MaluSim Carbohydrate Model*

Simulation location: Tyro, VA (Central Virginia Fruit Growing Region)
Simulation date: April 30, 2014 1:30PM
Greg Peck

*Developed by Drs. Alan Lakso and Terence Robinson, Cornell University
MaluSim Carbohydrate Model for Tyro, VA
April 30, 2014

Recorded Data
2+4-day Running Average

Silver Tip
Full Bloom
Petal Fall
5.6 mm
## Interpreting the MaluSim Model: look for three-to four-day trends

<table>
<thead>
<tr>
<th>Thinning Index</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20 g/day</td>
<td>Expect little or no response to normal rates of chemical thinners. You will need to thin more aggressively than normal</td>
</tr>
<tr>
<td>+ 20 to -20 g/day</td>
<td>Expect normal thinning responses to standard rates of chemical thinners</td>
</tr>
<tr>
<td>-20 to -40 g/day</td>
<td>Expect normal to slightly aggressive responses to standard rates of chemical thinners</td>
</tr>
<tr>
<td>-40 to -60 g/day</td>
<td>Expect aggressive responses to standard rates of chemical thinners. Consider reducing rates to avoid over thinning</td>
</tr>
<tr>
<td>-60 to -80 g/day</td>
<td>Expect very aggressive responses to standard rates of chemical thinners. Reduce rates to avoid over thinning</td>
</tr>
<tr>
<td>&lt; -80 g/day</td>
<td>Standard rates of thinners will result in severe over-thinning. Reduce rates by at least 50 percent.</td>
</tr>
</tbody>
</table>

(Table developed by Dr. Steve McArtney (NCSU). Additional input from Drs. Alan Lakso and Greg Peck)
Risk of Frosts this Week

Posted on April 13, 2014 by gmpeck

The weather forecasts for the coming week show three days with potential frosts. For Wednesday morning, the National Weather Service is forecasting a low of 29°F in Winchester and a low of 30°F in Tyro. I'm sure other locations in VA are also at risk of frost.

In the Winchester area, apples are 1/4” green tip with some cultivars showing pink. Peaches are at first pick to some early blooming cultivars having a few open flowers. The phenology in Central VA is a bit more advanced, with peaches having been in bloom for nearly two weeks. According to the critical temperature charts, we can expect a small amount of damage from these temperatures but not a complete crop failure. So, fingers crossed that it doesn't get any colder than predicted. However, even if flowers are not killed by the frosts, there is also the risk of russets and frost rings. Temperatures are forecasted to warm up to the end of the week.

Below are links for the Washington State University fact sheets (as pdfs) on the critical temperatures for flower buds:

- Apples
- Peaches
- Cherries
- Pear

Michigan State University has adapted the WSU critical temperature fast fact sheets into this easy-to-read fact sheet.

MSU has also put together an excellent set of resources about freezes and frosts in fruit crops.

Additionally, work done by Dr. Steve McArney (NCSU) and others has shown that applications of Promalin (gibberellic 4+7 plus the cytokinin 6-BA) at 25 ppm immediately following a frost event may help increase fruit set and cropping. In essence, the Promalin sends signals to the developing fruit that the seeds are still intact and growing, even through the frost has killed the embryo. The result is a crop of parthenocarpic (seedless) fruit. This “rescue treatment” is not a full proof way of setting a crop, and it is still unclear under what environmental conditions and for which cultivars it works best. If the temperatures drop much below 28F, each grower will have to make a decision as to whether or not it is worth trying to rescue the crop with Promalin.