



The 2014 New Mexico Alfalfa Variety Test Report



Agricultural Experiment Station
College of Agricultural, Consumer
and Environmental Sciences



The 2014 New Mexico Alfalfa Variety Test Report

Leonard Lauriault, Ian Ray, Chris Pierce, Owen Burney, Robert Flynn, Mark Marsalis, Mick O'Neill, and Curtis Owen¹

Introduction

In 2014, 220,000 acres of alfalfa (*Medicago sativa*) were in production in New Mexico, rebounding from 180,000 acres in 2013. Hay yields were estimated at 1,144,000 tons. At a January through November 2014 average of \$256/ton (same as in 2013), estimated gross returns from 1,144,000 tons of alfalfa hay produced in 2014 will total nearly \$293 million. This would be an increase from the \$244 million received in 2013 strengthening alfalfa hay's position as New Mexico's No. 1 cash crop (New Mexico Agricultural Statistics Service, www.nass.usda.gov/nm). Alfalfa also is the legume of choice in irrigated perennial pastures. Whether used as pasture or hay, the value of alfalfa to New Mexico is greatly magnified by its contribution to livestock production and receipts from the sale of meat, milk, and other products generated by livestock enterprises.

Choosing a good alfalfa variety is a key step in establishing a highly productive stand of alfalfa, whether for hay or pasture. Differences between the highest- and lowest-yielding varieties in irrigated tests included in this report ranged from 0.61 to 3.71 tons per acre in 2014. If sold as hay, this translates to a difference in returns of \$156 to \$949 per acre due to variety, or an increase of at least \$34.3 million for the industry in 2014 alone.

This report, which is a collaborative effort of New Mexico State University scientists at agricultural science centers throughout the state, provides yield data for alfalfa varieties included in yield trials in New Mexico. While consistently high yields compared to other varieties over a number of years and locations within a region is the best indication of varietal adaptation and persistence, other factors should be considered in the variety selection process (see NMSU's Cooperative Extension Service Circular 654, *Selecting alfalfa varieties for New Mexico*). In addition to fall dormancy and winter hardiness, high levels of pest resistance are critical to protecting an alfalfa stand for long-term production. Alfalfa grown in New Mexico should have at least a resistant (R) rating for bacterial wilt, Fusarium wilt, anthracnose, Phytophthora root rot, spotted alfalfa aphid, blue alfalfa aphid, pea aphid, stem nematode, and southern rootknot nematode. Seed quality also should be high. Selecting an alfalfa variety based on seed cost is a gamble producers often lose. To be assured of achieving a long-lasting, highly productive stand, buy either certified or Plant Variety Protected (PVP) seed, which guarantees the genetics and performance. The best choice of seed of any variety is one that was treated with a fungicide and nitrogen-fixing bacteria before it was bagged.

Description of Tests

Replicated alfalfa variety tests included in this report were conducted under research controls at NMSU's Agricultural Science Centers at Artesia [2011, 2013, and 2014 (late spring planted)], Tukumcari (standard and Roundup Ready®, both sown in 2012 irrigated with treated municipal wastewater), Los Lunas (2013), Mora (new location, 2013), and Farmington (2012). Weather data for 2014 and the long-term averages from all

locations are presented in table 1.

Yield data (on a dry matter basis) are presented in tables 2-9. Varieties are listed in order from highest to lowest average annual production. Yields are given by cutting for 2014 and by year for each production year. Statistical analyses were performed on all alfalfa yield data (including experimentals) to determine if the apparent differences are truly due to variety or just to chance. The variety with the highest numerical yield in each column is marked with two asterisks (**), and those varieties not significantly different from that variety are marked with one asterisk (*). Those are the varieties from which to make an initial selection. Otherwise, to determine if two varieties are truly different, compare the difference between the two varieties to the Least Significant Difference (LSD) at the bottom of the column. If the difference is equal to or greater than the LSD, the varieties are truly different in yield when grown under the conditions at a given location. If NS is given for the LSD, there was no statistical difference between the highest and lowest yielding varieties. The Coefficient of Variation (CV), which is a measure of the variability of the data, is included for each column of means. Low variability (<20 percent) is desirable, and increased variability within a study results in higher CVs and larger LSDs. There might be a difference between previously published data and the data given in this publication for the same tests because of differences in the programs used for statistical analysis.

Table 10 summarizes information about proprietors, Roundup Ready genetics, fall dormancy, winter survival (measured in the northern United States), pest resistance, and yield performance across years and locations for all varieties currently included in NMSU's alfalfa variety testing program. Varieties are listed alphabetically by fall dormancy category. As in the data tables, the variety with the highest numerical yield in each column is marked with two asterisks (**), and those varieties not significantly different from that variety are marked with one asterisk (*). Remember good performance across several years and locations is the best indicator of broad adaptation, pest resistance, and persistence.

Seed labeled "common," "variety not stated," or "variety unknown", particularly that from other states, is of unknown genetic background and may or may not have the necessary disease or insect resistance. New Mexico Common and African Common seed used in all tests throughout the state has come from the same supplier and seed fields in New Mexico. Seed purchased from other dealers may or may not be of the same quality and performance.

