# The 2006 New Mexico Alfalfa Variety Test Report

Agricultural Experiment Station
College of Agriculture and Home Economics

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## Introduction

In 2006, 220,000 acres of alfalfa (*Medicago sativa*) were in production in New Mexico, down from 240,000 acres in 2005. The decline is likely related in part to continued drought preventing replanting. Hay yields were estimated at 1.1 million tons. Producer reported annual yield was 5.0 tons/acre compared to 5.2 tons/acre in 2005. At a January through November 2006 average of $151/ton (up from $125 in 2005), estimated gross returns from 1.1 million tons of alfalfa hay produced in 2006 will total approximately $166 million, which is more than the estimated $163 million received in 2005, continuing to ensure that alfalfa hay remains 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 0.71 to 4.02 tons per acre in 2006. If sold as hay, this translates to a difference in returns of $103 to $583 per acre due to variety or an increase of at least $22.7 million for the industry. Stand longevity, as affected by winter hardiness and pest resistance, also is partially determined by variety.

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 and guidelines for variety selection.

## Considerations in Selecting an Alfalfa Variety

**Local adaptation and persistence.** Consistently high yields compared to other varieties over a number of years and locations within a region are the best indication of varietal adaptation and persistence. Select varieties based on unbiased information collected from trials conducted by NMSU scientists such as those reported in this publication. Look at data collected from the agricultural science center(s) closest to you. Data from the centers are grouped by latitude and elevation, which affect winter hardiness and, thus, yield and persistence.

Persistence is the ability of individual plants to survive field conditions over time and is strongly influenced by winter hardiness, harvest frequency, and pest resistance. Higher persistence will permit a longer stand life in which to recover establishment costs. Alfalfa stands should be replaced when plant density drops to less than 5 plants (or 40 stems) per square foot. Producers should rotate to another irrigated crop for at least one year before reseeding alfalfa into the same field to avoid autotoxicity. If stand life expectancy is only 3 to 4 years, as is the case in a crop rotation system, higher yields in those early years are more important than persistence.

**Winter hardiness.** Alfalfa's winter hardiness is determined by its ability to survive cold temperatures. In the past, winter hardiness was estimated by a fall dormancy (FD) rating, which indicates the variety's tendency to stop growing in the fall. Fall dormancy categories range from 1 (very dormant) to 9 (nondormant). The more dormant (FD 1 to 3) varieties will be slower to "green up" in the spring and quicker to stop growing in the fall, regardless of local climate. This will have an impact on yield in areas with warmer climates. Additionally, nondormant varieties (FD 7 to 9) tend to "green up" earlier in the spring and may have greater fall production but might not survive severe winters. These varieties might be suitable for use in a short-term rotation system, where alfalfa is used for 4 years or less, but there is risk of early stand loss if a severe winter does occur. Otherwise, producers should select varieties with sufficient dormancy to survive winter conditions at their location, while optimizing forage production during the growing season.

The North American Alfalfa Improvement Council has developed another classification for winter hardiness, Winter Survival (WS), because some varieties are more capable of withstanding low temperatures than their fall dormancy category indicates. This system rates varieties from 1 to 6, where a rating of 1 indicates little or no winter injury and 6 indicates plant death. Ratings are made after the first winter for spring seedings. At least two location years are required for the standard test. Because these tests are conducted in areas that have severe winters, few varieties in fall dormancy categories 7 or higher currently are being rated for winter survival, but more and more are.

Differences in the initiation of spring growth and recovery after harvest offer producers an opportunity to stagger cutting schedules without sacrificing yield or quality of the alfalfa hay. Generally, there is a range of 3 to 4 FD categories that are well adapted to any given region without any significant yield effect. Producers are cautioned about using varieties from too broad a range of FD categories. Poor variety selection in that regard will result in yield loss, therefore, it is recommended high yielding varieties within the optimum FD range be used to stagger cutting schedules.

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Variety test reports, such as this one, also are valuable tools for determining the true winter survivability of any alfalfa variety, particularly in the northern half of New Mexico and the north-central mountains where several nondormant (FD 7-9) varieties have performed well. When using the winter survival data, keep in mind that these tests usually are conducted in the northern states, and varieties that will not survive their more severe winters might survive in New Mexico. This report also provides information about FD categories that will be best adapted to any given region.

**Disease resistance.** Resistance to diseases is rated based on the percentage of varieties surviving standardized tests. Varieties are rated as being susceptible (S) or having low resistance (LR), moderate resistance (MR), resistance (R), or high resistance (HR) to specific diseases. New Mexico alfalfa producers should select adapted varieties with the highest available disease resistance, preferably an "R" (resistant) or greater rating to bacterial wilt (Bw), Fusarium wilt (Fw), Phytophthora root rot (PRR), and anthracnose (An) (Alfalfa Analyst, Certified Alfalfa Seed Council).

Bacterial and Fusarium wilt are water-conducting tissue infections of alfalfa's roots. These diseases prevent water flow to leaves, resulting in wilted shoots and, eventually, death of infected plants. Roots infected with bacterial wilt often will have a yellowish brown discoloration of the taproot's inner woody cylinder. Fusarium infection, on the other hand, is recognized by brown to red streaks in the taproot's inner woody cylinder.

Phytophthora root rot is a fungal disease associated with excessive soil moisture. This disease causes yellowish to brown areas on roots and crowns that eventually become black and rotten. Top growth of infected plants appears stunted and yellow.

Anthracnose, also caused by a fungus, attacks alfalfa stems, preventing water flow to the rest of the shoot and causing sudden wilting. These wilted shoots have a characteristic "shepherd's crook" appearance. Anthracnose also can cause a bluish black crown rot.

Many other alfalfa diseases also occur in New Mexico, the best protection against which is proper management. Seedling diseases can occur anytime conditions are favorable and can effectively destroy an otherwise perfect new stand. Disease resistance in seedlings is often very low or not developed. Seed treated with fungicides, such as Apron®, should be used each time alfalfa is planted. Ask your seed salesperson about fungicidal seed treatment and read the associated label for more information.

**Insect resistance.** There are many insects that feed on alfalfa in New Mexico. Varietal resistance is available for spotted alfalfa aphid (SAA), pea aphid (PA) and blue alfalfa aphid (BAA). As with disease resistance, select varieties that have at least an "R" rating for each of the insects. Selecting varieties with resistance to insects that do not occur in your area is not preferred, due to a possible decrease in yield associated with breeding for the resistance.

Another insect, cowpea aphid, has been found in alfalfa fields in several areas of New Mexico in recent years. Adult cowpea aphids are smaller than other common aphids. They are black with white or yellow markings on legs and antennae. Nymphs are gray to purple and can be confused with blue alfalfa aphid. Critical infestations can occur in early spring when alfalfa breaks dormancy after a warm, moist winter. Plants are severely stunted, reducing first cutting yields and causing possible stand loss if not controlled.

Currently, no cowpea aphid resistant varieties have been released, but they are being developed. Predatory insects can help control cowpea aphid populations. Unfortunately, the predators might not be active in early spring when the alfalfa greens up. Chemical control might be the only option in early spring. Scout several areas in each field for the presence of aphids (purple or black) and stunted plants. When infestations are found, immediate treatment is imperative to prevent further damage and stand loss. Contact your county Cooperative Extension Service office or a licensed pesticide applicator about what products can be used to control cowpea aphids. Even if infestation is found only in one field, it might be advisable to spray all fields to prevent migration or to control previously undetected infestations.

Varietal resistance to other insects, such as alfalfa weevil and potato leafhopper, also might be available in the near future. Currently, the best protection against these insect pests is proper harvest management and pesticide use.

**Nematodes.** Root-knot nematodes (southern, northern, and Columbia root-knot nematodes) probably have been an undetected cause of yield and stand reduction on many farms in New Mexico in past years. Root-knot nematodes prefer sandy loam soils and rarely damage alfalfa in heavier textured soils. In addition to direct damage from these nematodes, a second concern is that they become an avenue for infection by other pathogens. The incidence and severity of Fusarium wilt and Phytophthora root rot are increased, causing wilting and reduced yield and stand life in alfalfa. While root-knot nematode populations may damage alfalfa, usually they cause more damage to other crops in the rotation that are more susceptible, like edible dry beans, green beans, peanuts (northern root-knot nematode only), potatoes, cotton and chile peppers. High carry-over populations of southern root-knot nematodes from summer rotation crops, like corn, can cause serious damage to fall-planted alfalfa. Resistant alfalfa varieties are available for both southern and northern root-knot nematodes, but resistance to one species is not often available in the same variety and resistance to one type of nematode does not imply resistance to the other. Still, producers should select varieties that have at least an "R" rating to every species of nematode likely to be on their farm.

Stem nematodes also can be a serious problem in alfalfa. These nematodes infect crown buds after cutting if the soil is moist and humidity is high. Infected stems are stunted and have swollen nodes. The bud and leaf nematode, another type usually found with stem nematodes, can cause leaves to become distorted and turn white during warm weather. Both of these nematodes mainly occur in heavy soils. Stem nematodes have been reported from northern New Mexico, but don't seem to cause the serious problems found elsewhere in the western U.S. Alfalfa varieties with good resistance to stem nematodes are available and producers should again

select varieties that have an “R” rating for stem nematodes if they have seen symptoms of this nematode on their farm (S.H. Thomas, NMSU Nematologist).

**Weeds.** The best protection against weeds in alfalfa is good management that promotes active growth. Well-managed alfalfa can compete against the most difficult weeds. For less than optimum situations, herbicides have been available to control most weeds in alfalfa, but no herbicide is without limitations. Beginning in 2005, alfalfa varieties with the Roundup Ready gene became available to a limited extent. More varieties were released in 2006 and it is expected that this trend will continue for years to come. The Roundup Ready gene represents a significant enhancement in weed control options having potential to improve forage quality and stand longevity. It also has potential to create some problems, however, if management guidelines for its use are not followed. Additionally, the ability to safely apply Roundup to control weeds in alfalfa does not have value under all circumstances. Producers are encouraged to review their problem weeds history and their alfalfa management plan to determine their potential benefit from the Roundup Ready technology. A few Roundup Ready alfalfa varieties have been tested since 2005. More were tested in 2006 and it is anticipated that the number will grow over time.

