Thinning research, 2023

Franz Niederholzer, UCCE Advisor; Colusa/Sutter/Yuba Counties
Adela Contreras, UCCE South Sacramento Valley SRA (industry funded)
Luke Milliron, UCCE Farm Advisor; Butte/Glenn/Tehama Counties
Clarissa Reyes, UCCE Sutter/Yuba
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December 1-2, 2021

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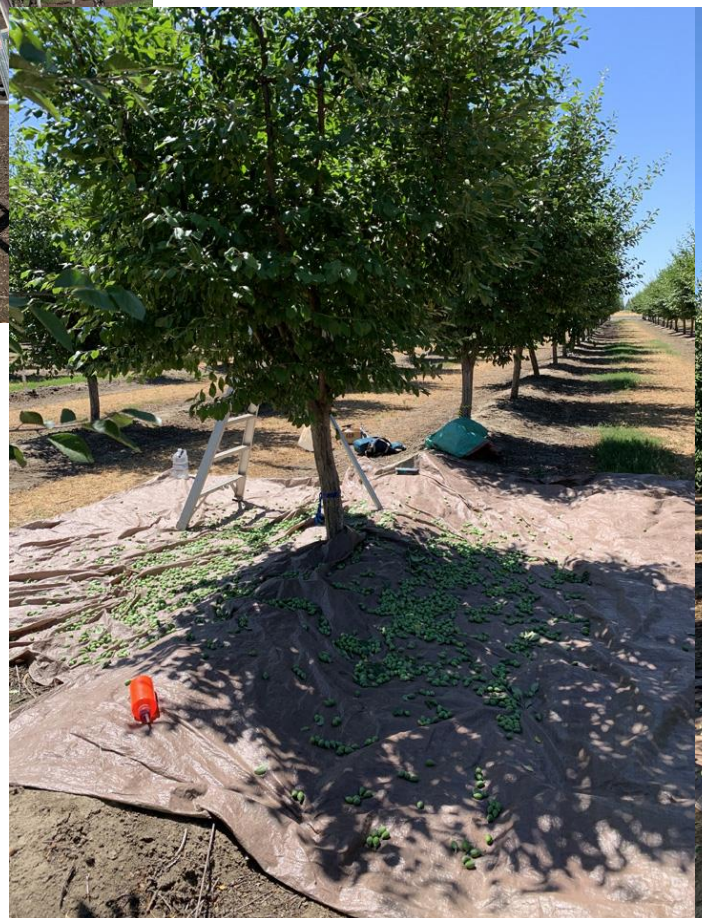


