

Onion Planting Configuration/Cover Crop Trial  
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**Objective:** Evaluate the effects of planting configuration and cover crops on the grade and yield of 'Teton' onion.

**Methods:** The trial was conducted at the Carrington Research/Extension Center near Carrington, ND. The soil is a silt loam with 3.2% O.M. and a pH of 7.8. The previous crop was wheat. Beds were 24 in. wide and 15 in. high. A 5-ft chisel plow was used to form 2 ridges with 16 in. row spacing. Seeds were planted at 104,000 seeds/A in two double rows, spaced 16 inches apart on May 17. A spade was used to simulate the action of a dammer-diker on July 11. The trial was arranged as a split plot with planting configurations as the main plots and cover crops as the sub-plots, replicated three times. Herbicide applications consisted of: 1.5 pt Prowl + 1.5 pt Buctril + 0.6 pt Goal (June 24) and Assure II at 10 oz/A + 1 % v/v crop oil concentrate (July 2). A second application of Buctril + Goal was applied on July 12 to 5.5 leaf onions and 24-inch tall, blooming canola. On October 8 the onions were pulled, topped, and cured in a forced air drier. The onions were graded October 14-15. Split and diseased bulbs were graded as culls regardless of diameter. Analysis of variance was used to analyze data with Fisher's protected LSD test ( $p > 0.05$ ) for treatment means separation.

**Results:** The center of each ridge was flattened by the planter press-wheels. This created a poor seedbed and resulted in reduced harvestable bulbs and total yield (Table 1). The canola cover crop also reduced the number of harvested bulbs and total yield due label application restrictions with Buctril and Goal (Table 2). Both herbicides cannot be applied to onions less than the 2-true leaf stage, which enabled the canola to grow beyond a controllable size. Raised beds produced more jumbo onions (3-4 in) than other planting configurations. The dammer-diker application increased jumbo onions and total yield, but the trend was not statistically significant.

*Table 1.* Effect of planting configuration on onion yield and grade averaged over cover crop treatments.

Planting Configuration	Yield				Culls	# of Bulbs
	<2 in	2 to 3 in	3 – 4 in	Total		
	----- cwt/A -----				----- 1000s/A -----	
Raised bed / dammer-diker	10.4	84.7	133.2	228.3	0.8	58
Raised bed	12.5	79.6	124.4	216.5	1.4	57
Flat ground / dammer-diker	30.0	107.6	74.3	211.9	0.8	67
Flat ground	28.3	107.1	65.7	201.1	0.2	65
Ridge till	13.6	74.3	72.0	159.9	0.2	44
LSD (0.05)	8.9	NS	33.2	44.0	0.6	11

*Table 2.* Effect of cover crops on onion yield and grade averaged over planting configuration treatments.

Cover Crop	Yield				Culls	# of Bulbs
	<2 in	2 to 3 in	3 – 4 in	Total		
	----- cwt/A -----				----- 1000s/A -----	
No cover	6.0	102.1	175.3	283.3	0.7	63
Barley	20.6	112.4	103.1	236.1	0.9	65
Canola	30.4	57.5	3.4	91.3	0.5	46
LSD (0.05)	8.9	24.8	25.7	34.0	NS	9