**Grazing and traffic tolerance.** Increasingly,more alfalfa varieties are being developed for tolerance to frequent defoliation and hoof damage. These varieties have a broad crown set below the soil surface, which gives protection from hoof damage and permits retention of greater root carbohydrate reserves for continued growth. The deep-set crown also helps prevent damage by other factors, such as equipment traffic. Grazing-tolerant alfalfa varieties also have the ability to produce and retain leaves below the grazing horizon, which allows photosynthesis to continue even under frequent defoliation of upper leaves. Older “grazing-tolerant” varieties actually persisted by grazing avoidance, producing leaves below the grazing horizon, however, little growth was available to the animal. Some of these varieties are still being sold in New Mexico, but few have been tested by The New Mexico Alfalfa Variety Testing Program. For pasture use in New Mexico, select varieties advertised as having grazing or traffic tolerance or as being hybrids based on pest resistance and yield. The development of true grazing tolerance was accomplished using continuous grazing during the growing season. In New Mexico, however, many alfalfa fields are used for overwintering pastures and the effects of this practice have not yet been fully measured. Information on performance of selected varieties under winter grazing can be found in The 2004 New Mexico Alfalfa Variety Test Report, which is available from County Cooperative Extension Service offices or Online at www:cahe.nmsu.edu/pubs/research/agronomy/var04.pdf

**Seed quality.** Selecting an alfalfa variety based on seed cost is a gamble producers often lose. Seed labeled “common,” “variety not stated,” or “variety unknown” are of unknown genetic background and may or may not be locally adapted or have the necessary disease or insect resistance. 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. Look for a blue tag, which must be attached to all bags of certified seed, or Plant Variety Protection labeling, which is the proprietor’s guarantee. Be sure to read the seed tag, which provides important information about the seed, including purity, amounts of other crop and weed seed (including any noxious weed seed), germination, and the test date (within the previous 9 months). Order seed well in advance of planting time to assure that it will be available when needed, especially if yo choose to plant a Roundup Ready variety.

Another essential seed treatment for alfalfa is inoculation with nitrogen-fixing bacteria. The best choice of seed is one that was inoculated with a seed treatment before it was bagged (as with the fungicide). Untreated seed should be inoculated by the producer prior to planting. Follow the inoculant manufacture’s recommendations and use a product labeled for alfalfa. Planter box inoculation is not nearly as effective at treating each seed as is using a cement mixer or other similar equipment. Dry inoculants using static electricity to adhere to the seed are very effective and easy to use. If an inoculant, such as a peat-based product, is used the seed must be wet with a sticker solution. Again, use the manufacturer’s recommended sticker agent. Carbonated beverages and syrup are often used as stickers. Chemical qualities of these products will affect the viability of the nitrogen-fixing bacteria.

**Forage quality.** High quality alfalfa hay possesses the following characteristics: greater than 19 percent crude protein, less than 31 percent acid detergent fiber, less than 40 percent neutral detergent fiber, leafiness, and free of foreign material. Varietal differences in quality are relatively small compared to other factors. Cultural and management practices, such as soil fertility, irrigation, weed and insect control, maturity at cutting, baling, and storage conditions, are major factors that affect alfalfa quality.

As an example, table 1 gives quality data for alfalfa varieties in a test sown in 2001 at Farmington. No differences existed among varieties across fall dormancy categories, but there are differences among fall dormancy categories. Standard Deviations (SD) of variety means are included for each quality variable. The SD measures the variability between different samples of the same variety. For example, each variety in the 2001 Farmington test was sampled (replicated) four times. The crude protein (CP) of any of the four samples for any variety can vary from the average for that variety by as much as the associated SD. The lack of difference between varieties is demonstrated, in that, the largest SD given for any variable is nearly equal to the difference between the means of the highest and lowest varieties for each variable.

Differences in quality among fall dormancy categories likely are due to stage of maturity at harvest. Recovery after harvest is faster as fall dormancy category increases from 1 to 9 (from dormant to nondormant). Therefore, if varieties in different fall dormancy categories are always harvested on the same day, as is the case for most variety tests, those in lower fall dormancy categories usually will be at an earlier stage of maturity than those in higher categories. Harvesting

earlier might give lower yields, but it also likely will give higher quality.

The optimum balance between forage yield, quality, and plant persistence occurs at 1-10 percent bloom. Harvesting at prebloom increases quality, but sacrifices yield. Continued harvesting at prebloom reduces stand life because the plant is not able to replenish root reserves for subsequent growth and overwintering. Since some hay buyers specify prebloom, producers should weigh price against decreased yields and shorter stand life. Prebloom harvests in middle cuttings are likely to be less detrimental to stand life than the first and last cuttings. Cutting at greater than 10 percent bloom increases yield, but quality rapidly declines as fiber increases and mineral content decreases (Alfalfa for Dairy Animals, Certified Alfalfa Seed Council). Insect feeding, maturity and harvesting affect leaf retention and, therefore, forage quality, because the digestibility and nutrient content in leaves is greater than in stems.

## 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 (sown in 2003), Artesia (2004 standard and irrigation studies), Clovis (2004), Tucumcari (2005), Los Lunas (2003 and 2005), and Farmington (2003 and 2005).

Weather data for 2005 and the long-term averages from all locations are presented in table 2. Yield data (on a dry matter basis) are presented in tables 3-12. Varieties are listed in order from highest to lowest average annual production. Yields are given by cutting for 2005 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 (*). 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 or greater than the LSD, the varieties are truly different in yield when grown under the conditions at a given location. There was no statistical difference between the highest and lowest yielding varieties if NS is given for the LSD. 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 13 summarizes information about proprietors, winter survival (measured in the northern United States), fall dormancy, 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. Many Roundup Ready varieties are recognizable because they have "RR" in their name. Those not having that distinction have "(RR)" following their name in table 13.

Be cautious in using the winter survival data, because it might not accurately reflect a variety's winter survivability in New Mexico. Long-term performance in the northern half of the state should be a good indication of winter hardiness. In table 13, shaded areas indicate that the variety was not in that particular test (labeled at the top of the column), while clear blocks mean that the variety was in the test. A double asterisk (**) indicates that the variety had the highest yield in the test for that year, and a single asterisk (*) means that the variety was not significantly different from the highest-yielding variety based on the 5 percent LSD. It is best to choose a variety that has performed well over several years and locations.

Once varietal choices are made using table 13, look at cutting data (tables 3 to 12) to make sure the variety will be productive during the desired season. Varieties selected for grazing should produce over a longer season. Those used for hay should produce well in times that avoid potential problems. For instance, horse hay should be harvested early in the season to avoid blister beetle infestations that might occur in the later cuttings. Higher-value dairy hay might be produced later in the season to avoid spring weed problems.

"Common" varieties are generally not tested in The New Mexico Alfalfa Variety Testing Program. Usually, these varieties, particularly those from other states, might yield well in one area of New Mexico but not another. And those that do yield well might not do so consistently across years or will do so until a pest problem occurs after which time the stand can be lost, requiring a waiting period before reseeding.

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 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 balable yields during the rest period; however, these can still be grazed. For further information about alfalfa management, refer to the other NMSU Cooperative Extension Service publications listed in table 14.


### Acknowledgements

The authors wish to 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: Servando Bustillos, Lupe Carrasco, Patty Cooksey, Tamie Elam, Paul Franco, Carroll French, Calvin Henson, Leopoldo Hinojos, Ken Kohler, Gilbert Lucero, Martin Mead, Curtis Owen, Larry Perkins, Kenneth Phipps, Nichole Pryor, Aaron Scott, Lorraine Swannick, and the folks at University Communications (formerly, the NMSU College of Agriculture and Home Economics Department of Agricultural Communications) who make publications such as this possible.


Table 1. Forage quality† of alfalfa varieties sown August 2001, at the NMSU Agricultural Science Center at Farmington, 2002‡.

| | Fall dor- | CP, % | | ADF, % | | NDF, % | | RFV | | Fall dormancy means | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variety | mancy | Mean | SD | Mean | SD | Mean | SD | Mean | SD | CP, % | ADF, % | NDF, % | RFV |
| Champ | 3 | 22.03* | ±0.52 | 29.30* | ±0.99 | 34.45* | ±1.02 | 179.08* | ±6.43 | 22.03** | 29.30* | 34.45 | 179.08* |
| DKA42-15 | 4 | 21.57* | ±0.72 | 27.83* | ±0.98 | 33.32* | ±1.52 | 188.73** | ±10.27 | | | | |
| WL327 | 4 | 22.17** | ±1.13 | 28.36* | ±0.80 | 33.61* | ±2.32 | 187.11* | ±15.76 | | | | |
| Megaton 3.5 | 4 | 22.06* | ±1.68 | 28.05* | ±0.94 | 33.85* | ±1.25 | 184.82* | ±8.88 | | | | |
| Geneva | 4 | 21.50* | ±1.09 | 28.41* | ±0.92 | 33.77* | ±1.17 | 184.68* | ±7.91 | | | | |
| Legend | 4 | 21.38* | ±0.97 | 28.31* | ±1.46 | 34.09* | ±1.30 | 183.27* | ±9.70 | | | | |
| Delta526 | 4 | 21.58* | ±1.12 | 29.10* | ±1.85 | 33.86* | ±1.36 | 182.80* | ±10.00 | | | | |
| Focus HSN | 4 | 21.31* | ±0.61 | 29.20* | ±1.16 | 34.23* | ±1.88 | 181.04* | ±12.30 | | | | |
| Magnum V | 4 | 21.36* | ±0.76 | 28.52* | ±0.56 | 34.44* | ±0.95 | 180.28* | ±4.93 | | | | |
| Forcast 1001 | 4 | 21.16* | ±0.85 | 29.48* | ±1.31 | 34.51* | ±0.95 | 177.95* | ±7.51 | | | | |
| HybriGreen 41 | 4 | 21.12* | ±1.53 | 29.21* | ±0.62 | 34.88* | ±0.85 | 176.63* | ±4.09 | | | | |
| WL342 | 4 | 20.98* | ±1.00 | 28.78* | ±0.63 | 35.24* | ±1.49 | 176.20* | ±5.51 | | | | |
| 54V54 | 4 | 20.89* | ±0.46 | 29.41* | ±0.91 | 35.66* | ±0.81 | 172.27* | ±5.25 | | | | |
| HybriForce-400 | 4 | 20.54* | ±0.43 | 30.12* | ±1.53 | 35.74* | ±1.31 | 170.61* | ±9.07 | 21.36* | 28.83* | 34.40 | 180.49** |
| 5-Star | 5 | 21.36* | ±0.40 | 28.81* | ±0.59 | 33.92* | ±1.15 | 182.88* | ±7.35 | | | | |
| Archer II | 5 | 20.92* | ±0.33 | 29.72* | ±1.18 | 35.50* | ±0.68 | 172.46* | ±5.29 | 21.14* | 29.26* | 34.71 | 177.67* |
| Dona Ana | 8 | 19.95* | ±0.61 | 30.55** | ±0.91 | 37.33* | ±0.72 | 162.48* | ±4.55 | 19.95 | 30.55** | 37.33* | 162.48 |
| NM-9D11A-PAR | ? | 20.83* | ±1.80 | 29.54* | ±1.22 | 37.65** | ±1.87 | 163.22* | ±8.07 | 20.83 | 29.54* | 37.65** | 163.22 |
| Mean | | 21.26 | | 29.04 | | 34.78 | | 178.14 | | | | | |
| LSD, 0.05 | | Ns | | Ns | | Ns | | Ns | | 1.28 | Ns | 1.79 | 11.85 |
| CV, % | | 4.21 | | 3.55 | | 3.60 | | 4.65 | | | | | |

†Appreciation is expressed to the Navajo Agricultural Products Industry Research and Testing Laboratory for conducting the analysis.

