Tomato Cultivar Trial

Harlene Hatterman-Valenti, Paul Mayland, and Carrie Schumacher
Plant Sciences Department, North Dakota State University

Objective: Evaluate performance of fresh market and paste/small fruited cultivars under North Dakota Red River Valley conditions.

Methods: This trial was conducted to evaluate tomato cultivar performance in the heavy soils of the Red River Valley. The experiment was established 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 in the late fall to incorporate trifluralin (Treflan) herbicide and twice in the spring one of which was immediately after a 100lb N per acre urea application. Transplants were grown from seed in the greenhouse, hardened off and mechanically planted June 4 on 24-in centers with 3-ft row spacing. Plots consisted of a single 24-ft row arranged as a randomized complete block with six replications. Overhead sprinkler irrigation was provided as needed. Weed escapes were controlled by a hay mulch that was spread July 3 and hand cultivation. Two randomly selected plants within each plot were harvested by hand. Three heavy rainfall events of 2.5, 1.7, and 2.2 inches, respectively, on June 9, July 7, and July 10 severely stressed plants and greatly delayed fruit production. These stresses along with an early freeze terminated the trial after only one harvest.

Results: Plant vigor was poor due to repeated flooding conditions. Sheyenne and Sunbeam were the highest yielding cultivars while Florida produced the largest fruit. HA3502 and HA3510 were the highest yielding paste/small-fruited cultivars.

Tomato yield and fruit characteristics.

	Fruit Number	Fruit Weight	Indiv. Fruit Wt	Fruit Shape	Fruit Crax	Green Shldrs	BER/ Cat	Locule No.	Overall
		(oz/plant)	(oz)						
Florida	3	13.9	5.6	1	4.0	2	2.0	5.4	7.9
Florida 47	9	15.3	4.8	1	4.0	2	2.0	5.2	7.5
Golden Girl	4	18.3	3.0	1	3.7	2	1.7	4.7	6.7
Sheyenne	10	22.9	3.3	1	3.9	2	1.9	5.3	7.4
Sunbeam	12	21.3	4.5	1	3.8	2	1.9	5.1	7.3
Dr. Carol	1	1.5	0.3	5	4.0	2	1.8	2.0	7.8
Fargo	6	4.1	0.5	6	4.0	2	2.0	2.0	7.6
HA3502	11	10.4	1.4	4	4.0	2	2.0	2.6	7.5
HA3510	12	9.2	1.3	3	3.9	2	1.9	2.5	7.0
Opalka	7	4.3	2.6	7	3.8	2	2.0	3.9	7.5
Shey	10	5.4	1.3	4	4.0	2	2.0	2.2	7.2
Silite	6	5.8	1.5	4	4.0	2	2.0	2.3	7.3
Vita Gold	2	8.0	1.5	4	4.0	2	2.0	2.1	6.4
LSD (0.05)		14.2	1.3		0.2	NS	0.1	0.7	0.9

Fruit shape: 1 – 7 (1=round, 2=slightly flattened, 3=deeply flattened, 4=oval, 5=cherry, 6=pear, 7=elongate). **Fruit crax**: 1 – 4 (1=radial and concentric, 2=radial, 3=concentric, 4=none). **Green**

shoulders: scale 1 – 2 (1=present, 2=none). **Blossom end rot & cat facing**: scale 1 – 2 (1= present, 2=none). **Locule number**: Number of locules. **Overall**: rating 1 – 9 (1=worst, 9=best).