OBJECTIVES

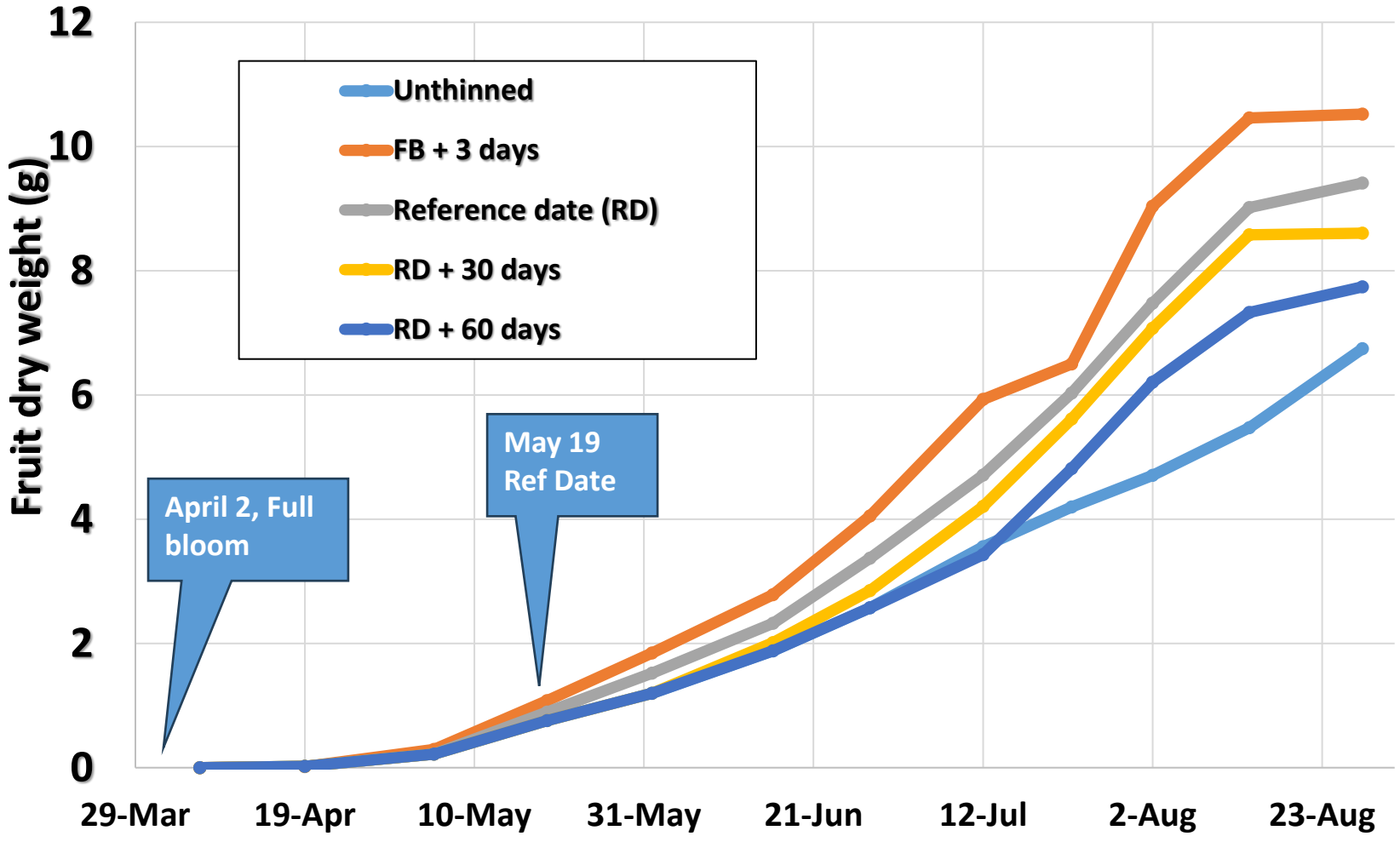
- **Heavily thin whole trees at flowering, reference date (RD), 30 days after RD, and 60 days after RD. Leave 5 trees unthinned.**
- **Determine the pattern of fruit dry weight accumulation over time and compare between different thinning treatments.**
- **Assess patterns of fruit growth and dry weight through the growing season to determine if/when growth maybe limited by source (resources) or sink (internal) conditions. Identifying differences in fruit growth potential may support and direct future research into cropload management/thinning practices.**

Thinning treatments and dates. 2023.

Full bloom = April 2, Reference date = May 19.

Thinning timing	Thinning Date		
Bloom	April 5		
Reference date	May 11		
Reference date + one month	June 9		
Reference date + two months	July 12		
Unthinned	------		

After thinning, fruit growth rate increased, but never "caught up" to fruit on earlier thinned trees. 2023. Control = 5700 fruit/tree

