

**1998-1999**  
**Onion Variety Trials**  
**at New Mexico State University**



**Agricultural Experiment Station • Research Report # 739**  
**College of Agriculture and Home Economics**

## ACKNOWLEDGEMENTS

The authors would like to thank the following organizations and companies for their financial support of the 1998-1999 Onion Variety Trials at New Mexico State University.

New Mexico State University's Agricultural Experiment Station  
New Mexico Crop Improvement Association  
New Mexico Dry Onion Commission  
Seminis Vegetable Seeds, Inc.

The authors also would like to thank the following companies for their donation of seed for the 1998-1999 Onion Variety Trials at New Mexico State University.

Asgrow Vegetable Seeds  
D. Palmer Seed  
Petoseed  
Rio Colorado Seed  
Shamrock Seed Company  
Sunseeds

We would also like to thank Dr. Jim Fowler and the farm staff at the Fabian Garcia Research Center for their assistance with these trials. Finally, we would like to thank the students who worked on the planting, thinning, weeding, harvesting, and grading of these trials.

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# 1998-1999 Onion Variety Trials at New Mexico State University

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During the months of June and July, New Mexico produces more than 60% of the onions sold in the United States (U. S. Dept. Agric., 1999). New Mexico produces three separate onion crops that differ in their harvest times. The fall-planted crop is planted in September and October and harvested in May and June of the following year. The transplanted crop is transplanted in February and harvested in June of the following year. The spring-planted crop is planted in January to March and harvested in July. For each planting, separate cultivars must be used, because a single cultivar may have a harvest time of only two weeks. Continual harvest of onions from late May to early August is desired. Within each planting, several different cultivars must be grown because each crop harvest time may last 4 weeks. Also, cultivars differ in their dry scale colors that may be white, yellow, or red. Thus, numerous onion cultivars must be available and adapted to southern New Mexico growing conditions in order to provide continual harvest of white, yellow, and red onions from May to August.

Southern New Mexico possesses a unique environment for growing onions. Temperatures are warm enough during the winter season so that onions can be overwintered without substantial plant losses. Conversely, temperatures during the winter season are cold enough to induce premature flowering or bolting and yield loss of fall-planted cultivars unless bolting resistance is present. In addition, onions are harvested during the hottest months of the year - - June and July. Also in July, New Mexico receives a significant amount of precipitation that can make harvesting difficult, increase disease problems, and result in yield losses. For these reasons, cultivars that perform well in other regions of the United

States do not necessarily perform well in New Mexico. This study was initiated to evaluate cultivars and advanced breeding lines from the New Mexico State University Onion Breeding Program and from commercial sources for their adaptability to and performance under southern New Mexico growing conditions.

## MATERIALS AND METHODS

Three variety trial were initiated at the Fabian Garcia Research Center in Las Cruces, N.M. for 1999. Within each trial, entries were grouped based on approximate bulb maturity (early, intermediate, and late) for onions grown in southern New Mexico. Within each grouping, entries were arranged in a randomized complete block design with four replications per entry. Entries consisted of commercial cultivars, New Mexico State University (NMSU) cultivars, experimental commercial lines, and experimental NMSU lines. For the fall-planted trial, 29 entries were placed in the early maturing group (table 1); 13 entries were placed in the intermediate-maturing group (table 2); and seven entries were placed in the late-maturing group (table 5). 'NuMex Dulce' and 'NuMex Starlite' were placed in both the intermediate- and late-maturing groups. For the late-maturing group, 'NuMex Dulce' and 'NuMex Starlite' were used to compare with two, experimental, low-pungency lines (NMSU 97-19, NMSU 97-27) being developed at NMSU. For the transplant trial, 15 entries were placed in the early maturing group (table 7); 12 entries were placed in the intermediate-maturing group (table 9); and five entries were placed in the late-maturing group (table 11). For the spring planted trial, 30 entries were

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placed in the early maturing group (table 13); 10 entries were placed in the intermediate-maturing group (table 15); and 11 entries were placed in the late-maturing group (table 17).

All entries in the fall-planted variety trial were seeded on 15 Sept. 1998, and were thinned on 21 Nov. 1998 to 4 in. (10 cm) between plants. All entries for the transplant trial were seeded at the Fabian Garcia Research Center in Las Cruces, N.M. on 15 Oct. 1998, and were transplanted on 28 Jan. 1999. Transplants with three to four leaves were used. For each entry, transplants of the same relative size were grouped together and placed in the same plot. Transplant size within each plot was kept as uniform as possible. Some variation in transplant size for each entry may have existed between plots in different replications. In general, the largest transplants were placed in the first replication, while the smallest transplants were placed in the fourth replication. All entries for the spring-planted variety trial were seeded on 28 Jan. 1999, and were thinned on 25 Mar. 1999 to 4 in. (10 cm) between plants. For each trial, entries were seeded or transplanted into raised, shaped beds that were 8 ft (2.5 m) long and 40 in. (1 m) wide (center to center). The number of plants per plot for each trial ranged from 50 to 60. Differences in plant density between entries did not occur. Plots with less than 10 plants were not measured and were considered missing for statistical analysis.

All fields were managed in a similar fashion using standard cultural practices for producing onions in southern New Mexico (Corgan and Holland, 1990). The field used for the fall-planted and spring-transplant trial previously had two cover crop rotations (sudangrass and winter rye) since the previous onion crop. Before planting, 500 lbs triple superphosphate (0-48-0) per acre were applied to each field. Subsurface drip irrigation placed 4 in. (10 cm) deep was used with 18 in. (0.5 m) between emitters. Water was applied as needed. Uran (urea + ammonium nitrate) 32 (32-0-0-5) was applied at 20-30 ppm through the drip lines for a total of 200-250 lbs N per acre for the crop. Dacthal was applied preemergence for weed control. Subsequent weed control was conducted by hand. Trials were sprayed for thrips using a synthetic pyrethrin (Karate) as needed.

