

ONION ROW SPACING BY SEEDING RATE

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An experiment was conducted at the NDSU Carrington Research Extension Center in 2003 to evaluate the influence of row spacing and seeding rate on onion yield and quality. 'Teton' onions were planted May 2 in 9-inch single rows, 3-inch paired rows spaced nine inches apart, and 3-inch paired rows spaced 18 inches apart. Each row spacing was seeded at; 100,000, 133,000, 167,000, and 200,000 seeds/acre. Best management practices were used for fertility and weed, disease and insect control. The onion bulbs were lifted September 20, topped by hand and placed in bags on September 27, and cured in a forced air dryer.

The highest total yield was achieved with the 200,000 seeds/acre seeding rate while the 133,000 and 167,000 seeds/acre rates had the highest yield for bulbs three inches or greater in size (Table 1). The percentage of onion bulbs with single centers tended to increase as the seeding rate increased, likely due to a higher proportion of small bulbs. The number of onion bulbs at harvest was 14 percent to 25 percent lower than the actual seeding rate.

Table 1. Onion maturity and yield averaged over row spacing.

Seeding Rate seeds/A	Days to 1/2 down ^a	Yield					Total	Culls	# of bulbs 1000s/A	Single centers %
		<2.25"	2.25-3"	3-4"	4-4.5"	>4.5"				
100,000	134	5.8	49.3	481.9	82.8	11	630.8	18.5	80.71	37
133,000	129	13.5	108	617	42	0	780.5	7.9	114.43	38
167,000	125	15.4	109.3	649.4	8.1	0	782.2	0.5	124.5	54
200,000	124	25.9	216.6	576.9	11.2	0	830.6	2.7	150.73	65
LSD (0.05)	3	10	77.4	84.3	29.6	7.1	69.8	9.8	21.6	15

The 3-inch paired rows planted on 9-inch centers had the highest numerical total yield and also had the highest yield of bulbs three inches or greater in size (Table 2).

Table 2. Onion maturity and yield averaged over seeding rate.

Row Spacing	Days to 1/2 down ^c	Yield					Total	Culls	# of bulbs 1000s/A	Single centers %
		<2.25"	2.25-3"	3-4"	4-4.5"	>4.5"				
9-inch	130	19.3	106.1	589.0	37.1	4.4	755.9	13.6	117.2	43
9-inch PR ^a	127	15.0	128.8	635.2	18.8	0.2	798.1	4.6	125.4	54
18-inch PR ^b	128	11.0	127.6	519.7	52.2	3.3	713.8	4.0	110.2	48
LSD (0.05)	2	NS	NS	73.0	25.6	NS	60.4	8.5	NS	NS

^a3-inch paired row planted on 9-inch centers.

^b3-inch paired row planted on 18-inch centers.

^cAn indication of maturity.