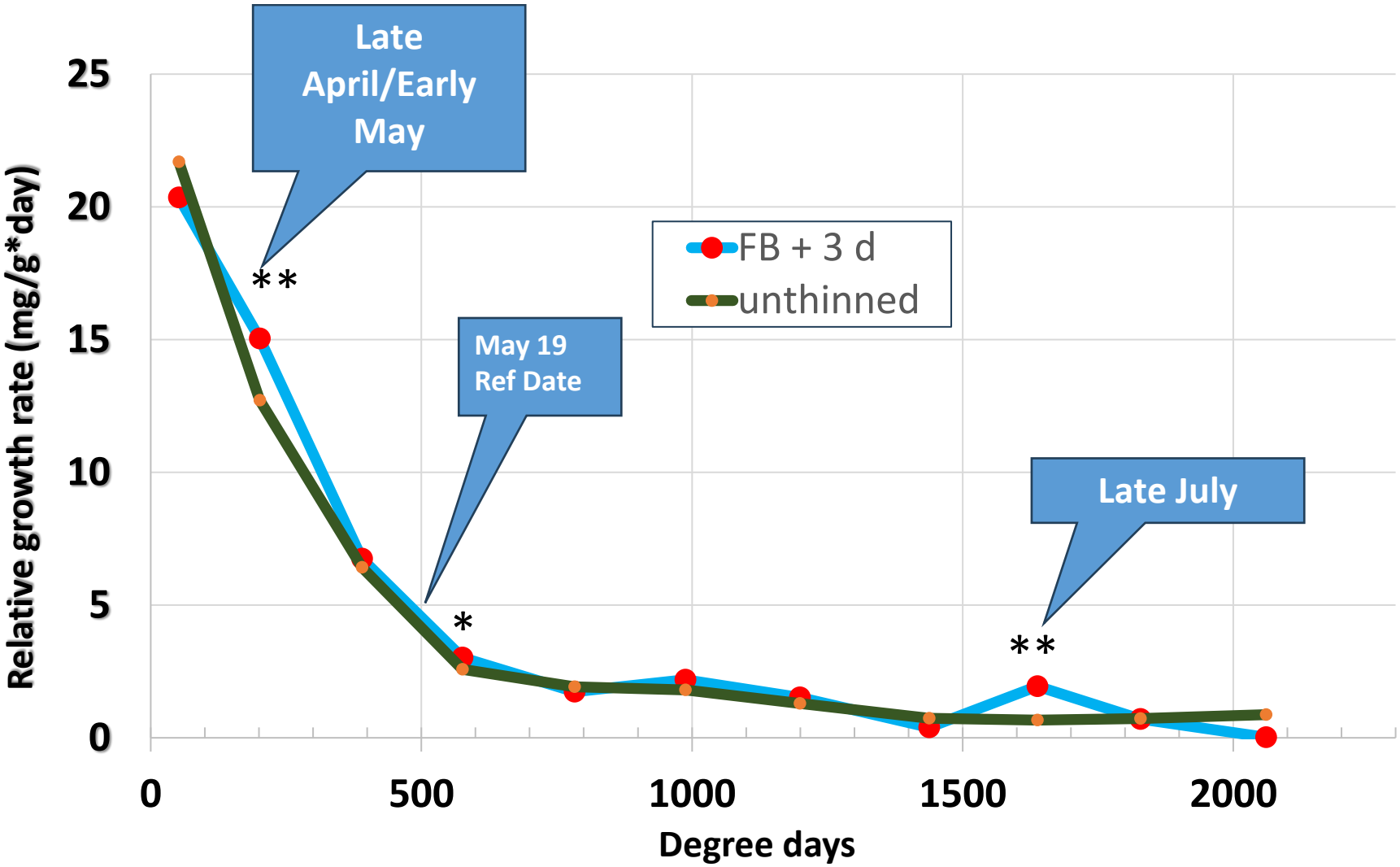


Thinning treatments effected dried fruit pound counts (harvested 8/28). Thinning timing did not affect sugar levels. 2023.

Thinning timing	Thinning Date	Soluble sugars (Aug 16)	Dried fruit (ct/lb.)
Bloom	April 5	27.0 a	43 a
Reference date	May 11	27.1 a	48 ab
Reference date + one month	June 9	27.3 a	53 bc
Reference date + two months	July 12	27.0 a	59 c
Unthinned*	------	21.6 b	67 d