Before harvest, the date of maturity (80% of tops down) was estimated for each plot. All four replications of a particular entry were harvested when all of the plots exhibited 80% of the plants with their tops down (tables 1, 3, 5, 7, 9, 11, 13, 15, and 17). The number of plants with seedstalks was counted. The percentage of seedstalks, a measure of bolting, was calculated by dividing the number of plants with seedstalks by the total number of plants per plot. Seedstalk formation was not measured for entries tested in the early-maturing transplant trial (table 7) and entries tested in all maturity

groups of the spring-planted trial (tables 13, 15, and 17), because these entries produced very few seedstalks.

Once bulbs were removed from the ground, the total number of bulbs was counted. Twenty-five, randomly-selected bulbs per plot were rated for pink root incidence on their roots using a subjective rating of 1 (no pink roots) to 9 (heavily infected roots). After the pink root reading, bulb tops and roots were clipped. The basal plate of each bulb was cut transversely and the presence of *Fusarium* basal rot (FBR) was recorded. Bulbs infected with FBR remained at the plot and were not used in the calculation of bulb yield per plot. The presence of FBR was not recorded for entries tested in the early-maturing transplant trial, because the incidence of FBR was very low. Bulbs were placed in burlap sacks and were cured at field conditions for four days. After curing, the total bulb fresh weight was measured for each plot. Then bulbs were graded to remove culls (diseased bulbs, bulbs under 1.5 in. (3.8 cm) in diameter, split bulbs and double bulbs). The number of culls was subtracted from the total number of bulbs to yield the number of marketable bulbs per plot. The marketable bulbs per plot were weighed to measure the marketable fresh weight per plot. The percentage of marketable yield was calculated by dividing the marketable weight per plot by the total weight per plot. The number of sacks per acre was determined using marketable bulb weight per plot and approximately 40 in. (1 m) bed width (center to center) and 50 lbs (22.7 kg) per sack. The average bulb weight was calculated by dividing total marketable bulb weight by total marketable bulb number per plot. Bulbs were cut transversely at the vertical center. Then the number of bulbs with single growing points and multiple growing points within 0.5 in. (1.3 cm) from the center were counted.

The means for each trait over four replications were calculated for each entry and for the sum of entries within each group using the Proc Means statement of the SAS statistical software (SAS Institute, Cary, N.C.). Within each group, differences between entries were calculated for each trait using the Proc GLM statement of SAS. In addition, a protected Fisher's least significant difference (LSD) mean separation test was calculated at 5% for each trait using SAS.

## RESULTS

### Fall-planted Trial

The maturity date of entries in the early maturing, fall-planted trial ranged from 13 May 1999 (NMSU 98-12) to 2 June 1999 ('Lexus') (table 1). Several of the entries ('Chula Vista', 'Lexus', 'Linda Vista') matured later than in previous years. The percentage of seedstalks

varied among entries tested (table 1). Most NMSU and 'NuMex' entries exhibited a low percentage of seedstalks, while several commercial entries had 30-40% seedstalk production. The date chosen for the fall planting was 1 to 3 weeks earlier than the planting dates used by commercial growers in the area. The early planting date was used as a screening method for bolting resistance. The bolting percentage of some entries would be less with later planting dates. Pink root rating was generally good for most entries. However, 'Buffalo' was very susceptible to pink root (table 1). The incidence of Fusarium basal rot (FBR) was generally low for this maturity group. However, 'Buffalo', 'Linda Vista', and SSC 6455 exhibited more than 10% FBR incidence (table 1). The fields used for these trials have been used to grow onions annually for many years. As a result, incidences of pink root and Fusarium basal rot (FBR) are higher than levels observed in growers' fields. The results obtained from these trials are specific to this location, and results may differ in other locations. Also, since environmental conditions change from year to year, performance of the entries tested could change from year to year.

Most entries produced a high percentage of marketable bulbs. However, 'Buffalo', 'Chula Vista', 'Lexus', 'Linda Vista', 'NuMex Sweetpak', RCS 1006, RCS 5721, and RCX 3069-E produced a high percentage of unmarketable bulbs, mostly due to scale and bulb splits (table 2). The highest-yielding entries were 'Ibex', NMSU 97-6, NMSU 98-13-1, NMSU 98-15-1, NMSU 98-16, 'NuMex BR1', and RCX 5758 (table 2). 'Buffalo', 'Chula Vista', 'Linda Vista', and RCS 1006 produced less than desirable yields. Bulb size generally was large, with only 'Buffalo', NMSU 97-9, NMSU 98-12, and RCS 1006 producing small bulbs (table 2). The percentage of single centers varied from 15% (RCS 5721) to 78% (NMSU 98-15-1) (table 2). NMSU 98-12, NMSU 98-15-1, 'NuMex Sweetpak', and RCX 5763 produced greater than 60% single centers.

For the intermediate-maturing entries, maturity date ranged from 24 May 1999 to 10 June 1999 (table 3). NMSU 97-7 and RCX 6783 matured earlier than desired for this group and should be tested with the early-maturing entries in the future. Less bolting was observed for the intermediate-maturing entries than for the early-maturing entries (tables 1 and 3). 'Cardinal', NMSU entries, and 'NuMex' entries had the lowest percentage of seedstalks produced (table 3). A higher incidence of pink root was observed for the entries of the intermediate-maturing group than for the entries of the early maturing group (tables 1 and 3). NMSU 98-20, 'NuMex Crispy', and RCX 6783 expressed the least amount of pink root damage (table 3). In addition, the incidence of FBR was greater for the intermediate-maturing entries than for the early maturing entries. Within the intermediate-maturing group, FBR inci-

dence correlated with maturity date as earlier maturing entries generally exhibited less FBR than later maturing entries. The percentage of marketable bulbs produced by each entry generally was high, with RCX 5797-2 (70%) and 'NuMex Dulce' (77%) exhibiting the lowest percentage of marketable bulbs among the entries tested in this group (table 4). Yield and bulb size were excellent for entries in this maturity group (table 4). Entries averaged 1,238 sacks (50 lbs) per acre with an average bulb size of 16.3 oz. NMSU 98-20, 'NuMex Starlite', and RCX 6783 produced the greatest yield and the largest bulbs. The low yield and small bulb size of 'Cardinal' resulted from its high incidence of pink root (table 3). Entries in this group averaged 49% single centers, with 'NuMex Dulce' producing the highest percentage of single centers (72%) (table 4).

