The Effect of Trichion on the Flavor of Lowbush Blueberries

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Abstract. Samples of Maine-grown lowbush blueberries (Vaccinium angustifolium Ait) from untreated and Trichion-treated (2 applications, 272 g/ha) plots evaluated 8 times by a 35-judge panel were not different from each other or from a standard of untreated berries. No off-flavor was associated with the Trichion-treated blueberry samples.

In 1961, data resulting from a regional project on the effects of insecticides and fungicides on the flavor quality of fruits and vegetables were published (2). The authors intended that the listings should be used as a reference guide and not as endorsement or condemnation of any pesticides or combinations thereof. The need for continued and multiple observations was stressed.

Trichion (Carbophenothion), insecticide and acaricide, has been registered by the U. S. Department of Agriculture, and tolerances established by FDA for use on many crops (1). This investigation was designed to test the effect of the chemical treatment on the flavor quality of Maine lowbush blueberries. Trichion has been shown by one of us (H. Y. F.) to be effective in the control of maggot (Rhogoletis mendax Curran) on this crop.

One large plot (8 x 30 m) of lowbush blueberries at Blueberry Hill Farm, Jonesboro, Maine was treated with 3% Trichion dust at a rate of 272 g/ha per 0.4 ha, applied on 2 occasions: July 14 and 25. The treated plot was flanked on either side by untreated control plots, 5 x 30 m. On August 18, the berries for the flavor test were harvested in a systematic random way throughout the plots. Approx 4 kg of treated and 8 kg of control berries were brought to Orono, refrigerated at 4°C until August 21, when the berries were evaluated for flavor quality.

Coded samples of about 10 berries each were presented in 8 pairs (2 at a time) to a panel of 35 experienced judges. The ballot used was developed for the evaluation of flavors associated with pesticide treatments (2), and later modified to omit a category shown to be superfluous (3). The untreated berries were also presented as a labeled reference standard to compare with the unknown sample pair. Panelists were asked to taste all of the berries in a sample before making a judgment.

Scores were assigned to the choices: +1 for "better than standard," 0 for "equal to standard," and -1, -2, -3 for "degrees of off-flavor." The resulting data were analyzed by the variance method, using the treatment x judge interaction as the error term.

Soluble solids of 8 samples of 10 berries each, control and treated, were determined by refractometer.

Table I. Effect of Trichion on the flavor and soluble solids of Maine lowbush blueberry (8 samples).

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<th>Flavor score</th>
<th>Soluble solids (%)</th>
</tr>
</thead>
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<tr>
<td>0</td>
<td>-0.05</td>
<td>12.18</td>
</tr>
<tr>
<td>272 + 272</td>
<td>+0.03</td>
<td>10.90</td>
</tr>
<tr>
<td>LSD 5%</td>
<td>NS¹</td>
<td>1.00</td>
</tr>
<tr>
<td>1%</td>
<td>NS</td>
<td>1.39</td>
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¹5 judges; both values not different from untreated standard.

The analytic data (Table 1) show mean scores of -0.05 for the 8 untreated samples and +0.03 for the treated ones, both interpreted as "equal in flavor to the untreated standard" which was 0 on the scale.

The mean soluble solids for 8 untreated samples, 12.18%, was 1.28% (P = 5%) that of berries from the Trichion-treated plot, 10.90%. Obviously, this difference was not large enough to be reflected in the sensory decisions.

Literature Cited


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References