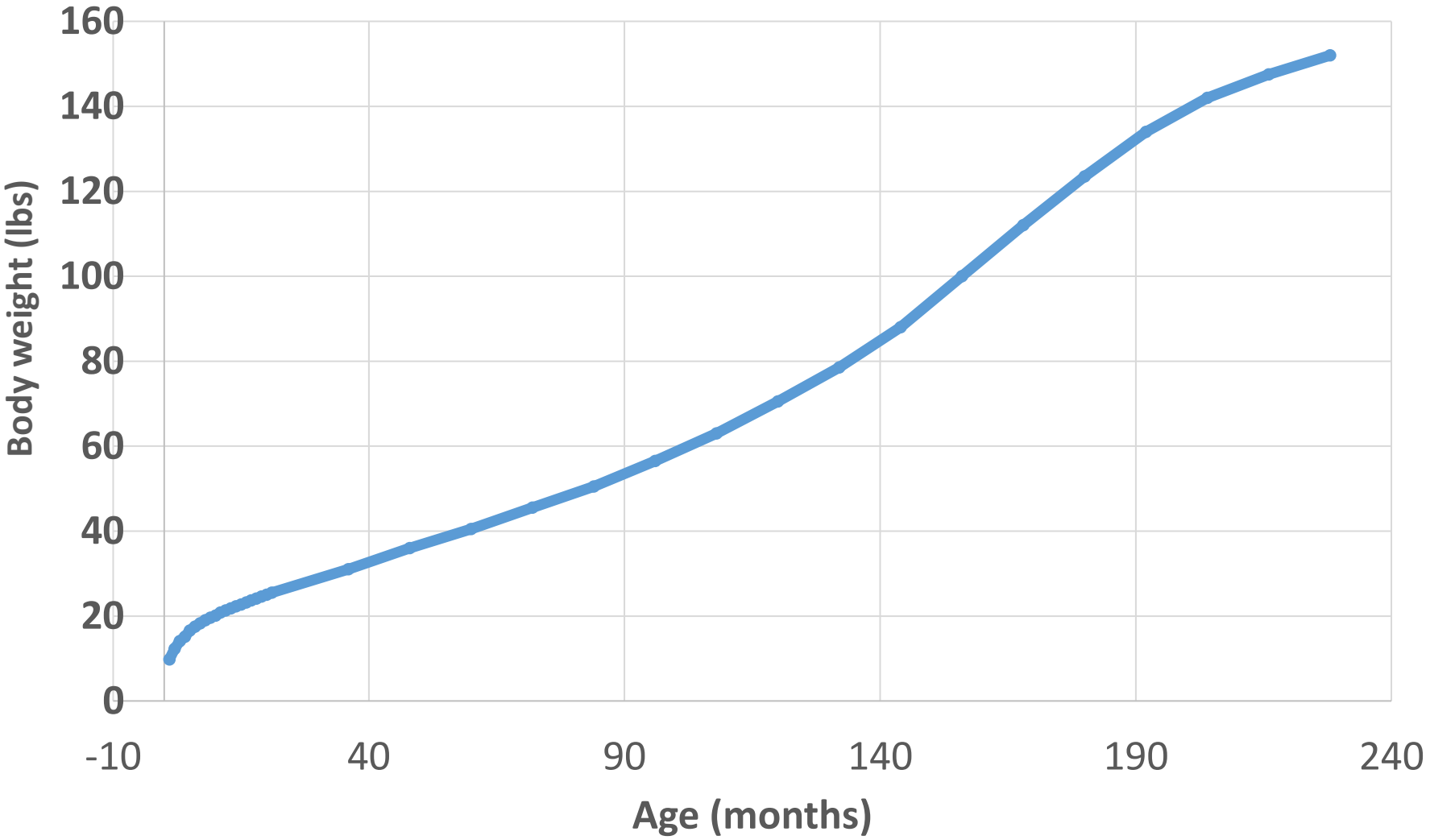
*Unthinned trees carried **5000-6500** fruit to harvest.

Relative growth rate (RGR, mg/gm*time) measures growth intensity. Prunes grow most intensely before reference date.