Among the late-maturing entries, maturity dates ranged from 5 June 1999 ('NuMex Dulce') to 25 June 1999 (NMSU 97-27 and 'NuMex Luna') with an average maturity date of 14 June 1999 (table 5). Seedstalk production varied among entries with a low of 0% ('NuMex Starlite') to a high of 55% (SSC 6095) (table 5). The pink root incidence of these entries generally was similar with an average rating of 4.1 (table 5). The FBR incidence was high with an average of 31% (table 5). 'NuMex Luna' and SSC 6095 had the highest FBR incidence. The FBR incidence of the late-maturing entries was greater than the incidence for either the early (table 1) or intermediate-maturing entries (table 3). The percentage of marketable bulbs for the late-maturing group averaged 80%, with 'NuMex Dulce' and 'NuMex Starlite' producing the highest percentage of marketable bulbs (table 6). In addition, 'NuMex Dulce' and 'NuMex Starlite' produced the highest yields and largest bulbs of entries in this group (table 6). NMSU 97-27 produced the highest yield of the latest maturing entries. The low yield of SSC 6095 resulted from a high production of seedstalks and a low percentage of marketable bulbs. The percentage of single centers for entries in this group was generally high with an average of 56% single centers (table 6).

## Transplant Trial

The maturity date of entries in the early maturing transplant trial ranged from 1 June to 23 June, with an average maturity date of 12 June (table 7). Many of the entries in this maturity group matured earlier than desired and would not be recommended for transplant use. Entries that matured earlier than 12 June would be competing with the harvest of fall-planted cultivars. The main goal of growing onion transplants in southern New Mexico is for harvest between the fall-planted and spring-planted crops. The pink root incidence generally was low for all entries in this group (table 7). All entries except 'Ibex' produced a high percentage of marketable

bulbs (table 8). Numerous entries produced a greater percentage of marketable bulbs as transplants (table 8) than as direct-seeded plants (table 2). Bulb yield and size varied greatly among entries (table 8). 'NuMex Dulce' produced the highest yield (1,382 sacks) and largest bulbs (15.1 oz), while NMSU 98-12 and 'Texas Early White' produced low yields of small bulbs. In general, bulb yield and size were greater when entries were grown as direct seeded plants (table 2), rather than as transplants (table 8). The percentage of single centers was highest for 'Daybreak' and 'Texas Early White', while NMSU 98-12 and 'Texas Grano 1025Y' produced very few single-centered bulbs (table 8).

Maturity of the entries in the intermediate-maturing transplant trial (table 9) were more desirable than that of the entries in the early maturing transplant trial (table 7). Maturity dates ranged from 28 June (NMSU 97-19) to 7 July ('Candy') with an average maturity date of 2 July (table 9). 'Candy', 'Cimarron', 'NuMex Casper', 'NuMex Jose Fernandez', and 'Utopia' produced more seedstalks than were desirable (table 9). All other entries produced less than 10% seedstalks. All entries possessed a very low incidence of pink root (table 9) and a high percentage of marketable bulbs (table 10). Bulb yield varied among entries, with NMSU 97-19, NMSU 97-27, NMSU 98-31, 'NuMex Jose Fernandez', and 'Utopia' producing the highest yields (table 10). 'NuMex Starlite' produced a lower yield in the intermediate maturity trial (table 10) than in the early maturity trial (table 8). This reduction in yield resulted from fewer plants per plot for the intermediate maturity trial (table 10) than for the early maturity trial (table 8). In addition, 'NuMex Starlite' produced the smallest bulbs and the lowest percentage of single-centered bulbs, while 'NuMex Jose Fernandez' produced the largest bulbs and the highest percentage of single-centered bulbs (table 10).

For the late-maturing transplant trial, maturity dates ranged from 6 July (NMSU 98-28) to 27 July ('Armada'), with an average maturity of 14 July (table 11). The earliest maturing entries (NMSU 98-28, 'NuMex Centric') should be grouped with the intermediate maturity group, while the latest maturing entry ('Armada') should be removed from future transplant trials. NMSU 98-28, NMSU 98-29, and 'NuMex Centric' produced a high percentage of seedstalks that were undesirable (table 11). 'Armada' had a high incidence of both pink root and FBR (table 11). Other entries exhibited acceptable levels of pink root and FBR. All entries produced a high percentage of marketable bulbs (table 12). NMSU 98-33 and 'NuMex Centric' produced the highest bulb yields, while NMSU 98-29 and NMSU 98-33 produced the largest bulbs (table 12). A high percentage of seedstalks (table 11) reduced the bulb yield of NMSU 98-28 and NMSU 98-29 (table 12) while a high incidence of FBR (table 11) reduced the yield of 'Armada'

(table 12). Generally, the percentage of single centers for entries in this group was high with an average of 60% (table 12). NMSU 98-33 and 'NuMex Centric' had the highest percentage of single centers.

### Spring-planted Trial

For entries in the early maturing trial, maturity date ranged from 13 July to 29 July, with the average maturity date of 23 July (table 13). Several of the later maturing entries in this group could be tested with the intermediate-maturing entries in the future. The incidence of pink root varied greatly with a low of 2.9 (PX10495), a high of 6.9 (RCS 4531-14), and a mean of 4.6 (table 13). The FBR incidence was low to moderate with most entries ranging from 5% to 20% (table 13). 'NuMex Jose Fernandez', PX10495, and SSC 6605 expressed a low FBR incidence (< 5%), while RCX 880, SSC 6607, and SSC 9965-99 expressed high FBR levels (> 20%). All entries except 'NuMex Luna' and RCS 6220 produced a high percentage of marketable bulbs (table 14). The number of sacks produced per acre varied greatly between entries (table 14). 'NuMex Bolo' and 'NuMex Jose Fernandez' produced the greatest yields, while RCX 6220, RCX 8800, SSC 6607, and SSC 9965-99 produced the lowest yields. Bulb size ranged from 6.6 oz (RCS 6220) to 13.4 oz ('NuMex Jose Fernandez' and 'Rio Gigante'), with a mean size of 10.3 oz (table 14). In general, bulb size of entries in this trial was smaller than bulb size of entries tested in the fall-planted (tables 2, 4, and 6) or transplanted trials (tables 8, 10, and 12). The percentage of single centers was high for most entries with an average of 57% single centered bulbs (table 14). NMSU 98-26-1, NMSU 98-30, 'NuMex Bolo', RCS 6220, RCX 3868, RCX 3872-2, RCX 8800, and SSC 6607 possessed the highest percentage of single-centered bulbs, while 'NuMex Luna' exhibited the lowest percentage of single-centered bulbs.

