



The 2020
New Mexico
Alfalfa Variety
Test Report



Agricultural Experiment Station
**College of Agricultural, Consumer
and Environmental Sciences**

The 2020 New Mexico Alfalfa Variety Test Report

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Introduction

In 2020, 155,000 acres of alfalfa (*Medicago sativa*) were in production in New Mexico, which was a 15,000 acre decrease from 2019. Hay production was estimated at 682,000 tons reflecting 5% increase in yield/acre. At a 2020 average of \$231/ton (down from \$246/ton in 2019), estimated gross returns from alfalfa hay produced in 2020 will total nearly \$151 million. Besides its value for hay, 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 established irrigated tests included in this report ranged from 0.42 to 2.91 tons per acre in 2020. If sold as hay, this translates to a potential difference in returns of \$97 to \$672 per acre due to variety, or an increase of at least \$15 million for the industry in 2020 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 Las Cruces (2019, full and summer terminated irrigation), Artesia [2016 (late summer planted) and 2018 (spring planted)], Los Lunas (2019), Tucumcari (2018), and Farmington (2018). Weather data for 2020 and the long-term averages from all locations are presented in table 1.

Yield data (on a dry matter basis) are presented in tables 2-8. Varieties are listed in order from highest to lowest average annual production. Yields are given by cutting for 2020 and by year for each production year. Statistical analyses were performed on all alfalfa yield data (including experimental entries) 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 9 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. For information about other varietal characteristics, such as grazing, salt, or traffic tolerance or GMO traits besides Roundup Ready® genetics, check the National Alfalfa and Forage Alliance website for the Alfalfa Variety Leaflet (<https://www.alfalfa.org/varietyLeaflet.php>). In Table 6, 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,

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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 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 additional information about alfalfa management, refer to the other NMSU Agricultural Experiment Station and Cooperative Extension Service publications listed in table 10.

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Table 1. Temperature and precipitation data for 2020 and the long-term averages for the New Mexico Alfalfa Variety Test locations.

Location Elevation Latitude	Las Cruces ¹ 3832 ft. 32° 12' N				Artesia 3366 ft. 32° 45' N				Los Lunas 4840 ft. 34° 46' N				Tucumcari 4091 ft. 35° 12' N				Farmington 5640 ft. 36° 41' N			
	Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip. (in.)		Temp. (°F)		Precip. (in.)	
Month	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.	2020	Avg.
Nov-19	49	49	1.26	0.53	70	49	0.02	0.53	42	44	2.36	0.46	46	47	0.98	0.68	40	41	0.75	0.65
Dec-19	41	41	0.52	0.68	60	41	0.05	0.51	37	35	0.33	0.52	42	39	0.61	0.64	32	31	0.03	0.47
Jan-20	43	40	0.15	0.56	48	40	0.81	0.39	36	35	0.23	0.36	41	38	0.92	0.40	30	30	0.58	0.51
Feb-20	46	45	0.65	0.37	44	45	0.00	0.42	40	40	0.93	0.41	41	42	0.63	0.50	34	36	0.21	0.48
Mar-20	56	52	2.08	0.22	43	52	0.39	0.43	51	47	0.75	0.50	53	49	0.82	0.76	43	43	0.65	0.64
Apr-20	64	60	0.00	0.21	43	60	0.56	0.62	57	55	0.38	0.46	58	58	0.12	1.12	50	51	0.01	0.58
May-20	73	69	0.04	0.29	56	69	2.95	1.20	68	63	0.19	0.45	71	66	0.54	1.86	62	60	0.03	0.53
Jun-20	79	78	0.77	0.72	61	78	0.04	1.40	73	72	0.30	0.61	82	76	0.40	1.86	70	70	0.15	0.26
Jul-20	82	80	1.50	1.36	73	80	0.00	1.76	79	77	1.28	1.25	83	79	2.29	2.59	74	76	1.24	0.81
Aug-20	81	78	0.41	2.29	80	78	0.28	1.67	78	75	0.15	1.70	83	77	0.79	2.68	76	74	0.02	1.05
Sep-20	69	71	0.17	1.38	85	71	0.60	1.81	66	67	1.10	1.17	70	71	0.55	1.54	65	66	0.46	1.10
Oct-20	60	61	0.49	0.91	83	61	1.24	1.16	57	56	0.62	1.04	58	59	1.23	1.34	54	54	0.29	0.97
Annual	62	60	8.04	9.52	62	60	6.94	11.90	57	56	8.62	8.93	61	58	9.88	15.96	52	53	4.42	8.05

¹Long-term averages for the Las Cruces test site are from the State University weather station, located approximately 5.5 miles to the north.

