1.6 (9)	2.2 (12)	2.0 (19)	2.5 (11)	2.4 (5)	1.7 (4)	1.2 (11)	0.9 (13)	1.1 (16)	15.5 (5)	ABCDE	103.0
Tres Padres	9	1.7 (1)	2.3 (5)	2.1 (3)	2.5 (12)	2.2 (25)	1.4 (30)	1.1 (28)	1.0 (8)	1.1 (6)	15.3 (6)	ABCDEF	101.9
FGI 96T706	9	1.6 (10)	2.2 (27)	1.9 (25)	2.5 (15)	2.3 (12)	1.6 (5)	1.2 (16)	1.0 (5)	1.1 (18)	15.2 (8)	ABCDEFGF	101.4
Catalina	9	1.4 (30)	2.2 (24)	1.9 (27)	2.4 (24)	2.5 (1)	1.7 (2)	1.2 (10)	1.0 (10)	1.0 (27)	15.2 (9)	ABCDEFGF	101.4
Westar	9	1.6 (8)	2.1 (34)	2.1 (2)	2.6 (3)	2.4 (3)	1.5 (16)	1.1 (21)	0.7 (36)	1.0 (25)	15.2 (10)	ABCDEFGF	101.4
Excelente HQML	9	1.5 (23)	2.3 (3)	2.0 (15)	2.5 (8)	2.3 (16)	1.5 (20)	1.2 (13)	0.8 (31)	1.2 (1)	15.2 (11)	ABCDEFGF	101.4
CW 1010	9	1.4 (28)	2.2 (13)	2.0 (8)	2.5 (17)	2.4 (4)	1.6 (6)	1.1 (22)	0.9 (21)	1.1 (13)	15.2 (12)	ABCDEFGH	101.2
UC Cibola	9	1.5 (18)	2.2 (25)	2.0 (7)	2.6 (4)	2.3 (9)	1.6 (15)	1.2 (17)	0.9 (16)	1.0 (32)	15.2 (13)	ABCDEFGH	101.2
Excelente Plus	9	1.5 (21)	2.3 (2)	2.0 (18)	2.6 (5)	2.2 (24)	1.5 (24)	1.2 (15)	0.8 (29)	1.2 (2)	15.2 (14)	ABCDEFGH	101.1
Sun Quest	6	1.5 (20)	2.2 (14)	1.9 (23)	2.4 (20)	2.2 (26)	1.5 (17)	1.3 (3)	0.9 (23)	1.1 (7)	15.1 (15)	BCDEFGH	100.5
Excelente 11	9	1.5 (11)	2.3 (8)	2.0 (5)	2.5 (7)	2.2 (27)	1.5 (22)	1.1 (31)	0.8 (24)	1.1 (10)	15.0 (16)	BCDEFGH	100.1
FGI 118T816	9	1.5 (24)	2.1 (30)	1.8 (35)	2.3 (34)	2.3 (13)	1.7 (1)	1.2 (14)	1.1 (1)	1.1 (19)	15.0 (17)	BCDEFGH	100.1
WL 656HQ	6	1.4 (26)	2.1 (32)	1.9 (20)	2.6 (6)	2.2 (19)	1.6 (11)	1.2 (7)	0.8 (24)	1.1 (17)	15.0 (19)	BCDEFGH	100.0
Cuf 101	9	1.5 (25)	2.2 (29)	1.9 (21)	2.5 (9)	2.3 (15)	1.6 (14)	1.1 (23)	0.9 (11)	1.1 (20)	15.0 (20)	BCDEFGH	100.0
FGI 106T701	9	1.5 (16)	2.2 (11)	2.0 (6)	2.5 (17)	2.3 (11)	1.5 (21)	1.1 (32)	0.9 (17)	1.0 (31)	15.0 (21)	CDEFGH	99.7
CW 080046	9	1.3 (34)	2.2 (20)	2.0 (14)	2.5 (10)	2.3 (14)	1.6 (12)	1.2 (9)	0.9 (15)	1.0 (29)	15.0 (22)	CDEFGH	99.6
WL 712	10	1.6 (4)	2.3 (7)	2.0 (10)	2.5 (14)	2.2 (18)	1.4 (33)	1.1 (24)	0.8 (33)	1.1 (11)	15.0 (23)	CDEFGH	99.5
AmeriStand 901TS	9	1.5 (22)	2.2 (26)	1.9 (28)	2.4 (23)	2.4 (6)	1.6 (7)	1.1 (27)	0.9 (18)	1.0 (34)	14.9 (24)	DEFGHI	99.3
