



Getting Peaches Ripe – Preharvest Practices

Mercy Olmstead, Stone Fruit Extension Specialist





Peach Fruit Development

No STRESS Needed!

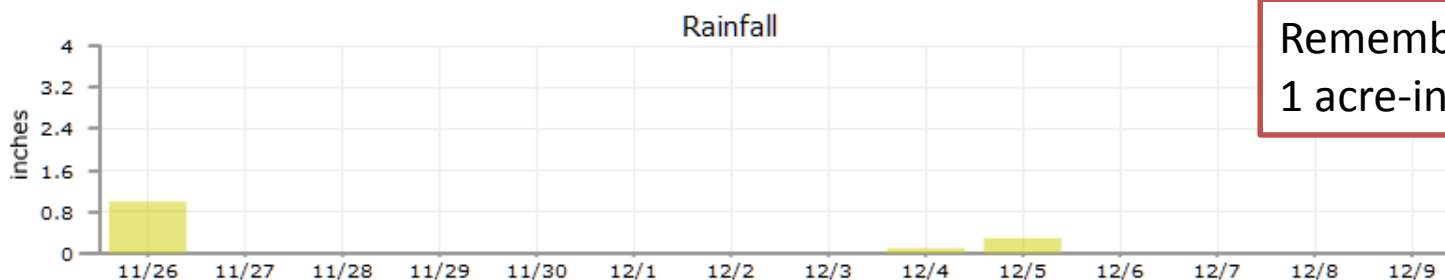
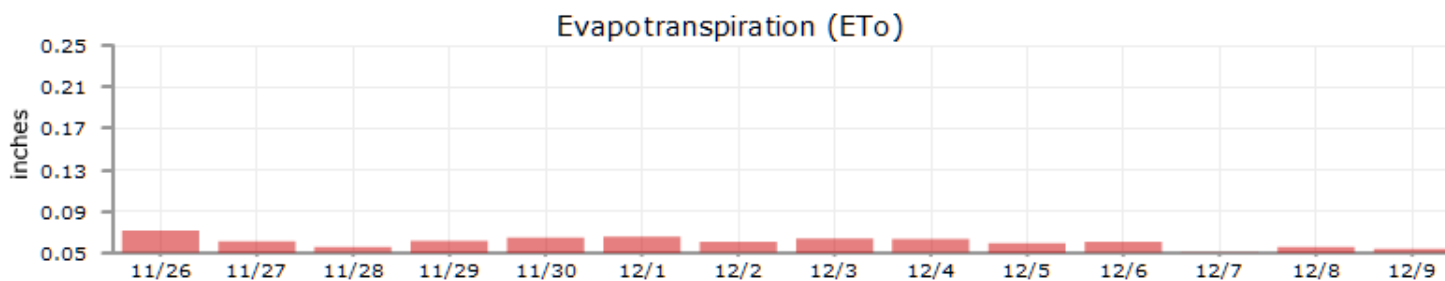


- There are 3 (4) phases of fruit development
 - Cell Division
 - Lag Phase (Pit Hardening)
 - Cell Enlargement
 - *Ripening*



Avoiding Stress During Fruit Development

- Irrigation
 - Avoid too much or too little
 - Monitor with soil moisture sensors
 - Tensiometer
 - Use Reference ET as a guide ([FAWN](#))



Remember:
 1 acre-inch = 27,154 gallons

Station	12/3 (in/day)	12/4	12/5	12/6	12/7	12/8	12/9	7-day total	Daily Avg. (gals/A/ day)
St. Lucie West	0.06	0.06	0.06	0.06	0.05	0.06	0.05	0.41	0.06 (1581)



