

AGRONOMY PROGRESS REPORT

2017 CALIFORNIA ALFALFA VARIETY TRIAL RESULTS

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INTRODUCTION

This publication details alfalfa yield trial data for multiple-year, single harvest, and single year summaries for the year 2017. Yield trials were conducted in four regions in California: the Intermountain area (Tulelake), the Sacramento Valley (Davis), the San Joaquin Valley (Modesto, Parlier, and Five Points) and the Imperial Valley (El Centro). The alfalfa variety trial data from the University of California is placed online; often well in advance of this published report, please see (<http://alfalfa.ucdavis.edu/+producing/variety>)

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. 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 Valley** and 8-11 cut systems (non-dormant varieties) in the **Low Desert Environment**.

California Alfalfa Acreages by Section

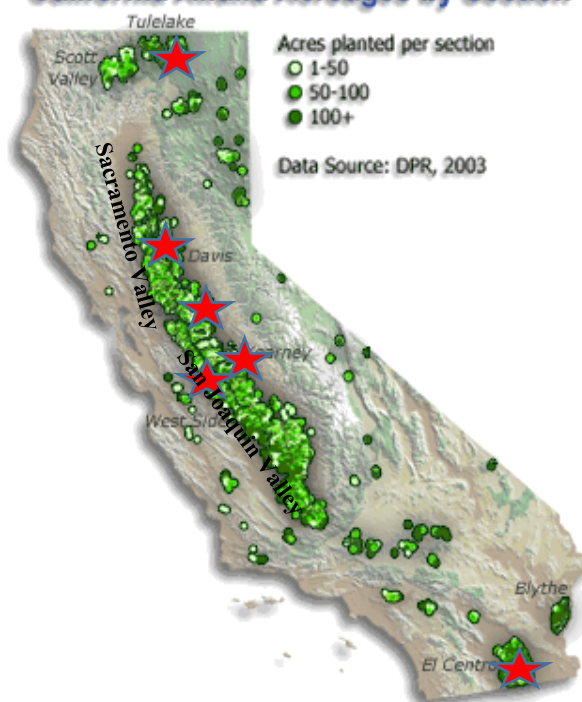


Figure 1. California alfalfa acreage. The Intermountain region is represented by Tulelake and Scott Valley, Sacramento Valley by Davis, San Joaquin Valley by Modesto, Parlier and Five Points Locations, and Low Desert by the El Centro trial.

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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 2017.

2017 ALFALFA PRODUCTION YEAR

The year 2017 was characterized by record high rainfall in late 2016 and early 2017, bringing to a close a five-year drought period (2011-2015) that was particularly severe in California. Markets in 2015-2017 were quite low in historical terms of price to farmers, with prices slowly creeping up in late 2017, except for high quality, which experienced a big demand and low availability. Late rains and excessive summer heat in 2017 caused lower-than-normal quality hays to be produced, with some rained-on hay produced in the spring, and high-fiber hay in the summer. Factors that influenced quality and yields included record high temperatures, smoky conditions in some areas and army worms in central and northern California. There was a dramatic increase in hay exports for 2017, especially to China and the Middle East, which likely had an impact on price.

TESTING VARIETY PERFORMANCE - 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. Two new trials were established for 2017: a variety trial was planted in Tulelake, and a subsurface drip-irrigated salinity trial at Westside Field Station in Five Points. Two low-lignin alfalfa trials were planted in 2017 (in Davis and in Parlier).

Five alfalfa variety yield trials were harvested at Tulelake, Davis, Modesto, Five Points and El Centro, CA in 2017. Specific planting dates for each trial are given on the results table for each trial. The 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 subsamples 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. Two harvests were taken in the intermountain region (seeding year), while 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: We have 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 than is commonly 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, yet represents good mean separation. Such decisions are always a compromise between practical factors and statistical vigor.

2017 YIELD RESULTS

Intermountain Region

2017 UC Tulelake Yield Trial -- This trial was planted with 44 entries on May 22, 2017. Two cuttings were taken during the 2017 season with the first cutting taking place on July 28, 2017. Single year results from the 2017 harvests are provided in Table 1. The average yield across all varieties was 3.4 tons/acre. The yearly yield averages between high and low varieties (3.02 t/A and 4.16 t/A respectively) varied by approximately one ton or about 15% of the lowest yielding line. NOTE: Multiple year data, not single year, should be used to judge performance of alfalfa varieties.

Sacramento Valley Region

2014 UC Davis Yield Trial– This is the final year of yield data for this trial planted with 36 entries September 9, 2014 at the U.C. Davis research fields. This trial was conducted with subsurface drip-irrigation. Seven cuttings were taken during the 2017 season with the first cutting of the season on April 25, 2017 (Table 2). The yield average for all varieties was 7.9 tons/acre over seven cuttings. The yearly yield average between high and low varieties had a 3.2 tons/acre spread (about 40% of the mean). The CVs were moderate except for year 3, indicating control of variation was stable over most of this trial. The final 3 year summary showed a similar spread of 3.3 tons/A between lowest and highest yielding variety, and is provided in Table 3.

2017 UC Davis Low-lignin Trial- This trial was established March 3, 2017 to analyze varieties with the HarvXtra reduced-lignin trait and conventionally bred lower lignin alfalfa, and to compare with controls with same fall dormancy. This trial will evaluate forage quality with early and late-maturity cutting schedules and the interaction of these factors with variety. Since this was a seeding year trial, we have decided not to publish the results of this trial until a full production year is completed.

San Joaquin Valley Region

2014 UC Modesto Yield Trial—This was the third and final year of data collection for the trial planted with 36 entries October 9, 2014 at the Stanislaus Farm Supply research fields in Modesto, CA. Reported here is the yield from only four cuttings which were taken during the 2017 season due to mechanical problems with harvester (Table 4). Stanislaus Farm Supply staff took harvests, but yields were coded so that only UC personnel were able to access individual variety data. The average yield across all varieties was 11.9 tons/acre. The yearly yield averages between high and low varieties showed a 3.3 tons/acre difference (Note: there is some likelihood

that there was a systematic bias in the weights taken at this site, which raises the overall yield level, but does not affect the relative yield comparison between varieties). The fall dormancy ranges were from 5-10 in this trial. The three-year summary is provided in Table 5.

2017 UC Kearney Low-Lignin Trial – This trial located in Parlier, CA was established Sept.20, 2017 to analyze varieties with the HarvXtra reduced-lignin trait and conventionally bred lower lignin alfalfa. Yields from this trial will be reported in 2018.