4N900	9	1.5 (12)	2.2 (28)	2.0 (16)	2.4 (25)	2.2 (20)	1.5 (18)	1.1 (29)	0.9 (18)	1.0 (22)	14.8 (26)	EF GHI	98.6
UC Impalo	9	1.5 (14)	2.2 (19)	1.9 (33)	2.3 (30)	2.2 (28)	1.5 (27)	1.2 (19)	1.0 (9)	1.1 (8)	14.8 (27)	EF GHI	98.5
Saltana	9	1.5 (19)	2.2 (22)	1.9 (31)	2.4 (22)	2.2 (29)	1.6 (10)	1.0 (33)	0.9 (20)	1.0 (35)	14.6 (29)	EF GHI J	97.4
AmeriStand 901TS(EMD)	9	1.5 (15)	2.2 (17)	1.9 (32)	2.3 (31)	2.1 (32)	1.4 (31)	1.1 (30)	0.8 (28)	1.0 (21)	14.4 (32)	HI J K	95.6
Excelente XL	9	1.3 (33)	2.1 (33)	1.9 (26)	2.4 (21)	2.0 (33)	1.3 (34)	1.1 (26)	0.8 (32)	1.0 (32)	14.1 (33)	I J K L	93.6
HybridForce-800	9	1.2 (36)	2.1 (35)	2.0 (11)	2.3 (33)	1.9 (35)	1.2 (36)	1.0 (36)	0.8 (34)	1.0 (28)	13.6 (35)	KL	90.3
La Jolla	9	1.2 (35)	2.1 (31)	1.9 (22)	2.3 (35)	1.8 (36)	1.2 (35)	1.0 (34)	0.7 (35)	1.0 (24)	13.5 (36)	L	89.6
<b>Experimental Varieties</b>													
DS919	9	1.6 (7)	2.4 (1)	2.1 (1)	2.7 (1)	2.4 (6)	1.6 (13)	1.2 (12)	0.8 (30)	1.1 (14)	15.9 (2)	AB	105.6
UC-412	9	1.6 (5)	2.2 (9)	2.0 (13)	2.5 (19)	2.3 (10)	1.6 (8)	1.4 (1)	1.0 (3)	1.1 (4)	15.8 (3)	ABC	105.1
UC-415	9	1.6 (3)	2.2 (16)	1.9 (30)	2.4 (26)	2.2 (22)	1.5 (19)	1.2 (5)	1.0 (4)	1.1 (5)	15.2 (7)	ABCDEFGF	101.4
UC-414	9	1.6 (6)	2.2 (18)	1.9 (24)	2.4 (27)	2.3 (17)	1.5 (23)	1.2 (20)	0.9 (12)	1.1 (11)	15.0 (18)	BCDEFGH	100.1
UC-411	9	1.5 (17)	2.2 (15)	2.0 (17)	2.4 (28)	2.2 (21)	1.5 (26)	1.1 (25)	1.0 (7)	1.0 (23)	14.9 (25)	DEFGHI	99.1
UC-409	9	1.4 (27)	2.2 (21)	1.8 (34)	2.3 (31)	2.1 (30)	1.5 (25)	1.3 (2)	1.0 (6)	1.0 (26)	14.8 (28)	EF GHI J	98.3
DS1064	9	1.4 (32)	2.2 (10)	2.1 (4)	2.5 (16)	2.1 (31)	1.4 (32)	1.0 (35)	0.8 (26)	1.1 (15)	14.5 (30)	FGHI J	96.7
UC-410	9	1.4 (29)	2.2 (23)	1.9 (28)	2.3 (29)	2.2 (23)	1.4 (29)	1.2 (6)	0.8 (27)	0.9 (36)	14.4 (31)	GHI J	96.1
UC-413	9	1.4 (31)	2.0 (36)	1.8 (36)	2.3 (36)	2.0 (34)	1.4 (28)	1.2 (18)	0.9 (14)	1.0 (30)	13.9 (34)	J K L	92.6
MEAN		1.49	2.21	1.94	2.45	2.23	1.52	1.16	0.89	1.06	14.95		
CV		7.8	7.2	5.3	7.1	10.5	12.2	12.1	11.2	8.4	5.9		
LSD (0.1)		0.11	NS	0.10	0.17	0.23	0.18	0.14	0.10	0.09	0.86		