‡Data are the means of two harvests taken 18 July and 27 August 2002.

CP, ADF, NDF, RFV, SD, LSD, Ns, and CV signify crude protein, acid detergent fiber, neutral detergent fiber, relative feed value, standard deviation, least significant difference, not significantly different based on a protected statistical analysis, and coefficient of variation, respectively. The SD gives and indication of the variability was found within a variety. Generally, individual observations (4 replicates for each variety for the data presented in this table) can be expected vary from the mean by as much as the SD. If the difference between means within a column is equal to or greater than the LSD given at the bottom of that column, we are 95% certain that they are truly different. The CV gives and indication of the amount of variation accounted for in the statistical analysis of a variable. Sources of variation included in the statistical model for these data include replicate, fall dormancy, and variety.

**Highest numerical value in the column.

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

**Table 2. Temperature and precipitation data for 2005 and the long-term averages for the New Mexico Alfalfa Variety Test locations.**

| Location | Las Cruces[1] | | | | Artesia | | | | Clovis | | | | Tucumcari | | | | Los Lunas | | | | Farmington | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Elevation | 3832 ft. | | | | 3376 ft. | | | | 4435 ft. | | | | 4091 ft. | | | | 4840 ft. | | | | 5577 ft. | | | |
| Latitude | 32° 12' N | | | | 32° 45' N | | | | 34° 35' N | | | | 35° 12' N | | | | 34° 46' N | | | | 36° 41' N | | | |
| | Temp. (°F) | | Precip. (In) | | Temp. (°F) | | Precip. (In) | | Temp. (°F) | | Precip. (In) | | Temp. (°F) | | Precip. (In) | | Temp. (°F) | | Precip. (In) | | Temp. (°F) | | Precip. (In) | |
| Month | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. | 05 | Ave. |
| Nov-99 | 47 | 50 | 1.50 | 0.53 | 46 | 48 | 3.80 | 0.50 | 43 | 46 | 2.35 | 0.56 | 45 | 47 | 2.27 | 0.66 | 43 | 49 | 0.90 | 0.45 | 40 | 40 | 0.82 | 0.72 |
| Dec-99 | 40 | 42 | 0.30 | 0.68 | 39 | 40 | 0.08 | 0.47 | 39 | 39 | 0.33 | 0.46 | 42 | 39 | 0.39 | 0.58 | 35 | 35 | 0.46 | 0.51 | 32 | 32 | 0.37 | 0.42 |
| Jan-00 | 45 | 42 | 0.75 | 0.56 | 45 | 39 | 0.56 | 0.52 | 42 | 38 | 1.44 | 0.30 | 44 | 38 | 1.33 | 0.36 | 40 | 44 | 1.41 | 0.34 | 38 | 30 | 1.08 | 0.47 |
| Feb-00 | 48 | 46 | 2.36 | 0.37 | 45 | 44 | 1.61 | 0.41 | 42 | 41 | 0.75 | 0.38 | 45 | 42 | 1.10 | 0.49 | 43 | 44 | 1.56 | 0.46 | 40 | 36 | 1.81 | 0.45 |
| Mar-00 | 53 | 52 | 0.40 | 0.22 | 51 | 51 | 0.73 | 0.37 | 45 | 48 | 0.89 | 0.68 | 54 | 48 | 1.16 | 0.74 | 47 | 54 | 0.79 | 0.50 | 43 | 43 | 0.36 | 0.69 |
| Apr-00 | 62 | 59 | 0.28 | 0.21 | 58 | 60 | 0.10 | 0.50 | 55 | 56 | 0.80 | 0.84 | 56 | 57 | 2.33 | 1.13 | 55 | 52 | 0.50 | 0.46 | 52 | 51 | 0.85 | 0.63 |
| May-00 | 71 | 68 | 0.55 | 0.29 | 68 | 68 | 1.78 | 1.20 | 64 | 65 | 1.88 | 2.00 | 65 | 65 | 2.35 | 2.01 | 65 | 64 | 0.00 | 0.46 | 63 | 60 | 0.55 | 0.50 |
| Jun-00 | 78 | 77 | 0.02 | 0.72 | 77 | 75 | 0.19 | 1.54 | 75 | 74 | 0.51 | 2.44 | 77 | 75 | 0.14 | 1.83 | 72 | 73 | 0.30 | 0.56 | 69 | 70 | 0.11 | 0.26 |
| Jul-00 | 82 | 80 | 0.59 | 1.36 | 80 | 79 | 0.09 | 1.50 | 77 | 76 | 1.25 | 2.82 | 80 | 79 | 2.98 | 2.63 | 79 | 78 | 0.34 | 1.24 | 79 | 76 | 0.52 | 0.83 |
| Aug-00 | 77 | 78 | 1.11 | 2.29 | 77 | 77 | 2.94 | 2.12 | 74 | 75 | 4.97 | 2.91 | 76 | 77 | 4.46 | 2.73 | 76 | 76 | 0.39 | 1.80 | 73 | 74 | 1.84 | 1.07 |
| Sep-00 | 74 | 72 | 1.46 | 1.38 | 74 | 70 | 0.08 | 2.11 | 72 | 69 | 1.90 | 1.88 | 74 | 70 | 4.28 | 1.58 | 71 | 66 | 1.71 | 1.30 | 68 | 66 | 0.48 | 1.13 |
| Oct-00 | 59 | 61 | 1.63 | 0.91 | 61 | 59 | 0.82 | 1.19 | 58 | 59 | 1.47 | 1.63 | 60 | 59 | 0.56 | 1.29 | 58 | 69 | 0.99 | 0.97 | 56 | 54 | 0.92 | 1.00 |
| Annual | 61 | 61 | 10.95 | 9.40 | 60 | 59 | 12.78 | 12.43 | 57 | 57 | 18.54 | 16.90 | 59.8 | 58 | 23.35 | 16.03 | 57 | 59 | 9.35 | 9.05 | 54 | 53 | 9.72 | 8.17 |

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

Table 3. Dry matter yields (tons/acre) of alfalfa varieties sown September 18, 2003, at NMSU's Leyendecker Plant Science Research Center at Las Cruces and flood-irrigated every 14 days.

| Variety | 2004 Total | 2005 Total | 2006 Harvests | | | | | 2006 Total | 3-yr Average |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2-May | 6-Jun | 13-Jul | 22-Sep | 10-Nov | | |
| NM0306 | 9.80* | 10.77** | 3.00* | 2.59* | 2.18** | 2.22** | 1.37** | 11.35** | 10.64** |
| WL 530HQ | 10.04* | 10.09* | 2.83* | 2.38* | 1.98 | 2.04* | 1.24* | 10.46* | 10.20* |
| NM0310 | 9.46 | 9.87* | 3.09* | 2.66* | 2.10* | 1.99* | 1.24* | 11.08* | 10.14* |
| DS 8181 | 9.85* | 9.75* | 2.96* | 2.55* | 2.01* | 2.12* | 1.17 | 10.81* | 10.13* |
| NM0307 | 10.02* | 9.40 | 2.95* | 2.68** | 2.09* | 2.01* | 1.21 | 10.93* | 10.12* |
| 58N57 | 9.89* | 9.73* | 2.86* | 2.52* | 2.13* | 1.96* | 1.22* | 10.68* | 10.10* |
| DS 266HYB | 10.12** | 9.66 | 2.99* | 2.43* | 2.02* | 1.87 | 1.18 | 10.48* | 10.09* |
| NM0309 | 9.78* | 9.63 | 3.04* | 2.52* | 2.08* | 1.93* | 1.10 | 10.66* | 10.02* |
| AmeriStand 802 | 9.28 | 9.76* | 2.94* | 2.56* | 2.05* | 1.91* | 1.29* | 10.74* | 9.93* |
| ZS9898 | 9.57* | 9.24 | 3.11** | 2.56* | 2.16* | 1.81 | 1.22* | 10.86* | 9.89* |
| DS 218HYB | 9.54* | 9.44 | 3.00* | 2.38* | 2.00* | 1.94* | 1.13 | 10.44* | 9.81* |
| NM0311 | 9.11 | 9.59 | 3.06* | 2.44* | 2.09* | 1.70 | 1.24* | 10.53* | 9.74* |
| NM0302 | 9.71* | 9.38 | 2.76* | 2.21 | 2.05* | 1.96* | 1.06 | 10.05 | 9.71* |
| NM0308 | 9.11 | 9.16 | 2.97* | 2.52* | 2.08* | 1.88* | 1.16 | 10.61* | 9.63 |
| WI 643 | 10.04* | 9.31 | 2.48 | 2.18 | 2.03* | 1.66 | 1.06 | 9.39 | 9.58 |
| 56S82 | 9.77* | 8.81 | 2.47 | 2.22 | 1.78 | 1.70 | 1.03 | 9.19 | 9.26 |
| Magna 801FQ | 9.13 | 8.78 | 2.69 | 2.26 | 1.83 | 1.86 | 1.08 | 9.72 | 9.21 |
| ZG9989A | 9.14 | 9.04 | 2.63 | 2.29 | 1.79 | 1.75 | 0.98 | 9.43 | 9.20 |
| 59N49 | 9.04 | 9.03 | 2.55 | 2.31 | 1.86 | 1.66 | 1.09 | 9.47 | 9.18 |
| ZL9981 | 8.75 | 8.77 | 2.80* | 2.26 | 2.00* | 1.74 | 1.20 | 10.00 | 9.17 |
| AmeriLeaf 721 | 9.08 | 8.84 | 2.62 | 2.28 | 1.94 | 1.77 | 0.96 | 9.57 | 9.16 |
| Dona Ana | 8.59 | 8.75 | 2.86* | 2.42* | 1.98 | 1.64 | 1.11 | 10.01 | 9.12 |
| NM0303 | 8.94 | 8.47 | 2.64 | 2.34 | 1.85 | 1.76 | 1.19 | 9.77 | 9.06 |
| 57Q75 | 9.01 | 9.13 | 2.31 | 2.01 | 1.91 | 1.63 | 1.10 | 8.95 | 9.03 |
| NM0305 | 8.87 | 8.68 | 2.50 | 2.22 | 1.90 | 1.82 | 1.05 | 9.48 | 9.01 |
| Cimarron VL400 | 8.85 | 8.20 | 2.94* | 2.27 | 1.85 | 1.80 | 1.00 | 9.84 | 8.96 |
| ZX9899B | 8.77 | 8.63 | 2.40 | 2.04 | 1.97 | 1.64 | 1.06 | 9.10 | 8.83 |
| 13-R Supreme | 8.86 | 8.77 | 2.39 | 1.95 | 1.73 | 1.71 | 0.97 | 8.74 | 8.79 |
| NM0304 | 9.10 | 8.29 | 2.42 | 1.90 | 1.78 | 1.63 | 0.94 | 8.67 | 8.68 |
| AmeriStand 801S | 8.95 | 8.40 | 2.47 | 2.15 | 1.67 | 1.40 | 0.92 | 8.61 | 8.65 |
| NM0316 | 9.81* | 7.98 | 2.25 | 2.13 | 1.53 | 1.48 | 0.76 | 8.15 | 8.64 |
| Wilson | 8.91 | 8.04 | 2.57 | 2.03 | 1.73 | 1.58 | 0.84 | 8.74 | 8.56 |
| Mesa | 8.67 | 7.99 | 2.35 | 2.14 | 1.80 | 1.56 | 1.00 | 8.85 | 8.51 |
| 5715 | 8.75 | 8.22 | 2.34 | 1.96 | 1.70 | 1.44 | 0.92 | 8.35 | 8.44 |
| NM0315 | 8.99 | 7.76 | 2.61 | 1.88 | 1.56 | 1.65 | 0.79 | 8.49 | 8.41 |
| NM0312 | 8.51 | 7.02 | 2.49 | 1.89 | 1.70 | 1.76 | 0.88 | 8.71 | 8.08 |
| Mean | 9.27 | 8.95 | 2.70 | 2.28 | 1.91 | 1.78 | 1.08 | 9.75 | 9.32 |
| LSD (0.05) | 0.64 | 1.07 | 0.36 | 0.31 | 0.19 | 0.35 | 0.16 | 1.07 | 0.97 |
| CV% | 4.91 | 8.50 | 9.43 | 9.83 | 7.18 | 14.23 | 10.32 | 7.83 | 12.82 |