Summary

Consistent production of high alfalfa yields is the result of selecting good varieties and implementing good management techniques. Soil fertility should be maintained at recommended levels based on soil tests, irrigation should be properly applied, weeds and insects should be controlled using appropriate cultural and/or chemical methods, and harvest management should allow sufficient time to restock root energy prior to winter. For dormant (FD 1 to 3) and semidormant (FD 4 to 6) varieties, a 6-week

¹Forage Crop Management Scientist and Superintendent, NMSU Agricultural Science Center at Tukumcari; Alfalfa Breeder, NMSU, Las Cruces; Forage Research Scientist, NMSU, Las Cruces; Superintendent, NMSU John T. Harrington Forestry Research Center at Mora; Extension Agronomist, NMSU Agricultural Science Center at Artesia; Extension Forage Specialist and Superintendent, NMSU Agricultural Science Center at Los Lunas; Agronomist, NMSU Agricultural Science Center at Farmington; and Research Assistant, NMSU Agricultural Science Center at Farmington, respectively.

rest period before a dormancy-inducing freeze (27°F) is recommended to allow plants to replenish root reserves for winter survival and initiate spring growth, after which harvesting might be done either mechanically or by grazing. Non-dormant (FD 7 to 9) varieties also might benefit from this rest period. Removing fall growth is beneficial to reducing weevil populations the following year as eggs are laid in and overwinter in stems. Harvesting established stands at early bloom would result in 3 to 5 cuttings per year before initiation of the rest period in most areas of New Mexico. More dormant varieties might not produce yields that can be baled during the rest period; however, these can still be grazed. For further information about alfalfa management, refer to the other NMSU Agricultural Experiment Station and Cooperative Extension Service publications listed in table 11.

Acknowledgements

The authors express appreciation to the following for their significant contribution to The New Mexico Alfalfa Variety Testing Program by helping with planting, maintaining, harvesting, or other data collection, and data entry: Dallen Begay, Nathan Begay, Jason Box, Servando Bustillos, Patty Cooksey, Josh Foster, Charles Havlik, Calvin Henson, Jared Jennings, Shane Jennings, Ruben Pacheco, Tom Place, Hubert (Geno) Roberts, Mario Segura, Margaret West, and the staff at University Communications who make publications such as this possible. Salaries and research support were provided by state and federal funds appropriated to the New Mexico Agricultural Experiment Station in addition to varietal entry fees.

Table 1. Temperature and precipitation data for 2014 and the long-term averages for the New Mexico Alfalfa Variety Test locations.

Location Elevation Latitude	Artesia 3366 ft. 32° 45' N				Tucumcari 4091 ft. 35° 12' N				Los Lunas 4840 ft. 34° 46' N				Mora 7303 ft. 35° 58' N				Farmington 5640 ft. 36° 41' N			
	Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip.		Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip.	
Month	14	Avg.	14	Avg.	14	Avg.	14	Avg.	14	Avg.	14	Avg.	14	Avg.	14	Avg.	14	Avg.	14	Avg.
Nov-13	47	49	0.80	0.53	47	47	0.43	0.70	43	43	0.98	0.46	37	42	0.80	0.21	41	41	0.91	0.65
Dec-13	39	41	0.46	0.51	37	39	0.11	0.65	34	35	0.30	0.53	32	32	0.09	0.48	28	31	0.14	0.45
Jan-14	39	40	0.00	0.39	40	38	0.01	0.40	35	35	0.00	0.38	34	33	0.11	0.11	32	30	0.00	0.50
Feb-14	45	45	0.21	0.42	41	42	0.03	0.48	44	40	0.08	0.41	38	33	0.24	0.30	39	36	0.41	0.48
Mar-14	51	52	0.42	0.43	49	49	0.22	0.76	48	47	0.30	0.49	41	43	0.22	0.29	44	43	0.88	0.64
Apr-14	60	60	0.80	0.62	58	57	0.21	1.12	55	55	0.13	0.45	46	49	0.78	0.31	50	51	0.13	0.59
May-14	69	69	0.85	1.20	66	66	2.42	1.90	62	63	0.24	0.45	54	60	2.12	0.54	59	60	0.26	0.51
Jun-14	81	78	1.12	1.40	76	76	4.00	1.93	75	72	0.17	0.54	64	67	0.13	1.33	71	70	0.00	0.23
Jul-14	81	80	2.21	1.76	79	79	2.54	2.64	79	77	3.38	1.39	66	69	6.00	3.34	77	76	0.47	0.82
Aug-14	78	78	1.09	1.67	79	77	0.82	2.74	73	75	2.37	1.67	62	68	0.93	2.19	72	74	1.07	1.04
Sep-14	70	71	7.37	1.81	70	70	2.73	1.62	71	67	0.83	1.17	60	62	1.59	1.81	69	66	1.55	1.10
Oct-14	62	61	0.50	1.16	63	60	0.19	1.29	58	56	0.63	1.05	51	51	0.41	0.64	56	54	0.15	0.98
Annual	63	60	15.83	11.88	59	58	13.71	16.23	57	55	9.41	8.99	49	51	13.42	11.55	53	53	5.97	7.99

Table 2. Dry matter yields (tons/acre) of sprinkler-irrigated alfalfa varieties sown September 12, 2011, at NMSU's Agricultural Science Center at Artesia†.