Trial planted at 25 lb/acre viable seed in Imperial clay loam soil at the UC Desert Research and Extension Center, Holtville, CA.

Entries followed by the same letter are no significantly different at the 10% probability level according to Fishers (protected) LSD.

FD = Fall Dormancy reported by seed companies.

**TABLE 10. 2013 YIELDS, UC SCOTT VALLEY ALFALFA CUTIVAR TRIAL. TRIAL PLANTED 5/04/2012**

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

		Cut 1 31-May	Cut 2 8-Jul	Cut 3 12-Aug	Cut 4 1-Oct	YEAR TOTAL	
	FD			Dry t/a			
Released Varieties							
RRALF 4R200	5	3.6 ( 1)	2.9 ( 2)	2.3 ( 2)	1.6 ( 2)	10.4 ( 1)	A
6547R	5	3.6 ( 2)	2.8 ( 4)	2.3 ( 1)	1.6 ( 1)	10.4 ( 2)	A B
Denali 4.10RR	4	3.6 ( 3)	2.7 ( 7)	2.2 ( 3)	1.5 ( 4)	10.1 ( 3)	A B C
RR Stratica	3	3.4 ( 7)	2.7 ( 6)	2.2 ( 4)	1.5 ( 5)	9.9 ( 5)	C D E
WL 372HQ.RR	5	3.4 ( 8)	2.7 ( 8)	2.2 ( 9)	1.5 ( 7)	9.8 ( 6)	C D E F
AmeriStand 415NT RR	4	3.4 (15)	2.8 ( 3)	2.2 (12)	1.5 ( 8)	9.8 ( 7)	C D E F
RR Tonnica	4	3.5 ( 5)	2.6 (21)	2.2 ( 5)	1.5 ( 6)	9.8 ( 8)	C D E F G
6516R	5	3.4 (14)	2.7 ( 9)	2.2 ( 8)	1.5 (10)	9.8 ( 9)	C D E F G
Mutiny	4	3.4 (10)	2.7 (15)	2.1 (19)	1.5 ( 3)	9.7 (11)	D E F G
WL 356HQ.RR	4	3.4 (11)	2.7 (18)	2.2 (11)	1.4 (19)	9.7 (14)	D E F G H
DK44-16RR	4	3.3 (20)	2.8 ( 5)	2.1 (25)	1.4 (15)	9.6 (16)	E F G H I
RR AphaTron	4	3.4 (12)	2.7 (14)	2.1 (26)	1.4 (16)	9.6 (17)	E F G H I
RR Presteez	5	3.3 (17)	2.6 (24)	2.2 (13)	1.4 (24)	9.5 (19)	F G H I J K
WL 355.RR.HQ	4	3.4 (13)	2.6 (22)	2.0 (27)	1.3 (28)	9.4 (21)	G H I J K L
AmeriStand 455TQ RR	4	3.3 (22)	2.6 (28)	2.1 (23)	1.4 (17)	9.3 (22)	H I J K L
Integra 8444RR	4	3.2 (28)	2.6 (25)	2.1 (21)	1.4 (18)	9.3 (23)	I J K L
Consistency 4.10RR	4	3.1 (29)	2.7 (11)	2.1 (22)	1.4 (26)	9.3 (26)	I J K L
6497R	4	3.2 (26)	2.6 (23)	2.0 (30)	1.3 (30)	9.1 (27)	J K L
RR NemaStar	4	2.9 (30)	2.7 (19)	2.1 (15)	1.4 (21)	9.1 (28)	J K L
WL 367.RR.HQ	4	3.3 (21)	2.5 (30)	2.0 (29)	1.4 (27)	9.1 (29)	K L
Integra 8401RR	4	3.2 (27)	2.5 (29)	2.0 (28)	1.3 (29)	9.1 (30)	L
MEAN		3.35	2.68	2.14	1.44	9.61	
CV		6.4	4.8	4.2	4.3	3.7	
LSD (0.1)		0.23	0.14	0.10	0.07	0.38	

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

Entries followed by the same letter are not significantly different at the 10% probability level according to Fisher's (protected) LSD.

FD = Fall Dormancy reported by seed companies.