Maturity of entries in the intermediate-maturing group ranged from 22 July (RCX 6735) to 4 Aug. (RCX 3879-2), with an average maturity date of 29 July (table 15). The incidence of pink root was moderate for most entries in this group (table 15). NMSU 98-28 and 'NuMex Casper' had a lower incidence of pink root than other entries. The FBR incidence was low for most entries. However, 'Candy', RCX 3879-2, RCX 3882-2, and RCX 6735 exhibited a FBR incidence greater than 10% (table 15). All entries in this group produced a high percentage of marketable bulbs (table 16). NMSU 98-31, RCX 3882-2, and 'Utopia' produced the greatest bulb yield of these entries, while the average yield was about 1,000 sacks per acre (table 16). RCX 6735 produced a less-than-desirable yield for this group. Bulb size generally was large for this group. However, RCX 6735 produced small bulbs (table 16). The percentage of single centers generally was moderate to high with

'NuMex Casper' (84.3%) and RCX 6735 (79.1%) possessing the highest percentage of single centers (table 16).

Among the late-maturing entries, maturity dates ranged from 27 July ('Tara') to 16 Aug ('Mesquite'), with an average maturity date of 5 Aug. (table 17). 'Tara' should have been grouped with the intermediate-maturing entries. Pink root incidence was moderate to high for most of the entries in this group (table 17). The FBR incidence ranged from 4% (NMSU 98-33) to 29% ('Rumba'), with an average incidence of 12% (table 17). 'Frosty', 'Mesquite', PX10395, 'Rumba', and 'Tara' possessed undesirable FBR levels. The percentage of marketable bulbs produced per entry was generally high. However, 'Impala' and 'Rumba' produced a lower percentage of marketable bulbs than other entries in this group (table 18). NMSU 98-33, 'Riviera' and SSC 0685 produced the greatest yield while 'Frosty' and 'Rumba' produced the least yield of entries in this group (table 18). Bulb size generally was large for each entry. However, 'Frosty' and 'Rumba' produced smaller bulbs (table 18). The percentage of single centers for entries in

this group generally was moderate to high (table 18). 'Frosty', 'Mesquite', NMSU 98-33, and 'NuMex Centric' produced the highest percentage of single-centered bulbs, while PX10395, 'Riviera', and 'Rumba' produced the lowest percentage for entries in this group.

## LITERATURE CITED

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**Table 1. Fall-planted, early maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Seedstalks (%) <sup>w</sup>	Pink root <sup>v</sup>	Fusarium (%) <sup>u</sup>
Buffalo	Shamrock	25 May	23 May	1.7	6.1	30.8
Chula Vista	Petoseed	3 June	1 June	43.0	2.6	1.3
Daybreak	Shamrock	25 May	25 May	14.4	2.2	7.4
Don Victor	Rio Colorado	25 May	22 May	30.4	2.8	5.4
Excalibur	Rio Colorado	25 May	24 May	42.6	2.5	2.4
Ibex	Shamrock	25 May	24 May	0.8	3.1	1.6
Lexus	Petoseed	3 June	2 June	38.0	2.0	5.2
Linda Vista	Petoseed	3 June	1 June	42.0	3.3	12.9
NMSU 97-6	NMSU	25 May	24 May	0.0	2.7	0.9
NMSU 97-9	NMSU	25 May	24 May	0.6	2.8	5.8
NMSU 98-12	NMSU	14 May	13 May	4.1	1.4	2.6
NMSU 98-13-1	NMSU	25 May	24 May	0.4	2.2	2.5
NMSU 98-15-1	NMSU	25 May	25 May	0.5	2.3	1.4
NMSU 98-16	NMSU	25 May	24 May	1.4	4.1	1.3
NuMex BR1	NMSU	25 May	25 May	1.2	2.3	0.6
NuMex Mesa	NMSU	25 May	25 May	1.2	2.3	2.1
NuMex Sunlite	NMSU	3 June	31 May	4.4	3.2	4.5
NuMex Sweetpak	NMSU	25 May	23 May	21.8	3.1	5.1
RCS 1006	Rio Colorado	14 May	14 May	17.0	2.2	5.2
RCS 1908	Rio Colorado	25 May	23 May	23.5	3.8	6.0
RCS 5721	Rio Colorado	14 May	14 May	14.3	2.6	2.2
RCX 3069-E	Rio Colorado	14 May	12 May	3.2	1.7	0.5
RCX 5758	Rio Colorado	25 May	24 May	19.3	2.7	1.6
RCX 5763	Rio Colorado	14 May	13 May	8.1	1.6	1.0
RCX 5799	Rio Colorado	25 May	24 May	1.4	2.1	2.9
SSC 6200	Shamrock	25 May	25 May	20.4	4.5	2.4
SSC 6355	Shamrock	25 May	24 May	17.0	2.9	2.5
SSC 6455	Shamrock	25 May	24 May	27.4	4.0	15.4
Texas Early White	Petoseed	3 June	30 May	36.8	2.6	4.2
Mean			23 May	15.1	2.8	4.7
LSD (5%)			2 <sup>***</sup>	12.1 <sup>***</sup>	0.8 <sup>***</sup>	6.6 <sup>***</sup>

\*\*\*Significant at P = 0.001.

<sup>z</sup>All entries have yellow skin, except NMSU 97-9, NMSU 98-12, and 'Texas Early White' which have white skin, and NMSU 98-16 which has red skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>The percentage of seedstalks was determined at harvest and calculated by dividing the number of plants with seedstalks by the total number of plants per plot.

<sup>v</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>u</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.