Variety Name	2012 Total	2013 Total	2014 Harvests					2014 Total	3-yr Average
			19-May	11-Jul	19-Aug	1-Oct	31-Oct		
GrandSlam	9.40**	10.14*	1.19*	1.15*	0.75*	0.59*	0.38*	4.08**	7.83**
RGO2011	8.91*	10.32*	1.18*	1.03*	0.72*	0.61**	0.39**	3.94*	7.78*
Arriba II	8.58*	10.47**	1.11*	1.19**	0.66*	0.59*	0.37*	4.04*	7.66*
Malone	8.95*	9.73*	1.09*	1.05*	0.76*	0.56*	0.27*	3.80*	7.53*
Wilson	7.71	10.16*	1.20**	0.93*	0.74*	0.56*	0.37*	3.81*	7.33*
58N57	7.87	9.94*	0.99*	1.13*	0.71*	0.53*	0.34*	3.80*	7.28*
Mesa	7.35	10.30*	1.09*	0.98*	0.79*	0.56*	0.32*	3.74*	7.13*
Dona Ana	8.00	9.70*	1.03*	1.04*	0.73*	0.53*	0.32*	3.71*	7.11*
NM Common	7.07	10.18*	1.10*	1.17*	0.82**	0.56*	0.30*	3.92*	7.05*
HybriForce-2600	7.80	9.76*	1.00*	1.09*	0.70*	0.57*	0.30*	3.65*	7.05*
DS611	7.30	10.26*	1.07*	1.02*	0.75*	0.53*	0.33*	3.69*	7.03*
DS919	7.60	9.58*	1.41*	1.05*	0.60*	0.56*	0.27*	3.84*	7.01*
AmeriStand 901TS	7.65	9.34*	1.26*	0.93*	0.76*	0.54*	0.33*	3.84*	6.99*
56S82	6.99	9.90*	0.95*	1.09*	0.78*	0.56*	0.35*	3.70*	6.92
Key II	7.77	9.63*	1.07*	0.97*	0.78*	0.51*	0.27*	3.60*	6.88
Cimarron VL500	7.25	9.70*	1.10*	0.88*	0.78*	0.50*	0.30*	3.52*	6.87
African Common	7.13	10.02*	1.03*	0.98*	0.66*	0.57*	0.33*	3.48*	6.83
DS815	7.49	9.46*	0.93*	0.95*	0.77*	0.55*	0.37*	3.53*	6.82
Zia	7.25	9.45*	1.02*	1.05*	0.64*	0.53*	0.31*	3.47*	6.73
Archer III	6.81	9.70*	0.95*	0.99*	0.79*	0.55*	0.36*	3.56*	6.68
GrandStand	7.30	9.21*	0.97*	0.99*	0.77*	0.49*	0.30*	3.55*	6.66
DG4210	6.54	9.13*	1.10*	1.00*	0.69*	0.59*	0.29*	3.67*	6.40
Mean	7.67	9.82	1.08	1.03	0.73	0.55	0.33	3.72	7.07
LSD (0.05)	1.31	NS	NS	NS	NS	NS	NS	NS	0.88
CV%	12.09	7.99	18.39	12.11	21.17	11.52	25.04	10.19	15.31

†Data were analyzed using analysis of covariance where alternating plots of 56S82 were used as the covariate.

2012 Harvest dates: 26-Apr, 5-Jun, 3-Jul, 1-Aug, 4-Sep and 18-Oct.

2013 Harvest dates: 8-May, 6-Jun, 8-Jul, 5-Aug, 4-Sep, and 18-Oct.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 3. Dry matter yields (tons/acre) of sprinkler-irrigated alfalfa varieties sown September 23, 2013, at NMSU's Agricultural Science Center at Artesia†.

Variety Name	2014 Harvests				2014 Total
	20-May	18-Jul	20-Aug	2-Oct	
56S82	2.21*	3.07**	1.76*	1.59*	8.63**
Artesian Sunrise	2.46**	2.99*	1.73*	1.37	8.54*
NM Common	1.69	2.81*	2.38**	1.63**	8.50*
African Common	1.76	2.77*	2.17*	1.49*	8.20*
WL 535HQ	2.10*	2.81*	1.87*	1.34	8.12*
Wilson	2.13*	2.73*	1.76*	1.41*	8.02*
Malone	1.65	2.66*	2.21*	1.49*	8.00*
Dona Ana	1.71	2.63*	2.07*	1.58*	7.99*
Zia	1.82	2.71*	1.88*	1.54*	7.94*
DG9212	1.87	2.77*	1.79*	1.50*	7.93*
58N57	1.95	2.60*	1.76*	1.34	7.64
55Q27	1.95	2.47*	1.89*	1.24	7.54
55VR05	1.71	2.40*	1.65*	1.12	6.88
Mean	1.92	2.72	1.92	1.43	7.99
LSD (0.05)	0.45	NS	NS	0.25	0.82
CV%	16.36	17.59	20.14	11.93	7.17

†Data were analyzed using analysis of variance.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 4. Dry matter yields (tons/acre) of flood-irrigated alfalfa varieties sown March 31, 2014, at NMSU's Agricultural Science Center at Artesiat.

Variety Name	2014 Harvests			2014 Total
	24-Jun	2-Sep	3-Oct	
SW 8208	1.89*	1.78**	0.83*	4.49**
DG9212	1.99**	1.63*	0.83*	4.45*
58N57	1.76*	1.76*	0.90*	4.42*
NM Common	1.94*	1.65*	0.78*	4.36*
Zia	1.79*	1.69*	0.84*	4.32*
Wilson	1.76*	1.63*	0.91**	4.30*
Malone	1.74*	1.75*	0.79*	4.28*
African Common	1.76*	1.69*	0.83*	4.28*
SW 7410	1.72*	1.65*	0.80*	4.18*
Artesian Sunrise	1.71*	1.59*	0.86*	4.16*
56S82	1.76*	1.68*	0.72*	4.15*
SW 8357	1.60*	1.68*	0.81*	4.09*
WL 535HQ	1.67*	1.65*	0.76*	4.08*
NuMex Bill Melton	1.54*	1.69*	0.83*	4.06*
Dona Ana	1.61*	1.56*	0.82*	3.98*
SW 8421S	1.63*	1.49*	0.70*	3.82*
55VR05	1.69*	1.33*	0.67*	3.68*
Mean	1.74	1.64	0.80	4.18
LSD (0.05)	NS	NS	NS	NS
CV%	15.11	12.53	14.82	9.91

†Data were analyzed using analysis of variance.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 5. Dry matter yields (tons/acre) of alfalfa varieties sown September 26, 2012, at NMSU's Agricultural Science Center at Tucumcari and sprinkler-irrigated twice per week with treated municipal wastewater†.