2004 Harvest dates: 28-Apr, 2-Jun, 7-Jul, 4-Aug, 16-Sep, and 4-Nov.

2005 Harvest dates: 12-May, 14-Jun, 19-Jul, 26-Aug, 28-Sep, and 8-Nov.

Excessive late summer and early autumn precipitation delayed harvests in 2006, resulting in only 5 harvests for this year.

**Highest numerical value in the column

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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 alfalfa varieties sown September 8, 2004, at NMSU's Agricultural Science Center at Artesia and flood-irrigated approximately once per month.

| Variety | 2005 Total | 2006 Harvests | | | | | | 2006 Total | 2-yr Average |
|---|---|---|---|---|---|---|---|---|---|
| | | 1-May | 31-May | 5-Jul | 3-Aug | 18-Sep | 24-Oct | | |
| 60M1053 | 11.13** | 1.83* | 1.63* | 2.92* | 1.81* | 1.31* | 1.50* | 11.00* | 11.06** |
| SW 6330 | 10.85* | 1.83* | 1.68* | 3.24** | 1.59* | 1.55* | 1.35 | 11.23** | 11.04* |
| AmeriLeaf 721 | 10.97* | 1.93* | 1.81* | 2.85* | 1.64* | 1.19* | 1.20 | 10.60* | 10.78* |
| SW 8718 | 11.10* | 1.72* | 1.84* | 2.29 | 1.77* | 1.29* | 1.44 | 10.35* | 10.72* |
| SW 7410 | 10.88* | 1.59* | 1.68* | 2.87* | 1.44* | 1.59** | 1.35 | 10.51* | 10.69* |
| 57Q75 | 10.32* | 1.78* | 1.90* | 3.17* | 1.78* | 0.99 | 1.25 | 10.86* | 10.59* |
| NM0313 | 10.56* | 1.79* | 1.40* | 2.80* | 1.59* | 1.15 | 1.69** | 10.41* | 10.48* |
| WL 625HQ | 10.29* | 1.53* | 1.60* | 2.76 | 1.82* | 1.28* | 1.53* | 10.52* | 10.41* |
| WL 530HQ | 10.37* | 1.83* | 1.85** | 2.57 | 1.59* | 1.17* | 1.42 | 10.43* | 10.40* |
| African Common | 10.04 | 1.78* | 1.59* | 2.84* | 1.85** | 1.26* | 1.35 | 10.67* | 10.36* |
| NM0307 | 9.56 | 2.12** | 1.82* | 2.83* | 1.68* | 1.18* | 1.41 | 11.04* | 10.30* |
| Dona Ana | 10.61* | 1.90* | 1.44* | 2.56 | 1.52* | 1.28* | 0.93 | 9.63 | 10.12* |
| ZS0300 | 10.28* | 1.60* | 1.82* | 2.34 | 1.53* | 1.32* | 1.30 | 9.91 | 10.09* |
| NM0311 | 10.26* | 1.67* | 1.53* | 2.38 | 1.65* | 1.04 | 1.51* | 9.77 | 10.02* |
| 56S82 | 10.36* | 1.90* | 1.42* | 2.42 | 1.37* | 1.34* | 1.23 | 9.67 | 10.01* |
| NM0306 | 9.25 | 1.88* | 1.70* | 2.75 | 1.74* | 1.24* | 1.33 | 10.64* | 9.94* |
| D 93-70 | 10.00 | 1.50* | 1.63* | 2.60 | 1.63* | 0.93 | 1.27 | 9.56 | 9.78 |
| NM0310 | 9.20 | 1.90* | 1.80* | 2.60 | 1.54* | 1.21* | 1.23 | 10.28* | 9.74 |
| Expedition | 9.90 | 1.82* | 1.58* | 2.54 | 1.60* | 0.92 | 1.07 | 9.52 | 9.71 |
| WL 357HQ | 9.67 | 1.71* | 1.58* | 2.62 | 1.75* | 0.69 | 1.08 | 9.44 | 9.55 |
| NM0303 | 9.32 | 1.56* | 1.64* | 2.65 | 1.56* | 0.95 | 1.23 | 9.58 | 9.45 |
| NM0312 | 9.03 | 1.86* | 1.77* | 2.33 | 1.48* | 1.33* | 0.83 | 9.60 | 9.31 |
| Wilson | 9.24 | 1.54* | 1.55* | 2.43 | 1.35* | 1.33* | 1.12 | 9.32 | 9.28 |
| NM Common | 8.55 | 1.53* | 1.79* | 2.73 | 1.48* | 1.20* | 1.23 | 9.95 | 9.25 |
| Mean | 10.07 | 1.75 | 1.67 | 2.67 | 1.61 | 1.20 | 1.28 | 10.19 | 10.13 |
| LSD (0.05) | 1.05 | NS | NS | 0.48 | NS | 0.43 | 0.21 | 1.03 | 1.18 |
| CV% | 7.38 | 17.25 | 17.32 | 12.64 | 15.40 | 25.69 | 11.33 | 7.16 | 11.52 |

2005 Harvest dates: 9-May, 8-Jun, 5-Jul, 2-Aug, 2-Sep, and 13-Oct.

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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 8, 2004, at NMSU's Agricultural Science Center at Artesia and sprinkler-irrigated with 40 inches of water during 2006.

| Variety | 2005 Total | 2006 Harvests | | | | | | | 2006 Total | 2-yr Average |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2-May | 31-May | 30-Jun | 27-Jul | 30-Aug | 18-Sep | 24-Oct | | |
| NM0303 | 5.41** | 2.16* | 1.82* | 2.36** | 1.83** | 1.63** | 1.73** | 0.47* | 11.99** | 8.70** |
| Wilson | 5.36* | 2.31** | 1.96* | 2.23* | 1.67* | 1.17* | 1.42* | 0.51* | 11.26* | 8.31* |
| NM0307 | 5.02* | 1.67* | 1.89* | 2.11* | 1.81* | 1.18* | 1.49* | 0.49* | 10.64* | 7.83* |
| NM0306 | 5.34* | 1.54* | 1.78* | 1.99* | 1.75* | 1.25* | 1.50* | 0.38* | 10.18* | 7.76* |
| ZS0300 | 5.01* | 1.56* | 1.72* | 2.18* | 1.66* | 1.04* | 1.35* | 0.55* | 10.06* | 7.53* |
| ZX0088 | 4.97* | 1.77* | 1.70* | 1.70* | 1.67* | 1.20* | 1.44* | 0.58* | 10.04* | 7.51* |
| NM0313 | 4.54* | 1.53* | 1.58* | 2.18* | 1.79* | 1.31* | 1.55* | 0.36* | 10.29* | 7.41* |
| ZD0399J | 4.75* | 1.70* | 2.36** | 1.64* | 1.26* | 1.18* | 1.22* | 0.44* | 9.79* | 7.27* |
| Dona Ana | 4.49* | 1.78* | 2.09* | 1.98* | 1.53* | 0.99* | 1.26* | 0.27* | 9.89* | 7.19* |
| NM0314 | 4.68* | 1.60* | 1.38* | 1.89* | 1.52* | 1.13* | 1.33* | 0.73* | 9.58* | 7.13 |
| NM0310 | 4.45* | 1.47* | 1.90* | 1.60* | 1.25* | 1.61* | 1.43* | 0.31* | 9.56* | 7.00 |
| NM Common | 4.05* | 1.76* | 2.29* | 1.84* | 1.19* | 1.18* | 1.18* | 0.21* | 9.64* | 6.85 |
| D 93-70 | 4.50* | 1.64* | 1.75* | 2.08* | 1.21* | 0.96* | 1.08* | 0.32* | 9.05* | 6.77 |
| African Common | 4.61* | 1.09* | 1.51* | 1.96* | 1.44* | 1.18* | 1.31* | 0.26* | 8.74* | 6.68 |
| NM0311 | 4.59* | 1.31* | 1.36* | 1.35* | 1.06* | 1.26* | 1.16* | 1.08** | 8.59* | 6.59 |
| NM0312 | 4.47* | 1.82* | 1.34* | 1.45* | 1.05* | 0.97* | 1.01* | 0.35* | 7.97* | 6.22 |
| Mean | 4.76 | 1.67 | 1.78 | 1.91 | 1.48 | 1.20 | 1.34 | 0.46 | 9.83 | 7.30 |
| LSD (0.05) | NS | NS | NS | NS | NS | NS | NS | NS | NS | 1.53 |
| CV% | 18.55 | 29.47 | 28.02 | 23.06 | 32.94 | 26.28 | 23.97 | 95.33 | 17.56 | 20.80 |

2005 Harvest dates: 11-May, 10-Jun, 8-Jul, 3-Aug, 7-Sep, 14-Oct.

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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 alfalfa varieties sown September 8, 2004, at NMSU's Agricultural Science Center at Artesia and sprinkler-irrigated with 18 inches of water during 2006.