**Table 2. Fall-planted, early maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Buffalo	Shamrock	76	723	13.8	55.2
Chula Vista	Petoseed	60	658	16.8	46.9
Daybreak	Shamrock	87	1418	15.8	50.3
Don Victor	Rio Colorado	92	1481	21.6	51.1
Excalibur	Rio Colorado	86	1078	17.8	40.0
Ibex	Shamrock	89	1711	15.1	43.7
Lexus	Petoseed	66	864	21.1	31.2
Linda Vista	Petoseed	74	767	18.3	17.3
NMSU 97-6	NMSU	90	1818	17.6	55.4
NMSU 97-9	NMSU	80	1019	12.7	37.3
NMSU 98-12	NMSU	83	1078	11.5	68.4
NMSU 98-13-1	NMSU	87	1682	17.2	50.3
NMSU 98-15-1	NMSU	92	1763	16.2	78.1
NMSU 98-16	NMSU	93	1631	15.2	39.0
NuMex BR1	NMSU	87	1630	15.9	40.4
NuMex Mesa	NMSU	83	1472	17.2	59.6
NuMex Sunlite	NMSU	90	1472	17.9	16.9
NuMex Sweetpak	NMSU	72	947	16.5	66.3
RCS 1006	Rio Colorado	39	435	9.4	45.1
RCS 1908	Rio Colorado	94	1479	20.1	48.4
RCS 5721	Rio Colorado	61	871	14.3	14.5
RCX 3069-E	Rio Colorado	59	1021	14.7	54.6
RCX 5758	Rio Colorado	84	1572	20.7	47.4
RCX 5763	Rio Colorado	87	1310	15.8	60.8
RCX 5799	Rio Colorado	79	1473	16.8	49.7
SSC 6200	Shamrock	81	1258	17.3	29.1
SSC 6355	Shamrock	78	1186	14.9	22.3
SSC 6455	Shamrock	79	855	16.0	24.0
Texas Early White	Petoseed	85	931	16.6	52.5
Mean		80	1232	16.4	44.7
LSD (5%)		13***	328***	3.0***	20.8***

\*\*\*Significant at P = 0.001.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

**Table 3. Fall-planted, intermediate-maturing, 1998-1999, onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Seedstalks (%) <sup>w</sup>	Pink root <sup>v</sup>	Fusarium (%) <sup>u</sup>
Cardinal	Shamrock	3 June	1 June	0.0	7.4	21.5
Caribou	Shamrock	3 June	2 June	9.5	3.3	31.0
NMSU 97-7	NMSU	25 May	24 May	0.0	4.5	3.6
NMSU 98-17-1	NMSU	3 June	3 June	1.0	3.0	15.4
NMSU 98-20	NMSU	8 June	6 June	3.7	1.9	12.8
NuMex Crispy	NMSU	8 June	4 June	2.8	2.4	15.0
NuMex Dulce	NMSU	15 June	10 June	2.3	4.7	21.0
NuMex Starlite	NMSU	8 June	3 June	0.0	3.9	16.8
NuMex Vado	NMSU	8 June	8 June	4.6	4.6	17.3
RCX 5797-2	Rio Colorado	8 June	3 June	26.6	3.7	13.6
RCX 6783	Rio Colorado	25 May	24 May	11.8	1.6	0.7
SSC 1014	Shamrock	3 June	31 May	26.2	5.0	13.7
SSC 6094	Shamrock	3 June	2 June	20.4	4.9	13.1
Mean			2 June	8.4	3.9	15.0
LSD (5%)			3***	6.8***	1.0***	9.9***

\*\*\*Significant at P = 0.001.

<sup>z</sup>All entries have yellow skin, except NMSU 98-20, 'NuMex Crispy', SSC 1014, and SSC 6094, which have white skin, and 'Cardinal', NMSU 97-7, and NMSU 98-17-1, which have red skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>The percentage of seedstalks was determined at harvest and calculated by dividing the number of plants with seedstalks by the total number of plants per plot.

<sup>v</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>u</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.

**Table 4. Fall-planted, intermediate-maturing, 1998-1999, onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Cardinal	Shamrock	85	764	10.2	27.2
Caribou	Shamrock	95	1138	15.2	53.5
NMSU 97-7	NMSU	87	1060	10.5	62.3
NMSU 98-17-1	NMSU	89	1267	15.2	61.5
NMSU 98-20	NMSU	93	1737	19.3	30.6
NuMex Crispy	NMSU	84	1242	13.8	49.9
NuMex Dulce	NMSU	77	1306	19.7	72.2
NuMex Starlite	NMSU	92	1608	20.4	53.0
NuMex Vado	NMSU	82	1179	17.3	46.6
RCX 5797-2	Rio Colorado	70	1150	23.4	48.7
RCX 6783	Rio Colorado	90	1820	20.1	61.8
SSC 1014	Shamrock	91	893	13.3	30.6
SSC 6094	Shamrock	87	906	13.4	32.1
Mean		86	1238	16.3	48.5
LSD (5%)		9***	275***	2.6***	16.1***

\*\*\*Significant at P = 0.001.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

**Table 5. Fall-planted, late-maturing, 1998-1999, onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Seedstalks (%) <sup>w</sup>	Pink root <sup>v</sup>	Fusarium (%) <sup>u</sup>
NMSU 97-19	NMSU	22 June	15 June	18.8	4.3	24.9
NMSU 97-27	NMSU	25 June	25 June	6.1	3.5	23.9
NMSU 98-97	NMSU	22 June	13 June	11.2	4.0	27.4
NuMex Dulce	NMSU	8 June	5 June	7.1	4.5	16.2
NuMex Luna	NMSU	25 June	25 June	3.8	3.6	40.3
NuMex Starlite	NMSU	8 June	7 June	0.0	4.5	13.1
SSC 6095	Shamrock	22 June	12 June	54.6	4.7	67.7
Mean			14 June	14.5	4.1	30.5
LSD (5%)			4***	11.0***	NS	12.9***

NS, \*\*\*Nonsignificant, significant at P = 0.001, respectively.

<sup>z</sup>All entries have yellow skin, except NMSU 98-97, which has white skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>The percentage of seedstalks was determined at harvest and calculated by dividing the number of plants with seedstalks by the total number of plants per plot.

<sup>v</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>u</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.