Variety Name	2013	2014 Harvests					2014	2-yr	
	Total	21-May	1-Jul	21-Jul	19-Aug	16-Sep	31-Oct	Total	Average
Malone	3.90**	1.01	1.68*	0.94*	1.03**	1.04**	0.57*	6.26*	5.08**
NuMex Bill Melton	3.45*	1.27*	1.66*	0.85*	1.01*	0.87	0.63*	6.28**	4.87*
56S82	3.90**	1.15	1.71*	0.89*	0.80	0.75	0.52	5.82*	4.86*
Roadrunner	3.52*	1.60**	1.65*	0.87*	0.90*	0.68	0.37	6.06*	4.79*
WL 454HQ.RR	3.23	1.01	1.62*	0.86*	0.88*	0.92*	0.58*	5.87*	4.55*
African Common	3.18	0.96	1.55*	0.84*	1.01*	0.90*	0.66**	5.92*	4.55*
NM Common	3.20	0.97	1.53*	0.78*	0.94*	0.96*	0.63*	5.80*	4.50*
Integra 8400	3.00	1.35*	1.74*	0.92*	0.75	0.76	0.46	5.98*	4.49*
Mallard	3.26	1.25*	1.62*	0.78*	0.85	0.71	0.42	5.62*	4.44*
Bluejay HR	2.88	1.52*	1.68*	0.75	0.88*	0.76	0.27	5.86*	4.37
54QR04	3.12	1.06	1.77*	0.78*	0.85	0.79	0.32	5.57*	4.34
55Q27	2.93	1.14	1.63*	0.77	0.88*	0.72	0.40	5.53*	4.23
Meadowlark	2.67	1.23*	1.76*	0.74	0.84	0.84	0.33	5.73*	4.20
6422Q	2.72	1.03	1.89**	0.77	0.82	0.81	0.35	5.66*	4.19
Dona Ana	3.28	0.70	1.16*	0.70	0.87*	0.88	0.56*	4.87	4.07
Wilson	2.95	0.77	1.39*	0.72	0.84	0.80	0.48	4.98	3.97
54VR03	2.52	0.94	1.51*	0.76	0.78	0.71	0.31	5.00	3.76
Bluejay 2	2.76	0.91	1.59*	0.58	0.74	0.62	0.22	4.66	3.71
HybriForce-2400	2.27	1.10	1.60*	0.60	0.79	0.68	0.26	5.04	3.65
Mean	3.09	1.10	1.62	0.78	0.86	0.80	0.44	5.60	4.35
LSD (0.05)	0.60	0.39	NS	0.17	0.17	0.16	0.11	0.91	0.65
CV%	13.69	25.07	18.18	15.32	13.67	14.21	17.27	11.40	14.84

†Data were detrended using nearest neighbor analysis, and analyzed using analysis of variance.

2013 Harvest dates 5-Jun, 25-Jun, 1-Aug, 23-Sep, and 6-Nov.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 6. Dry matter yields (tons/acre) of Roundup Ready® alfalfa varieties sown September 26, 2012, at NMSU's Agricultural Science Center at Tucumcari and sprinkler-irrigated twice per week with treated municipal wastewater†.

Variety Name	2013 Total	2014 Harvests						2014 Total	2-yr Average
		21-May	1-Jul	21-Jul	19-Aug	16-Sep	31-Oct		
R77T729	4.00**	2.06**	1.82*	1.22*	1.35*	1.22	1.12*	8.78**	6.39**
R65BD278	3.77*	1.65*	2.08*	1.36*	1.22*	1.31*	1.04*	8.66*	6.21*
R66BX312	3.81*	1.81*	1.84*	1.22*	1.27*	1.17	0.97	8.28*	6.04*
R66BX320	3.45*	1.53*	1.96*	1.29*	1.36*	1.32*	1.14**	8.60*	6.03*
R78T823	3.72*	1.54*	1.92*	1.32*	1.19*	1.20	1.07*	8.24*	5.98*
R58HG236	3.22	1.70*	2.19**	1.31*	1.21*	1.18	1.00*	8.59*	5.90*
RR57K337	3.43*	1.57*	1.98*	1.36*	1.37**	1.07	0.78	8.12*	5.77*
R57K138	2.96	1.79*	2.00*	1.20*	1.23*	1.41**	0.97	8.59*	5.77*
R57A136	3.39*	1.63*	1.99*	1.22*	1.29*	1.13	0.77	8.04*	5.71*
R57W213	2.77	1.61*	2.15*	1.36*	1.25*	1.19	0.95	8.50*	5.63
R57OK217	2.71	1.67*	2.15*	1.30*	1.27*	1.22	0.95	8.56*	5.63
R66BX311	3.29	1.54*	1.83*	1.02*	1.22*	1.23	1.13*	7.97*	5.63
R57OK216	2.64	1.67*	2.18*	1.49**	1.18*	1.07	0.87	8.46*	5.55
R65BD277	3.18	1.21*	1.83*	1.41*	1.34*	1.15	0.95	7.89*	5.54
R65BD279	2.94	1.38*	1.82*	1.31*	1.19*	1.12	1.09*	7.90*	5.42
54QR04	2.57	1.78*	2.03*	1.34*	1.23*	1.07	0.82	8.26*	5.42
R86X214	2.24	1.49*	1.95*	1.28*	1.25*	1.16	0.89	8.01*	5.12
54VR03	2.81	1.32*	2.04*	1.16*	1.09	0.95	0.70	7.27	5.04
Mean	3.07	1.59	1.98	1.29	1.22	1.16	0.94	8.18	5.63
LSD (0.05)	0.71	NS	NS	NS	0.28	0.18	0.16	1.06	0.73
CV%	16.31	20.03	10.22	13.79	16.21	10.92	11.99	9.14	12.97

†Data were detrended using nearest neighbor analysis, and analyzed using analysis of variance.