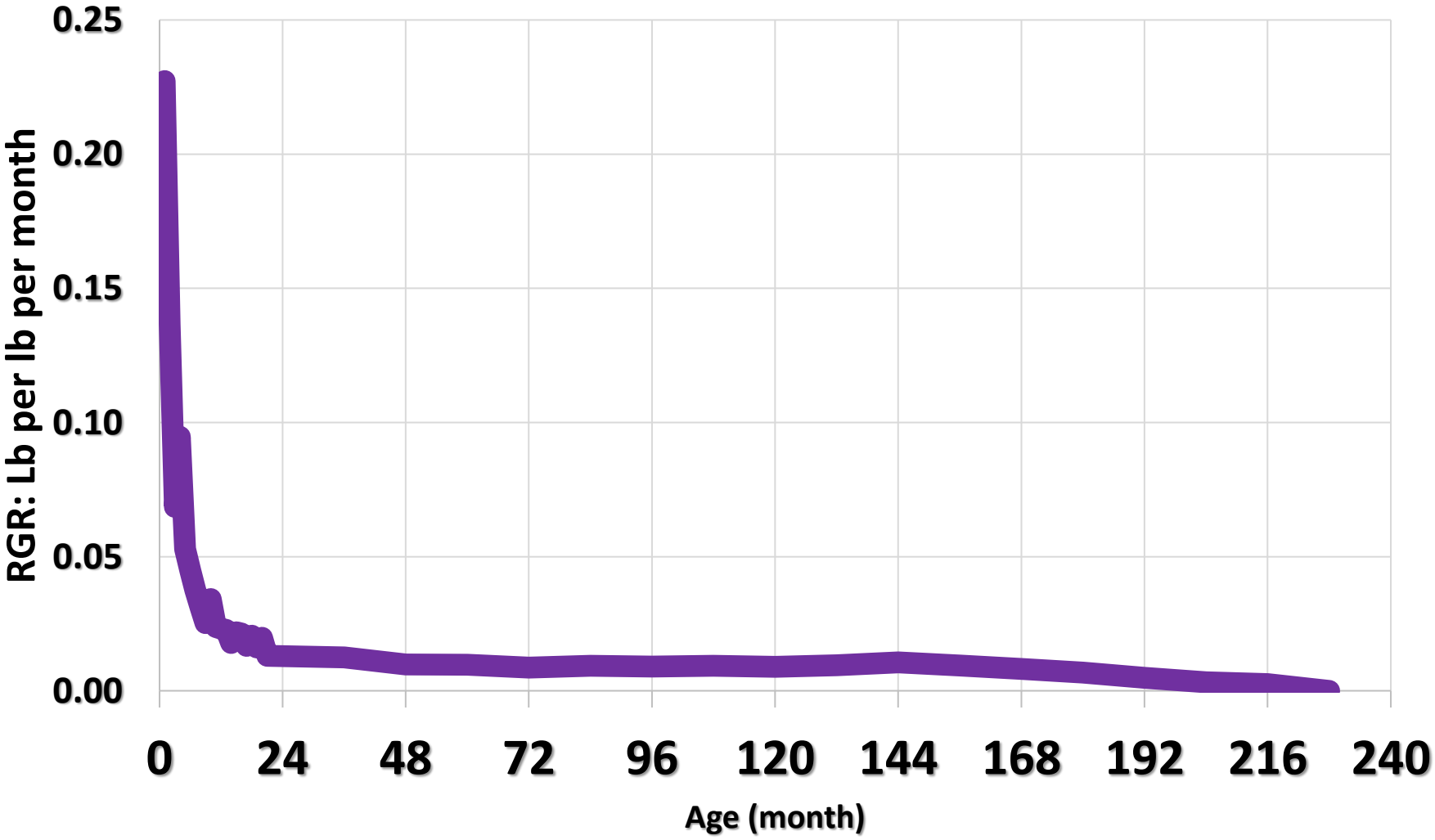


RGR?

As an example of RGR…Weight accumulation of a human (0-20 years).



Humans RGR (lb growth per lb total body wt each month). Humans also grow very rapidly in the first year after birth.