Table 2. Dry matter yields (tons/acre) of alfalfa varieties sown September 27, 2019, at NMSU's Leyendecker Plant Science Research Center at Las Cruces and flood-irrigated twice per cutting (normal irrigation)†.

Variety Name	2020 Harvests						2020 Total
	19-Jun	22-Jul	21-Aug	15-Sep	19-Oct	17-Nov	
SW 9812	1.61*	1.46*	1.07**	0.63*	1.00*	0.36*	6.05**
NM 1704PAR	1.62*	1.56**	1.06*	0.58*	0.93	0.29	6.01*
NM 1703PAR	1.58*	1.45*	0.98*	0.55	0.95*	0.36*	5.95*
AmeriStand 803T	1.53*	1.42*	1.05*	0.59*	0.98*	0.32*	5.91*
SW 9813	1.52*	1.35*	1.00*	0.59*	0.98*	0.38*	5.86*
TMA 990	1.38*	1.24*	1.02*	0.66**	1.05**	0.49***	5.81*
NM 1701PAR	1.67**	1.37*	1.03*	0.52	0.95*	0.28	5.81*
Mesquite Brand	1.54*	1.40*	1.02*	0.57*	0.96*	0.30	5.78*
SW 9720	1.50*	1.29*	1.00*	0.57*	0.97*	0.39**	5.74*
SW 8888	1.61*	1.39*	0.99*	0.55	0.95*	0.25	5.73*
SW 1011	1.43*	1.39*	0.94*	0.55	0.95*	0.36*	5.64*
NM 1712PAR	1.66*	1.33*	0.97*	0.48	0.84	0.25	5.60*
AFX 779	1.58*	1.30*	0.98*	0.51	0.93	0.27	5.58*
NM 1705PAR	1.45*	1.30*	0.97*	0.56*	0.99*	0.31	5.56*
NM 170506PAR	1.43*	1.26*	1.01*	0.56*	0.93	0.32*	5.53*
SW 8421S	1.46*	1.21*	0.99*	0.56*	0.92	0.35*	5.47*
NM 1702PAR	1.55*	1.30*	0.96*	0.50	0.88	0.29	5.43*
Dona Ana	1.43*	1.14*	0.94*	0.54	0.93	0.28	5.26*
NuMex Bill Melton	1.47*	1.23*	0.89*	0.46	0.88	0.30	5.19*
AFX 149092	1.29*	1.17*	0.93*	0.51	0.89	0.36*	5.11*
NM 1713PAR	1.59*	1.18*	0.89*	0.43	0.73	0.15	4.93*
NM 1715PAR	1.48*	1.16*	0.88*	0.39	0.74	0.14	4.89*
Mean	1.52	1.31	0.98	0.54	0.92	0.31	5.58
LSD (0.05)	NS	NS	NS	0.11	0.12	0.08	NS
CV%	11.85	14.07	9.57	15.12	9.06	19.17	9.80

†Data were analyzed using analysis of covariance where check plots of NuMex Bill Melton were used as the covariate.

***Highest numerical value in the column.

**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 3. Dry matter yields (tons/acre) of alfalfa varieties sown September 28, 2020, at NMSU's Leyendecker Plant Science Research Center at Las Cruces and flood-irrigated twice per cutting through July and resuming in mid-September through October (summer irrigation termination)†.