2013 Harvest dates 5-Jun, 25-Jun, 1-Aug, 23-Sep, and 6-Nov.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 7. Dry matter yields (tons/acre) of alfalfa varieties sown September 30, 2013, at NMSU's Agricultural Science Center at Los Lunas and flood-irrigated twice per cutting†.

Variety Name	2014 Harvests				2014 Total
	28-May	30-Jun	18-Aug	4-Nov	
NuMex Bill Melton	2.38**	2.11**	2.55*	1.29*	8.33***
Artesian Sunrise	1.92	1.76	2.61**	1.37**	7.65**
Wilson	2.15*	1.93*	2.44*	1.02	7.53*
Transition 6.10RR	1.93	1.77	2.39*	1.21	7.29*
WL 454HQ.RR	1.87	1.79	2.41*	1.21	7.28*
HybriForce-2400	1.97	1.75	2.53*	0.98	7.23*
Malone	1.90	1.82	2.32	1.15	7.19*
Dona Ana	1.85	1.83	2.29	1.17	7.15
Meadowlark	1.94	1.78	2.42*	1.00	7.13
NM Common	2.14*	1.90*	2.04	1.05	7.13
PGI 424	1.92	1.87	2.31	1.03	7.13
Cimarron VL600	1.91	1.66	2.23	1.30*	7.10
WL 440HQ	1.58	1.67	2.55*	1.08	6.87
55Q27	1.77	1.67	2.35	1.05	6.84
Roadrunner	1.83	1.69	2.25	1.03	6.79
Bluejay HR	1.92	1.65	2.18	0.88	6.63
PGI 557	1.85	1.74	2.08	0.90	6.57
Archer III	1.50	1.53	2.36*	1.06	6.45
Mallard	1.68	1.56	2.24	0.96	6.44
DG4210	1.46	1.59	2.18	1.04	6.27
55VR05	1.64	1.73	1.87	0.83	6.06
Bluejay 2	1.32	1.45	1.98	0.92	5.67
Mean	1.84	1.74	2.30	1.07	6.94
LSD (0.05)	0.28	0.22	0.26	0.16	0.50
CV%	10.84	9.12	8.06	10.88	5.06

†Data were detrended using nearest neighbor analysis, analyzed using analysis of variance.

***Highest numerical value in the column; significantly higher than all other values.

**Second highest numerical value in the column.

*Not significantly different from the second highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 8. Dry matter yields (tons/acre) of alfalfa varieties sown August 28, 2013, at NMSU's John T. Harrington Forestry Research Center at Mora and sprinkler-irrigated twice per week†.

Variety Name	2014 Harvests			2014 Total
	22-Jul	2-Sep	14-Oct	
Dona Ana	1.80**	1.52*	0.74**	4.06**
SS120	1.53*	1.69*	0.55*	3.77*
55VR05	1.57*	1.33*	0.59*	3.49*
WL 354HQ	1.08*	1.76**	0.48*	3.32*
DG4210	1.00*	1.56*	0.74**	3.30*
FG27C102	1.50*	1.38*	0.40	3.28*
WL 319HQ	1.27*	1.61*	0.28	3.16*
Wilson	1.19*	1.26*	0.55*	3.00*
Spredor 5	1.50*	1.08*	0.19	2.77*
55Q27	0.97*	1.26*	0.49*	2.72*
Ranger	1.34*	1.06*	0.25	2.65*
Ladak	1.19*	0.92*	0.34	2.45*
Mean	1.33	1.37	0.47	3.16
LSD (0.05)	NS	NS	0.31	NS
CV%	41.54	33.94	45.69	24.25

†Data were detrended using nearest neighbor analysis, analyzed using analysis of variance.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 9. Dry matter yields (tons/acre) of sprinkler-irrigated alfalfa varieties sown May 9, 2012, at NMSU's Agricultural Science Center at Farmington†.

Variety Name	2012 Total	2013 Total	2014 Harvests				2014 Total	3-yr Average
			3-Jun	8-Jul	11-Aug	7-Oct		
HybriForce Mesa	4.16*	9.77**	3.37*	2.56*	2.39*	2.11*	10.43*	8.12**
DG4210	3.98*	9.55*	3.37*	2.66**	2.41*	2.26**	10.71**	8.08*
MagnaGraze	4.21*	9.64*	3.40**	2.27*	2.55*	2.16*	10.38*	8.07*
Gunner	3.90*	9.08*	3.34*	2.55*	2.59**	1.92	10.40*	7.79*
Creeping Crown	4.33*	8.97*	3.12*	2.37*	2.34*	1.91	9.73*	7.68*
Archer III	4.13*	8.88*	2.92*	2.56*	2.44*	1.99	9.91*	7.64*
MagnaGraze II	3.94*	8.90*	3.08*	2.26*	2.39*	2.04*	9.76*	7.53*
Mountaineer 2.0	3.77*	8.96*	3.12*	2.27*	2.37*	2.07*	9.83*	7.52*
Lahontan	4.20*	8.56*	3.06*	2.32*	2.44*	1.97	9.79*	7.51*
WL 440HQ	4.37*	8.46*	2.54	2.36*	2.33*	1.86	9.09	7.31*
Ranger	3.65*	8.41*	3.20*	2.04	2.41*	1.97	9.61*	7.22*
GrandStand	4.15*	7.87	2.86	2.38*	2.39*	1.88	9.52	7.18*
WL 354HQ	3.81*	8.06*	3.03*	2.18	2.35*	1.80	9.35	7.07*
Arrowhead II	3.39*	8.03	3.32*	1.95	2.57*	1.94	9.78*	7.07*
WL 363HQ	3.75*	8.39*	2.72	2.01	2.28*	1.74	8.75	6.96
NM Common	4.30*	7.49	2.10	2.02	2.31*	1.93	8.36	6.72
54VR03	3.45*	7.40	2.47	1.95	2.28*	1.79	8.50	6.45
Dona Ana	4.65**	6.81	1.61	1.94	2.28*	2.03	7.86	6.44
African Common	4.10*	7.43	1.80	1.90	2.13*	1.90	7.73	6.42
Wilson	3.29*	7.01	2.05	1.74	2.56*	2.12	8.47	6.26
Malone	3.64*	6.71	1.94	1.75	2.21*	1.81	7.72	6.02
Zia	4.18*	5.45	1.45	1.78	2.10*	1.68	7.00	5.54
Mean	3.97	8.17	2.72	2.17	2.37	1.95	9.21	7.12
LSD (0.05)	NS	1.72	0.53	0.44	NS	0.23	1.18	1.07
CV%	14.14	14.89	13.73	14.35	8.41	8.20	9.03	18.51

