

Curly Top Resistant Tomato Varieties for Southern Utah

Project Leaders:

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Summary:

Research into CTV resistant tomato varieties is important in Southwest Utah. Due to unknown reasons CTV has become more problematic in the past 3 years with some growers reporting they have lost 98 out of 100 plants to CTV. It appears CTV resistant varieties may offer the only practical solution to tomato production during severe outbreaks of CTV.

All gardeners who participated this year reported the CTV resistant varieties grew and produced well in this climate. None of the participants reported these varieties were as good as their favorite variety, but all said they were acceptable. Detailed surveys from 5 selected participants show that the CTV varieties Columbia and Row Pac were the most productive and had the highest acceptance.

Two years of research has allowed us to select 2 varieties from the 8 originally tested, which show the most promise in this area.

Further research should include a more detailed survey of fruit production and quality, a larger and more accurate pH comparison, Brix testing to evaluate sugar content and a taste panel to further document differences between resistant and non-resistant varieties.

Iron County Results:

Working with Dean Winward from Southern Utah University, we used the SUU greenhouse to produce approximately 500 tomato plants. Plants included Curly Top resistant varieties; Columbia, Row Pac, Roza and Salad Master and non-resistant check varieties; Celebrity Supreme, Early Girl and Jetstar. Check varieties were selected because they have produced well in this climate and/or are popular with local gardeners. Plants were distributed to interested individuals free of charge. In addition to general distribution of the plant material, eight gardeners were selected to complete written surveys to assess their experience with these varieties. Data from five of these individuals, is included in this report as one grower lost all his tomato plants to frost, two other gardeners did not return their surveys in time to be included. Mild Curly Top Virus (CTV) infections were noted for Iron County this year following three years of extremely high infection rates. However CTV was still problematic as one of our test gardeners reported he lost 20 Celebrity plants out of 60 planted this year to CTV. Interestingly, one Roza and one Salad Master plant were extirpated due to CTV in two different test gardens, suggesting these varieties do not show total resistance to CTV. Another note of interest is that in the author's garden one Roza plant showed clinical signs of CTV early in the season but grew out of the symptoms and produced normally. In addition to grower variety ratings, other data collected included previous grower losses due to CTV, fruit weight and pH. The results from this year's research was summarized and presented in the following tables.

Losses reported by growers in past years:

4 Growers 50 – 75%

1 Grower 10 – 25%

SUMMARY OF GROWER RATINGS: ¹

	Celebrity Supreme	Columbia	Early Girl	Jetstar	Row Pac	Roza	Salad Master
Production:	4	3.5	3	4	3.2	2.5	1.66
Fruit Quality:	4	3.5	4	4	3.2	2.75	2.0
Summer Production:	4	3.25	3	4	3.2	2.5	1.66
Pest Resistance:	4	3.75	4	4	3.6	3.5	2.66

¹ Rated on scale of 1-4 with 1 being poor and 4 being excellent

AVERAGE FRUIT WEIGHT IN GRAMS:

Celebrity Supreme (2) ¹	Columbia (5)	Early Girl (3)	Jetstar (3)	Row Pac (12)	Roza (2)	Salad Master (9)
175.5g	145.3g	101.3g	116.0g	123.12 g	90.0g	51.53 g

¹ Number of fruits weighed

AVERAGE pH:

Celebrity Supreme (2) ¹	Columbia (3)	Early Girl (3)	Jetstar (3)	Row Pac (2)	Roza (2)
3.85	4.4	4.6	4.03	4.4	4.55

¹ Number of fruits tested

Washington County Results:

Plants were grown by Larry Hancock (Sandia Greenhouse) and distributed to eight Master Gardeners. Good numerical data was obtained comparing the Curly Top (CT) Resistant varieties to each other (see accompanying table in Excel). Unfortunately, none of the gardeners compared the CT varieties to other popular varieties often grown in home gardens.

For St. George conditions (heat) the usual comments were voiced about tomatoes, namely tough skins in the heat of summer and lack of production during July and August. Two growers indicated that production returned in the fall with tomatoes abundant in Late September and early October.

Numerical ratings received from grower surveys showed little difference between the four varieties. The chart below is an average of all the ratings for each variety.

1-Poor 2-Fair 3- Good 4-Excellent

Columbian	3.4
Rowpac	3.1
Roza	3.3
Saladmater	3.3

A detail of all the areas rated is attached in excel format.

We would like to continue this study for another year. Efforts would be made to obtain yield data and individual fruit size from each variety. In addition several commercially available varieties would be included in order to allow comparison to varieties being used by home gardeners and market growers.