Variety Name	2020 Harvests			2020 Total
	18-Jun	21-Jul	17-Oct	
Dona Ana	1.50*	1.29*	1.30**	4.07**
AFX 779	1.57*	1.40*	1.06	4.04*
SW 8421S	1.51*	1.34*	1.19*	4.03*
NM 1704PAR	1.58**	1.42**	0.97	3.97*
SW 9813	1.52*	1.29*	1.07	3.89*
SW 9720	1.50*	1.27*	1.09	3.86*
SW 8888	1.49*	1.28*	1.06	3.85*
NM 1703PAR	1.44*	1.30*	1.06	3.80*
NM 1712PAR	1.56*	1.33*	0.86	3.76*
SW 9812	1.52*	1.19*	0.98	3.71*
AmeriStand 803T	1.44*	1.19*	1.05	3.69*
AFX 149092	1.32	1.27*	1.13	3.69*
NuMex Bill Melton	1.42*	1.21*	1.02	3.66*
NM 1702PAR	1.37*	1.25*	0.99	3.62*
NM 170506PAR	1.28	1.23*	1.12	3.60*
TMA 990	1.23	1.11*	1.26*	3.60*
NM 1705PAR	1.39*	1.27*	0.93	3.58*
SW 1011	1.33	1.15*	1.00	3.49*
NM 1701PAR	1.34	1.21*	0.92	3.47*
Mesquite Brand	1.31	1.16*	0.96	3.45*
NM 1713PAR	1.43*	1.24*	0.76	3.42*
NM 1715PAR	1.33	1.19*	0.74	3.27*
Mean	1.43	1.25	1.02	3.71
LSD (0.05)	0.23	NS	0.14	NS
CV%	11.14	10.35	9.97	8.71

†Data were analyzed using analysis of covariance where check plots of NuMex Bill Melton were used as the covariate.

**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 sprinkler-irrigated alfalfa varieties sown September 16, 2016, at NMSU's Agricultural Science Center at Artesia†.

Variety Name	2017 Total	2018 Total	2019 Total	2020 Harvests				2020 Total	4-Year Average
				14-May	25-Jun	10-Aug	24-Sep		
SW7408	9.41**	8.28*	7.11*	1.42*	1.25*	2.18**	1.04*	5.96**	7.79**
African Common	8.05*	8.45**	7.16**	1.35*	1.19*	1.97*	1.22*	5.71*	7.58*
NuMex Bill Melton	9.16*	8.22*	6.79*	1.45*	1.18*	2.11*	1.14*	5.70*	7.46*
SW8412	8.09*	8.20*	6.87*	1.44*	1.22*	1.79*	1.26**	5.89*	7.37*
HybriForce-3600	8.67*	8.42*	6.49*	1.47**	1.19*	1.78*	1.10*	5.53*	7.34*
SW8476	8.29*	7.96*	6.25*	1.47**	1.13*	1.96*	1.08*	5.82*	7.14*
Zia	7.64*	7.77*	6.76*	1.30*	1.34**	2.00*	1.24*	5.89*	7.06
SW7473	7.78*	7.64*	6.82*	1.34*	1.14*	1.64*	1.09*	5.45*	6.91
SW8409	8.08*	7.75*	6.58*	1.36*	1.17*	1.74*	1.08*	5.67*	6.87
New Mexico 11-1	7.63*	7.98*	6.73*	1.27*	1.26*	1.99*	1.10*	5.90*	6.86
MS sunstra 155204	7.99*	8.06*	6.24*	1.46*	1.15*	1.57*	1.03*	5.40*	6.84
NM Common	7.36*	7.71*	6.36*	1.31*	1.21*	1.82*	1.14*	5.46*	6.75
55VR08	7.78*	7.70*	5.58*	1.38*	1.16*	1.82*	1.00*	5.44*	6.61
Dona Ana	7.82*	6.67*	5.68*	1.34*	1.11*	1.69*	1.20*	5.54*	6.33
Mean	8.13	7.92	6.53	1.38	1.19	1.86	1.12	5.66	7.07
LSD (0.05)	NS	NS	NS	NS	NS	NS	NS	NS	0.68
CV%	10.50	9.93	12.58	10.64	10.22	15.05	11.67	9.92	13.42

†Data were analyzed using analysis of covariance where check plots of AmeriStand 803T were used as the covariate.

2017 Harvest dates: 16-May, 22-Jun, 21-Jul, 24-Aug, and 16-Oct.

2018 Harvest dates: 8-May, 6-Jun, 3-Jul, 6-Aug, and 17-Sep. No 6th harvest was taken due to excessive precipitation.

2019 Harvest dates: 8-May, 17-Jun, 26-Jul, 12-Sep, and 23-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 5. Dry matter yields (tons/acre) of sprinkler-irrigated alfalfa varieties sown April 18, 2018, at NMSU's Agricultural Science Center at Artesia†.