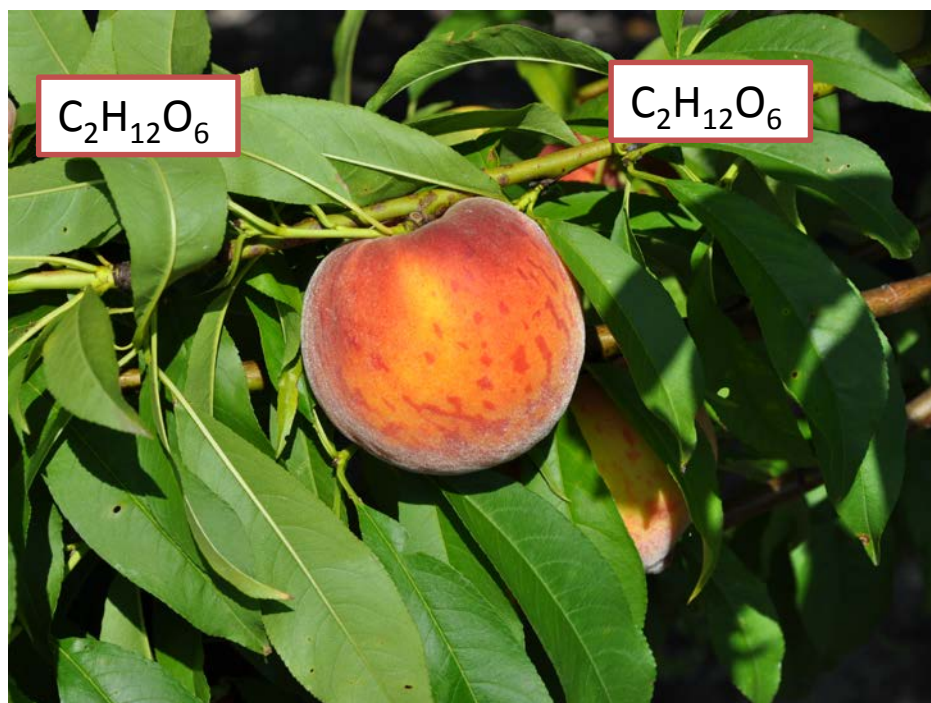
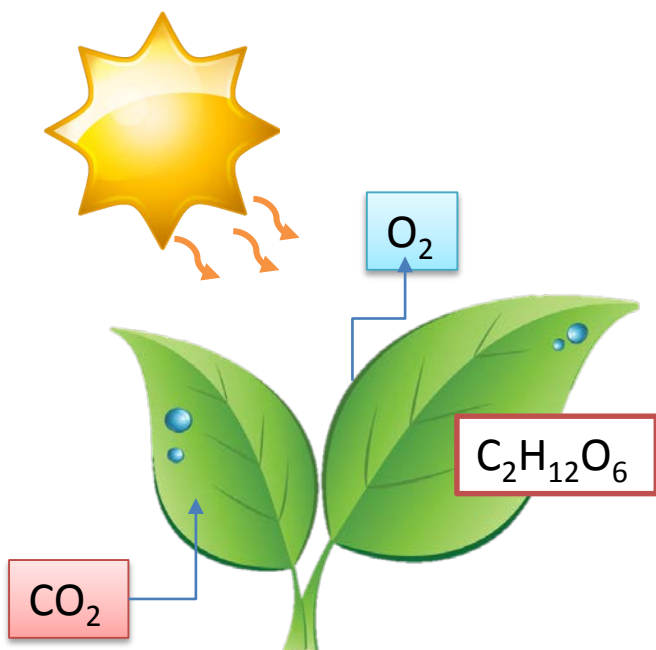
Peach Fruit Development

- Low-chill peaches have a short *fruit developmental period* –
 - 78-95 days
- Early leaf area is important for sugar development (carbohydrates)



Importance of Leaves & Sugar Development

Photosynthesis drives fuel/sugar production





Fruit Quality

- Poor leaf area early due to low chill accumulation =



Bad Fruit Quality!



What Does “Tree Ripe” Mean?

