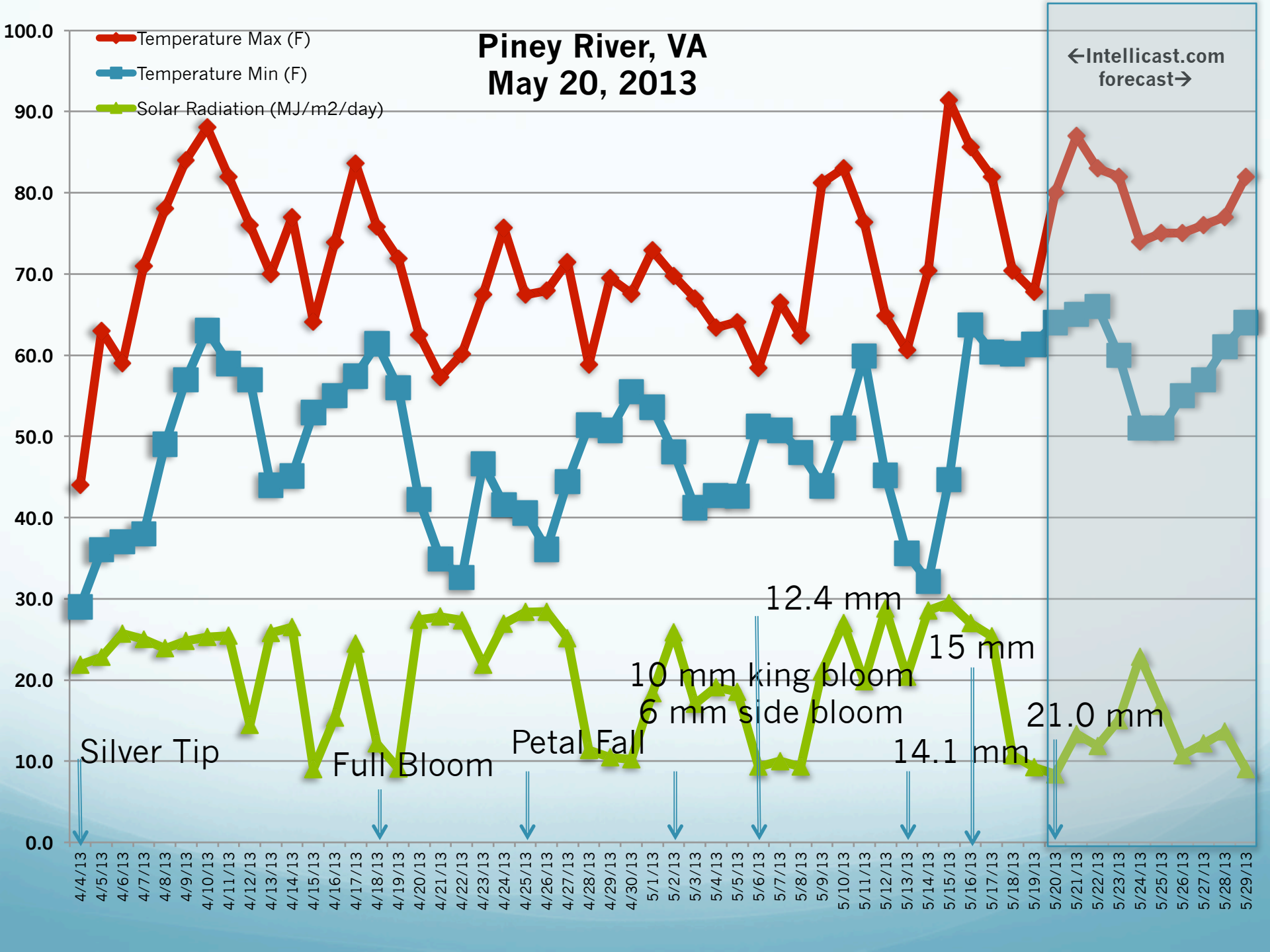
VirginiaTech
Invent the Future

MaluSim Carbohydrate Model*

Simulation location: Piney River, VA (Central Virginia Fruit Growing Region)
Simulation date: May 20, 2013 9:00AM

