MaluSim Carbohydrate Model*

Simulation location: Winchester, VA
Simulation date: May 8, 2014 2:15PM

Greg Peck

*Developed by Drs. Alan Lakso and Terence Robinson, Cornell University
MaluSim Carbohydrate Model for
Winchester, VA
May 8, 2014

- Daily
- 2+4-day Running Average

Silver Tip
Petal Fall
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)
Calcium Recommendations

- Season long, want 20-50 lbs CaCl$_2$
  - 2-8 lbs CaCl$_2$ spray
  - For calcium disorder prone cultivars, need higher range

- With greater heat and water stress, increase chance of disorders, as well as phytotoxicity

- Calcium moves into the soil by mass flow
  - Dry soil conditions reduce calcium uptake
Magnesium Recommendation

- 1-3 applications of Epsom Salts at 15 lbs/100 gal at petal fall, 1st and 3rd cover

- Epsom salts can be tank mixed with Solubor but not with calcium chloride
Boron Recommendations
Foliar Applications

- Many Virginia orchard soils are low in boron
- Foliar application of 3-4 lbs of Solubor at petal fall or first cover usually helps to correct low boron levels
- You can also split the Solubor applications into two sprays, e.g., petal fall and 2nd cover or 1st and 3rd cover
- Boron may precipitate out of solution when mixed with calcium chloride
We are a collaborative team of Extension specialists and agents who deliver year-round programming for the Commonwealth’s tree fruit producers. We provide our stakeholders with the latest research-based information for making sustainable management decisions on their farms. We also develop resources for beginning farmers and home fruit enthusiasts. Our information is disseminated through this website, Extension publications, workshops, on- farm meetings, and one-on-one conversations.

**Commercial tree fruit production updates**

**04/04/2014**

**Fire blight update**

From: Tree Fruit Disease Update

**CAUTION:** The observations, conditions, and recommendations reported for Winchester, VA are provided as a guide to fire blight risk assessment only for the immediate area of the Virginia Tech AREC located six miles southwest.

**04/21/2014**

**Fire blight caution**

From: Tree Fruit Disease Update

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**Risk of Frosts this Week**

Posted on April 13, 2014 by grpeck

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 Tyrone. I’m sure other locations in VA are also at risk of frost.

In the Winchester area, apples are 1½” green tips 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 to 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 nustets and frost rings. Temperatures are forecasted to warm up towards 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 McArthay (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 though 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 28°F, each grower will have to make a decision as to whether or not it is worth trying to rescue the crop with Promalin.