Variety Name	2019	2020 Harvests				2020	2-Year
	Total‡	18-May	26-Jun	11-Aug	24-Sep	Total	Average
SW7408	5.47*	2.32**	2.03**	2.62*	1.39**	8.34**	6.96**
Zia	5.59*	1.95	1.90*	2.89**	1.14*	7.87*	6.74*
SW7473	5.68**	2.19*	1.87*	2.21*	1.25*	7.44*	6.61*
SW8412	5.30*	1.97	1.79*	2.58*	1.24*	7.64*	6.52*
SW8409	5.27*	1.90	1.87*	2.30*	1.24*	7.44*	6.36*
SW8476	5.32*	1.94	1.93*	2.45*	1.07*	7.35*	6.35*
HybriForce-3600	4.70	1.98	1.89*	2.35*	1.39**	7.66*	6.19
Dona Ana	5.16*	1.69	1.92*	2.77*	0.89*	7.31*	6.11
African Common	4.77	1.68	1.89*	2.66*	1.10*	7.36*	6.02
NM Common	5.14*	1.80	1.90*	2.17*	1.20*	6.89*	6.00
SW8421S	4.57	2.02	1.75*	2.43*	0.96*	7.19*	5.82
Hi-Gest 660	4.35	1.66	1.66*	2.38*	1.05*	6.77*	5.59
Mean	5.11	1.93	1.87	2.48	1.16	7.44	6.27
LSD (0.05)	0.71	0.24	NS	NS	NS	NS	0.62
CV%	9.66	8.75	8.21	23.71	21.94	9.07	9.64

†Data were analyzed using analysis of covariance where check plots of Pioneer 55VR08 were used as the covariate

‡Two harvests taken in 2018 are not reported due to excessive weeds.

2019 Harvest dates: 16-May, 26-Jun, 30-Jul, 13-Sep, and 24-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 at the 5% level.

Table 6. Dry matter yields (tons/acre) of flood-irrigated alfalfa varieties sown September 27, 2019, at NMSU's Agricultural Science Center at Los Lunas†.

Variety Name	2020 Harvests				2020 Total
	9-Jun	16-Jul	8-Sep	2-Nov	
NM 1704PAR	2.29*	3.11**	3.85**	2.72*	11.97**
AFX 779	2.23*	3.05*	3.65*	2.78**	11.71*
NM 1712PAR	2.33**	2.93*	3.59*	2.62*	11.47*
NM 1713PAR	2.30*	3.02*	3.55*	2.56*	11.42*
AmeriStand 715NTRR	2.14*	3.07*	3.59*	2.53	11.32*
NuMex Bill Melton	2.19*	2.85*	3.45*	2.64*	11.12*
SW7473	2.28*	2.87*	3.36	2.55	11.06*
Zia	2.14*	3.00*	3.32	2.46	10.91
NM 1715PAR	2.14*	2.82*	3.39	2.53	10.88
Roadrunner	2.20*	2.88*	3.22	2.26	10.56
Artesian Sunrise	1.80	2.75*	3.52*	2.46	10.53
WL 454HQ.RR	1.95	2.79*	3.44*	2.32	10.49
NM Common	1.90	2.73*	3.38	2.47	10.48
WL 440HQ	1.96	2.81*	3.14	2.26	10.16
Dona Ana	1.82	2.79*	3.08	2.39	10.08
AFX 579	1.86	2.76*	3.16	2.27	10.06
SW3407	1.94	2.79*	3.13	2.17	10.03
Artesian Sun 6.3	1.72	2.64*	3.30	2.26	9.91
AFX 469	2.02*	2.70*	3.04	2.09	9.85
Hi-Gest 660	2.02*	2.59*	2.92	2.23	9.76
SW5511	1.73	2.71*	2.78	1.95	9.16
SW4107	1.93	2.56*	2.72	1.86	9.06
Mean	2.04	2.83	3.30	2.38	10.54
LSD (0.05)	0.36	NS	0.46	0.23	1.06
CV%	12.46	10.39	9.89	6.77	7.09

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

**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 at the 5% level.

Table 7. Dry matter yields (tons/acre) of alfalfa varieties sown September 14, 2018, at NMSU's Rex E. Kirksey Agricultural Science Center at Tucumcari and sprinkler-irrigated with treated municipal wastewater†.