Low Desert Region

2017 El Centro – This was the first full year of data collection for this trial planted on October 19, 2016 at the Desert Research and Extension Center in Holtville, CA. The trial includes 30 entries with six replications. Single year results are shown in Table 6.

Salinity Trials

2014 UC Westside Salinity Yield Trial – This was the final year of data collection for a trial established October 9, 2014 with 21 varieties in 4 replications at the West Side Research and Extension Center, Five Points, CA. This includes proper controls (salt tolerant and salt susceptible lines developed for greenhouse screening by seed companies). Table 7 presents the yields from 2015-2017 of low-salinity (LS) and high-salinity (HS) treatments. Data show a quite low yield penalty, from 9%-13%, suggesting alfalfa as a crop is more salt tolerant than previously thought. A very high coefficient of variation must be taken into consideration. Differences between varieties within salinity treatment were significant. However, we have less confidence in differences with variety salinity tolerance (relative yields) due to high levels of variation within each of the plots, particularly the high salinity plots. We hypothesize these differences had more to do with the inability to provide sufficient water uniformity across a small trial, due to the influence of salinity on soil water infiltration.

2017 UC Westside Salinity Yield Trial – This variety trial was established 3/29/17 with 35 varieties in 4 replications at the West Side Research and Extension Center, Five Points, CA. This trial uses subsurface drip irrigation (SDI) to supply water more uniformly, but in 2017, flood irrigation was used during this establishment year. The trial was established using sprinkler irrigation initially, and surface irrigation with high-salinity and low-salinity water throughout 2017, and beginning in the spring of 2018, it will utilize a combination of SDI and surface methods. Preliminary yield results from four cuts taken in 2017 show an average yield penalty of 0.2 t/A between HS and LS treatments (Table 8). Varieties were statistically different ($p=0.001$) but no interactions were found between variety and salinity treatments. NOTE: Single year data should not be used to judge the performance of alfalfa varieties.

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 year's 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).
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. 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.**

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Table 1. 2017 YIELDS, TULELAKE ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 5/22/17

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

		Cut 1	Cut 2	YEAR		% of
		28-Jul	11-Sep	TOTAL		VERNAL
	FD	Dry t/a				
Released Varieties						
PGI459	4	2.05 (4)	2.12 (2)	4.16 (3)	A B	137.2
Dekalb 43-13	4	1.82 (11)	1.99 (10)	3.81 (8)	C D E F G	125.5
WL365HQ	5	1.80 (14)	1.99 (9)	3.80 (9)	D E F G	125.1
WL363HQ	5	1.80 (13)	1.97 (11)	3.78 (10)	D E F G	124.5
Integra 8450	4	1.90 (7)	1.86 (20)	3.76 (11)	D E F G	124.0
SW5210	6	1.75 (19)	2.00 (8)	3.74 (12)	E F G H	123.4
Nexgrow 6585Q	5	1.79 (16)	1.95 (12)	3.74 (13)	E F G H	123.4
Genuity-RR	4	1.84 (9)	1.90 (17)	3.74 (14)	E F G H	123.3
Integra 8444R	4	1.78 (18)	1.94 (13)	3.72 (15)	E F G H	122.7
FG R513M225S	5	1.79 (17)	1.92 (15)	3.71 (16)	E F G H	122.3
4R200	4	1.81 (12)	1.87 (19)	3.67 (17)	E F G H	121.1
FG R513W224S	5	1.79 (15)	1.85 (21)	3.64 (18)	F G H	120.1
FG R410W253	4	1.83 (10)	1.78 (22)	3.61 (20)	F G H	118.9
Xtra-3	4	1.63 (23)	1.91 (16)	3.54 (21)	F G H I	116.8
SW5213	5	1.48 (25)	2.03 (6)	3.51 (22)	G H I	115.7
AmeriStand 545NT RR	5	1.64 (22)	1.77 (23)	3.41 (23)	H I	112.5
FG R513W227S	5	1.64 (21)	1.63 (24)	3.27 (24)	I J	107.8
Ameristand 427TQ	4	1.44 (41)	1.60 (26)	3.04 (25)	J	100.3
Ameristand 445-NT	4	1.49 (24)	1.55 (43)	3.04 (26)	J	100.2
WL377HQ	5	1.46 (38)	1.58 (29)	3.04 (27)	J	100.1
SW4107	4	1.46 (37)	1.58 (30)	3.04 (29)	J	100.1
54Q29	4	1.46 (36)	1.58 (31)	3.04 (30)	J	100.1
Vernal	2	1.46 (35)	1.57 (32)	3.03 (32)	J	100.0
Integra 8420	4	1.44 (43)	1.60 (28)	3.03 (34)	J	99.9
Nexgrow 6422Q	4	1.46 (34)	1.57 (35)	3.03 (35)	J	99.9
Archer III	5	1.47 (27)	1.56 (40)	3.03 (38)	J	99.8
Hi-Gest 360	3	1.46 (31)	1.56 (37)	3.03 (39)	J	99.8
WL 372HQ-RR	5	1.47 (29)	1.56 (42)	3.02 (42)	J	99.6
Experimental Varieties						
msSunstra-143146	3	2.11 (3)	2.19 (1)	4.30 (1)	A	141.7
msSunstra-155203	6	2.19 (1)	2.09 (4)	4.28 (2)	A	141.0
msSunstra-144110	4	2.03 (5)	2.11 (3)	4.14 (4)	A B C	136.3
msSunstra-144109	4	2.15 (2)	1.94 (14)	4.09 (5)	A B C D	134.7
msSunstra-143147	3	1.94 (6)	2.04 (5)	3.98 (6)	A B C D E	131.3
msSunstra-155202	6	1.86 (8)	2.01 (7)	3.86 (7)	B C D E F	127.3
SW4466	4	1.72 (20)	1.90 (18)	3.62 (19)	F G H	119.3
RRL414M377	4	1.44 (42)	1.60 (25)	3.04 (28)	J	100.1
RRL514W209	5	1.46 (33)	1.57 (34)	3.03 (31)	J	100.0
RRL514W201	5	1.48 (26)	1.56 (41)	3.03 (33)	J	100.0
H0415A3144	4	1.43 (44)	1.60 (27)	3.03 (36)	J	99.8
H0415ST202	4	1.47 (28)	1.56 (39)	3.03 (37)	J	99.8
RRL414M104	4	1.46 (32)	1.56 (38)	3.03 (40)	J	99.8
H0515QT102	5	1.45 (40)	1.57 (33)	3.02 (41)	J	99.7
RRL414W208	4	1.45 (39)	1.56 (36)	3.02 (43)	J	99.5
H0415QT111	4	1.47 (30)	1.55 (44)	3.02 (44)	J	99.4
MEAN		1.67	1.78	3.44		
CV		9.57	8.04	8.16		
LSD (0.1)		0.19	0.17	0.33		