| Variety | 2005 Total | 2006 Harvests | | | | | | | 2006 Total | 2-yr Average |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2-May | 31-May | 30-Jun | 27-Jul | 30-Aug | 18-Sep | 24-Oct | | |
| African Common | 5.38* | 1.05* | 1.25** | 1.94* | 1.29* | 1.08* | 1.18* | 0.70** | 8.48* | 6.93** |
| NM0303 | 4.60* | 1.30* | 1.00* | 1.95** | 1.43** | 1.28** | 1.36** | 0.60* | 8.91** | 6.76* |
| NM0313 | 5.14* | 1.49* | 1.05* | 1.85* | 1.16* | 1.14* | 1.15* | 0.38* | 8.20* | 6.67* |
| NM0307 | 4.97* | 1.66** | 0.87* | 1.59* | 1.31* | 0.95* | 1.13* | 0.54* | 8.05* | 6.51* |
| ZX0088 | 5.43* | 1.48* | 0.68* | 1.56* | 0.96* | 0.87* | 0.91* | 0.69* | 7.14* | 6.28* |
| NM0311 | 5.50** | 1.18* | 0.63* | 1.67* | 1.18* | 1.05* | 1.11* | 0.20* | 7.02* | 6.26* |
| NM0314 | 4.65* | 1.56* | 1.02* | 1.47* | 1.09* | 1.02* | 1.05* | 0.51* | 7.69* | 6.17* |
| Wilson | 5.04* | 1.00* | 0.77* | 1.55* | 1.11* | 1.21* | 1.16* | 0.45* | 7.24* | 6.14* |
| NM0306 | 4.33* | 1.41* | 0.87* | 1.77* | 1.32* | 0.99* | 1.15* | 0.36* | 7.86* | 6.10* |
| ZD0399J | 5.41* | 0.99* | 0.45* | 1.31* | 1.13* | 1.06* | 1.09* | 0.21* | 6.24* | 5.82* |
| ZS0300 | 4.74* | 1.47* | 0.75* | 1.77* | 0.69* | 0.94* | 0.81* | 0.47* | 6.89* | 5.81* |
| NM Common | 4.17* | 1.16* | 0.79* | 1.50* | 1.17* | 0.96* | 1.07* | 0.52* | 7.16* | 5.67* |
| Dona Ana | 4.97* | 1.28* | 0.61* | 1.53* | 0.71* | 0.92* | 0.81* | 0.45* | 6.29* | 5.63* |
| NM0310 | 4.22* | 1.18* | 0.61* | 1.77* | 0.93* | 0.95* | 0.94* | 0.38* | 6.74* | 5.48* |
| D 93-70 | 4.74* | 1.16* | 0.38* | 1.49* | 0.85* | 0.91* | 0.88* | 0.44* | 6.11* | 5.42* |
| NM0312 | 4.07* | 1.19* | 0.98* | 1.34* | 0.79* | 1.06* | 0.93* | 0.27* | 6.55* | 5.31* |
| Mean | 4.83 | 1.28 | 0.79 | 1.63 | 1.07 | 1.02 | 1.04 | 0.45 | 7.28 | 6.06 |
| LSD (0.05) | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| CV% | 17.92 | 43.90 | 55.22 | 35.67 | 41.88 | 25.59 | 25.94 | 98.99 | 26.03 | 28.03 |

2005 Harvest dates: 11-May, 10-Jun, 8-Jul, 3-Aug, 7-Sep, 14-Oct.

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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 8, 2004, at NMSU's Agricultural Science Center at Clovis and furrow-irrigated every three weeks beginning May 1, 2006.

| Variety | 2005 Total | 2006 Harvests | | | | | | 2006 Total | 2-yr Average |
|---|---|---|---|---|---|---|---|---|---|
| | | 11-May | 6-Jun | 27-Jun | 19-Jul | 25-Aug | 31-Oct | | |
| AmeriLeaf 721 | 10.16* | 2.08* | 1.39* | 1.10* | 1.15* | 1.47 | 0.89 | 8.08* | 9.12** |
| WL 530HQ | 10.21** | 1.77 | 1.39* | 1.04* | 1.17* | 1.57 | 1.07* | 8.01* | 9.11* |
| Expedition | 10.17* | 1.95* | 1.41* | 0.99* | 1.08 | 1.48 | 1.02* | 7.93* | 9.05* |
| NC+605 | 9.69* | 2.17** | 1.47** | 1.15* | 1.18* | 1.52 | 0.91 | 8.39** | 9.04* |
| Medallion | 9.89* | 1.88 | 1.37* | 1.03* | 1.09 | 1.53 | 0.98 | 7.87* | 8.88* |
| WL 357HQ | 9.56* | 1.98* | 1.41* | 1.15* | 1.27** | 1.43 | 0.88 | 8.12* | 8.84* |
| FGI 4S42 | 9.40* | 1.99* | 1.32* | 1.08* | 1.03 | 1.64* | 1.14** | 8.19* | 8.80* |
| Cimmaron VL400 | 9.47* | 2.11* | 1.36* | 0.92* | 0.95 | 1.73** | 1.03* | 8.10* | 8.78* |
| Dona Ana | 9.54* | 2.10* | 1.42* | 0.96* | 0.95 | 1.44 | 0.89 | 7.76* | 8.65* |
| SW 6330 | 9.71* | 1.81 | 1.39* | 1.05* | 1.09 | 1.46 | 0.79 | 7.59 | 8.65* |
| 56S82 | 9.59* | 2.01* | 1.41* | 1.00* | 1.03 | 1.35 | 0.88 | 7.67 | 8.63* |
| 55H05 | 9.18 | 2.05* | 1.45* | 1.00* | 1.03 | 1.54 | 0.92 | 7.99* | 8.58* |
| NM0306 | 8.95 | 2.03* | 1.40* | 1.12* | 1.06 | 1.64* | 0.91 | 8.15* | 8.55* |
| NM0307 | 8.85 | 2.01* | 1.41* | 1.15* | 1.16* | 1.48 | 0.88 | 8.08* | 8.47* |
| African Common | 9.43* | 1.64 | 1.40* | 1.11* | 1.21* | 1.43 | 0.68 | 7.46 | 8.44* |
| NM0312 | 9.40* | 2.06* | 1.31* | 0.99* | 0.81 | 1.49 | 0.83 | 7.48 | 8.44* |
| SW 7410 | 9.25 | 1.75 | 1.37* | 1.00* | 1.11* | 1.50 | 0.82 | 7.56 | 8.40* |
| SW 8718 | 9.44* | 1.64 | 1.28* | 1.11* | 1.15* | 1.36 | 0.82 | 7.36 | 8.40* |
| 5-Star | 8.96 | 1.92 | 1.28* | 0.97* | 1.04 | 1.44 | 0.94 | 7.58 | 8.27* |
| Wilson | 9.07 | 1.91 | 1.37* | 1.04* | 1.04 | 1.31 | 0.73 | 7.40 | 8.23* |
| NM Common | 8.74 | 1.82 | 1.41* | 1.20** | 1.13* | 1.43 | 0.74 | 7.71 | 8.23* |
| NM0311 | 8.71 | 1.64 | 1.34* | 1.09* | 1.04 | 1.48 | 0.88 | 7.47 | 8.09 |
| NM0314 | 8.14 | 1.94 | 1.29* | 0.92* | 0.94 | 1.49 | 0.85 | 7.42 | 7.78 |
| NM0310 | 8.23 | 1.89 | 1.37* | 0.98* | 0.97 | 1.33 | 0.75 | 7.28 | 7.75 |
| Mean | 9.32 | 1.92 | 1.38 | 1.05 | 1.07 | 1.48 | 0.88 | 7.78 | 8.55 |
| LSD (0.05) | 0.91 | 0.24 | NS | NS | 0.18 | 0.15 | 0.13 | 0.71 | 0.92 |
| CV% | 6.90 | 9.09 | 10.31 | 12.79 | 11.76 | 6.98 | 10.39 | 6.47 | 19.70 |

2005 Harvest dates: 27-May, 23-Jun, 19-Jul, 19-Aug, 13-Sep, and 2-Nov.

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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 22 September 2005, at NMSU's Agricultural Science Center at Tucumcari and furrow-irrigated once per cutting.

| Variety Name | 2006 Harvests | | | | | 2006 Total |
|---|---|---|---|---|---|---|
| | 13-Jun | 11-Jul | 10-Aug | 13-Sep | 30-Oct | |
| Wilson | 0.16 | 0.41* | 0.66* | 1.56** | 0.58** | 2.79** |
| RSC751, Lot N536-5A | 0.27* | 0.40* | 0.69** | 1.42* | 0.45 | 2.78* |
| Cimarron VL400 | 0.24* | 0.37* | 0.63* | 1.53* | 0.31 | 2.77* |
| 55H05 | 0.27* | 0.40* | 0.69** | 1.41* | 0.45 | 2.76* |
| Select | 0.21 | 0.42** | 0.69** | 1.42* | 0.30 | 2.75* |
| FSG505 | 0.20 | 0.37* | 0.58* | 1.44* | 0.31 | 2.58* |
| Mountaineer 2.0 | 0.35** | 0.27* | 0.51 | 1.42* | 0.28 | 2.55* |
| Tango | 0.20 | 0.23* | 0.58* | 1.47* | 0.40 | 2.49* |
| 56S82 | 0.10 | 0.32* | 0.56* | 1.45* | 0.45 | 2.45* |
| NM Common | 0.15 | 0.28* | 0.53* | 1.44* | 0.45 | 2.40* |
| WL335HQ | 0.12 | 0.28* | 0.50* | 1.48* | 0.17 | 2.38* |
| RSC751, Lot N342-5A | 0.18 | 0.30* | 0.52* | 1.34* | 0.33 | 2.33* |
| WL357HQ | 0.18 | 0.27* | 0.58* | 1.27* | 0.29 | 2.31* |
| NC+605 | 0.10 | 0.33* | 0.56* | 1.31* | 0.32 | 2.31* |
| CW704 | 0.11 | 0.27* | 0.47 | 1.44* | 0.39 | 2.29* |
| Phoenix | 0.15 | 0.30* | 0.43 | 1.40* | 0.23 | 2.28* |
| DS204HYB | 0.12 | 0.30* | 0.52* | 1.35* | 0.22 | 2.28* |
| msSunstra-507 | 0.14 | 0.28* | 0.43 | 1.38* | 0.21 | 2.23 |
| RSC751-II | 0.14 | 0.33* | 0.50 | 1.24* | 0.30 | 2.22 |
| HybriForce-600 | 0.11 | 0.21* | 0.39 | 1.50* | 0.21 | 2.21 |
| DKA50-18 | 0.25* | 0.23* | 0.50 | 1.21* | 0.23 | 2.20 |
| African Common | 0.14 | 0.23* | 0.54* | 1.29* | 0.42 | 2.20 |
| 6530 | 0.17 | 0.29* | 0.39 | 1.34* | 0.13 | 2.19 |
| Dona Ana | 0.18 | 0.25* | 0.52* | 1.22* | 0.50* | 2.18 |
| Rebound 5.0 | 0.11 | 0.28* | 0.47 | 1.33* | 0.25 | 2.18 |
| Reward II | 0.21 | 0.27* | 0.41 | 1.28* | 0.20 | 2.17 |
| DKA41-18RR | 0.19 | 0.34* | 0.47 | 1.14* | 0.26 | 2.14 |
| 6420 | 0.13 | 0.27* | 0.43 | 1.28* | 0.13 | 2.11 |
| Escalade | 0.22 | 0.27* | 0.44 | 1.17* | 0.32 | 2.10 |
| Ruccus | 0.10 | 0.26* | 0.43 | 1.29* | 0.38 | 2.08 |
| Cutmor | 0.19 | 0.24* | 0.40 | 1.14* | 0.42 | 1.97 |
| Renograzer | 0.17 | 0.26* | 0.39 | 1.12* | 0.08 | 1.94 |
| BPR387 | 0.09 | 0.21* | 0.44 | 1.19* | 0.17 | 1.93 |
| Mean | 0.17 | 0.29 | 0.51 | 1.34* | 0.31 | 2.32 |
| LSD (0.05) | 0.12 | NS | 0.18 | NS | 0.13 | 0.53 |
| CV% | 53.12 | 34.85 | 24.46 | 15.15 | 29.47 | 16.18 |

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% alpha level. If the difference between two numbers within a column is equal to or greater than the LSD, it is95% certain that they are different.