Variety Name	2020 Harvests		2020
	13-Jul	21-Oct	Total
SW7408	1.23*	0.97*	2.21**
African Common	1.30**	0.86*	2.15*
Zia	1.19*	0.92*	2.11*
SW8476	1.05*	1.01**	2.06*
Dona Ana	1.13*	0.87*	2.00*
SW8412	1.06*	0.90*	1.96*
SW8409	0.90	1.01**	1.91*
SW5210	0.99	0.87*	1.86*
SW7473	1.08*	0.72*	1.79
SW8421S	1.08*	0.71*	1.78
NM Common	1.05*	0.69*	1.74
Hi-Gest 660	0.75	0.94*	1.69
SW1509	0.80	0.88*	1.68
HybriForce-3600	0.89	0.77*	1.66
SW1517	0.86	0.79*	1.64
Mean	1.02	0.86	1.88
LSD (0.05)	0.26	NS	0.38
CV%	17.94	22.89	14.01

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

No harvests were taken in 2019 due to harvesting equipment and irrigation system failures; Irrigation system failures also occurred in 2020 that were exacerbated by parts availability issues due to COVID-19.

**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 8. Dry matter yields (tons/acre) of sprinkler-irrigated alfalfa varieties sown August 28, 2018, at NMSU's Agricultural Science Center at Farmington†.

Variety Name	2019 Total	2020 Harvests				2020 Total	2-Year Average
		9-Jun	22-Jul	26-Aug	7-Oct		
SW5207	8.82*	4.12*	3.54*	2.71*	2.26**	12.63**	10.73**
SW3407	9.43*	4.17*	3.16*	2.50*	2.10*	11.93*	10.68*
FSG 415BR	9.17*	3.85*	3.56*	2.79**	1.98*	12.17*	10.67*
6422Q	9.40*	4.33**	3.01*	2.71*	1.83	11.88*	10.64*
WL 365HQ	9.09*	4.20*	3.26*	2.43*	2.09*	11.97*	10.53*
FSG 423ST	9.44*	3.86*	3.12*	2.43*	2.12*	11.52*	10.48*
SW4107	8.82*	3.97*	3.32*	2.46*	1.94	11.69*	10.25*
FSG 426	9.21*	3.44*	3.07*	2.70*	1.87	11.09*	10.15*
Lahontan	8.48*	3.83*	3.59*	2.41*	1.95	11.78*	10.13*
FSG 524	8.22*	4.00*	3.60*	2.39*	1.94	11.92*	10.07*
6585Q	8.17*	4.29*	2.97*	2.37*	1.94	11.57*	9.87*
Ranger	9.51**	3.54*	2.82*	2.19*	1.67	10.21*	9.86*
AmeriStand 518NT	8.04*	3.87*	3.67**	1.84*	2.11*	11.49*	9.77*
FSG 403LR	8.52*	4.16*	3.21*	1.83*	1.73	10.94*	9.73*
NM Common	8.19*	3.57*	3.12*	2.32*	2.00*	11.01*	9.60*
WL 377HQ	8.37*	3.23*	3.39*	2.13*	1.77	10.51*	9.44*
Mean	8.80	3.90	3.27	2.39	1.96	11.52	10.16
LSD (0.05)	NS	NS	NS	NS	0.29	NS	NS
CV%	10.26	15.86	13.98	18.86	10.43	10.25	11.76

†Data were detrended using nearest neighbor analysis, and analyzed using analysis of variance.
2019 Harvest dates: 17-Jun, 24-Jul, and 3-Sep.