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. 2017 Yields, UC Davis Alfalfa Cultivar Trial (Trial planted Sept. 30, 2014)

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

		Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Cut 6	Cut 7	YEAR		% of
	FD	25-Apr	24-May	21-Jun	19-Jul	18-Aug	15-Sep	19-Oct	TOTAL		CUF 101
		Dry t/a									
Released Varieties											
UC Impalo	8	1.13 (5)	1.49 (8)	1.55 (4)	1.58 (3)	1.57 (1)	1.04 (2)	0.80 (7)	9.15 (1)	A	130.7
DG9212	9	1.13 (5)	1.55 (6)	1.63 (1)	1.54 (6)	1.44 (7)	1.02 (4)	0.81 (6)	9.11 (2)	A B	130.2
SW9215	9	0.96 (21)	1.37 (22)	1.49 (10)	1.62 (2)	1.50 (4)	0.99 (6)	0.75 (13)	8.69 (5)	A B C D	124.1
9R100	9	0.88 (32)	1.39 (18)	1.44 (13)	1.45 (11)	1.45 (5)	1.04 (2)	0.90 (1)	8.54 (7)	A B C D	122.0
AmeriStand 803T	8	0.90 (26)	1.45 (12)	1.56 (3)	1.55 (5)	1.41 (9)	0.97 (9)	0.68 (15)	8.52 (9)	A B C D	121.7
Camas	4	1.11 (7)	1.57 (3)	1.53 (7)	1.52 (7)	1.29 (19)	0.78 (21)	0.62 (19)	8.43 (11)	A B C D E	120.4
8R100	8	0.98 (19)	1.32 (28)	1.39 (20)	1.40 (17)	1.42 (8)	0.95 (10)	0.84 (3)	8.31 (12)	A B C D E	118.7
AmeriStand 715NT Rf	7	0.96 (21)	1.39 (18)	1.42 (18)	1.45 (13)	1.33 (14)	0.95 (10)	0.75 (11)	8.25 (14)	A B C D E	117.9
6R200	6	1.07 (9)	1.44 (15)	1.34 (23)	1.36 (19)	1.25 (21)	0.85 (15)	0.72 (14)	8.03 (15)	A B C D E F	114.7
Desert Sun 8.10 RR	8	0.83 (35)	1.33 (27)	1.34 (27)	1.45 (11)	1.35 (13)	0.91 (14)	0.80 (7)	8.00 (17)	A B C D E F	114.3
Integra 8420	4	1.05 (12)	1.47 (10)	1.44 (13)	1.33 (23)	1.31 (17)	0.78 (21)	0.59 (20)	7.96 (18)	A B C D E F	113.8
Integra 8800	8	0.98 (19)	1.36 (23)	1.48 (11)	1.42 (15)	1.38 (11)	0.78 (18)	0.55 (22)	7.94 (19)	A B C D E F	113.5
Pacifico	8	1.07 (9)	1.45 (12)	1.41 (19)	1.36 (19)	1.23 (22)	0.73 (28)	0.52 (25)	7.77 (22)	A B C D E F	111.0
ICON	6	1.15 (4)	1.56 (4)	1.34 (23)	1.27 (29)	1.16 (27)	0.71 (29)	0.52 (25)	7.70 (23)	A B C D E F	110.1
Arriba II	6	1.05 (12)	1.39 (18)	1.45 (12)	1.29 (28)	1.19 (23)	0.77 (23)	0.56 (21)	7.69 (24)	B C D E F	109.9
UC415	9	0.94 (25)	1.31 (29)	1.28 (30)	1.42 (15)	1.19 (23)	0.85 (15)	0.63 (16)	7.62 (26)	C D E F G	108.9
SW8421 S	8	1.01 (14)	1.36 (23)	1.34 (23)	1.30 (27)	1.14 (28)	0.78 (18)	0.55 (22)	7.49 (27)	D E F G	106.9
Integra 8444 RR	4	0.94 (23)	1.39 (18)	1.44 (13)	1.30 (25)	1.19 (23)	0.69 (31)	0.50 (28)	7.44 (28)	D E F G H	106.2
4R200	4	0.88 (29)	1.35 (25)	1.39 (20)	1.32 (24)	1.17 (26)	0.70 (30)	0.50 (29)	7.31 (29)	D E F G H	104.5
Integra 8600	6	1.30 (1)	1.56 (4)	1.31 (29)	1.17 (32)	1.01 (32)	0.57 (34)	0.38 (34)	7.30 (30)	D E F G H	104.3
Cuf 101	9	0.90 (26)	1.19 (32)	1.27 (31)	1.23 (30)	1.14 (28)	0.74 (26)	0.53 (24)	7.00 (32)	E F G H I	100.0
NuMex Bill Melton	7	1.00 (17)	1.29 (30)	1.16 (35)	0.92 (36)	0.80 (36)	0.42 (36)	0.24 (36)	5.82 (36)	I	83.2
Experimental Varieties											
SW 8208	8	1.00 (17)	1.44 (14)	1.57 (2)	1.67 (1)	1.54 (2)	1.08 (1)	0.75 (11)	9.05 (3)	A B C	129.3
SW 8421 RRS	8	0.85 (33)	1.41 (17)	1.51 (9)	1.55 (4)	1.51 (3)	1.01 (5)	0.87 (2)	8.71 (4)	A B C D	124.4
SW 8357	8	1.22 (2)	1.63 (1)	1.53 (6)	1.40 (17)	1.32 (16)	0.85 (15)	0.63 (16)	8.59 (6)	A B C D	122.8
R88T829	9	1.01 (14)	1.43 (16)	1.44 (13)	1.48 (9)	1.45 (5)	0.95 (10)	0.78 (10)	8.54 (8)	A B C D	122.0
R89M935	9	1.07 (9)	1.48 (9)	1.44 (13)	1.36 (19)	1.38 (11)	0.95 (10)	0.80 (7)	8.47 (10)	A B C D	121.1
CW058071	8	1.01 (16)	1.60 (2)	1.55 (4)	1.52 (7)	1.28 (20)	0.78 (18)	0.52 (25)	8.26 (13)	A B C D E	118.0
R99T939	8	0.90 (26)	1.27 (31)	1.32 (28)	1.36 (19)	1.33 (14)	0.99 (6)	0.84 (3)	8.02 (16)	A B C D E F	114.6
SW 9215 RRS	9	0.79 (36)	1.17 (34)	1.34 (23)	1.43 (14)	1.39 (10)	0.98 (8)	0.83 (5)	7.93 (20)	A B C D E F	113.3
CW096043	6	0.94 (24)	1.53 (7)	1.52 (8)	1.46 (10)	1.31 (17)	0.74 (26)	0.43 (33)	7.93 (21)	A B C D E F	113.3
Artesian Sunrise	7	1.18 (3)	1.45 (11)	1.37 (22)	1.30 (25)	1.14 (28)	0.77 (23)	0.46 (31)	7.67 (25)	B C D E F	109.6
UC 2671	9	0.88 (29)	1.17 (33)	1.27 (31)	1.20 (31)	1.08 (31)	0.77 (23)	0.63 (16)	7.01 (31)	E F G H I	100.2
SW 6334	6	1.09 (8)	1.35 (25)	1.17 (34)	1.10 (33)	0.93 (34)	0.67 (32)	0.44 (32)	6.75 (33)	F G H I	96.5
UC2693	9	0.88 (29)	1.07 (35)	1.09 (36)	1.07 (34)	0.98 (33)	0.64 (33)	0.49 (30)	6.21 (34)	G H I	88.8
UC 410	9	0.85 (33)	1.07 (35)	1.20 (33)	1.04 (35)	0.92 (35)	0.56 (35)	0.35 (35)	5.98 (35)	H I	85.5
MEAN		1.00	1.39	1.40	1.37	1.26	0.83	0.63	7.87		
CV		21.55	15.51	12.13	14.82	16.93	22.53	31.13	15.49		
LSD (0.1)		NS	0.26	0.20	0.24	0.26	0.22	0.23	1.46		

