

Broccoli Cultivar Trial
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- Objective:** Evaluate cultivars for potential use under North Dakota Red River Valley conditions.
- Methods:** The trial was conducted at the NDSU agriculture experiment site in Fargo, ND. The soil is a silty clay with 6.8% O.M. and a pH of 7.2. The previous crop was oats. Ground was field cultivated once in the fall following a trifluralin (Treflan) application and twice in the spring, once immediately after 100lb N per acre urea application. Seeds were sown in 72-cell trays in the greenhouse March 22 and thinned to one seedling per cell at the first true leaf stage. Seedlings were hardened off before transplanting on 12-inch centers May 28. Plots consisted of a single 30-ft row with 30-inch row spacing arranged as a randomized complete block with four replications. Overhead sprinkler irrigation was provided as needed. Weed escapes were controlled by hand. Flea beetles and cabbage loopers were controlled as needed with either esfenvalerate (Asana XL) or permethrin (Pounce). Plots were harvested weekly by hand with six randomly selected heads used for yield and grade comparisons. Only primary heads were harvested. Analysis of variance was used to analyze data with Fisher's protected LSD test ($p > 0.05$) for treatment means separation.
- Results:** Head development was delayed for all cultivars by three heavy rainfall events of 2.5, 1.7, and 2.2 inches, respectively, on June 9, July 7, and July 10, which temporarily flooded the entire area. Windsor was the earliest maturing cultivar with harvest occurring 5 days before the others. Barbados, Legacy, and Titliest produced the highest head yields, while Laguna produced some of the best-looking heads in the trial. Plant and head characteristics from transplanted broccoli cultivar trial.

	Plant Height	Plant Width	Head Width	Head Color	Head Dens	Head Dome	Head Puff.	Head Weight	Stem Diam.	Stem Holl.	Bead Size	Bead Unif.	Leaf Pene	Overall	
<u>Harvest=1</u>	------(in)-----							(lb)			(%)				
Barbados	20.5	34.5	6.1	4.2	2.2	3.0	2.6	0.9	3.6	0.0	1.8	1.8	3.4	5.6	
General	14.8	29.1	5.4	4.2	2.5	3.4	2.0	0.7	4.1	0.0	2.2	1.9	3.4	5.3	
Laguna	15.7	44.4	5.6	5.0	2.7	4.4	2.2	0.8	4.0	0.0	2.0	2.4	2.8	6.4	
Legacy	18.1	32.8	5.7	4.5	2.8	2.9	2.2	1.0	3.9	0.0	2.1	2.2	3.5	5.7	
Majestic	23.8	35.4	6.0	4.0	2.8	4.1	2.5	0.9	4.0	0.0	1.9	2.1	4	5.7	
Titliest	18.5	35.7	5.3	3.2	2.8	2.3	1.9	0.9	4.2	0.0	2.0	1.9	3.6	5.2	
TSX-1	20.5	36.6	5.0	4.7	2.7	2.5	1.7	0.7	3.6	0.0	2.8	2.5	3	5.9	
Windsor	17.7	31.5	5.6	5.2	2.3	3.0	2.1	0.7	3.7	0.0	2.3	2.3	3.4	5.4	
LSD (0.05)	5.5	13.1	0.6	0.8	0.5	1.0	0.5	0.1	0.4	NS	0.6	NS	1.0	1.1	
<u>Harvest=2</u>															
Barbados	17.1	30.8	5.1	4.3	2.7	3.0	1.9	0.6	3.5	0.0	1.8	2.2	3.3	5.5	
General	15.8	42.6	5.2	4.8	2.2	3.6	1.7	0.7	3.9	0.0	1.9	1.9	3.1	4.9	
Laguna	15.3	34.8	5.1	5.1	2.3	3.9	2	0.6	3.7	0.0	2.2	2.6	2.9	6.5	
Legacy	18.0	34.4	6.0	4.3	2.5	2.6	2.3	1.0	4.2	0.0	2.5	1.9	3.1	5.5	
Majestic	18.7	36.1	5.5	5.5	2.7	4.6	2.6	0.8	4.0	0.0	2.8	1.8	3.8	5.6	
Titliest	18.1	33.8	5.3	3.9	2.9	2.3	1.5	0.7	4.0	0.0	2.8	2.0	3.7	5.5	
TSX-1	15.7	25.0	5.3	5.3	2.2	2.8	1.8	0.7	3.1	0.0	2.2	2.0	3.5	5.2	
Windsor	17.1	30.2	5.2	4.6	2.3	3.1	1.8	0.8	3.4	0.0	2.2	1.9	3.5	5.6	
LSD (0.05)	2.1	13.8	0.7	NS	0.4	0.8	0.6	0.2	0.7	NS	0.5	0.6	NS	1.2	
<u>Harvest=3</u>															
Barbados	16.8	36.5	5.3	2.3	2.5	2.0	1.8	0.9	3.8	0.0	1.5	1.5	4.0	4.8	
General	15.0	26.0	5.0	5.0	3.0	4.0	2.0	0.5	3.5	0.0	2.0	2.5	2.5	7.0	
Laguna	16.0	34.8	5.2	5.2	2.6	4.6	2.3	0.7	3.8	0.0	2.4	2.8	2.7	6.7	
Legacy	17.3	35.7	6.0	3.5	2.6	2.6	2.1	1.1	4.1	0.0	2.8	2.0	2.5	5.3	
Majestic	18.7	33.4	5.4	4.6	2.7	3.1	2.2	0.8	3.8	0.0	1.8	1.9	2.8	5.8	
Titliest	16.8	34.7	5.4	3.5	2.5	2.9	2.0	0.9	3.7	0.0	1.6	1.8	3.3	4.9	
LSD (0.05)	NS	5.9	NS	NS	NS	1.5	NS	0.3	NS	NS	1.1	NS	NS	1.6	

Head Color: scale 1 – 6 (1=yellowish green, 4=dark green, 5=blue green, 6=purple). **Head Density:** scale 1 – 3 (1=loose, 3=dense). **Head Doming:** scale 1 – 5 (1=sunken, 5=high dome). **Head Puffiness:** scale 1 – 3 (1=smooth, 3=puffy). **Stem Hollow:** percent of plants with hollow stems. **Bead Size:** scale 1 – 3 (1=large, 3=small). **Bead Uniformity:** scale 1 – 3 (1=variable, 3=uniform). **Leaf Penetration:** scale 1 – 4 (1=heavy, 4=none). **Overall:** rating 1 – 9 (1=worst, 9=best). A 9 rating would have a dense, high-domed head with blue green florets and small, uniform beads. There would be no leaf penetration into heads and no hollow stems.