**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. Characteristics and performance of alfalfa varieties across years and tests in New Mexico.		Varietal Characteristics ¹													Las Cruces		Artesia				Los Lunas	Tucumcari		Farmington								
															2019 ²		2016		2018		2019	2018		2018								
		Variety Name	Proprietor	RR	FD	WS	Or	Pest resistance										F ³	T	2016	2018	2019	2018	2018								
BW	FW							AN	PRR	SAA	PA	BAA	SN	RKN	20 ⁴	20	17								18	19	20	19	20	19	20	
Ranger	USDA/Univ. of Nebraska		3	n/r		R	n/r	n/r	n/r	R	n/r	n/r	R	n/r																**	*	
SW 3407	S & W Seeds		3	<2		HR	HR	HR	HR	R	R	n/r	R	n/r															*	*		
6422Q	Nexgrow Alfalfa		4	1		HR	HR	HR	HR	n/r	R	n/r	R	n/r															*	*		
AFX469	Alforex Seeds		4	2		HR	HR	HR	HR	R	MR	R	HR	n/r																		
FSG 403LR	Allied Seed, LLC		4	2		HR	R	HR	HR	R	R	n/r	R	n/r															*	*		
FSG 415BR	Allied Seed, LLC		4	2		HR	HR	HR	HR	N	n/r	n/r	HR	n/r															*	*		
FSG 423ST	Allied Seed, LLC		4	2		HR	HR	R	HR	n/r	R	n/r	R	n/r														*	*			
FSG 426	Allied Seed, LLC		4	2		HR	HR	HR	HR	MR	HR	n/r	n/r	n/r														*	*			
Roadrunner	Blue River Hybrids		4	2	Y	HR	HR	HR	HR	HR	LR	n/r	R	n/r																		
SW 1517	S & W Seeds		4	n/r		HR	HR	HR	HR	R	R	n/r	MR	n/r																		
SW 4107	S & W Seeds		4	<2		HR	HR	HR	HR	MR	R	n/r	R	n/r															*	*		
SW 5210	S & W Seeds		4	n/r		HR	HR	HR	HR	R	HR	n/r	HR	n/r															*			
SW 5511	S & W Seeds		5	n/r		HR	HR	HR	HR	n/r	HR	n/r	HR	n/r															*			
55VR08	Pioneer HiBred Int'l	Y	5	2		R	HR	HR	HR	R	HR	n/r	n/r	n/r				*	*	*	*											
6585Q	Nexgrow Alfalfa		5	n/r		HR	HR	HR	HR	n/r	R	n/r	HR	n/r															*	*		
AFX579	Alforex Seeds		5	3		HR	HR	HR	HR	R	R	R	HR	n/r																		
AmeriStand 518NT	America's Alfalfa		5	n/r		HR	HR	HR	HR	n/r	HR	n/r	HR	n/r															*	*		
FSG 524	Allied Seed, LLC		5	2		HR	HR	HR	HR	n/r	R	n/r	R	n/r															*	*		
SW 1509	S & W Seeds		5	n/r		HR	HR	HR	HR	R	R	n/r	R	n/r																		
SW 5207	S & W Seeds		5	<2		HR	HR	HR	HR	R	HR	n/r	HR	n/r															*	**		
WL 365HQ	W-L Research		5	1		HR	HR	HR	HR	HR	HR	HR	HR	n/r															*	*	*	
Zia	Roswell Seed		5	n/r		MR	MR	S	S	MR	S	S	n/r	n/r				*	*	*	*	*	*	*				*	*	*		
Artesian Sun 6.3	Croplan Genetics		6	3		R	HR	HR	HR	n/r	HR	n/r	HR	n/r																		
Hi-Gest 660	Alforex Seeds		6	n/r		R	HR	HR	HR	HR	HR	R	HR	n/r																		
HybriForce-3600	Alforex Seeds		6	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	HR	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															*	*		
msSunstra 155204	Alforex Seeds		6	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r																		
WL 440HQ	W-L Research		6	n/r		HR	HR	HR	HR	HR	HR	HR	n/r	HR	n/r																	
WL 454HQ.RR	W-L Research	Y	7	n/r		R	HR	HR	HR	HR	HR	n/r	HR	n/r																		
AFX779	Alforex Seeds		7	n/r		R	R	R	R	HR	HR	HR	HR	n/r	*	*																
Ameristand 715NTR	America's Alfalfa	Y	7	n/r		R	HR	HR	HR	HR	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	Roswell Seed		7	n/r		MR	MR	LR	R	MR	R	n/r	n/r	n/r	*	**	*	*	*	*	*	*	*	*					*	*		
NuMex Bill Melton	New Mexico State University		7	n/r		MR	R	R	R	R	MR	MR	n/r	n/r	*	*	*	*	*	*	*	*	*	*					**	**		
SW 7408	S & W Seeds		7	n/r		R	HR	HR	HR	HR	LR	R	MR	n/r				**	*	*	*	*	*	*	*							
SW 7473	S & W Seeds		7	n/r		HR	HR	HR	HR	HR	HR	n/r	HR	n/r				*	*	*	*	**	**	**	*							
Ameristand 803T	America's Alfalfa		8	n/r		MR	HR	MR	HR	R	R	n/r	HR	HR	*	*													*	*		
SW 8409	S & W Seeds		8	n/r		HR	HR	HR	HR	HR	HR	n/r	R	n/r				*	*	*	*	*	*	*	*				*	*		
SW 8412	S & W Seeds		8	n/r		HR	R	HR	HR	HR	HR	n/r	HR	n/r				*	*	*	*	*	*	*	*				*	*		
SW 8421S	S & W Seeds		8	n/r		n/r	HR	LR	R	R	n/r	n/r	R	n/r	*	*													*	*		
SW 8476	S & W Seeds		8	n/r		R	R	HR	HR	HR	HR	n/r	R	n/r	*	*					*	*	*	*	*				*	*		
AFX149092	Alforex Seeds		nr	n/r		R	HR	HR	HR	HR	HR	HR	R	HR	*	*													*	*		
SW 8888	S & W Seeds		8	n/r		R	HR	HR	HR	HR	R	MR	R	n/r	*	*													*	*		
SW 9720	S & W Seeds		9	n/r		n/r	n/r	n/r	n/r	n/r	n/r	R	n/r	n/r	*	*													*	*		
SW 9812	S & W Seeds		9	n/r		R	R	LR	MR	R	R	R	HR	MR	**	*													*	*		
SW 9813	S & W Seeds		9	n/r		R	R	MR	R	R	R	HR	MR	n/r	*	*													*	*		
TMA 990 Brand	DynaGro Seed		9	n/r		HR	HR	R	HR	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
SW 1011	S & W Seeds		10	n/r		MR	HR	LR	R	R	R	R	R	n/r	*	*													*	*		
WL 377HQ	W-L Research		5 n	3		HR	HR	HR	HR	HR	HR	HR	HR	HR															*	*		
African Common	Roswell Seed		n/r	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r				*	**	**	*	*	*	*	*			*	*	*	*	
NM Common	Roswell Seed		n/r	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
NM11-1	New Mexico State University		n/r	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
NM1701PAR	New Mexico State University		7	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1702PAR	New Mexico State University		7	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1703PAR	New Mexico State University		7	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1704PAR	New Mexico State University		7	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM170506PAR	New Mexico State University		7	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1705PAR	New Mexico State University		7	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1712PAR	New Mexico State University		5	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1713PAR	New Mexico State University		5	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
NM1715PAR	New Mexico State University		5	n/r		n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	*	*													*	*		
Mesquite Brand	Helena Chemical, Mesquite, NM		8	nr		MR	HR	MR	HR	n/r	n/r	n/r	HR	HR	*	*												*	*			