NS means that there was no significant difference between varieties within that column at the 5% alpha level.

Table 9. Dry matter yields (tons/acre) of alfalfa varieties sown September 22, 2003, at NMSU's Agricultural Science Center at Los Lunas and flood-irrigated twice per cutting.

| Variety | 2004 Total | 2005 Total | 2006 Harvests | | | | 2006 Total | 3-yr Average |
|---|---|---|---|---|---|---|---|---|
| | | | 16-May | 22-Jun | 10-Aug | 2-Oct | | |
| Reward II | 6.06** | 7.77** | 1.98** | 1.51* | 1.61* | 1.26** | 6.37* | 6.73** |
| 6530 | 5.92* | 7.53* | 1.92* | 1.55* | 1.69** | 1.19* | 6.34* | 6.60* |
| HybriForce 600 | 5.61* | 7.64* | 1.94* | 1.63** | 1.58* | 1.25* | 6.40** | 6.55* |
| Archer II | 5.70* | 6.81* | 1.77* | 1.42** | 1.41* | 1.16* | 5.75* | 6.09* |
| HybriForce 620 | 5.38* | 6.95* | 1.79* | 1.39* | 1.42* | 1.11* | 5.70* | 6.01* |
| T1F02 | 5.24* | 6.86* | 1.98** | 1.32* | 1.39* | 1.21* | 5.89* | 5.99* |
| WL 357HQ | 4.90* | 6.97* | 1.71* | 1.39* | 1.49* | 1.16* | 5.75* | 5.87* |
| African Common | 5.01* | 6.92* | 1.68* | 1.50* | 1.26* | 1.18* | 5.61* | 5.85* |
| AmeriStand 403T | 4.96* | 6.50* | 1.85* | 1.35* | 1.50* | 1.10* | 5.80* | 5.75* |
| HybriForce 420/Wet | 5.36* | 6.27* | 1.70* | 1.29* | 1.46* | 1.10* | 5.55* | 5.73* |
| DS 266HYB | 5.23* | 6.32* | 1.65* | 1.28* | 1.21* | 1.05* | 5.18* | 5.58* |
| Wilson | 4.90* | 6.00* | 1.55* | 1.24* | 1.21* | 1.04* | 5.04* | 5.31 |
| Mean | 5.35 | 6.88 | 1.79 | 1.40 | 1.43 | 1.15 | 5.78 | 6.00 |
| LSD (0.05) | NS | NS | NS | NS | NS | NS | NS | 1.31 |
| CV% | 18.49 | 13.49 | 13.88 | 17.34 | 22.29 | 14.27 | 15.44 | 26.22 |

2004 Harvest dates: 17-May, 28-Jun, 10-Aug, and 25-Oct.
2005 Harvest dates: 23-May, 5-Jul, 2-Aug, 12-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.
LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.
NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 10. Dry matter yields (tons/acre) of alfalfa varieties sown September 27, 2005 and interseeded March 21, 2006, at NMSU's Agricultural Science Center at Los Lunas and flood-irrigated twice per cutting.

| Variety | 2006 Harvests | | | | 2006 Total |
|---|---|---|---|---|---|
| | 2-Jun | 21-Jul | 7-Sep | 18-Oct | |
| Wilson | 0.81** | 1.48** | 1.18* | 0.72** | 4.19** |
| AA205W | 0.73* | 1.45* | 1.17* | 0.55 | 3.88* |
| NM Common | 0.72* | 1.36* | 1.13 | 0.67* | 3.87* |
| AA204W | 0.67* | 1.37* | 1.09 | 0.72** | 3.85* |
| AA206W | 0.70* | 1.43* | 1.12 | 0.59 | 3.84* |
| WL 357HQ | 0.68* | 1.29* | 1.31** | 0.53 | 3.80* |
| MP04 | 0.76* | 1.32* | 1.04 | 0.53 | 3.65* |
| Mountaineer 2.0 | 0.65* | 1.35* | 1.09 | 0.51 | 3.60* |
| Cimarron VL400 | 0.61* | 1.26* | 1.21* | 0.51 | 3.58* |
| African Common | 0.59* | 1.16* | 1.04 | 0.70* | 3.48* |
| Mean | 0.69 | 1.34 | 1.14 | 0.60 | 3.77 |
| LSD (0.05) | NS | NS | 0.16 | 0.11 | NS |
| CV% | 41.62 | 11.40 | 9.85 | 12.94 | 13.58 |

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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

Table 11. Dry matter yields (tons/acre) of alfalfa varieties sown May 4, 2004, at NMSU's Agricultural Science Center at Farmington and sprinkler-irrigated three times per week.

| Variety | 2004 Total | 2005 Total | 2006 Harvests | | | | 2006 Total | 3-yr Average |
|---|---|---|---|---|---|---|---|---|
| | | | 31-May | 11-Jul | 15-Aug | 18-Oct | | |
| Mountaineer 2.0 | 4.56** | 9.54* | 3.68* | 3.19* | 2.34* | 1.43* | 10.63* | 8.24** |
| Ranger | 3.83 | 10.28** | 3.60* | 3.31* | 2.32* | 1.35* | 10.57* | 8.23* |
| Archer II | 4.26* | 9.52* | 3.59* | 3.00* | 2.21* | 1.48** | 10.28* | 8.02* |
| 54Q25 | 4.05 | 9.19 | 4.03** | 3.06* | 2.43** | 1.26* | 10.77** | 8.00* |
| HybriForce 420/Wet | 3.70 | 9.50* | 3.78* | 3.33** | 2.25* | 1.31* | 10.67* | 7.95* |
| Boulder | 4.06 | 9.80* | 3.66* | 2.84* | 2.16* | 1.34* | 9.99* | 7.95* |
| Wilson | 4.12* | 9.37* | 3.66* | 2.89* | 2.18* | 1.32* | 10.04* | 7.84* |
| Legend | 4.13* | 9.46* | 3.59* | 2.64 | 2.25* | 1.31* | 9.77* | 7.79* |
| Reward II | 4.25* | 8.79 | 3.48* | 3.04* | 2.24* | 1.30* | 10.06* | 7.70* |
| XTRA-3 | 3.86 | 9.07 | 3.36* | 2.97* | 2.11* | 1.33* | 9.76* | 7.56* |
| 6530 | 3.73 | 8.56 | 3.96* | 2.97* | 2.14* | 1.31* | 10.38* | 7.56* |
| ZL9981 | 4.36* | 8.60 | 3.65* | 2.63 | 1.96 | 1.40* | 9.64* | 7.53* |
| 6400 HT | 3.49 | 8.95 | 3.54* | 2.87* | 2.20* | 1.08 | 9.69* | 7.38* |
| WL 357HQ | 3.40 | 8.86 | 3.70* | 2.94* | 2.01 | 1.02 | 9.66* | 7.31* |
| AmeriStand 403T | 3.46 | 8.40 | 3.54* | 2.74* | 2.13* | 1.19 | 9.60* | 7.15* |
| Dona Ana | 4.58* | 8.66 | 2.65 | 2.23 | 1.79 | 1.05 | 7.71 | 6.99 |
| NM Common | 4.04 | 7.54 | 2.58 | 2.37 | 1.77 | 0.87 | 7.58 | 6.39 |
| African Common | 4.30* | 7.87 | 2.34 | 2.09 | 1.63 | 0.66 | 6.72 | 6.30 |
| Mean | 4.01 | 9.00 | 3.46 | 2.84 | 2.12 | 1.22 | 9.64 | 7.55 |
| LSD (0.05) | 0.51 | 0.93 | 0.85 | 0.61 | 0.38 | 0.23 | 1.67 | 1.18 |
| CV% | 9.01 | 7.27 | 17.36 | 15.14 | 12.79 | 13.52 | 12.19 | 18.86 |

2004 Harvest dates: 123-Jul, 30-Aug, and 21-Oct.
2005 Harvest dates: 1-Jun, 6-Jul, 18-Aug, and 14-Oct.
**Highest numerical value in the column.
*Not significantly different from the highest numerical value in the column based on the 5% LSD.
LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.
NS means that there were no significant differences between the varieties within that column at the 5% level.

Table 12. Dry matter yields (tons/acre) of alfalfa varieties sown August 24, 2005, at NMSU's Agricultural Science Center at Farmington and sprinkler-irrigated three times per week.

| Variety | 2006 Harvests | | | 2006 Total |
|---|---|---|---|---|
| | 28-Jun | 8-Aug | 19-Oct | |
| FSG505 | 2.47* | 2.32* | 1.86** | 6.64** |
| Archer ll | 2.55** | 2.14* | 1.65* | 6.33* |
| FSG408DP | 2.38* | 2.34* | 1.57 | 6.29* |
| AA206W | 2.15* | 2.39** | 1.70* | 6.24* |
| AA204W | 2.45* | 2.14* | 1.54 | 6.12* |
| WL 357HQ | 2.25* | 2.24* | 1.62 | 6.10* |
| NM0307 | 2.18* | 1.99 | 1.85* | 6.02* |
| FSG351 | 2.34* | 2.15* | 1.50 | 5.99* |
| 55H05 | 2.27* | 2.14* | 1.55 | 5.96 |
| Legend | 2.45* | 2.14* | 1.33 | 5.91 |
| NM Common | 2.29* | 2.08* | 1.48 | 5.84 |
| Escalade | 2.63* | 1.99 | 1.22 | 5.84 |
| AA205W | 2.21* | 2.23* | 1.38 | 5.81 |
| NM0314 | 2.28* | 1.90 | 1.46 | 5.64 |
| Dona Ana | 2.04 | 1.93 | 1.65* | 5.61 |
| 56S82 | 2.16* | 2.00 | 1.36 | 5.53 |
| Genoa | 2.01 | 1.83 | 1.52 | 5.35 |
| FGI-41W206 | 2.02 | 1.95 | 1.38 | 5.34 |
| Ranger | 2.20* | 1.75 | 1.28 | 5.22 |
| African Common | 1.83 | 2.03 | 1.35 | 5.20 |
| FSG406 | 1.96 | 1.84 | 1.10 | 4.90 |
| Wilson | 1.65 | 1.75 | 1.37 | 4.76 |
| Mean | 2.22 | 2.06 | 1.49 | 5.76 |
| LSD (0.05) | 0.42 | 0.35 | 0.21 | 0.67 |
| CV% | 13.30 | 12.17 | 9.98 | 8.29 |

**Highest numerical value in the column.

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

LSD (0.05) stands for the Least Significant Difference at the 5% level. If the difference between two numbers within a column is equal to or greater than the LSD, it is 95% certain that they are different.