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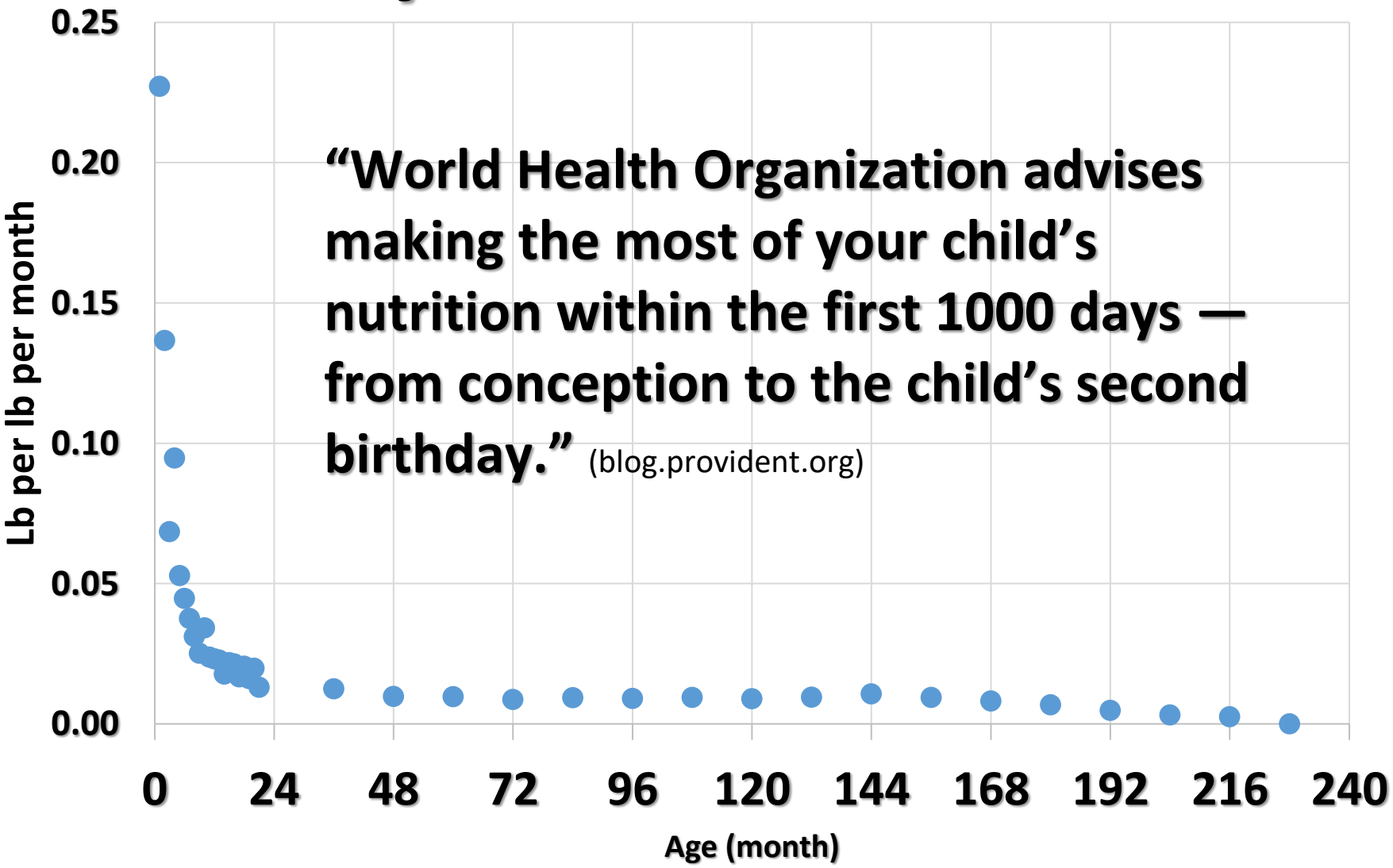

"World Health Organization advises making the most of your child's nutrition within the first 1000 days — from conception to the child's second birthday." (blog.provident.org)