**Table 6. Fall-planted, late-maturing, 1998-1999, onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
NMSU 97-19	NMSU	77	1004	19.8	58.5
NMSU 97-27	NMSU	86	1272	20.0	68.4
NMSU 98-97	NMSU	85	827	14.4	64.7
NuMex Dulce	NMSU	90	1612	20.4	65.7
NuMex Luna	NMSU	77	907	20.4	36.3
NuMex Starlite	NMSU	90	1786	23.9	41.4
SSC 6095	Shamrock	57	311	23.0	57.0
Mean		80	1103	20.3	55.8
LSD (5%)		11***	269***	NS	20.4*

NS, \*, \*\*\*Nonsignificant, significant at P = 0.05 and P = 0.001, respectively.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

**Table 7. Transplanted, early maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Pink root <sup>w</sup>
Caribou	Shamrock	24 June	18 June	3.1
Chula Vista	Petoseed	3 June	2 June	1.3
Daybreak	Shamrock	3 June	2 June	1.7
Ibex	Shamrock	24 June	16 June	4.0
Linda Vista	Petoseed	15 June	14 June	1.6
NMSU 98-12	NMSU	3 June	1 June	1.1
NMSU 98-15-1	NMSU	22 June	10 June	2.0
NuMex Dulce	NMSU	24 June	23 June	1.8
NuMex Mesa	NMSU	22 June	14 June	2.1
NuMex Starlite	NMSU	22 June	12 June	2.0
NuMex Sunlite	NMSU	15 June	13 June	1.7
NuMex Sweetpak	NMSU	15 June	12 June	1.7
Texas Early White	Asgrow	3 June	2 June	1.2
Texas Grano 1015Y	Asgrow	22 June	12 June	1.7
Texas Grano 1025Y	Asgrow	24 June	21 June	2.4
Mean			12 June	1.9
LSD (5%)			5 <sup>***</sup>	0.6 <sup>***</sup>

\*\*\*Significant at P = 0.001.

<sup>z</sup>All entries have yellow skin, except NMSU 98-12, and 'Texas Early White', which have white skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

**Table 8. Transplanted, early maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Caribou	Shamrock	88	726	11.3	18.0
Chula Vista	Petoseed	94	1033	10.4	42.0
Daybreak	Shamrock	93	918	9.3	68.9
Ibex	Shamrock	77	710	10.9	34.4
Linda Vista	Petoseed	88	1037	12.1	39.0
NMSU 98-12	NMSU	83	304	5.6	6.3
NMSU 98-15-1	NMSU	93	632	10.5	57.6
NuMex Dulce	NMSU	96	1382	15.1	44.8
NuMex Mesa	NMSU	95	1150	12.2	22.5
NuMex Starlite	NMSU	94	1123	12.3	17.6
NuMex Sunlite	NMSU	92	1161	12.5	39.2
NuMex Sweetpak	NMSU	93	909	11.5	56.3
Texas Early White	Asgrow	94	670	7.5	61.6
Texas Grano 1015Y	Asgrow	96	1110	12.1	31.2
Texas Grano 1025Y	Asgrow	91	873	12.0	13.3
Mean		91	919	11.0	37.3
LSD (5%)		6 <sup>***</sup>	231 <sup>***</sup>	2.4 <sup>***</sup>	18.5 <sup>***</sup>

\*\*\*Significant at P = 0.001.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

**Table 9. Transplanted, intermediate-maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Seedstalks (%) <sup>w</sup>	Pink root <sup>v</sup>
Candy	Petoseed	8 July	7 July	10.4	1.7
Cimarron	Sunseeds	1 July	30 June	15.1	2.1
NMSU 97-19	NMSU	1 July	28 June	0.5	2.0
NMSU 97-27	NMSU	1 July	30 June	0.0	1.6
NMSU 98-31	NMSU	8 July	3 July	1.2	1.6
NuMex Bolo	NMSU	8 July	5 July	7.2	1.7
NuMex Casper	NMSU	8 July	1 July	22.6	1.6
NuMex Dulce	NMSU	1 July	29 June	0.0	2.2
NuMex Jose Fernandez	NMSU	8 July	2 July	13.4	2.0
NuMex Luna	NMSU	8 July	3 July	0.0	2.1
NuMex Starlite	NMSU	1 July	1 July	2.0	1.7
Utopia	Asgrow	8 July	6 July	10.8	1.8
Mean			2 July	6.9	1.8
LSD (5%)			3***	8.7***	NS

NS, \*\*\*Nonsignificant, significant at P = 0.001, respectively.

<sup>z</sup>All entries have yellow skin, except 'NuMex Casper', which has white skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>The percentage of seedstalks was determined at harvest and calculated by dividing the number of plants with seedstalks by the total number of plants per plot.

<sup>v</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

**Table 10. Transplanted, intermediate-maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Candy	Petoseed	95	1191	16.6	37.9
Cimarron	Sunseeds	90	629	16.7	17.5
NMSU 97-19	NMSU	95	1400	15.1	45.7
NMSU 97-27	NMSU	90	1243	15.1	37.2
NMSU 98-31	NMSU	96	1540	18.6	46.6
NuMex Bolo	NMSU	91	776	18.4	47.3
NuMex Casper	NMSU	91	1056	16.6	41.7
NuMex Dulce	NMSU	94	1155	15.9	35.4
NuMex Jose Fernandez	NMSU	93	1252	21.5	67.1
NuMex Luna	NMSU	90	879	15.1	20.4
NuMex Starlite	NMSU	87	650	13.9	9.1
Utopia	Asgrow	95	1220	17.1	29.5
Mean		92	1083	16.7	35.6
LSD (5%)		NS	339***	2.6***	13.1***

NS, \*\*\*Nonsignificant, significant at P = 0.001, respectively.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

**Table 11. Transplanted, late-maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Seedstalks (%) <sup>w</sup>	Pink root <sup>v</sup>	Fusarium (%) <sup>u</sup>
Armada	Asgrow	28 July	27 July	10.0	5.6	28.7
NMSU 98-28	NMSU	8 July	6 July	44.5	1.3	14.9
NMSU 98-29	NMSU	16 July	15 July	64.5	2.5	2.8
NMSU 98-33	NMSU	16 July	15 July	2.4	4.0	7.8
NuMex Centric	NMSU	8 July	7 July	23.9	1.8	11.2
Mean			14 July	29.1	3.0	13.1
LSD (5%)			2 <sup>***</sup>	21.0 <sup>***</sup>	0.8 <sup>***</sup>	12.8 <sup>**</sup>

<sup>\*\*</sup>, <sup>\*\*\*</sup> Significant at P = 0.01 and P = 0.001, respectively.