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.

Table 3. 2015-2017 YIELDS, UC DAVIS ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 9/30/2014

		2015	2016	2017		
		Yield	Yield	Yield	Average	
	FD			Dry t/a		
Released Varieties						
UC Impalo	8	10.78 (3)	7.99 (1)	9.15 (1)	9.31 (1)	A
DG9212	9	10.29 (14)	7.69 (2)	9.11 (2)	9.03 (3)	A B C
SW9215	9	10.35 (12)	7.57 (9)	8.69 (5)	8.87 (7)	A B C D
AmeriStand 803T	8	10.52 (8)	7.50 (11)	8.52 (9)	8.84 (8)	A B C D
Desert Sun 8.10 RR	8	10.79 (2)	7.68 (3)	8.00 (17)	8.82 (9)	A B C D
8R100	8	10.60 (6)	7.39 (14)	8.31 (12)	8.77 (10)	A B C D E
AmeriStand 715NT RR	7	10.27 (15)	7.60 (6)	8.25 (14)	8.71 (11)	A B C D E
9R100	9	10.10 (20)	7.28 (18)	8.54 (7)	8.64 (14)	A B C D E F
6R200	6	10.12 (19)	7.35 (17)	8.03 (15)	8.50 (15)	B C D E F G
UC415	9	10.68 (4)	7.20 (24)	7.62 (26)	8.50 (16)	B C D E F G
Camas	4	9.40 (30)	7.62 (5)	8.43 (11)	8.48 (17)	B C D E F G
Integra 8800	8	10.02 (21)	7.25 (22)	7.94 (19)	8.40 (19)	C D E F G
Pacifico	8	9.65 (25)	7.39 (13)	7.77 (22)	8.27 (21)	D E F G H I
ICON	6	9.70 (24)	7.27 (19)	7.70 (23)	8.22 (23)	D E F G H I
Arriba II	6	9.54 (28)	7.38 (16)	7.69 (24)	8.20 (24)	D E F G H I
SW8421 S	8	10.13 (18)	7.00 (27)	7.49 (27)	8.20 (25)	D E F G H I
Integra 8420	4	9.14 (34)	7.50 (12)	7.96 (18)	8.20 (26)	D E F G H I
Cuf 101	9	10.15 (17)	6.98 (28)	7.00 (32)	8.04 (28)	E F G H I J K
Integra 8600	6	9.15 (33)	7.25 (21)	7.30 (30)	7.90 (30)	G H I J K
Integra 8444 RR	4	8.28 (36)	6.92 (30)	7.44 (28)	7.55 (33)	I J K
4R200	4	8.75 (35)	6.57 (35)	7.31 (29)	7.54 (34)	I J K
NuMex Bill Melton	7	9.60 (27)	6.76 (33)	5.82 (36)	7.39 (35)	J K
Experimental Varieties						
SW 8208	8	10.81 (1)	7.55 (10)	9.05 (3)	9.14 (2)	A B
SW 8357	8	10.51 (9)	7.63 (4)	8.59 (6)	8.91 (4)	A B C D
R89M935	9	10.58 (7)	7.59 (7)	8.47 (10)	8.88 (5)	A B C D
SW 8421 RRS	8	10.33 (13)	7.59 (8)	8.71 (4)	8.87 (6)	A B C D
R88T829	9	10.17 (16)	7.39 (15)	8.54 (8)	8.70 (12)	A B C D E
CW058071	8	10.50 (10)	7.26 (20)	8.26 (13)	8.67 (13)	A B C D E F
R99T939	8	10.50 (11)	6.82 (32)	8.02 (16)	8.45 (18)	B C D E F G
UC 2671	9	10.61 (5)	7.22 (23)	7.01 (31)	8.28 (20)	D E F G H
SW 9215 RRS	9	9.84 (23)	6.91 (31)	7.93 (20)	8.23 (22)	D E F G H I
CW096043	6	9.29 (31)	7.05 (26)	7.93 (21)	8.09 (27)	E F G H I J
Artesian Sunrise	7	9.26 (32)	6.96 (29)	7.67 (25)	7.97 (29)	F G H I J K
SW 6334	6	9.48 (29)	7.13 (25)	6.75 (33)	7.79 (31)	G H I J K
UC2693	9	9.97 (22)	6.70 (34)	6.21 (34)	7.63 (32)	H I J K
UC 410	9	9.62 (26)	6.41 (36)	5.98 (35)	7.34 (36)	K
MEAN		9.99	7.26	7.87	8.37	
CV		7.23	7.71	15.49	7.26	
LSD (0.1)		0.86	0.67	1.46	0.73	

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

FD = Fall Dormancy reported by seed companies.