†Data were detrended using nearest neighbor analysis, and analyzed using analysis of variance.

2012 Harvest dates: 13-Jul, 14-Aug, and 3-Oct.

2013 Harvest dates: 6-Jun, 12-Jul, 21-Aug, and 2-Oct.

**Highest numerical value in the column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 10. Characteristics and performance of alfalfa varieties across years and tests in New Mexico.		Varietal Characteristics ¹											Artesia						Tucumcari		Los Lunas	Mora	Farmington									
		RR	FD	WS	Pest resistance									2011			2013			2012 ²		2013	2013	2012								
					BW	FW	AN	PRR	SAA	PA	BAA	SN	RKN	12 ⁵	13	14	14	14	13	14	13	14	14	14	12	13	14					
Variety	Proprietor																															
Arrowhead II	Dairyland Seed Co.		2	2	HR	HR	HR	HR	n/r	R	n/r	HR	n/r																	*	*	*
Creeping Crown	Dairyland Seed Co.		2	2	HR	HR	HR	HR	n/r	R	n/r	HR	n/r																*	*	*	
Spreader 5	Nexgrow Alfalfa		2	1	HR	HR	HR	n/r	R	n/r	n/r	n/r	n/r																*			
Ladak	USDA		3	n/r	R	n/r	n/r	n/r	n/r	n/r	n/r	R	n/r																*			
MagnaGraze	Dairyland Seed Co.		3	2	HR	HR	R	HR	R	n/r	MR	MR	LR																*	*	*	
MagnaGraze II	Dairyland Seed Co.		3	2	HR	HR	HR	n/r	R	n/r	n/r	R	n/r																*	*	*	
Ranger	USDA, Univ. of Nebraska		3	n/r	R	n/r	n/r	n/r	R	n/r	n/r	R	n/r																*	*	*	
SS120	Seed Solutions		3	3	HR	R	R	R	R	R	R	n/r	n/r																*			
WL319HQ	W-L Research		3	1	HR	HR	HR	HR	R	n/r	HR	n/r	n/r																*			
54QR04	Pioneer HiBred Int'l	Y	4	n/r	HR	HR	HR	HR	n/r	n/r	n/r	n/r	n/r						*	*												
54VR03	Pioneer HiBred Int'l	Y	4	n/r	HR	HR	HR	HR	n/r	HR	n/r	n/r	n/r																*			
6422Q	Nexgrow Alfalfa		4	1	HR	HR	HR	HR	n/r	R	n/r	R	n/r						*													
Bluejay 2	Blue River Hybrids		4	2	HR	HR	HR	HR	R	HR	n/r	n/r	n/r																			
Bluejay HR	Blue River Hybrids		4	2	HR	HR	HR	HR	R	HR	n/r	R	n/r						*													
DG4210	Crop Production Services		4	1	HR	HR	HR	HR	HR	R	n/r	R	n/r		*	*												*	*	*	**	
GrandStand	Crop Production Services		4	2	HR	HR	HR	HR	R	HR	n/r	MR	n/r		*	*												*				
HybriForce Mesa	Triumph Seed		4	2	HR	HR	HR	HR	n/r	R	n/r	HR	R		*	*												*	**	*		
HybriForce-2400	Dairyland Seed Co.		4	2	HR	HR	HR	HR	n/r	n/r	n/r	HR	R														*					
Integra 8400	Wilbur-Ellis Company/Integra		4	2	HR	HR	HR	HR	n/r	HR	n/r	R	n/r					*														
Meadowlark	Blue River Hybrids		4	2	HR	HR	HR	HR	R	HR	n/r	R	n/r					*														
PGI 424	Producer's Choice Seed		4	n/r	HR	HR	HR	HR	n/r	R	n/r	HR	n/r																			
Roadrunner	Blue River Hybrids		4	2	HR	HR	HR	HR	HR	LR	n/r	R	n/r					*	*													
WL354HQ	W-L Research		4	1	HR	HR	HR	HR	HR	HR	n/r	R	n/r															*	*	*		
55Q27	Pioneer HiBred Int'l		5	n/r	HR	HR	HR	HR	R	R	n/r	HR	n/r					*										*				
55VR05	Pioneer HiBred Int'l	Y	5	n/r	HR	HR	HR	HR	n/r	n/r	n/r	HR	n/r				*											*				
Archer III	America's Alfalfa		5	2	HR	HR	HR	HR	n/r	HR	n/r	HR	HR		*	*												*	*	*		

¹RR=Roundup Ready if "Y"; WS=Winter Survival (1=No injury, 6=Dead plants), FD=Fall Dormancy (2=Vernal, 3=5246, 4=Legend, 5=Archer, 6=ABI 700, 7=Dona Ana, 8=Pierce, 9-CUF101, 10=UC1887), BW=Bacterial wilt, PRR=Phytophthora root rot, FW=Fusarium wilt, AN=Anthracnose, SAA=Spotted alfalfa aphid, PA=Pea aphid, BAA=Blue alfalfa aphid, SN=Stem nematode, RKN=Rootknot nematode (southern); (S=Susceptible, LR=Low resistance, MR=Moderate resistance, R=Resistant, HR=High resistance).

n/r indicates either that the variety was not rated for that characteristic or no rating was available.

