

# High Tunnel Tomato Demonstration

## Purpose of this demonstration

- To determine how well heirloom tomatoes grow and produce in a high tunnel
- To extend the tomato growing season
- To produce a better tasting tomato using a high tunnel
- To compare the growth of commercial and heirloom varieties in a high tunnel
- To compare tastes of tomatoes grown in a high tunnel



## WHAT AND WHY

One of the most successful research projects at the DSU Outreach and Research Center in Smyrna, Delaware, were the variety trials of tomatoes in the high tunnel. The goal of this project was to produce an early crop of quality tomatoes that taste good. Most commercial varieties of tomatoes that are grown in a high tunnel do really well. They produce a lot of good quality fruit. One of the problems is that they do not have the best flavor. Heirloom varieties of tomatoes have a very good flavor. They, however, are not generally grown in a high tunnel. The trial tested the ability to grow heirloom varieties with good flavor in the high tunnel. Three varieties of heirloom tomatoes and three varieties of commercial were grown from 2006–2008. Prudence Purple, Brandywine and Beefmaster represented the heirlooms, and Trust, Mountain Fresh and Indy were the commercial varieties.

## HOW

The project started each year with six varieties (five of each) in four rows. The rows were placed five feet apart and the plants were 18 inches on center. This project was conducted for three consecutive years. Drip irrigation was used to water and fertilize. After the first year, the plants were sprayed once with a copper based fungicide for blossom rot. They were also sprayed one time with an insecticide (lambda- cyhalothrin) for thrips and **sting** bugs. The project began each year with the planting of seeds in the greenhouse in February. The plants were



transplanted into the tunnel during the last week of March, once lime and nitrogen were worked into the soil. Due to the cold weather, ground covers were used to protect the plants off and on for about two weeks. The tomatoes were staked and tied up. These plants never stopped growing, and every two weeks they were fertilized through the drip tape with 20-20-20 soluble fertilizer. These tomatoes thrived due to daily attention. The first tomato was picked in mid-June. The harvest was started mid-July. The Heirlooms performed well in the Tunnel.

## WHAT HAPPENED

Nineteen College of Ag employees sampled all six tomato varieties during an in-house taste test. All tomatoes had good texture and firmness. Testers liked the heirlooms best; the Brandywine variety was most favored. The Trust variety, a Commercial tomato, was the least favorite.

## CONCLUSION

It is possible to grow Heirloom tomatoes in a high tunnel just as commercial tomatoes are grown. The plants never stopped growing. They grew a lot of vegetation and very quickly reached the top of the tunnel. It was a very positive experience.

## ADVANTAGES

- Earlier harvest
- Later harvest
- Better Fruit harvest
- Less foliar diseases
- Less pesticide needed to be used
- Less insect damages
- Make more money



## DISADVANTAGES

- Initial Cost involved
- More labor intensive

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*For more information about this project  
or for assistance with your small farm production needs  
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# DSU High Tunnel Tomato Trials

Variety Name	Week #	Total # Picked	Total Wt.	Avg. Wt.	Heaviest Avg	# of Lock-outs	Wall Thickness	Yellow Shoulder	Cracks	Blossom Rot	Marketable	% of Marketable
Prudence	1	99	83.2	1.19	1.65	10.75	.3125	62	46	0	72	0.73
	2	66	60	1.1	1.4	10	0.25	19	39	3	41	0.62
Final #	3	101	79.2	1.28	1.3	8.5	0.1875	46	19	0	73	0.72
	4	53	38.4	1.38	1	8.5	0.1875	25	21	1	24	0.45
	5	80	49	1.63	1	8.5	0.1718	22	19	1	37	0.46
Total		399	309.8	1.29				174	144	5	247	0.62
Averages		79.8	61.96	1.32	1.27	9.25		34.8	28.8	1	49.4	0.62
Indy	1	229	89.8	2.55	0.9	4.5	.28125	35	17	0	148	0.65
	2	238	106.6	2.23	1.1	8.5	.328	65	24	1	174	0.73
	3	172	65.4	2.63	0.85	6.25	.28125	32	20	0	123	0.72
	4	61	22.4	2.72	0.85	3.75	.23437	7	8	0	9	0.15
	5	95	32.4	2.93	0.6	5.25	0	11	13	1	38	0.40
Total		795	316.6	2.51				150	82	2	492	0.62
Averages		159	63.32	2.61	0.86	5.65		30	16.4	0.4	98.4	0.62
Mountain Fresh	1	116	60.4	1.92	0.85	6	.25	4	5	1	77	0.66
	2	83	1.2	69.17	1.2	6.25	.29688	15	7	0	45	0.54
	3	217	111	1.95	1	6	.3594	32	20	0	123	0.57
	4	143	55.6	2.57	0.7	4	.203	25	11	0	95	0.66
	5	132	44.4	2.97	0.75	5	.1875	18	5	0	77	0.58
Total		691	272.6	2.53				94	48	1	417	0.60
Averages		138.2	54.52	15.72	0.9	5.45		18.8	9.6	0.2	83.4	0.60
Variety Name	Week #	Total # Picked	Total Wt.	Avg. Wt.	Heaviest Avg	# of Lock-outs	Wall Thickness	Yellow Shoulder	Cracks	Blossom Rot	Marketable	% of Marketable
Beef Master	1	130	95.2	1.37	1.35	11.75	.1875	54	38	0	57	0.44
	2	164	140.8	1.165	1.7	8.25	.2968	76	87	3	109	0.66
	3	116	78.5	1.48	1.35	12.25	.250	53	38	1	54	0.47
	4	92	56.8	1.62	1	9.5	.11816	48	20	0	32	0.35
	5	187	101	1.85	0.75	5	.1875	51	42	0	75	0.40
Total		689	472.3	1.46				282	225	4	327	0.47
Averages		137.8	94.46	1.50	1.23	9.35		56.4	45	0.8	65.4	0.47
Brandywine	1	96	74.6	1.29	1.45	11.75	.25	58	78	1	46	0.48
	2	83	69.8	1.19	1.55	8.75	.28125	16	34	0	58	0.70
	3	114	81.6	1.40	1.3	9	.250	25	63	1	54	0.47
	4	47	28.4	1.65	1	7.5	.2656	10	34	0	15	0.32
	5	210	57.6	3.65	1.55	8.75	.1718	21	53	0	41	0.20
Total		550	312	1.76				130	262	2	214	0.39
Averages		110	62.4	1.83	1.37	9.15		26	52.4	0.4	42.8	0.39
Trust	1	122	56.6	2.16	0.9	6	.53125	14	17	0	52	0.43
	2	59	24.8	2.38	0.75	4	.34375	18	8	0	39	0.66
	3	281	108.2	2.60	0.9	4.25	.3125	23	23	0	240	0.85
	4	212	70	3.03	0.6	3.5	.3437	11	8	0	154	0.73
	5	210	57.6	3.65	0.35	5	.2343	18	29	0	86	0.41
Total		884	317.2	2.79				84	85	0	571	0.65
Averages		176.8	63.44	2.76	0.7	4.55		16.8	17	0	114.2	0.65