Table 4. 2017 YIELDS, MODESTO ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 10/9/2014)

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

Note: harvest 1 yield based on one rep due to mechanical problems. No harvests taken after July 2017.

		Cut 1	Cut 2	Cut 3	Cut 4	YEAR		% of	
		5-Apr	8-May	6-Jun	7-Jul	TOTAL		CUF 101	
	FD	Dry t/a							
Released Varieties									
Grandslam	8	2.08 (35)	3.80 (2)	4.28 (6)	3.44 (1)	13.60 (1)	A	120.5	
Nimbus	5	2.49 (4)	3.43 (11)	4.38 (3)	2.67 (16)	12.98 (4)	A B C D	115.0	
DG9212	9	2.18 (27)	3.19 (13)	4.40 (2)	3.19 (3)	12.97 (5)	A B C D	114.9	
AmeriStand 901TS	9	2.38 (10)	3.70 (4)	3.47 (31)	3.31 (2)	12.84 (6)	A B C D E	113.8	
Farm Valley 7	7	2.49 (5)	3.53 (7)	3.85 (16)	2.75 (11)	12.63 (9)	A B C D E F	111.9	
Farm Valley 6	6	2.43 (7)	3.63 (5)	3.67 (25)	2.58 (20)	12.31 (12)	A B C D E F G	109.1	
AmeriStand 803T	8	2.05 (36)	3.49 (10)	3.63 (27)	3.11 (4)	12.28 (13)	A B C D E F G	108.9	
Integra 8800	8	2.37 (11)	3.07 (15)	3.77 (22)	2.85 (7)	12.06 (15)	A B C D E F G H	106.9	
RR Tonnica	5	2.42 (9)	2.74 (26)	4.40 (1)	2.48 (26)	12.05 (16)	A B C D E F G H	106.8	
Integra 8600	6	2.16 (31)	3.05 (17)	3.79 (21)	2.92 (6)	11.92 (17)	B C D E F G H I	105.6	
SW 9106	9	2.32 (13)	3.03 (19)	3.55 (28)	2.75 (14)	11.65 (19)	C D E F G H I J	103.2	
Desert Sun 8.10RR	8	2.19 (26)	3.13 (14)	3.89 (12)	2.39 (28)	11.59 (21)	C D E F G H I J	102.8	
9R100	9	2.32 (14)	2.84 (23)	3.89 (14)	2.50 (24)	11.56 (22)	C D E F G H I J	102.5	
WL662HQ RR	9	2.25 (20)	3.07 (15)	3.96 (9)	2.24 (35)	11.50 (23)	C D E F G H I J	101.9	
Pacifico	8	2.32 (15)	3.05 (17)	3.36 (33)	2.71 (15)	11.44 (24)	D E F G H I J	101.4	
8R100	8	2.18 (28)	2.84 (23)	3.85 (16)	2.50 (25)	11.38 (25)	E F G H I J	100.8	
RR NemaStar	5	2.20 (24)	2.66 (29)	3.93 (11)	2.54 (23)	11.33 (26)	E F G H I J	100.4	
Cuf 101	9	2.24 (22)	2.62 (31)	3.67 (25)	2.75 (12)	11.28 (28)	E F G H I J	100.0	
6R200	6	2.42 (8)	2.50 (34)	3.89 (12)	2.39 (29)	11.20 (30)	F G H I J	99.3	
SuperSonic	9	2.22 (23)	2.98 (21)	3.28 (35)	2.56 (22)	11.04 (31)	G H I J	97.9	
AmeriStand 715NT RR	7	2.12 (34)	2.64 (30)	3.55 (28)	2.35 (30)	10.66 (32)	H I J	94.5	
6829R	8	2.16 (29)	2.50 (34)	3.71 (24)	2.22 (36)	10.58 (33)	H I J	93.8	
Transition 6.1	6	2.20 (24)	2.56 (32)	3.43 (32)	2.29 (32)	10.47 (34)	I J	92.8	
AmeriStand 915TS RR	9	2.25 (21)	2.03 (36)	3.85 (16)	2.25 (34)	10.38 (35)	I J	92.0	
RR Six Shooter	6	2.14 (33)	2.54 (33)	3.36 (33)	2.29 (32)	10.34 (36)	J	91.6	
Experimental Varieties									
RD 132	8	3.06 (1)	3.51 (9)	4.30 (5)	2.46 (27)	13.34 (2)	A B	118.2	
SW 8357	8	2.26 (19)	4.39 (1)	3.81 (20)	2.60 (19)	13.06 (3)	A B C	115.7	
SW 1037	10	2.50 (3)	3.76 (3)	3.89 (14)	2.67 (16)	12.83 (7)	A B C D E	113.7	
RD 71	8	2.37 (12)	3.41 (12)	4.02 (7)	2.96 (5)	12.76 (8)	A B C D E F	113.1	
RD 121	9	2.32 (16)	3.03 (19)	4.36 (4)	2.81 (8)	12.51 (10)	A B C D E F G	110.9	
UC 2693	9	2.77 (2)	3.63 (5)	3.18 (36)	2.75 (12)	12.33 (11)	A B C D E F G	109.3	
CW050085	10	2.43 (6)	3.53 (7)	3.51 (30)	2.81 (9)	12.28 (14)	A B C D E F G	108.8	
UC 2671	9	2.32 (17)	2.78 (25)	3.93 (10)	2.66 (18)	11.69 (18)	C D E F G H I J	103.6	
CW058071	8	2.30 (18)	2.72 (28)	3.83 (19)	2.79 (10)	11.64 (20)	C D E F G H I J	103.2	
SW 8421 RRS	8	2.15 (32)	2.88 (22)	3.73 (23)	2.56 (21)	11.32 (27)	E F G H I J	100.4	
SW 9215-RRS	9	2.16 (30)	2.74 (26)	4.00 (8)	2.31 (31)	11.21 (29)	F G H I J	99.3	
MEAN		2.31	3.08	3.82	2.65	11.86			
CV		9.10	24.50	19.48	19.24	12.38			
LSD (0.1)		0.22	0.81	NS	0.54	1.57			

Trial seeded at 25 lb/acre viable seed on 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.