²Establishment year.

³Standard performance evaluation.

⁴Roundup Ready® entries only.

⁵Harvest year.

Shaded boxes indicate that the variety was not in the test.

***Significantly higher than all other values in the column.

**Highest yielding variety in the test for that year, except for Los Lunas 2013 test in 2014 when it is the second highest yielding variety.

*Not significantly different from the highest yielding variety in the test for that year, except for Los Lunas 2013 test in 2014 when it is not significantly different from the second highest yielding variety.

L.M. Lauriault, I.M. Ray, C.A. Pierce, O. Burney, R.P. Flynn, Mark Marsalis, M.K. O'Neill, and C. Owen

New Mexico St. Univ. College of Agricultural, Consumer and Environmental Sciences. Agric. Exp. Stn and Coop. Ext. Ser.

Table 10 (cont.). Characteristics and performance of alfalfa varieties across years and tests in New Mexico.		Varietal Characteristics ¹											Artesia						Tucumcari		Los Lunas	Mora	Farmington					
													Pest resistance						2011			2013	2014	2012 ²		RR ⁴	2013	2013
		Variety	Proprietor	RR	FD	WS	BW	FW	AN	PRR	SAA	PA	BAA	SN	RKN	12 ⁵	13	14	14	14	13	14	13	14	14	14	12	13
Cimarron VL500	Cimarron USA		5		HR	R	HR	HR	HR	R	R	MR	n/r		*	*												
Gunner	Croplan Genetics		5	1	HR	HR	HR	HR	HR	R	n/r	R	n/r													*	*	*
Key II	Cimarron USA		5	n/r	HR	HR	HR	HR	HR	HR	MR	MR	n/r		*	*												
Mallard	Blue River Hybrids		5	3	HR	HR	HR	HR	R	HR	n/r	R	n/r							*								
Mountaineer 2.0	Croplan Genetics		5	2	HR	HR	HR	HR	R	HR	n/r	HR	R												*	*	*	
PGI 557	Producer's Choice Seed		5	2	HR	HR	HR	HR	n/r	R	R	HR	n/r															
WL363HQ	W-L Research		5	2	HR	HR	HR	HR	R	R	MR	MR	MR												*	*		
Zia	New Mexico State University		5	n/r	MR	MR	S	S	MR	S	S	NR	NR		*	*	*	*							*			
56S82	Pioneer HiBred Int'l		6	5	HR	HR	HR	HR	HR	HR	HR	HR	HR		*	*	**	*	**	*								
Arriba II	America's Alfalfa		6	n/r	R	HR	HR	HR	HR	HR	R	HR	n/r	*	**	*												
Cimarron VL600	Cimarron USA		6		R	R	R	HR	HR	HR	R	R	n/r		*	*												
DS611	Dairyland Seed Co.		6	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r		*	*												
HybriForce-2600	Dairyland Seed Co.		6	n/r	HR	HR	HR	HR	n/r	n/r	n/r	n/r	n/r		*	*												
Lahontan	USDA, Univ. of Nevada		6	n/r	R	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r												*	*	*	
Transition 6.10RR	Croplan Genetics	Y	6	n/r	R	R	R	HR	R	HR	n/r	MR	n/r											*				
Wilson	New Mexico State University		6	n/r	R	R	n/r	n/r	MR	R	n/r	MR	n/r	*	*	*	*			*				*	*	*		
WL440HQ	W-L Research		6	n/r	HR	HR	R	HR	HR	HR	HR	HR	HR											*		*		
WL454HQ.RR	W-L Research	Y	6	n/r	R	HR	HR	HR	R	HR	n/r	HR	n/r							*								
Artesian Sunrise	Croplan Genetics		7	n/r	MR	HR	R	HR	HR	HR	R	R	n/r				*	*						**				
Dona Ana	New Mexico State University		7	n/r	MR	MR	LR	R	MR	R	n/r	n/r	n/r	*	*	*	*	*						*	*	**	**	
Malone	New Mexico State University		7	n/r	R	HR	R	R	R	HR	S	MR	n/r	*	*	*	*	*	**	*			*		*			
NuMex Bill Melton	New Mexico State University		7	n/r	MR	R	R	R	R	MR	MR	n/r	n/r				*	*	**					***				
SW 7410	S & W Seeds		7	n/r	R	R	HR	MR	HR	R	R	MR	R				*											
WL424HQ.RR	W-L Research	Y	7	n/r	R	HR	HR	HR	HR	HR	HR	HR	n/r								*							
58N57	Pioneer HiBred Int'l		8	n/r	LR	R	HR	HR	R	HR	HR	MR	HR	*	*	*	*	*										
DS815	Dairyland Seed Co.		8	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*	*	*	*										

¹RR=Roundup Ready if "Y"; WS=Winter Survival (1=No injury, 6=Dead plants), FD=Fall Dormancy (2=Vernal, 3=5246, 4=Legend, 5=Archer, 6=ABI 700, 7=Dona Ana, 8=Pierce, 9-CUF101, 10=UC1887), BW=Bacterial wilt, PRR=Phytophthora root rot, FW=Fusarium wilt, AN=Anthracnose, SAA=Spotted alfalfa aphid, PA=Pea aphid, BAA=Blue alfalfa aphid, SN=Stem nematode, RKN=Rootknot nematode (southern); (S=Susceptible, LR=Low resistance, MR=Moderate resistance, R=Resistant, HR=High resistance).

n/r indicates either that the variety was not rated for that characteristic or no rating was available.

