MARKETABLE YIELD EVALUATION OF ELEVEN HEIRLOOM TOMATO VARIETIES

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New England growers are presented with a variety of heirloom tomato varieties that can be used to provide a wider consumer in retail operations. In 2001, we evaluated eleven different heirloom varieties of tomato (Lycopersicon esculentum Mill.) for production characteristics and fresh market suitability in Vermont.

Although some-transplanted to a greenhouse facility andstorybook to the outdoor environment in June and July. All the plantings were separated using nylon, and were tied into 12 rows, 3 m apart. The hill spacing was 90 cm and between row spacing was 1.5 m. 'Amish Paste', 'Brandywine', 'Cherokee Purple', 'Cosmonaut Volkov', 'Costoluto Genovese', 'Green Zebra', 'Ida Gold', 'Moskvich', 'Purple Calabash', 'Prudens Purple', and 'Yellow Brandywine' varieties were produced organically using plastic mulch and drip irrigation. Bi-lo Growers served as a hybrid control. Plants were fertilized weekly using a commercial fertilizer formulation (20-20-20 or 15-15-15) based on extension recommendations for New England. Tomatoes were harvested weekly (10 to 15 harvests) and every fruit was individually weighed and recorded for yield analyses. Fruits were scored for blemishes and tartrate. Marketable yield was significantly greater than marketable yield by weight when compared to Brandywine (Table 1, Fig. 4). We found that weight of individual components (Table 1, B) of each variety resulted in specific amount of cull by weight. On average, one heirloom variety performed better than 'Brandywine' (Fig. 1). Most of these heirloom varieties are popular due to their market success. The results of this study indicate that several heirloom varieties contained traits that could improve yield and the economic potential for local and export markets. The results indicated significant differences for marketable yield and total yield per plant when compared to Brandywine. We also found that heirlooms that have the potential to fulfill a fresh market niche. Vavrina et al. (1997) noticed some tolerance of late blight in 'Cherokee Purple', but our results indicated significant differences between two locations and also found significant differences between cultivars in market yield. These variables perform in various locations throughout the nation, but they need to be more thoroughly investigated under commercial production regimes.

Results and Discussion

Table 1. Total cull weight (kg fruit·plant−1) for 'Better Boy', 'Cosmonaut Volkov', and 'Moskvich'. B. Cull Disorder criteria showing percent of total fruit culled for 'Better Boy', 'Cosmonaut Volkov', and 'Moskvich' (raw data shown).

<table>
<thead>
<tr>
<th>Variety</th>
<th>Total cull weight (kg fruit·plant−1)</th>
<th>Culled (%)</th>
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<tbody>
<tr>
<td>Better Boy</td>
<td>1.89 a b c 0.01 c 0.44 b c 1.43 a 4.98 a</td>
<td>1.39 a</td>
</tr>
<tr>
<td>Cosmonaut Volkov</td>
<td>2.13 b c 0.03 c 0.45 b c 1.33 a 4.91 a</td>
<td>1.98 a</td>
</tr>
<tr>
<td>Moskvich</td>
<td>1.81 b c 0.03 c 0.45 b c 1.33 a 4.91 a</td>
<td>1.98 a</td>
</tr>
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When looking at 'Cherokee Purple', our results are similar to Vavrina et al. (1997). They found that the cultivar to produce high amounts of fruit with cracking and blemishes and not to illustrate that heirlooms may not be able to handle the rigorous process of the hybridization. Colberg-Riveria et al. (1996) noticed that 'Cherokee Purple' had high amounts of fruit, but it also had a few blemishes, such as 'Green Zebra', which may have the potential to be used for a one-year.Seasonal market. It is interesting to note that their away was conducted in Florida.

Conclusions and Future Directions

This study demonstrates that there is potential for some heirloom tomatoes to produce similar amounts of marketable fruit as garden commercial hybrids. There is the potential for heirloom tomatoes to offer the shape, taste, and color that consumers desire within specialty markets. Growers that produce value-added products may also find new opportunities to market their specialty tomato products. It is important to quantify the price's and cost's of the nine different heirloom tomatoes so that growers can increase production efficiency. Further testing of heirloom vegetables need to be more quantitatively analyzed to access the market potential of heirloom tomatoes.

Current in 2002, we are replacing the same experiment in the following year. The same greenhouse facility was modified into the same greenhouse facility. To use a more uniform transplant size for all cultivars, transplants were grown from seed under the same conditions at the University of Vermont greenhouse. Our goal was to harvest tomato harvesters for 2002, and we are also analyzing 2001. cull data to better understand the cull distribution. During peak harvest the season we are going to hold a taste test on campus farm market.