Greg Peck

*Developed by Drs. Alan Lakso and Terence Robinson, Cornell University


Piney River, VA
May 20, 2013
Temperature Max (F)
Temperature Min (F)
Solar Radiation (MJ/m2/day)
←Intellicast.com forecast→
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Silver Tip
Full Bloom
Petal Fall
10 mm king bloom
6 mm side bloom
12.4 mm
15 mm
14.1 mm
21.0 mm
4/4/13
4/5/13
4/6/13
4/7/13
4/8/13
4/9/13
4/10/13
4/11/13
4/12/13
4/13/13
4/14/13
4/15/13
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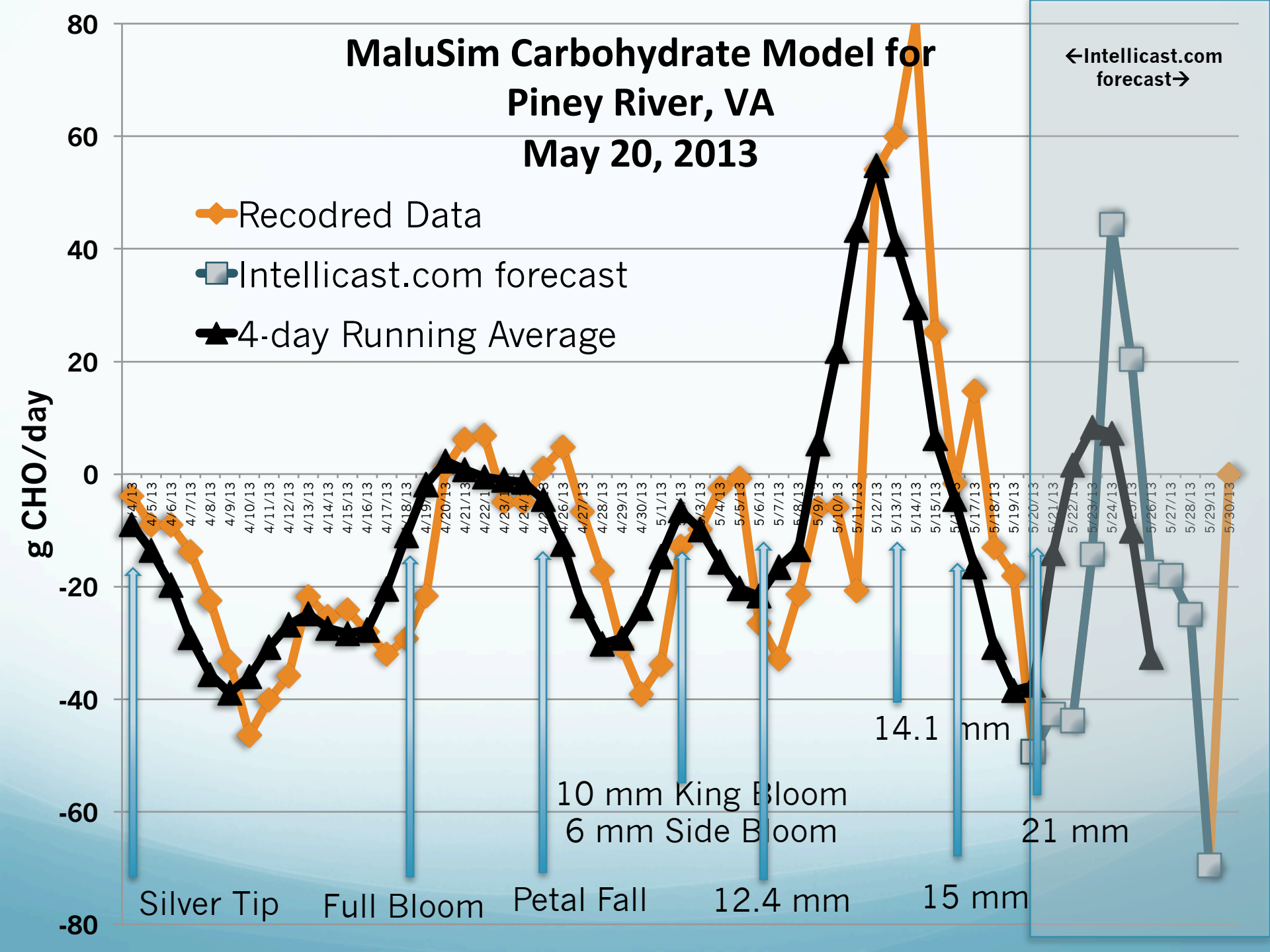