²Establishment year.

³Standard performance evaluation.

⁴Roundup Ready® entries only.

⁵Harvest year.

Shaded boxes indicate that the variety was not in the test.

***Significantly higher than all other values in the column.

**Highest yielding variety in the test for that year, except for Los Lunas 2013 test in 2014 when it is the second highest yielding variety.

*Not significantly different from the highest yielding variety in the test for that year, except for Los Lunas 2013 test in 2014 when it is not significantly different from the second highest yielding variety.

Table 10 (cont.). Characteristics and performance of alfalfa varieties across years and tests in New Mexico.		Varietal Characteristics ¹											Artesia			Tucumcari		Los Lunas	Mora	Farmington																	
		RR	FD	WS	Pest resistance									2011			2012 ²		2013	2013	2012																
					BW	FW	AN	PRR	SAA	PA	BAA	SN	RKN	12 ⁵	13	14	14	14	13	14	13	14	14	14	12	13	14										
Variety	Proprietor																																				
DG9212	Crop Production Services		9	n/r	LR	HR	HR	HR	HR	HR	HR	HR	n/r				*	*																			
DS919	Dairyland Seed Co.		9	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r		*	*																					
FG 27C102	Forage Genetics Int.		2	1	HR	HR	HR	h	n/r	R	n/r	n/r	n/r																								
Common, African	Roswell Seed		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r		*	*	*	*	*	*														*			
Common, NM	Roswell Seed		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r		*	*	*	*	*	*														*			
R57A136	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r								*	*															
R57K138	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R57OK216	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R57OK217	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R57W213	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R58HG236	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R65BD277	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R65BD278	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*	*														
R65BD279	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
R66BX311	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*															
RR57K337	Forage Genetics Int.	Y	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r									*	*														
SW 8208	S & W Seeds		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r																								
SW 8357	S & W Seeds		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r																								

¹RR=Roundup Ready if "Y"; WS=Winter Survival (1=No injury, 6=Dead plants), FD=Fall Dormancy (2=Vernal, 3=5246, 4=Legend, 5=Archer, 6=ABI 700, 7=Dona Ana, 8=Pierce, 9-CUF101, 10=UC1887), BW=Bacterial wilt, PRR=Phytophthora root rot, FW=Fusarium wilt, AN=Anthracnose, SAA=Spotted alfalfa aphid, PA=Pea aphid, BAA=Blue alfalfa aphid, SN=Stem nematode, RKN=Rootknot nematode (southern); (S=Susceptible, LR=Low resistance, MR=Moderate resistance, R=Resistant, HR=High resistance).

n/r indicates either that the variety was not rated for that characteristic or no rating was available.

²Establishment year.

³Standard performance evaluation.

⁴Roundup Ready® entries only.

⁵Harvest year.

Shaded boxes indicate that the variety was not in the test.

***Significantly higher than all other values in the column.

**Highest yielding variety in the test for that year, except for Los Lunas 2013 test in 2014 when it is the second highest yielding variety.

*Not significantly different from the highest yielding variety in the test for that year, except for Los Lunas 2013 test in 2014 when it is not significantly different from the second highest yielding variety.

L.M. Lauriault, I.M. Ray, C.A. Pierce, O. Burney, R.P. Flynn, Mark Marsalis, M.K. O'Neill, and C. Owen

New Mexico St. Univ. College of Agricultural, Consumer and Environmental Sciences. Agric. Exp. Stn and Coop. Ext. Ser.

Table 11. New Mexico State University Agricultural Experiment Station and Cooperative Extension Service publications related to alfalfa management.

Number	Title
A-114	Test your soil
A-122	Soil test interpretations
A-123	Sampling for plant tissue analysis
A-129	Nitrogen fixation by legumes
A-130	Inoculation of legumes
A-131	Certified seed
A-137	Soil analysis: A key to soil nutrient management
A-145	Certified noxious weed free program
A-229	Phymatotrichum root rot
A-325	Managing weeds in alfalfa
A-326	Downy mildew on alfalfa
A-333	User manual of the alfalfa yield predictor
A-334	Beet armyworm in New Mexico Hay
A-335	Variegated cutworm in New Mexico Hay
A-336	Managing Roundup Ready alfalfa and conventional or organic alfalfa hay in nearby fields in New Mexico
A-337	Recommendations for Roundup Ready alfalfa weed management and stand removal in New Mexico
A-338	Alfalfa weevil control options in New Mexico
A-339	Alfalfa integrated pest management: Aphids
H-158	How to collect and send plant specimens for disease diagnosis
CR-536	Blister beetles in alfalfa
CR-633	Using a computer application to predict irrigated alfalfa yield
CR-641	Hay quality, sampling and testing
CR-644	Assessing alfalfa stands after winter injury, freeze damage, or any time renovation is considered in New Mexico
CR-646	Managing alfalfa during drought
CR-654	Selecting alfalfa varieties for New Mexico
CR-659	Whitefringed beetle in New Mexico alfalfa
CR-668	Reducing harvest and post-harvest losses of alfalfa and other hay
RR-766	Furrow-irrigated alfalfa dry matter yield is not affected by different seeding rates in the Southern High Plains, USA
RR-772	Observations on how cowpea aphid affects alfalfa

These publications, and alfalfa variety test reports from previous years, are available from your county office of the NMSU Cooperative Extension Service or online at <http://forages.nmsu.edu/resources.html> and aces.nmsu.edu/pubs/