<sup>z</sup>All entries have yellow skin, except NMSU 98-28 and NMSU 98-29, which have white skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>The percentage of seedstalks was determined at harvest and calculated by dividing the number of plants with seedstalks by the total number of plants per plot.

<sup>v</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>u</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.

**Table 12. Transplanted, late-maturing, 1998-1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Armada	Asgrow	93	582	17.6	57.6
NMSU 98-28	NMSU	91	776	15.7	43.3
NMSU 98-29	NMSU	90	658	20.9	59.2
NMSU 98-33	NMSU	95	1206	20.5	71.5
NuMex Centric	NMSU	96	1058	16.7	69.2
Mean		93	856	18.3	60.2
LSD (5%)		4 <sup>*</sup>	215 <sup>**</sup>	3.1 <sup>*</sup>	NS

NS, <sup>\*</sup>, <sup>\*\*</sup> Nonsignificant, significant at P = 0.05 and P = 0.01, respectively.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

**Table 13. Spring-planted, early maturing, 1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Pink root <sup>w</sup>	Fusarium (%) <sup>v</sup>
92-4010	Duane Palmer	29 July	26 July	4.5	6.3
Alabaster	Sunseeds	22 July	21 July	4.0	14.5
Aspen	Petoseed	29 July	26 July	4.3	17.7
Cimarron	Sunseeds	16 July	16 July	3.9	5.4
La Nina	Rio Colorado	29 July	26 July	4.3	4.8
Navigator	Rio Colorado	22 July	22 July	3.9	11.1
NMSU 98-26-1	NMSU	29 July	26 July	5.0	11.1
NMSU 98-30	NMSU	22 July	20 July	4.6	15.9
NuMex Bolo	NMSU	16 July	16 July	3.4	6.2
NuMex Jose Fernandez	NMSU	22 July	21 July	3.7	2.9
NuMex Luna	NMSU	29 July	27 July	5.1	5.8
PS10295	Petoseed	22 July	22 July	5.2	8.3
PX10495	Petoseed	16 July	15 July	2.9	1.9
PX 25294	Petoseed	22 July	22 July	4.4	11.9
RCS 4531-14	Rio Colorado	16 July	14 July	6.9	15.1
RCS 6220	Rio Colorado	22 July	21 July	5.5	16.1
RCX 3868	Rio Colorado	22 July	21 July	4.9	15.7
RCX 3872-2	Rio Colorado	16 July	16 July	6.0	8.4
RCX 8800	Rio Colorado	29 July	26 July	6.0	31.3
Rio Gigante	Rio Colorado	16 July	13 July	4.7	10.4
Spano	Sunseeds	29 July	24 July	4.5	19.1
SSC 0633	Shamrock	29 July	25 July	5.0	9.1
SSC 3359	Shamrock	29 July	24 July	5.2	15.6
SSC 6605	Shamrock	29 July	28 July	4.2	4.0
SSC 6606	Shamrock	29 July	26 July	4.8	15.5
SSC 6607	Shamrock	29 July	29 July	4.4	22.8
SSC 6608	Shamrock	29 July	29 July	4.1	12.5
SSC 7544	Shamrock	29 July	29 July	3.4	10.3
SSC 9965-97	Shamrock	29 July	28 July	5.1	13.1
SSC 9965-99	Shamrock	29 July	27 July	5.4	39.4
Mean			23 July	4.6	12.7
LSD (5%)			3 <sup>***</sup>	0.8 <sup>***</sup>	10.4 <sup>***</sup>

\*\*\*Significant at P = 0.001.

<sup>z</sup>All entries have yellow skin, except 'Alabaster', 'Aspen', 'La Nina', and PX 25254, which have white skin, and NMSU 98-26-1, NMSU 98-30, RCS 6220, and RCX 8800, which have red skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>v</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.

**Table 14. Spring-planted, early maturing, 1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
92-4010	Duane Palmer	91	1107	13.0	68.2
Alabaster	Sunseeds	87	674	9.4	29.7
Aspen	Petoseed	88	724	9.5	45.2
Cimarron	Sunseeds	93	967	10.5	46.2
La Nina	Rio Colorado	91	949	8.6	73.6
Navigator	Rio Colorado	93	1019	12.1	39.4
NMSU 98-26-1	NMSU	89	814	9.4	79.5
NMSU 98-30	NMSU	89	731	8.3	80.3
NuMex Bolo	NMSU	95	1238	10.9	78.4
NuMex Jose Fernandez	NMSU	94	1242	13.4	69.6
NuMex Luna	NMSU	81	674	9.8	11.6
PS10295	Petoseed	95	952	11.7	57.5
PX10495	Petoseed	93	916	11.7	38.3
PX25294	Petoseed	92	880	10.9	59.3
RCS 4531-14	Rio Colorado	94	706	9.7	69.7
RCS 6220	Rio Colorado	78	417	6.6	76.7
RCX 3868	Rio Colorado	89	753	11.9	79.2
RCX 3872-2	Rio Colorado	95	1028	11.2	73.2
RCX 8800	Rio Colorado	86	343	6.9	75.8
Rio Gigante	Rio Colorado	96	902	13.4	42.5
Spano	Sunseeds	94	988	12.6	28.2
SSC 0633	Shamrock	93	807	11.5	37.7
SSC 3359	Shamrock	92	882	10.3	37.1
SSC 6605	Shamrock	91	1058	10.1	46.5
SSC 6606	Shamrock	92	823	10.0	41.4
SSC 6607	Shamrock	89	568	9.4	77.6
SSC 6608	Shamrock	86	631	8.5	65.1
SSC 7544	Shamrock	89	879	10.3	62.0
SSC 9965-97	Shamrock	94	789	9.3	64.5
SSC 9965-99	Shamrock	90	410	8.4	59.7
Mean		91	829	10.3	56.9
LSD (5%)		7***	240***	1.8***	18.3***

\*\*\*Significant at P = 0.001.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.