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

Table 13. Characteristics and performance of alfalfa varieties across years and tests in New Mexico.

| | | Varietal Characteristics[1] | | | | | | | | | | | Las Cruces | | | Artesia | | | | | | Clovis | | Tucumcari | Los Lunas | | | | Farmington | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | 2003[2] | | | 2004 | | | | | | 2004 | | 2005 | 2003 | | | 05 | 2004 | | | 05 |
| | | | | Pest resistance | | | | | | | | | | | | d | | F | | L | | | | | | | | | | | | |
| Variety | Proprietor | WS | FD | BW | PRR | FW | AN | SAA | PA | BAA | SN | RKN | 04[4] | 05 | 06 | 05 | 06 | 05 | 06 | 05 | 06 | 05 | 06 | 06 | 04 | 05 | 06 | 06 | 04 | 05 | 06 | 06 |
| FSG 351 | Allied Seed | 2.0 | 3 | HR | HR | HR | R | R | HR | R | R | HR | | | | | | | | | | | | | | | | | | | | * |
| Ranger | USDA, Univ. of Nebraska | n/r | 3 | R | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | * | |
| Renograzer | Curtis and Curtis Seed | n/r | 3 | HR | R | R | R | LR | R | n/r | MR | n/r | | | | | | | | | | | | | | | | | | | | |
| 6420 | Garst Seed Co. | 2.6 | 4 | HR | HR | HR | R | n/r | R | n/r | R | n/r | | | | | | | | | | | | | | | | | | | | |
| 54Q25 | Pioneer HiBred Int'l | 2.0 | 4 | HR | HR | HR | HR | R | R | S | HR | HR | | | | | | | | | | | | | | | | | | | ** | |
| 6400HT | Garst Seed Co. | 1.5 | 4 | HR | HR | HR | HR | n/r | HR | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | * | |
| AmeriStand 403T | America's Alfalfa | 2.1 | 4 | HR | HR | HR | HR | MR | R | n/r | MR | n/r | | | | | | | | | | | | | * | * | * | | | | * | |
| Boulder | NK Brand | 2.5 | 4 | HR | HR | HR | HR | HR | HR | n/r | HR | R | | | | | | | | | | | | | | | | | | | * | |
| BPR 387 | Dairyland Seed Co. | 2.0 | 4 | HR | HR | HR | HR | n/r | n/r | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| Cimarron VL400 | Great Plains Research | 3.0 | 4 | HR | HR | HR | HR | HR | HR | HR | HR | n/r | | | | | | | | | | * | * | * | | | | * | | | | |
| DKA41-18RR | Monsanto | 1.8 | 4 | HR | HR | HR | HR | n/r | R | n/r | R | n/r | | | | | | | | | | | | | | | | | | | | |
| DS204HYB | Dairyland Seed Co. | 2.0 | 4 | HR | HR | HR | R | n/r | n/r | n/r | n/r | n/r | | | | | | | | | | | | * | | | | | | | | |
| FGI 41W206 | Forage Genetics Int'l | n/r | 4 | HR | HR | HR | HR | HR | R | n/r | HR | HR | | | | | | | | | | | | | | | | | | | | |
| FGI 4S42 | Forage Genetics Int'l | 2.0 | 4 | HR | HR | HR | HR | HR | R | n/r | HR | n/r | | | | | | | | | | * | * | | | | | | | | | |
| FSG 406 | Allied Seed | 1.0 | 4 | HR | HR | HR | HR | R | R | n/r | R | R | | | | | | | | | | | | | | | | | | | | |
| FSG 408 DP | Allied Seed | 2.0 | 4 | HR | HR | HR | HR | n/r | R | n/r | R | HR | | | | | | | | | | | | | | | | | | | | * |
| FSG 505 | Allied Seed | 3.0 | 4 | HR | HR | HR | HR | n/r | R | n/r | R | R | | | | | | | | | | | | * | | | | | | | | ** |
| Genoa | Syngenta | 1.0 | 4 | HR | HR | HR | HR | n/r | R | n/r | R | R | | | | | | | | | | | | | | | | | | | | |
| HybriForce 420/Wet | Dairyland Seed Co. | 1.9 | 4 | HR | HR | HR | R | R | R | n/r | HR | HR | | | | | | | | | | | | | | * | * | * | | | | * | |
| Legend | Arkansas Valley Seed Solutions | 3.0 | 4 | HR | HR | HR | HR | LR | R | n/r | MR | n/r | | | | | | | | | | | | | | | | | | * | | * | |
| msSunstra 507 | Dairyland Seed Co. | 2.0 | 4 | HR | HR | HR | R | n/r | n/r | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| Rebound 5.0 | Croplan Genetics | 2.0 | 4 | HR | HR | HR | HR | R | R | n/r | R | R | | | | | | | | | | | | | | | | | | | | |
| Reward II | Producer's Choice/PGI Alfalfa | 2.4 | 4 | HR | HR | HR | R | R | R | R | R | n/r | | | | | | | | | | | | | | ** | ** | * | | * | | * | |
| Select | IFA/Curtis and Curtis | 2.7 | 4 | HR | HR | HR | HR | R | R | MR | HR | R | | | | | | | | | | | | * | | | | | | | | |
| WL335HQ | WL Research | 2.0 | 4 | HR | HR | HR | HR | R | R | R | R | R | | | | | | | | | | | | * | | | | | | | | |
| XTRA-3 | Union Seed Co. | n/r | 4 | HT | HR | HR | HR | R | HR | R | HR | n/r | | | | | | | | | | | | | | | | | | | * | |
| 6530 | Garst Seed Co. | 2.6 | 5 | HR | HR | HR | HR | n/r | HR | n/r | R | n/r | | | | | | | | | | | | | | * | * | * | | | | * | |
| 55H05 | Pioneer HiBred Int'l | n/r | 5 | R | HR | R | HR | HR | HR | HR | HR | n/r | | | | | | | | | | | * | * | | | | | | | | |
| 5-Star | Croplan Genetics | 3.0 | 5 | R | R | HR | R | R | R | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| AA 205 W | America's Alfalfa | 5.0 | 5 | R | HR | R | R | R | R | R | HR | HR | | | | | | | | | | | | | | | | | | | | |
| AA 206 W | America's Alfalfa | 4.0 | 5 | n/r | HR | HR | n/r | HR | n/r | n/r | R | HR | | | | | | | | | | | | | | | | | | | | * |
| Archer II | America's Alfalfa | 4.0 | 5 | R | R | HR | HR | HR | MR | HR | HR | R | | | | | | | | | | | | | | * | * | * | | * | | * | * |
| DKA50-18 | Monsanto | 1.8 | 5 | H | HR | HR | HR | R | R | n/r | R | n/r | | | | | | | | | | | | | | | | | | | | |
| Escalade | Allied Seed | 2.0 | 5 | HR | HR | R | R | MR | R | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| Expedition | Syngenta | 2.0 | 5 | R | HR | HR | R | R | R | n/r | n/r | n/r | | | | | | | | | | * | * | | | | | | | | | |
| Mountaineer 2.0 | Croplan Genetics | 2.0 | 5 | HR | HR | HR | HR | R | HR | n/r | HR | R | | | | | | | | | | | | * | | | | * | * | | * | |
| MPO4 | Great Plains Research | n/r | 5 | HR | HR | HR | HR | HR | HR | HR | R | n/r | | | | | | | | | | | | | | | | * | | | | | |
| Phoenix | Allied Seed | 4.0 | 5 | HR | HR | HR | HR | n/r | HR | n/r | n/r | n/r | | | | | | | | | | | | * | | | | | | | | |
| Ruccus | Target Seed | 4.1 | 5 | R | HR | HR | MR | R | R | MR | R | HR | | | | | | | | | | | | | | | | | | | | |
| WL357HQ | WL Research | 2.0 | 5 | HR | HR | HR | HR | R | R | R | R | MR | | | | | | | | | | * | * | * | * | * | * | * | | | * | * |
| 56S82 | Pioneer HiBred Int'l | 5.0 | 6 | HR | HR | HR | HR | HR | HR | HR | HR | HR | * | | | * | | | | | | * | | * | | | | | | | | |
| 60M1053 | Forage Genetics Int'l | n/r | 6 | Hr | HR | HR | HR | HR | n/r | R | HR | HR | | | | ** | * | | | | | | | | | | | | | | | |
| DS266HYB | Dairyland Seed Co. | 2.4 | 6 | n/r | HR | HR | n/r | n/r | n/r | n/r | n/r | n/r | ** | | * | | | | | | | | | | * | * | * | | | | | |
| HybriForce 600 | Dairyland Seed Co. | 3.0 | 6 | HR | HR | HR | R | n/r | HR | n/r | R | n/r | * | | * | | | | | | | | | | * | * | ** | | | | | |
| NC+ 605 | NC+ Hybrids | 3.0 | 6 | R | HR | HR | R | HR | HR | R | R | R | | | | | | | | | | * | ** | * | | | | | | | | |
| SW6330 | S & W Seeds | n/r | 6 | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | | | | * | ** | | | | | * | | | | | | | | | | |
| Tango | Eureka Seeds | 4.0 | 6 | HR | HR | HR | HR | HR | HR | R | R | R | | | | | | | | | | | | * | | | | | | | | |
| Wilson | New Mexico State University | n/r | 6 | R | n/r | R | n/r | MR | R | n/r | MR | n/r | | | | | | * | * | * | * | | | ** | * | * | * | ** | * | | * | |

Table 13. Characteristics and performance of alfalfa varieties across years and tests in New Mexico.

