

Broccoli Cultivar Trial 2003

Harlene Hatterman-Valenti, Paul Mayland, Lisa Duppong, and Steven Friederichs
Plant Sciences Department, North Dakota State University

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 of five different broccoli cultivars were sown in 72-cell trays in the greenhouse April 14 and thinned to one seedling per cell at the first true leaf stage. Seedlings were hardened off before transplanting on 12-inch centers May 29. 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 twice (August 13, August 20) 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 Student-Newman-Keuls LSD test ($p>0.05$) for treatment means separation.

Results: Head development for all cultivars was delayed by wet spring conditions. As a result, head weights were typically only 25-30% the weight of harvested heads from the previous year (data not shown). There were no statistical differences in comparing average head characteristics between all cultivars. The cultivar ‘General’ appeared to be the earliest maturing, with an average of 13 ready heads per harvest, and was given the highest overall score. ‘Major’ was the slowest to mature, with only an average of 5 ready heads per harvest, but the heads of this cultivar were slightly heavier than the others.

Plant and head characteristics from transplanted broccoli cultivar trial, Fargo, ND, 2003.

Cultivar	Head Wgt (lb)	Plant Hgt	Plant Wdth	Head Wdth	Head Lgth	Stem Diam	Head Color	Head Dens	Head Dome	Head Puff	Bead Size	Bead Unif	Leaf Penetr	Overall	Ready
General	0.33 [†]	14.4	20.9	4.5	4.7	0.9	5.0	2.6	3.3	1.9	1.8	2.2	3.8	6.4	13
Captain	0.34	14.8	19.8	4.5	4.9	0.9	4.5	2.2	3.0	1.7	1.9	2.5	3.8	5.7	10
Windsor	0.33	14.1	22.8	4.4	4.2	0.9	4.0	2.7	3.7	1.7	2.1	2.5	3.3	5.8	20
Major	0.38	13.8	22.3	5.2	4.6	1.0	4.3	2.4	3.1	1.9	1.8	2.6	3.5	6.0	5
Laguna	0.30	14.6	19.3	4.3	4.3	0.8	5.0	2.2	3.0	1.8	1.9	2.6	3.7	5.9	7
LSD (0.05)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

[†]Values represent averages from two harvests.

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). **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. **Ready:** number of heads harvestable per row.