**Table 15. Spring-planted, intermediate-maturing, 1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Pink root <sup>w</sup>	Fusarium (%) <sup>v</sup>
Candy	Petoseed	5 Aug.	2 Aug.	5.7	17.1
Dawn	Shamrock	29 July	28 July	4.4	6.9
NMSU 98-28	NMSU	29 July	27 July	2.5	8.7
NMSU 98-31	NMSU	5 Aug.	1 Aug.	5.2	5.5
NuMex Casper	NMSU	29 July	27 July	2.6	8.9
RCX 1884	Rio Colorado	29 July	28 July	4.0	6.0
RCX 3879-2	Rio Colorado	5 Aug.	4 Aug.	5.8	12.6
RCX 3882-2	Rio Colorado	5 Aug.	31 July	5.8	19.8
RCX 6735	Rio Colorado	23 July	22 July	5.4	12.9
Utopia	Asgrow	29 July	27 July	5.0	6.6
Mean			29 July	4.6	10.5
LSD (5%)			3***	0.9***	6.8**

\*\* , \*\*\* Significant at P = 0.01 and P = 0.001, respectively.

<sup>z</sup>All entries have yellow skin, except NMSU 98-28 and ‘NuMex Casper’, which have white skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>v</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.

**Table 16. Spring-planted, intermediate-maturing, 1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Candy	Petoseed	82	780	11.9	40.5
Dawn	Shamrock	92	954	9.4	41.0
NMSU 98-28	NMSU	93	1067	10.7	53.9
NMSU 98-31	NMSU	89	1213	13.7	47.3
NuMex Casper	NMSU	88	950	10.0	84.3
RCX 1884	Rio Colorado	92	1080	12.3	63.5
RCX 3879-2	Rio Colorado	94	1064	12.9	37.7
RCX 3882-2	Rio Colorado	95	1155	14.4	54.2
RCX 6735	Rio Colorado	85	365	6.5	79.1
Utopia	Asgrow	92	1313	11.6	50.8
Mean		90	994	11.3	54.0
LSD (5%)		7*	191***	2.6***	18.6***

\* , \*\*\* Significant at P = 0.05 and P = 0.001, respectively.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb’s center.

**Table 17. Spring-planted, late-maturing, 1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry <sup>z</sup>	Seed source	Harvest date <sup>y</sup>	Maturity date <sup>x</sup>	Pink root <sup>w</sup>	Fusarium (%) <sup>v</sup>
Frosty	Palmer Seed	5 Aug.	14 Aug.	5.0	13.3
Impala	Shamrock	5 Aug.	1 Aug.	6.2	9.2
Mesquite	Palmer Seed	5 Aug.	16 Aug.	5.3	11.6
NMSU 98-29	NMSU	5 Aug.	12 Aug.	4.1	9.0
NMSU 98-33	NMSU	5 Aug.	2 Aug.	5.8	4.1
NuMex Centric	NMSU	5 Aug.	2 Aug.	5.4	8.9
PX10395	Petoseed	5 Aug.	2 Aug.	5.8	14.8
Riviera	Asgrow	5 Aug.	2 Aug.	5.4	8.2
Rumba	Sunseeds	5 Aug.	4 Aug.	6.2	29.2
SSC 0685	Shamrock	5 Aug.	6 Aug.	5.6	6.4
Tara	Rio Colorado	29 July	27 July	5.0	19.4
Mean			5 Aug.	5.4	12.2
LSD (5%)			4 <sup>***</sup>	0.9 <sup>*</sup>	11.4 <sup>*</sup>

<sup>\*</sup>, <sup>\*\*\*</sup>Significant at P = 0.05 and P = 0.001, respectively.

<sup>z</sup>All entries have yellow skin, except 'Frosty' and NMSU 98-29, which have white skin, and 'Rumba', which has red skin.

<sup>y</sup>An entry was harvested when all four replications had 80% of their tops down within the plot.

<sup>x</sup>A plot was considered matured when 80% of the tops were down.

<sup>w</sup>Pink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

<sup>v</sup>Percentage of bulbs with Fusarium basal rot (FBR). The basal plate of each bulb was transversely cut to reveal the presence or absence of FBR.

**Table 18. Spring-planted, late-maturing, 1999 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.**

Entry	Seed source	Marketable yield (%) <sup>z</sup>	Sacks/acre (number) <sup>y</sup>	Average bulb weight (oz) <sup>x</sup>	Single centers (%) <sup>w</sup>
Frosty	Palmer Seed	83	584	9.1	74.8
Impala	Shamrock	72	663	9.9	57.1
Mesquite	Palmer Seed	88	974	12.9	77.8
NMSU 98-29	NMSU	82	983	13.9	60.6
NMSU 98-33	NMSU	92	1166	11.7	70.9
NuMex Centric	NMSU	83	1021	13.8	68.2
PX10395	Petoseed	93	1092	11.3	43.4
Riviera	Asgrow	87	1211	13.1	39.1
Rumba	Sunseeds	66	314	7.0	34.3
SSC 0685	Shamrock	89	1154	11.9	50.5
Tara	Rio Colorado	90	990	12.7	54.2
Mean		84	923	11.6	57.4
LSD (5%)		9 <sup>**</sup>	196 <sup>***</sup>	2.4 <sup>***</sup>	16.2 <sup>***</sup>

<sup>\*\*</sup>, <sup>\*\*\*</sup>Significant at P = 0.01 and P = 0.001, respectively.

<sup>z</sup>Percentage of marketable yield was calculated by dividing marketable bulb weight by total bulb weight.

<sup>y</sup>Number of 50 lb sacks produced per acre was calculated by weighing the marketable bulbs per plot and adjusting the plot size to one acre.

<sup>x</sup>Average bulb weight was calculated by dividing the marketable bulb weight by the number of marketable bulbs.

<sup>w</sup>The percentage of bulbs with single centers (single growing points) was determined by cutting each bulb transversely at the vertical center and measuring the number of growing points that extended 0.5 in. beyond the bulb's center.

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