MaluSim Carbohydrate Model for
Piney River, VA
May 20, 2013
←Intellicast.com forecast→
Recodred Data
Intellicast.com forecast
4-day Running Average
g CHO/day
80
60
40
20
0
-20
-40
-60
-80
14.1 mm
10 mm King Bloom
6 mm Side Bloom
21 mm
Silver Tip
Full Bloom
Petal Fall
12.4 mm
15 mm

Interpreting the MaluSim Model: look for three-to four-day trends

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

(Table developed by Dr. Steve McArtney (NCSU). Additional input from Drs. Alan Lakso and Greg Peck)

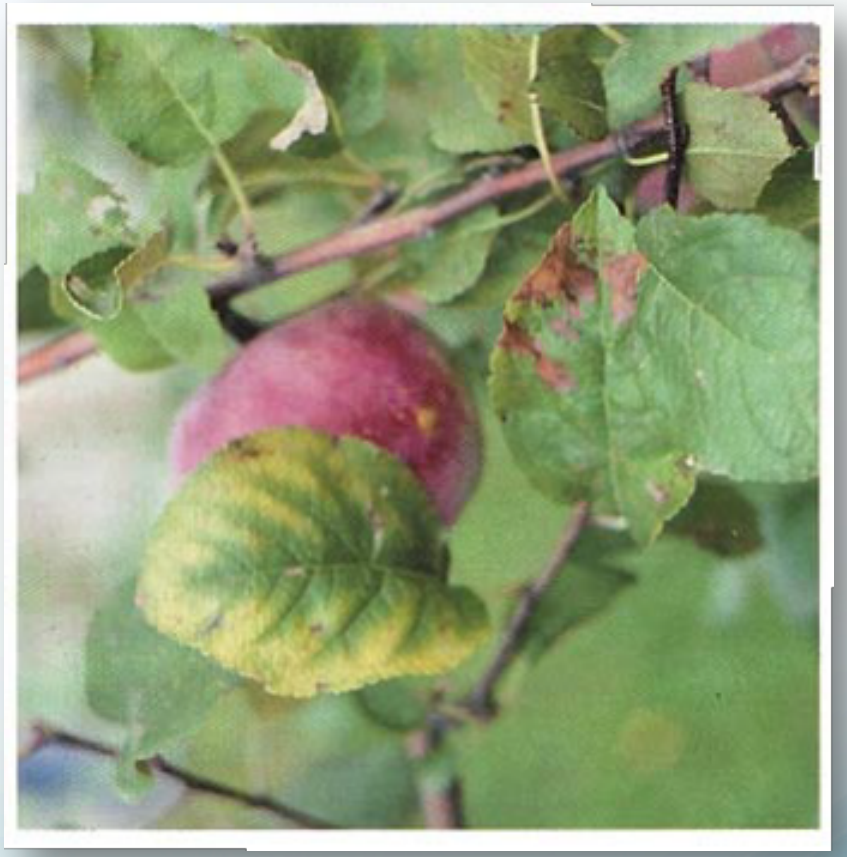
Calcium Recommendations

- 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

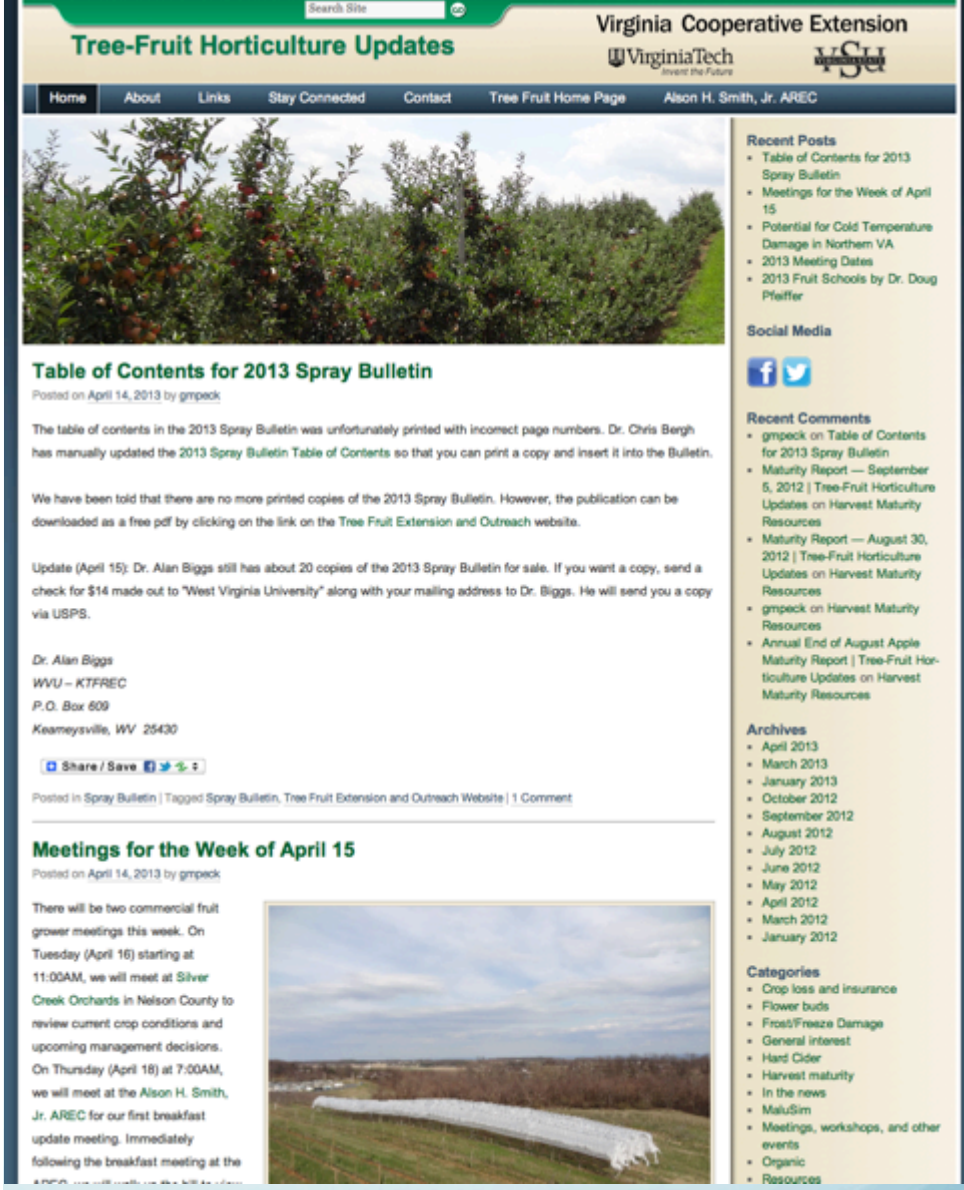
- Epsom salts can be tank mixed with Solubor but not with calcium chloride



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

Boron deficiency–apple



http://www.anr.ext.vt.edu/tree-fruit/

http://blogs.ext.vt.edu/tree-fruit-horticulture/

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