

2000-2001 Spring-planted Onion Cultivar Trials at New Mexico State University

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Materials and Methods

- Fourteen entries were placed in the early maturing group (table 11); five entries were placed in the intermediate-maturing group (table 13); and five entries were placed in the late-maturing group (table 15).
- Seeded Jan. 26, 2001 . Thinned on Feb. 23, 2001 to 4 in. (10 cm) between plants.
- Plots were 8 ft (2.5 m) long and 40 in. (1 m) wide (center to center).
- R CBD within maturity group. 4 replications per entry.
- Standard cultural practices used.
- All four replications of a particular entry were harvested when all of the plots exhibited 80% of the plants with their tops down.
- Traits measured: bulb maturity date, number of seedstalks, pink root incidence, Fusarium basal rot (FBR) incidence, number of bulbs per plot, weight of bulbs per plot, number of marketable bulbs, weight of marketable bulbs, number of bulbs with single growing points.
- Percentage of seedstalks: Number of seedstalks divided by number of plants.
- Pink root rating: 25 bulbs rated on 1 (no infected roots) to 9 (all infected roots) scale.
- Percentage of Fusarium basal rot: Basal plate cut for each bulb. Presence or absence of disease recorded. Expressed as percentage of total bulbs.
- Percentage of marketable yield: Marketable bulb weight divided by total bulb weight.
- Marketable yield: Weight of marketable bulbs per plot converted to per hectare.
- Average bulb weight: Marketable bulb weight divided by marketable bulb number.
- Percentage of single centers: Bulbs cut transversely at vertical center. Single growing point or multiple growing points within 2 cm from center of bulb considered single center.
- Means per entry and all entries within each maturity group. Trait differences between entries using ANOVA. Fisher's least significant difference (LSD) mean separation test at 5% level.

Results

Early maturing entries (Table 11)

- Approximate bulb maturity ranged from 27 June 2001 to 10 July 2001.
- Pink root severity was generally low among entries . 'Hidalgo', HSO 102, and 'Stansa' had more severe pink root symptoms than other entries (table 11).
- Fusarium basal rot (FBR) severity and incidence was low among entries (table 11).
- The percent marketable yield was high for all entries except 'Hidalgo'.
- Bulb yield and size was variable among entries.
- Entries were variable for the single centered bulb percentage.

Intermediate maturing entries (Table 13)

- The average maturity of the intermediate maturing, spring-seeded entries was July 12, 2001 (table 13).
- Pink root severity was low among entries (2.0) while pink root incidence was variable among entries (table 13).
- Fusarium basal rot (FBR) severity was low for all entries and FBR incidence was low for all entries except 'Candy' (16.0%) (table 13).
- The percentage of marketable bulbs was very high (99%) with several entries producing 100% marketable bulbs.
- Marketable bulb yield and bulb size were variable among entries.
- The percentage of single centered bulbs was high for most entries with an average of 72% single centered bulbs.

Late maturing entries (Table 15)

- The average maturity of the intermediate maturing, spring-seeded entries was July 21, 2001 (table 15).
- Pink root severity and incidence were variable among entries (table 15).
- Fusarium basal rot (FBR) incidence was generally low for all entries (7.4%) except for 'NuMex Centric' and 'NuMex Snowball' (table 15).
- The percent marketable yield was high for all entries.
- Marketable bulb yield was generally high among entries with 'NuMex Snowball' producing the lowest yield.
- Average bulb size was variable among entries with 'NuMex Centric' producing larger bulbs.
- The percentage of single centered bulbs was generally high for entries (70.4%) with 'Riviera' being the one exception (43.0%).

Table 11. Spring seeded, early maturing, 2000-2001 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.

Entry ^a	Seed source	Harvest date ^b	Maturity date ^c	Plants/plot	Pink root ^d	Pink root (%) ^e	Fusarium ^f	Fusarium (%) ^g
Caballero	Seminis	July 3	July 4	41	2.1	67.0	1.3	8.0
Cimarron	Seminis	June 29	June 29	49	1.5	47.0	1.3	14.0
Expresion	Bejo	July 3	July 4	44	1.7	52.0	1.0	1.0
Hidalgo	Bejo	July 27	July 29	40	3.1	100.0	1.3	8.0
HSO 102	Emerald	July 13	July 8	38	3.4	99.0	1.6	21.0
Musica	Bejo	July 3	July 2	48	2.4	86.0	1.0	2.0
Navigator	Seminis	July 3	July 2	43	2.2	78.0	1.1	5.0
NuMex Bolo	NMSU	June 29	June 28	50	1.4	37.0	1.2	9.0
NuMex Jose Fernandez	NMSU	July 2	July 2	47	1.9	61.0	1.2	17.0
NuMex Luna	NMSU	July 3	June 29	46	2.6	93.0	1.0	0.0
PS 9502	Seminis	June 29	June 27	42	1.8	54.0	2.0	29.0
REZ 200	Seminis	July 13	July 10	49	1.9	61.0	1.2	7.0
Sierra Blanca	Seminis	July 3	July 2	42	2.7	92.0	1.1	3.0
Stansa	Bejo	July 3	July 2	41	3.2	100.0	1.3	7.0
Mean			July 4	44	2.3	73.4	1.3	9.4
LSD (5%)			4 ^{***}	7 [*]	0.5 ^{***}	20.3 ^{***}	0.4 ^{***}	14.9 [*]

^a***Significant at $P = 0.05$, $P = 0.001$, respectively.