| Variety | Proprietor | Varietal Characteristics[1] | | | | | | | | | | | Las Cruces | | | Artesia | | | | | | Clovis | | Tucumcari | Los Lunas | | | | Farmington | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pest resistance | | | | | | | | | 2003[2] | | | 2004 | | | | | | 2004 | | 2005 | 2003 | | | 05 | 2004 | | | 05 |
| | | | | | | | | | | | | | | | | d | | F | | L | | | | | | | | | | | |
| | | WS | FD | BW | PRR | FW | AN | SAA | PA | BAA | SN | RKN | 04[4] | 05 | 06 | 05 | 06 | 05 | 06 | 05 | 06 | 05 | 06 | 06 | 04 | 05 | 06 | 06 | 04 | 05 | 06 | 06 |
| 57Q75 | Pioneer HiBred Int'l | 5.0 | 7 | MR | HR | HR | HR | R | R | MR | R | R | | | | * | * | | | | | | | | | | | | | | | |
| AA 204 W | America's Alfalfa | 7.0 | 7 | R | R | HR | HR | HR | n/r | R | n/r | HR | | | | | | | | | | | | | | | | * | | | | * |
| AmeriLeaf 721 | America's Alfalfa | n/r | 7 | R | HR | HR | HR | HR | R | MR | MR | R | | | | * | * | | | | | * | * | | | | | | | | | |
| CW 704 | Producer's Choice/PGI Alfalfa | n/r | 7 | HR | HR | HR | HR | HR | HR | HR | HR | HR | | | | | | | | | | | | * | | | | | | | | |
| D93-70 | ABI Alfalfa | n/r | 7 | n/r | n/r | HR | n/r | n/r | n/r | n/r | n/r | n/r | | | | | | * | * | * | * | | | | | | | | | | | |
| Dona Ana | New Mexico State University | n/r | 7 | MR | R | MR | LR | MR | R | n/r | n/r | n/r | | | | * | | * | * | * | * | * | * | | | | | * | ** | | | |
| HybriForce 620 | Dairyland Seed Co. | n/r | 7 | n/r | HR | HR | n/r | n/r | n/r | n/r | n/r | n/r | | | | | | | | | | | | | * | * | * | | | | | |
| Medallion | Seed Resource | n/r | 7 | R | R | R | R | R | R | R | R | R | | | | | | | | | | * | * | | | | | | | | | |
| RSC 751 II | Roth Seed Co. | n/r | 7 | R | HR | HR | R | HR | R | HR | MR | MR | | | | | | | | | | | | | | | | | | | | |
| RSC 751, Lot N342-5A | Roth Seed Co. | n/r | 7 | MR | HR | HR | HR | MR | MR | MR | R | LR | | | | | | | | | | | | * | | | | | | | | |
| RSC 751, Lot N536-5A | Roth Seed Co. | n/r | 7 | MR | HR | HR | HR | MR | MR | MR | R | LR | | | | | | | | | | | | * | | | | | | | | |
| SW7410 | S & W Seeds | 2.4 | 7 | R | HR | MR | R | HR | R | R | MR | R | | | | * | * | | | | | | | | | | | | | | | |
| T1F02 | Great Plains Research | n/r | 7 | R | HR | HR | HR | R | HR | HR | R | MR | | | | | | | | | | | | | * | * | * | | | | | |
| ZG9989A | ABI Alfalfa | n/r | 7 | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| ZL9981 | ABI Alfalfa | n/r | 7 | MR | HR | HR | HR | HR | MR | R | n/r | n/r | | | | | | | | | | | | | | | | | * | | * | |
| 5715 | Pioneer HiBred Int'l | n/r | 8 | LR | R | HR | HR | HR | HR | HR | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| 13-R Supreme | America's Alfalfa | n/r | 8 | MR | HR | R | MR | R | R | MR | MR | R | | | | | | | | | | | | | | | | | | | | |
| 58N57 | Pioneer HiBred Int'l | n/r | 8 | LR | HR | R | HR | R | HR | HR | MR | HR | * | | * | | | | | | | | | | | | | | | | | |
| AmeriStand 801S | America's Alfalfa | n/r | 8 | R | HR | HR | R | HR | MR | HR | MR | HR | | | | | | | | | | | | | | | | | | | | |
| AmeriStand 802 | America's Alfalfa | n/r | 8 | HR | HR | HR | R | HR | HR | HR | R | HR | | | * | | | | | | | | | | | | | | | | | |
| CutMor | Union Seed Co. | 6.0 | 8 | LR | HR | HR | R | HR | HR | HR | R | R | | | | | | | | | | | | | | | | | | | | |
| DS8181 | Dairyland Seed Co. | n/r | 8 | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | * | | * | | | | | | | | | | | | | | | | | |
| Magna 801FQ | Dairyland Seed Co. | n/r | 8 | R | HR | HR | MR | HR | R | R | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| Mesa | Producer's Choice/PGI Alfalfa | 5.4 | 8 | MR | R | HR | n/r | HR | HR | R | R | R | | | | | | | | | | | | | | | | | | | | |
| SW8718 | S & W Seeds | n/r | 8 | R | HR | n/r | MR | HR | R | R | MR | R | | | | * | * | | | | | * | | | | | | | | | | |
| WL530HQ | WL Research | 5.0 | 8 | MR | HR | MR | HR | HR | HR | HR | R | n/r | * | | * | * | * | | | | | ** | * | | | | | | | | | |
| ZS9898 | ABI Alfalfa | n/r | 8 | HR | R | HR | R | HR | R | R | n/r | n/r | * | | * | | | | | | | | | | | | | | | | | |
| 59N49 | Pioneer HiBred Int'l | n/r | 9 | LR | HR | R | R | HR | HR | R | LR | HR | | | | | | | | | | | | | | | | | | | | |
| WL625HQ | WL Research | 6.0 | 9 | MR | HR | HR | n/r | HR | HR | HR | R | HR | | | | * | * | | | | | | | | | | | | | | | |
| ZG9899B | ABI Alfalfa | n/r | 9 | n/r | HR | n/r | R | HR | n/r | R | n/r | n/r | | | | | | | | | | | | | | | | | | | | |
| ZS0300 | ABI Alfalfa | n/r | 9 | n/r | HR | HR | R | R | R | R | MR | R | | | | | | * | * | * | * | | | | | | | | | | | |
| Common, African | New Mexico grown, VNS | 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, VNS | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | | | | | | * | * | * | * | | | * | | | | * | | | | |
| NM0302 | 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 | * | | | | | | | | | | | | | | | | | | | |
| NM0303 | 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 | | | | | | ** | ** | * | ** | | | | | | | | | | | |
| NM0304 | 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 | | | | | | | | | | | | | | | | | | | | |
| NM0305 | 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 | | | | | | | | | | | | | | | | | | | | |
| NM0306 | 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 | * | | ** | | * | * | * | * | * | | * | | | | | | | | | |
| NM0307 | 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 | * | | * | | * | * | * | * | * | | * | | | | | | | | | * |
| NM0308 | 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 | | | * | | | | | | | | | | | | | | | | | |
| NM0309 | 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 | * | | * | | | | | | | | | | | | | | | | | |
| NM0310 | 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 | | | * | | * | * | * | * | * | | | | | | | | | | | |
| NM0311 | 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 | | | * | | | * | * | ** | * | | | | | | | | | | | |
| NM0312 | 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 | | | | | | * | * | * | * | * | | | | | | | | | | |
| NM0313 | 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 | | | | * | * | * | | * | * | | | | | | | | | | | |
| NM0314 | 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 | | | | | | | | | | | | | | | | | | | | |
| NM0315 | 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 | | | | | | | | | | | | | | | | | | | | |

| Table 13. Characteristics and performance of alfalfa varieties across years and tests in New Mexico. | | Varietal Characteristics[1] | | | | | | | | | | | Las Cruces | | | Artesia | | | | | | Clovis | Tucumcari | Los Lunas | | | | Farmington | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pest resistance | | | | | | | | | 2003[2] | | | 2004 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | d | | F | | L | | 2004 | 2005 | 2003 | | | 05 | 2004 | | | 05 |
| Variety | Proprietor | WS | FD | BW | PRR | FW | AN | SAA | PA | BAA | SN | RKN | 04[4] | 05 | 06 | 05 | 06 | 05 | 06 | 05 | 06 | 05 | 06 | 06 | 04 | 05 | 06 | 06 | 04 | 05 | 06 | 06 |
| NM0316 | 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 | * | | | | | | | | | | | | | | | | | | | |
| WI643 | University of Wisconsin | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | n/r | * | | | | | | | | | | | | | | | | | | | |

[1]WS=Winter Survival (1=No injury, 6=Dead plants), FD=Fall Dormancy (2=Vernal, 3=Ranger, 4=Saranac, 5=Archer, 6=ABI 700, 7=Dona Ana, 8=Maricopa, 9-CUF101), 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 or Northern); (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.

[2]Establishment year.

[3]F=full irrigation, 40 inches; L=limited irrigation, 18 inches.

[4]Harvest 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.

L.M. Lauriault, I.M. Ray, C.A. Pierce, L.M. English, R.P. Flynn, M.A. Marsalis, and M.K. O'Neill. New Mexico St. Univ. College of Agric. and Home Ec. Agric. Exp. Stn and Coop. Ext. Ser.

**Table 14. New Mexico State University Cooperative Extension Service publications related to alfalfa management.**

| Number | Title | Online ? |
|---|---|---|
| A-107 | Managing saline soils | |
| A-113 | Selection of fertilizers | Y |
| A-114 | Test your soil | Y |
| A-122 | Soil test interpretations | Y |
| A-123 | Sampling for plant tissue analysis | |
| A-128 | Fertilizer guide for New Mexico | Y |
| A-128 | Nitrogen fixation by legumes | Y |
| A-130 | Inoculation of legumes | Y |
| A-131 | Certified seed | Y |
| A-133 | Calculating fertilizer costs | Y |
| A-134 | Selecting synthetic fertilizers in New Mexico | Y |
| A-18 | Micronutrient fertility guide | |
| A-216 | Know what is in a bag of seed | Y |
| A-309 | Alfalfa weevil and clover leaf weevil | |
| A-316 | Structure of a hay bale | |
| A-317 | Alfalfa fertilization in New Mexico | |
| A-318 | Reducing alfalfa harvest losses | Y |
| A-325 | Managing weeds in alfalfa | Y |
| A-327 | Introduction to hay testing | Y |
| A-328 | Sampling guidelines for hay testing | Y |
| A-329 | Variations in hay grading | Y |
| A-330 | Alfalfa growth stages | Y |
| A-331 | Alfalfa quality definitions | Y |
| B-115 | Balancing forage supply and demand | Y |
| CR-536 | Blister beetles in alfalfa | Y |
| CR-581 | Drought strategies for alfalfa | Y |
| CR-585 | Species selection and establishment for irrigated pastures in New Mexico | Y |
| CR-586 | Grazing systems and management for irrigated pastures in New Mexico | Y |
| CR-608 | Alfalfa hay grading and sampling for a quality product in New Mexico | Y |
| HB-11 | Suggestions for managing insects in alfalfa and clover 1996 | |
| W-01 | Submitting plants for plant tissue analysis | |
| W-13 | Alfalfa disease control | |

These publications, and alfalfa variety test reports from previous years, are available from your county office of the NMSU Cooperative Extension Service or online from the Internet at aces.nmsu.edu/pubs/