Nine experimental lines were omitted from this table

**SUGGESTED FALL DORMANCY RANGE AND MINIMUM ALFALFA CULTIVAR PEST RESISTANCE RATINGS FOR SIX CALIFORNIA CLIMATE ZONES.** Growers selecting varieties from different regions should emphasize the pests that are most important for their area.

Production Zone	Rating Factor										
	FD	SAA	PA	BAA	PRR	BW	FW	An	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

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. Zones correspond to the principle regions of alfalfa production in California.

**EXPLANATION OF PEST RESISTANCE.** Alfalfa varieties consist of a population of plants which have varying degrees of resistance to an insect or disease. Since alfalfa fields can sustain considerable loss of individual plants without reducing productivity, alfalfa varieties with 51% or over are considered to be highly resistant, since resistant plants will make up for losses from other plants.

Resistance Level	Abbreviation	Percent resistance <sup>1</sup>
Highly Resistant	HR	>51%
Resistant	R	31-50%
Moderately Resistant	MR	15-30%
Low Resistance	LOW	6-14%
Susceptible	S	<5%
Tolerant	T	(see definition)

<sup>1</sup> 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 but varies by degree. 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 - Tolerant** -- 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.



**LISTING OF COMPANY CONTACTS FOR FURTHER INFORMATION ON VARIETIES.**

Company	Name	Address	City & State	Zip	Phone	FAX	Email
Advanced Forages	Mark Brady	3330 W. Victor Ct.	Visalia, CA	93277	559-471-9363	559-625-8756	seedsmn4u@sbcglobal.net
Allied Seed	Ron Schmidt	1917 E. Fargo Ave.	Nampa, ID	83687	208-466-9218	208-467-9953	<a href="mailto:rschmidt@allied.com">rschmidt@allied.com</a>
America's Alfalfa	Joe Machado	1041 Jackson Ave.	Los Banos, CA	93635	209-826-9442	209-826-8842	<a href="mailto:machado@americasalfalfa.com">machado@americasalfalfa.com</a>
Cal/West Seeds	Jon Reich	38001 Country Road 27	Woodland, CA	95695	530-666-3331	530-666-1464	<a href="mailto:j.reich@Calwestseeds.com">j.reich@Calwestseeds.com</a>
Croplan Genetics	Dennis Gehler	1080 County Road F West	St. Paul, MN	98425	651-765-5710	651-765-5727	<a href="mailto:djgehler@landolakes.com">djgehler@landolakes.com</a>
Dairyland Seed Co.	Dan Gardner	13147 Jackson Hwy.	Sloughouse, CA	95683	916-682-3215	916-682-8435	<a href="mailto:dgardner@dairylandseed.com">dgardner@dairylandseed.com</a>
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	csharp@eurekaseeds.com
Farm Valley Seeds	Mike Reed/James Scallin	624 E Service Rd	Modesto, CA	95358	209-541-3144	209-541-3191	<a href="mailto:jscallin@aol.com">jscallin@aol.com /</a>
Forage Genetics Intrnl.	Peter Reisen	P.O. Box 339	Nampa, ID	83653	208-250-6334	208-466-3684	preisen@foragegenetics.com
W-L Research	Doug Elkins	1917 E. Fargo Ave.	Nampa, ID	83687	208-250-7551	208-467-9953	<a href="mailto:delkins@foragegenetics.com">delkins@foragegenetics.com</a>
W-L Research	Cory Ritz	903 W. 500 South	Farmington, UT	84025	801-971-5359	801-451-9699	<a href="mailto:critz@wresearch.com">critz@wresearch.com</a>
Great Plains Research	Thad Busbice	3624 Kildaire Farm Rd	Cary NC.	27518	919-362-1583	919-387-7918	<a href="mailto:alfalfa@greatplainsresearch.com">alfalfa@greatplainsresearch.com</a>