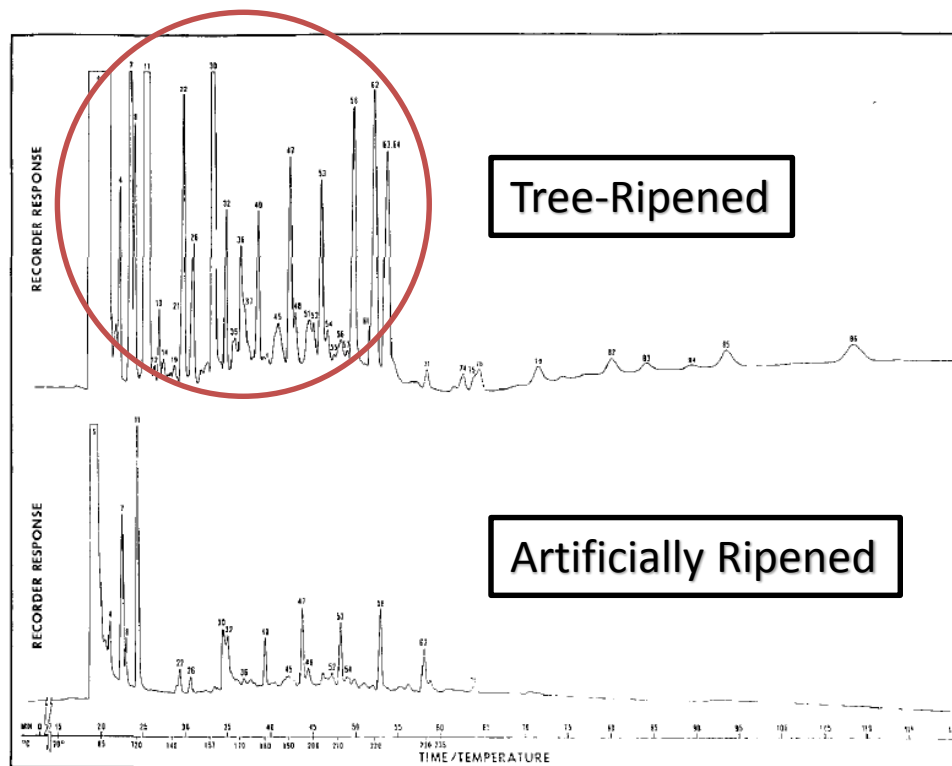


Fig. 1—Chromatograms of Gleason Early Elberta peach volatiles, tree ripe (top) and artificial ripe (bottom).



What Determines Size?

- Cherries – genetic predetermination
 - Cultivar dependent for final size
 - E.g., your height is pre-determined by your parents' height.
- What about environment/cultural practices?





Fruit Thinning



Over 450 Fruit on Mature Tree!





Fruit Thinning

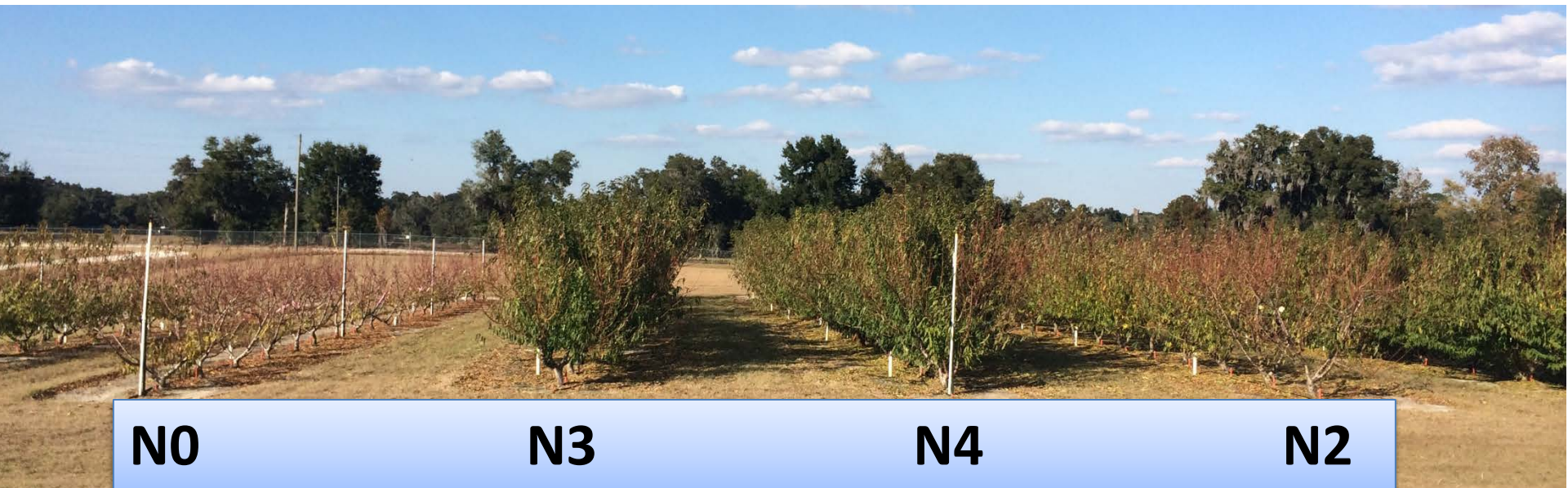
- Should be thinned before pit hardening
 - Otherwise, won't make difference in fruit size
 - Save and redistribute resources!
- Thin to at least 6" between each fruit
 - UFSun = wider spacing btw. fruit