^bAll entries have yellow skin, except 'Sierra Blanca', which has white skin.

^cAn entry was harvested when all four replications had 80% of their tops down within the plot.

^dA plot was considered matured when 80% of the tops were down.

^ePink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

^fPercentage of bulbs with pink root.

^gFusarium basal plates rot rating. Cut basal plates were rated based on a scale of 1 (no disease tissue) to 9 (70% or more of basal plate decayed).

^hPercentage of bulbs with Fusarium basal plate rot (FBR). The basal plate of each bulb was cut transversely to reveal the presence or absence of FBR.



Caballero



Cimarron



Navigator



NuMex Bolo



NuMex Jose Fernandez



Sierra Blanca

Table 13. Spring seeded, intermediate maturing, 2000-2001 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.

Entry ^a	Seed source	Harvest date ^b	Maturity date ^c	Pink root ^d	Pink root (%) ^e	Fusarium ^f	Fusarium (%) ^g
Candy	Seminis	July 17	July 15	2.7	97.0	1.3	16.0
NMSU 00-28-1	NMSU	July 13	July 15	1.7	53.0	1.1	3.0
NMSU 00-31	NMSU	July 13	July 14	2.0	68.0	1.0	0.0
NuMex Casper	NMSU	July 3	July 3	1.3	30.0	1.1	5.0
Utopia	Seminis	July 13	July 13	2.2	79.0	1.1	4.0
Mean			July 12	2.0	65.4	1.1	5.6
LSD (5%)			2 ^{***}	0.5 ^{***}	25.1 ^{***}	NS	7.4 [*]

^aNS, **, ***Nonsignificant, significant at $P = 0.01$, $P = 0.001$, respectively.

^bAll entries have yellow skin, except NMSU 00-28-1 and 'NuMex Casper' which have white skin.

^cAn entry was harvested when all four replications had 80% of their tops down within the plot.

^dA plot was considered matured when 80% of the tops were down.

^ePink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

^fPercentage of bulbs with pink root.

^gFusarium basal plates rot rating. Cut basal plates were rated based on a scale of 1 (no disease tissue) to 9 (70% or more of basal plate decayed).

^hPercentage of bulbs with Fusarium basal plate rot (FBR). The basal plate of each bulb was cut transversely to reveal the presence or absence of FBR.



Candy



NuMex Casper



Utopia



NMSU 00-31



NMSU 00-28-1

Table 15. Spring seeded, late maturing, 2000-2001 onion cultivar trial results at Fabian Garcia Research Center in Las Cruces, N.M.

Entry ^a	Seed source	Harvest date ^b	Maturity date ^c	Plants/plot	Pink root ^d	Pink root (%) ^e	Fusarium ^f	Fusarium (%) ^g
NMSU 00-32	NMSU	July 27	July 27	43	3.4	100.0	1.1	3.0
NuMex Arthur	NMSU	July 13	July 14	49	2.1	67.0	1.1	1.0
NuMex Centric	NMSU	July 27	July 23	40	4.2	100.0	1.6	13.0
NuMex Snowball	NMSU	July 27	July 28	38	2.9	99.0	1.6	17.0
Riviera	Seminis	July 13	July 14	42	2.1	64.0	1.1	3.0
Mean			July 21	43	2.9	86.0	1.3	7.4
LSD (5%)			4 ^{***}	6 [*]	0.5 ^{***}	19.1 ^{***}	NS	11.3 [*]

^aNS, **, ***Nonsignificant, significant at $P = 0.05$, $P = 0.01$, $P = 0.001$, respectively.

^bAll entries have yellow skin, except 'NuMex Snowball', which has white skin.

^cAn entry was harvested when all four replications had 80% of their tops down within the plot.

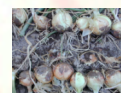
^dA plot was considered matured when 80% of the tops were down.

^ePink root rating. Root system of bulbs were rated based on a scale of 1 (no infected roots) to 9 (completely infected roots).

^fPercentage of bulbs with pink root.

^gFusarium basal plates rot rating. Cut basal plates were rated based on a scale of 1 (no disease tissue) to 9 (70% or more of basal plate decayed).

^hPercentage of bulbs with Fusarium basal plate rot (FBR). The basal plate of each bulb was cut transversely to reveal the presence or absence of FBR.



NuMex Arthur



NuMex Centric



NuMex Snowball

Recommendations

- 'Caballero', 'Cimarron', 'Navigator', 'NuMex Bolo', 'NuMex Jose Fernandez', and REZ 200 for early July maturity of yellow onions.
- 'Sierra Blanca' for early July maturity of white onions.
- 'Candy', NMSU 00-31, and 'Utopia' for mid-July harvest of yellow onions.
- NMSU 00-28-1 and 'NuMex Casper' for mid-July harvest of white onions.
- NMSU 00-32, 'NuMex Arthur', and 'NuMex Centric' for late July harvest of yellow onions.
- 'NuMex Snowball' for late July harvest of white onions.

Acknowledgements

We would like to thank 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 to plant, thin, weed, harvest, and grade the trials.