Kamprath Seed Co.	Alan Steigerwald	205 Stockton St.	Manteca, CA	95337	209-823-6242	209-823-2582	<a href="mailto:alan@kamprathseed.com">alan@kamprathseed.com</a>
Lockhart Seeds, Inc.	Ian Lockhart	3 N. Wilson Way	Stockton, CA	95201	209-466-4401	209-466-9766	<a href="mailto:lockhartstd@aol.com">lockhartstd@aol.com</a>
Monsanto Golbal Seed Group	Bill Cox	2401 S.E. Cottonwood Cir	Visalia, CA	93277	559-909-0668	559-627-0742	<a href="mailto:bill.cox@monsanto.com">bill.cox@monsanto.com</a>
Monsanto Golbal Seed Group	Barbara Kutzner	1428 N. Locan Ave	Fresno, CA	93727	559-453-0740	559-453-0771	<a href="mailto:barbara.u.kutzner@monsanto.com">barbara.u.kutzner@monsanto.com</a>
Novartis Seeds Inc.	Don Barcellos	11939A Sugarmill Rd.	Longmont,CO	80501	800-521-7021	303-682-2482	<a href="mailto:don.barcellos@seeds.novartis.com">don.barcellos@seeds.novartis.com</a>
Pgi Alfalfa Inc.	Dean Teslow	409 North St.	Decorah, IA	52101	563-382-3390	563-382-2433	<a href="mailto:dean.teslow@seminis.com">dean.teslow@seminis.com</a>
Pioneer Hi-Bred	Mark Smith	1040 Settler Rd.	Connell, WA	99326	509-234-9046	509-234-0648	<a href="mailto:mark.a.smith@pioneer.com">mark.a.smith@pioneer.com</a>
Pioneer Hi-Bred	Roger Vinande	3605 Beyer Park Rd.	Modesto, CA	95355	(209) 552-9428	209-527-3336	Roger.Vinande@pioneer.com
Producer's Choice/PGI	Marty Crum	17282 Avenue 324	Visalia, CA	93292	559-798-0156	559-798-6533	<a href="mailto:m.crum@producerschoiceseed.com">m.crum@producerschoiceseed.com</a>
Royal Seeds	Ken May	27630 Llewellyn Rd.	Corvallis, OR	97333	1-800-228-4119	1-541-758-5305	<a href="mailto:kmay@forage-genetics.com">kmay@forage-genetics.com</a>
S & W Seeds	Bob Sheesley	P.O. Box 235	Five Points, CA	93624	559-884-2535	559-884-2750	<a href="mailto:swseedco@pacbell.net">swseedco@pacbell.net</a>
Simplot Growers Solutions	Mike Benson	624 Catalina Cir.	Tulare, CA	93274	559-779-5611		<a href="mailto:Mbenson@Simplot.com">Mbenson@Simplot.com</a>
Simplot Growers Solutions	Lorell Skogsberg	P.O. Box 70013	Boise, ID	83707	208-672-2813		<a href="mailto:Lorell.Skogsberg@simplot.com">Lorell.Skogsberg@simplot.com</a>
Syngenta Seeds	Terry Hobson	1525 Airport Rd.	Ames, IA	50010	800-258-0498	515-239-3536	<a href="mailto:terry.hobson@syngenta.com">terry.hobson@syngenta.com</a>
NK Brand/Syngenta Seeds	Joe Waldo	1116 Elm Avenue West	Menomonie, WI	54751	(715) 235-4405	715-235-4406	<a href="mailto:joe.waldo@syngenta.com">joe.waldo@syngenta.com</a>
Producers Choice Seed	Don Miller	Longbranch Station, Suite	Nampa, ID	83651	208-250-0376	208-722-6646	<a href="mailto:d.miller@producerschoiceseed.com">d.miller@producerschoiceseed.com</a>
Union Seed	Jess W. Bice	P.O. Box 339	Nampa, ID	86387	208-250-2383	208-467-9953	<a href="mailto:jbice@foragegenetics.com">jbice@foragegenetics.com</a>
WL Research	Mike Peterson	P. O. Box 8112	Madison, WI	53708	800-406-7662	608-240-0411	<a href="mailto:mpeterson@wresearch.com">mpeterson@wresearch.com</a>
Western Farm Service	Steve Ford	P.O. Box 1168	Fresno, CA	93715	559-285-6292	559-436-5949	<a href="mailto:sford@agriumretail.com">sford@agriumretail.com</a>
Wilbur Ellis Company	Derek Winn	P. O. Box 15289	Sacramento, CA	95851	916-991-9833	916-991-1837	<a href="mailto:dwinn@wilburellis.com">dwinn@wilburellis.com</a>
UAP/United Agri Products	Walter Bryant	4914 HWY 20/26	Caldwell, ID	83605	208-454-0475	208-454-0495	<a href="mailto:walter.bryant@uap.com">walter.bryant@uap.com</a>