No data collected due to irrigation system and equipment breakdowns

¹RR=Roundup Ready if "Y"; FD=Fall Dormancy (1 & 2 Very dormant; 3 & 4 Dormant; 5 Moderately dormant; 6 & 7 Semi-dormant; 8 & 9 Non-dormant; 10 & 11 Very non-dormant), WS=Winter Survival (1=No injury, 6=Dead plants), Or=Organically certified seed, BW=Bacterial wilt, FW=Fusarium wilt, AN=Anthracnose, PRR=Phytophthora root rot, 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.

³F=Fully irrigated; T=Summer irrigation terminated.

⁴Harvest year.

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

**Highest yielding variety in the test for that year.

*Not significantly different from the highest yielding variety in the test for that year.

Table 10. New Mexico State University Cooperative Extension Service and Agricultural Experiment Station publications related to alfalfa management.

Number	Title
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-146	Appropriate analysis for New Mexico soils
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
A-615	Dodder (<i>Cuscuta ssp.</i>) biology and management
H-158	How to collect and send plant specimens for disease diagnosis
CR-536	Blister beetles in alfalfa
CR-586	Irrigated pasture management in New Mexico
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
CR 682	GMO Crops in New Mexico agriculture
CR-696	Perennial forage species for irrigated pastures and hay in New Mexico
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/



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