INFLUENCE OF GROWTH MEDIA AND CULTIVARS ON POSTHARVEST FRUIT DEFECTS OF SELECTED GREENHOUSE TOMATO CULTIVARS

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Introduction

The tomato (Solanum lycopersicon Mill.) crop is one of the most popular vegetable crops grown in Caribbean territories. St. Martin et al. 2008 reported that the percentage of greenhouse farmers in Trinidad and Tobago and Jamaica that frequently produce tomatoes, within the past year was 44% and 90% respectively.

• The introduction of protective agricultural structures lead to the importation of many sub-tropical tomato varieties in order to increase greenhouse production

• These imported varieties often suffer from many biotic and a-biotic plant diseases, which significant affect harvesting indices. The differences in yields when compared to the optimal yields were significantly lower, due to the plants inability to adapt to the regional greenhouse micro-climate.

• The purpose of this experiment was to identify suitable and adaptable tomato varieties for production in tropical greenhouses within the Caribbean, by analysing yield parameters under local conditions

• The objective of the study was to monitor and assess the yield components of seven regionally grown tomato cultivars, using selected growth media under greenhouse growing conditions.

Materials and Methods

• Seven tomato cultivars, within the regional greenhouse farming community were planted in two growth media (Coconut Coir and Sharp Sand), utilizing a completely randomized design, under a gable roof greenhouse

• Cultivars under investigation include IT71, Striker, Cariabe, Versatile, Summerstar, Rhapsody and Hybrid 61 (control)

• Yield and environmental data was taken over the crop's production phase; with parameter such as marketable yield, unmarketable yield, disease incidence, temperature and humidity were under investigation

Results & Discussion

The results indicated average greenhouse temperatures were generally 3 to 4 °C higher than external temperatures. A negative correlation between relative humidity and air temperature data was evident, which demonstrated an inverse relationship between variables for the life cycle of the crop

Conclusion

➢ Extreme fluctuations in temperature and relative humidity severely affected the production and formation of fruit of some varieties, through the manifestation of various physiological defects

➢ Highest yields and marketable yields were obtain in cultivars grown in coconut coir

➢ Versatile and IT71 grown in coconut coir achieve the highest fruit yields

➢ The difference between total fruit weight and total marketable weight (yield stability) were lowest in IT71, summerstar and hybrid 61

Table 1. Effects of postharvest defects on final overall yield of cultivars

<table>
<thead>
<tr>
<th>Defects</th>
<th>% Postharvest defects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IT71</td>
</tr>
<tr>
<td>Blossom End Rot</td>
<td>1</td>
</tr>
<tr>
<td>Radial Cracking</td>
<td>9</td>
</tr>
<tr>
<td>Concentric Cracking</td>
<td>0</td>
</tr>
<tr>
<td>Blotchy Ripening</td>
<td>18</td>
</tr>
<tr>
<td>Wrinkling</td>
<td>9</td>
</tr>
<tr>
<td>Fungus (Botrytis sp.)</td>
<td>25</td>
</tr>
</tbody>
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