Table 5. 2015-2017 YIELDS, MODESTO ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 10/9/2014

		2015	2016	2017		
		Yield	Yield	Yield	Average	
	FD		Dry t/a			
Released Varieties						
AmeriStand 901TS	9	15.54 (2)	17.40 (1)	12.84 (6)	15.26 (1)	A
Grandslam	8	14.42 (12)	16.44 (2)	13.60 (1)	14.82 (2)	A B
DG9212	9	13.99 (21)	15.94 (5)	12.97 (5)	14.30 (5)	A B C D
AmeriStand 803T	8	14.14 (17)	16.30 (3)	12.28 (13)	14.24 (6)	A B C D
Pacifico	8	16.71 (1)	13.97 (21)	11.44 (24)	14.04 (8)	B C D E
Farm Valley 7	7	15.21 (4)	14.03 (20)	12.63 (9)	13.95 (9)	B C D E F
Integra 8600	6	15.13 (5)	14.80 (11)	11.92 (17)	13.95 (10)	B C D E F
Integra 8800	8	14.22 (14)	14.43 (15)	12.06 (15)	13.57 (15)	C D E F G
Cuf 101	9	14.05 (20)	15.15 (8)	11.28 (28)	13.49 (16)	C D E F G
SuperSonic	9	14.95 (6)	14.44 (14)	11.04 (31)	13.48 (17)	C D E F G H
Farm Valley 6	6	13.46 (27)	14.10 (19)	12.31 (12)	13.29 (20)	C D E F G H I
SW 9106	9	13.80 (23)	14.15 (18)	11.65 (19)	13.20 (21)	D E F G H I J
Nimbus	5	13.41 (28)	12.47 (29)	12.98 (4)	12.95 (23)	E F G H I J K
8R100	8	14.62 (10)	12.64 (27)	11.38 (25)	12.88 (24)	E F G H I J K
RR Tonnica	5	12.56 (35)	13.91 (22)	12.05 (16)	12.84 (25)	F G H I J K
9R100	9	14.12 (18)	12.75 (26)	11.56 (22)	12.81 (26)	F G H I J K
RR NemaStar	5	12.67 (34)	13.85 (23)	11.33 (26)	12.62 (28)	G H I J K
Desert Sun 8.10RR	8	13.68 (26)	12.56 (28)	11.59 (21)	12.61 (29)	G H I J K
Transition 6.1	6	14.85 (8)	12.22 (33)	10.47 (34)	12.52 (30)	G H I J K
AmeriStand 715NT RR	7	13.97 (22)	12.27 (30)	10.66 (32)	12.30 (31)	H I J K
6R200	6	13.13 (32)	12.27 (31)	11.20 (30)	12.20 (32)	I J K
WL662HQ RR	9	13.22 (31)	11.43 (36)	11.50 (23)	12.05 (33)	J K
6829R	8	12.92 (33)	12.25 (32)	10.58 (33)	11.92 (34)	K
RR Six Shooter	6	13.71 (25)	11.58 (35)	10.34 (36)	11.88 (35)	K
AmeriStand 915TS RR	9	13.24 (29)	11.98 (34)	10.38 (35)	11.87 (36)	K
Experimental Varieties						
RD 71	8	14.20 (15)	16.27 (4)	12.76 (8)	14.41 (3)	A B C
SW 8357	8	15.22 (3)	14.69 (12)	13.06 (3)	14.32 (4)	A B C D
SW 1037	10	14.51 (11)	15.38 (6)	12.83 (7)	14.24 (7)	A B C D
CW050085	10	14.06 (19)	15.18 (7)	12.28 (14)	13.84 (11)	B C D E F
CW058071	8	14.92 (7)	14.93 (9)	11.64 (20)	13.83 (12)	B C D E F
RD 132	8	13.22 (30)	14.49 (13)	13.34 (2)	13.68 (13)	B C D E F G
UC 2671	9	14.78 (9)	14.40 (16)	11.69 (18)	13.62 (14)	C D E F G
UC 2693	9	13.72 (24)	14.30 (17)	12.33 (11)	13.45 (18)	C D E F G H
RD 121	9	12.55 (36)	14.90 (10)	12.51 (10)	13.32 (19)	C D E F G H I
SW 8421 RRS	8	14.16 (16)	13.60 (24)	11.32 (27)	13.03 (22)	E F G H I J K
SW 9215-RRS	9	14.24 (13)	12.93 (25)	11.21 (29)	12.79 (27)	F G H I J K
MEAN		14.09	14.01	11.86	13.32	
CV		12.15	11.30	12.37	8.29	
LSD (0.1)		1.83	1.69	1.57	1.18	

Trial seeded at 25 lb/acre viable seed on sandy soil at Stanislaus Farm Supply, 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 6. 2017 Yields, El Centro Alfalfa Cultivar Trial (Trial planted 10/19/16)