Fertilization

- Too much N after harvest= strong vegetative growth, fewer floral buds develop, other effects?



N0

N3

N4

N2



Fertilization

- Potassium
 - Important in cell division (phase 1 of fruit development)
 - Deficiency not often observed
 - Corrected with potassium sulfate

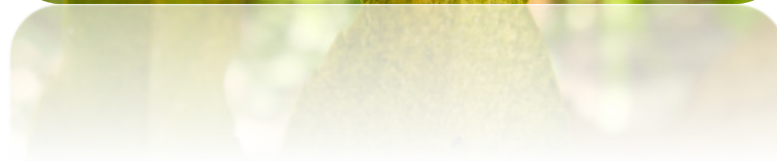


http://ucanr.edu/sites/fruitreport/Nutrition_-_Fertilization/Individual_Nutrients/Potassium/



Other Factors Affecting Fruit Size

- Insects
 - Chewing/sucking on leaves
 - Increases stress
 - Reduces photosynthates to fruit
- Diseases
 - Leaf/branch/fruit damage
 - Photosynthesis stress





When is the Fruit Ripe?

- Buyer minimums
 - Sugar
- Other important factors?
 - Melting vs. Non-melting texture
 - Acid
 - Color
 - Postharvest





Farmers Market Study 2013-2014



M. Olmstead and R. Kluson, Sarasota County Extension



Survey Methods



- Farmer's Market Survey
 - Focus on fruit appearance, shape, color, texture, liking
 - 100 volunteers
 - Conducted brix/firmness readings of fruit being sampled



What did they prefer?

- Texture correlated with:
 - Firmness
 - Flavor
 - Overall Liking
- Overall Liking *highly* correlated with flavor, but flavor was *not* correlated with sugar (Brix)

Importance of Acid?

What flavor compounds?

Aromas?

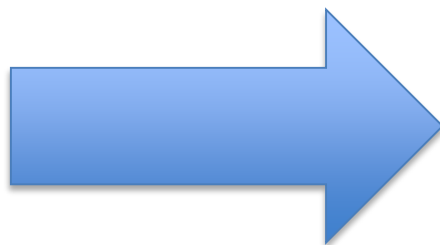


Asking America:

WHAT IS AN IDEAL PEACH?



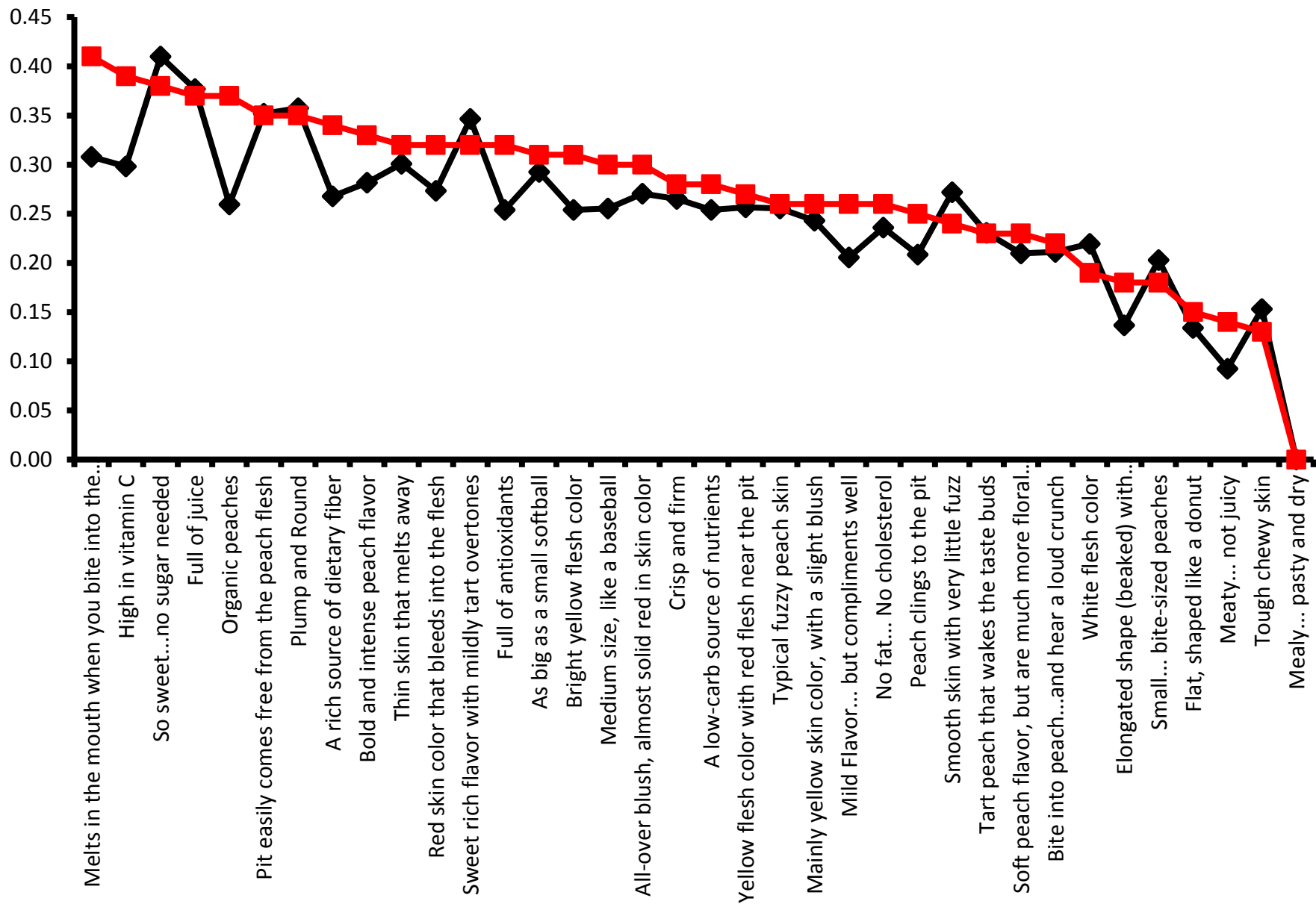
**Breed/produce
peaches that
consumers
want!**



**What are the
consumer
perceptions of
peaches?**

**How much are
they willing to
pay for
important
traits?**

◆ Interest Value ■ Willingness to Pay





An Ideal Peach for the U.S. Market?

Top Elements

- Melts in the mouth when you bite into the peach
- High in vitamin C
- So sweet...no sugar needed
- Full of juice
- Organic peaches

Negative Elements

- Small... bite-sized peaches
- Flat, shaped like a donut
- Meaty... not juicy
- Tough chewy skin
- Mealy... pasty and dry



Summary

- Minimize environmental stress
 - Drought
- Minimize cultural stress
 - Fertilizer
 - Cropload
 - Insects/Disease
 - Retain leaves through autumn to maximize carbohydrate storage



Questions?