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	Cut 10	YEAR	% of		
	2-Mar	30-Mar	1-May	1-Jun	29-Jun	27-Jul	24-Aug	21-Sep	19-Oct	29-Nov	TOTAL	CUF101		
	FD													
	Dry t/ha													
Released Varieties														
106T701	10	1.19 (22)	1.33 (15)	1.88 (22)	2.31 (7)	1.56 (9)	1.34 (3)	0.99 (6)	1.03 (9)	1.12 (4)	1.06 (4)	13.80 (6)	A B C D E	122.6
Fertilac 10	10	1.40 (1)	1.35 (9)	2.03 (3)	2.27 (11)	1.48 (15)	1.15 (23)	0.88 (23)	0.88 (27)	0.97 (20)	0.91 (23)	13.32 (15)	B C D E F G H	118.4
UC-Impalo	9	1.25 (10)	1.36 (7)	1.92 (15)	2.17 (26)	1.48 (14)	1.17 (21)	0.93 (18)	0.97 (19)	1.03 (14)	1.01 (6)	13.31 (16)	B C D E F G H	118.2
UC-Cibola	9	1.12 (27)	1.22 (27)	1.94 (13)	2.25 (16)	1.41 (21)	1.18 (20)	0.97 (10)	1.03 (8)	1.02 (16)	0.91 (22)	13.06 (18)	D E F G H I J	116.0
6906N	10	1.25 (8)	1.34 (10)	2.03 (2)	2.24 (20)	1.45 (20)	1.13 (26)	0.88 (24)	0.84 (30)	0.94 (21)	0.92 (21)	13.03 (19)	E F G H I J	115.8
59N49	9	1.27 (6)	1.34 (11)	1.98 (8)	2.25 (18)	1.45 (19)	1.14 (24)	0.86 (26)	0.92 (23)	0.94 (22)	0.87 (28)	13.02 (21)	E F G H I J	115.6
UC-Highline	9	1.23 (13)	1.29 (23)	2.00 (6)	2.31 (6)	1.39 (23)	1.19 (19)	0.92 (20)	0.90 (24)	0.34 (29)	0.95 (19)	12.52 (25)	H I J K	111.2
AFX 1060	10	1.01 (30)	1.27 (25)	1.86 (26)	2.26 (14)	1.69 (2)	1.21 (16)	0.92 (19)	0.95 (20)	0.39 (25)	0.89 (24)	12.46 (26)	I J K	110.7
Fertilac 11	11	1.19 (21)	1.31 (20)	1.97 (9)	2.25 (19)	1.26 (29)	1.16 (22)	0.87 (25)	0.95 (21)	0.38 (26)	0.98 (13)	12.33 (27)	J K	109.6
CUF101	9	1.16 (26)	1.17 (29)	1.82 (29)	1.97 (29)	1.23 (30)	1.06 (28)	0.85 (27)	0.88 (28)	0.33 (30)	0.79 (30)	11.26 (30)	L	100.0
Experimental Varieties														
118T816	11	1.25 (9)	1.38 (2)	1.95 (11)	2.39 (1)	1.64 (5)	1.40 (1)	1.06 (2)	1.16 (3)	1.13 (2)	1.07 (1)	14.44 (1)	A	128.3
1012T408	10	1.30 (3)	1.36 (6)	2.00 (7)	2.39 (2)	1.71 (1)	1.21 (17)	0.96 (15)	0.99 (17)	1.09 (7)	1.05 (5)	14.05 (2)	A B	124.9
1013T184	10	1.28 (4)	1.41 (1)	2.04 (1)	2.38 (4)	1.53 (11)	1.27 (5)	0.98 (8)	1.05 (5)	1.06 (10)	1.01 (10)	14.01 (3)	A B	124.4
1011T105	10	1.22 (17)	1.32 (18)	1.90 (18)	2.26 (14)	1.61 (7)	1.34 (2)	1.06 (2)	1.06 (4)	1.09 (6)	1.01 (6)	13.87 (4)	A B C	123.2
1014T549	10	1.22 (16)	1.33 (14)	1.89 (20)	2.24 (21)	1.41 (22)	1.24 (8)	1.08 (1)	1.21 (1)	1.16 (1)	1.07 (2)	13.84 (5)	A B C D	122.9
109T901	10	1.26 (7)	1.38 (3)	1.94 (14)	2.18 (25)	1.55 (10)	1.27 (4)	1.03 (5)	1.04 (7)	1.10 (5)	1.01 (8)	13.75 (7)	A B C D E	122.2
1014T552	10	1.34 (2)	1.31 (19)	1.90 (19)	2.25 (17)	1.28 (27)	1.23 (10)	1.04 (4)	1.16 (2)	1.12 (3)	1.06 (3)	13.71 (8)	A B C D E F	121.8
1014T013	10	1.23 (14)	1.37 (4)	1.94 (12)	2.31 (5)	1.52 (12)	1.23 (14)	0.93 (17)	0.99 (17)	1.05 (12)	0.98 (14)	13.54 (9)	B C D E F G	120.3
105T286	10	1.27 (5)	1.36 (5)	1.92 (16)	2.27 (10)	1.47 (17)	1.24 (9)	0.98 (9)	0.99 (16)	1.08 (9)	0.95 (18)	13.53 (10)	B C D E F G	120.2
UCExp-HD	9	1.17 (24)	1.32 (16)	1.97 (10)	2.23 (23)	1.46 (18)	1.25 (7)	0.96 (14)	1.03 (10)	1.09 (8)	1.01 (9)	13.49 (11)	B C D E F G	119.9
108T813	10	1.23 (15)	1.27 (24)	1.89 (21)	2.26 (13)	1.64 (4)	1.23 (12)	0.90 (21)	1.01 (12)	1.05 (11)	0.97 (15)	13.46 (12)	B C D E F G	119.6
1012T402	10	1.20 (19)	1.30 (22)	1.92 (17)	2.28 (9)	1.47 (16)	1.26 (6)	0.96 (13)	1.03 (11)	1.03 (15)	0.98 (12)	13.42 (13)	B C D E F G	119.2
1113T186	11	1.20 (20)	1.25 (26)	1.86 (27)	2.30 (8)	1.69 (2)	1.20 (18)	0.97 (11)	1.00 (15)	1.00 (18)	0.89 (27)	13.34 (14)	B C D E F G	118.5
1111T108	11	1.24 (12)	1.33 (13)	2.02 (4)	2.38 (3)	1.60 (8)	1.23 (12)	0.97 (11)	1.04 (6)	0.38 (27)	0.98 (11)	13.17 (17)	C D E F G H I	117.0
1114T012	11	1.17 (25)	1.31 (21)	1.86 (24)	2.20 (24)	1.35 (24)	1.22 (15)	0.98 (7)	1.00 (14)	1.04 (13)	0.89 (26)	13.03 (20)	E F G H I J	115.8
1013M185	10	1.24 (11)	1.32 (17)	2.01 (5)	2.27 (11)	1.63 (6)	1.23 (11)	0.94 (16)	0.95 (22)	0.38 (28)	0.97 (16)	12.92 (22)	F G H I J	114.8
1114T010	11	1.21 (18)	1.35 (8)	1.86 (25)	2.23 (22)	1.51 (13)	1.10 (27)	0.85 (27)	0.89 (25)	0.98 (19)	0.94 (20)	12.91 (23)	F G H I J	114.7
UC-2705	9	1.18 (23)	1.33 (12)	1.88 (23)	2.13 (27)	1.31 (26)	1.14 (25)	0.89 (22)	1.01 (12)	1.01 (17)	0.95 (17)	12.83 (24)	G H I J	114.0
UC-2671	9	1.07 (28)	1.21 (28)	1.84 (28)	2.08 (28)	1.31 (25)	1.02 (29)	0.77 (30)	0.87 (29)	0.93 (24)	0.89 (25)	12.02 (28)	K L	106.7
UC-2693	9	1.02 (29)	1.10 (30)	1.68 (30)	1.85 (30)	1.27 (28)	1.00 (30)	0.81 (29)	0.89 (25)	0.93 (23)	0.85 (29)	11.40 (29)	L	101.3
MEAN		1.21	1.31	1.92	2.24	1.48	1.20	0.94	0.99	0.91	0.96	13.16		
CV		7.22	7.15	5.40	6.74	19.73	11.04	12.09	10.19	26.31	9.58	6.24		
LSD (0.1)		0.09	0.09	0.10	0.15	NS	0.13	0.11	0.10	0.23	0.09	0.81		

Trial seeded at 25 lb/acre viable seed at Desert Research and Extension Center, Holtville 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.

Table 7. Yields of alfalfa varieties grown at UC West Side Research and Extension Center, Five Points, CA (2015-2017) under conditions of high salinity (HS) and low salinity (LS) in separate side-by-side plots in a Randomized complete block design. Low salinity was watered with salinity levels of approximately 1.0-1.5 dS/l (ECw), and HS irrigations were approximately 8.0 to 10.0 dS/l (ECw). Resulting soil salinity in the high salinity plots ranged from ECs of 12-16 dS/l. Differences between varieties within each salinity level were significant ($P<0.05$), but the Salinity X variety interaction was non significant. Trial planted October, 2014.

Variety	Yield (t/A)									
	2015		2016		2017		3 Year Avg.		Cum. Yield	
	LS	HS	LS	HS	LS	HS	LS	HS	LS	HS
SW9812	6.54	7.37	8.36	10.89	9.44	12.01	8.12	10.09	24.35	30.27
SW 9813	7.94	7.22	9.27	10.16	9.25	12.78	8.82	10.05	26.47	30.16
FG R914W259S	8.32	7.61	9.97	9.38	10.47	10.62	9.59	9.20	28.76	27.61
AmeriStand 915TS RR	7.60	7.03	8.73	9.28	8.99	10.74	8.44	9.02	25.32	27.05
SW 8421- RRS	7.78	7.31	10.40	8.54	12.12	10.18	10.10	8.68	30.30	26.03
Saltana	7.35	6.85	9.65	8.74	11.53	10.42	9.51	8.67	28.54	26.00
AmeriStand 901TS	7.34	6.35	9.70	8.67	11.53	10.36	9.52	8.46	28.57	25.38
FG R814W257S	7.69	6.39	8.80	9.64	9.28	9.09	8.59	8.37	25.77	25.12
CUF101	7.84	6.98	9.92	9.02	10.60	8.78	9.46	8.26	28.37	24.79
9R100	7.79	6.99	9.68	8.25	10.39	9.40	9.28	8.21	27.85	24.64
SW9215	6.95	6.90	8.02	8.15	10.88	9.39	8.62	8.14	25.85	24.43
Sun Quest	7.39	6.63	9.78	7.63	12.41	9.87	9.86	8.04	29.58	24.13
AZ- 90NDC-ST	7.91	6.15	9.90	8.38	10.59	9.42	9.47	7.98	28.40	23.95
CW050085	7.82	6.32	9.88	7.98	10.41	9.29	9.37	7.86	28.12	23.59
FG R814W258S	7.01	6.52	9.30	8.30	11.07	8.49	9.13	7.77	27.39	23.31
AZ-88NDC	7.42	6.29	9.29	7.75	9.53	8.46	8.75	7.50	26.24	22.50
SW 9215-RRS	7.58	6.23	10.29	7.39	10.56	8.40	9.48	7.34	28.43	22.02
CW058071	8.00	6.17	9.02	7.45	9.50	8.28	8.84	7.30	26.52	21.89
Desert Sun 8.10RR	7.49	6.43	8.55	7.39	9.81	7.97	8.62	7.26	25.86	21.79
SW 9106	8.34	5.87	11.19	7.41	12.59	7.93	10.71	7.07	32.13	21.22
SW 8421-S	7.69	6.06	9.06	6.36	9.29	8.11	8.68	6.85	26.04	20.54
Mean	7.61	6.65	9.47	8.42	10.49	9.52	9.19	8.20	27.56	24.59
CV%	10.91	23.54	19.59	28.20	30.96	30.30	21.82	25.80	27.13	30.69
LSD ($p=0.05$)	1.17	2.21	2.62	3.36	4.59	4.08	0.26	0.27	2.02	2.04
Yield loss due to salinity	13%		11%		9%		11%		11%	

Table 8. Yield of alfalfa varieties grown at UC WSREC, Five points, CA (2017) under high salinity (HS) and low salinity (LS) treatments in a split-plot design. Treatments were irrigated with 1.0-1.5 dS/m and 8.0-10 dS/m (ECw), for LS and HS respectively. Significant difference found in treatment and varieties but no treatment x variety interaction.

Variety	Yield (ton/A)		
	LS	HS	Average
AZ-88NDC	6.00	4.75	5.37
SW9573	5.53	5.13	5.33
9R100	5.51	5.02	5.27
SW8421RRS	5.02	5.49	5.26
UC Salton	5.21	5.19	5.20
PGI 908-S	5.42	4.98	5.20
SW9106M	4.73	5.49	5.11
SW9577	5.17	4.97	5.07
C0916ST232	5.35	4.78	5.06
SW9215RRS	4.79	5.19	4.99
SW8409	4.94	4.98	4.96
R814W257S	5.23	4.61	4.92
H0916ST218	4.88	4.94	4.91
SW9576	4.90	4.64	4.77
R814W258S	4.81	4.72	4.77
CUF101	4.88	4.63	4.76
Integra 8810S	4.90	4.61	4.75
H0715ST209	4.54	4.97	4.75
UC Impalo	4.51	4.93	4.72
H0916ST223	4.51	4.86	4.68
SW8476	4.51	4.81	4.66
AZ-90NDC-ST	4.80	4.45	4.62
H0716ST222	4.90	4.31	4.61
H0715ST211	4.99	4.03	4.51
AFX149092	4.71	4.04	4.37
H0915ST212	4.78	3.93	4.35
R914W259S	4.20	4.49	4.34
H0815ST210	4.65	4.03	4.34
H0716ST227	4.25	4.40	4.32
SW8412	4.89	3.72	4.31
H0915ST214	4.30	4.03	4.17
H0916ST217	3.96	4.23	4.09
H0916ST216	4.47	3.70	4.09
Salado*	4.39	3.19	3.79
FGR814W275	3.52	3.59	3.56
Mean	4.82	4.61	4.71
CV%		16.30	
LSD (p=0.05)		0.18	
treatment		*	
variety		***	
treatment X variety		ns	

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 ¹
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)

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 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.