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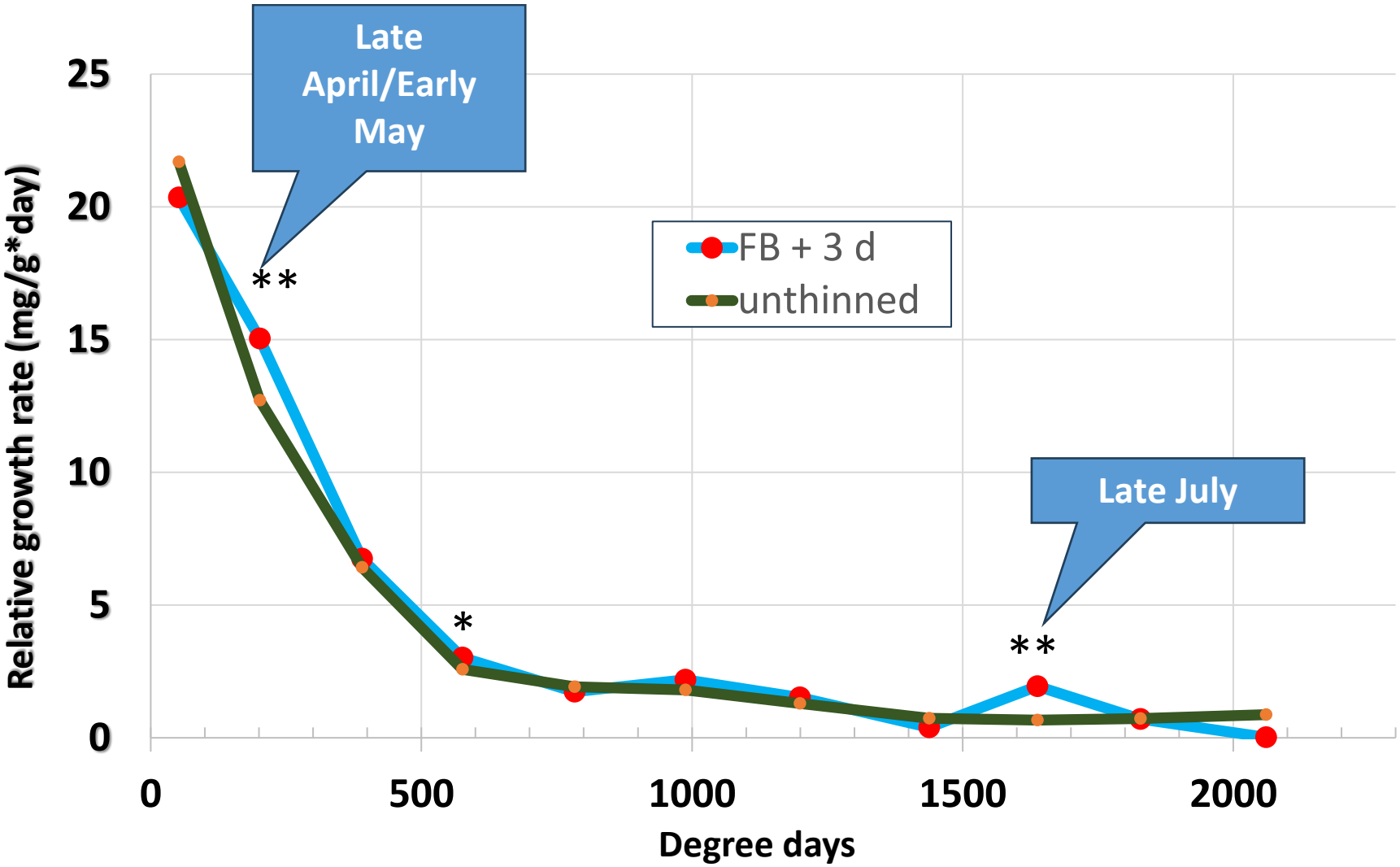
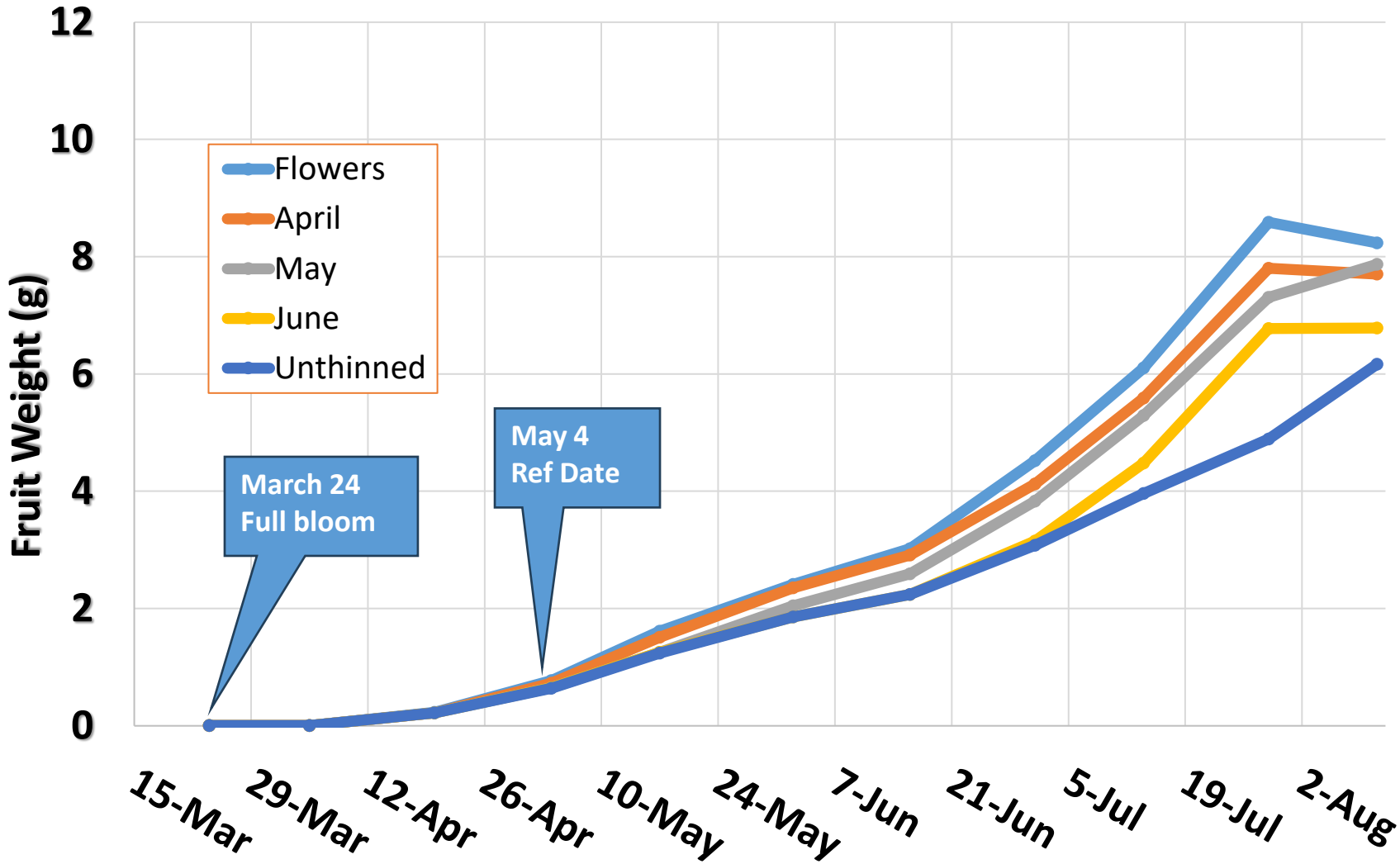


Conclusions…

- **Fruit growth/size didn't catch up with increasing delay in thinning, even when no external limit to resources (very light crop load). Fruit growth has a natural "governor", the genetic potential of that cultivar.**
- **RGR appears to respond to thinning (increases) in the weeks just prior to reference date and then again preharvest.**
- **There maybe some benefit to addressing earlier thinning – complete or partial – before reference date.(?) This would be particularly important in very heavy crop year (lots of flowers, good set).**

After thinning, fruit growth rate increased, but never "caught up" to fruit on earlier thinned trees. 2021, 3500 fruit/tree for control.



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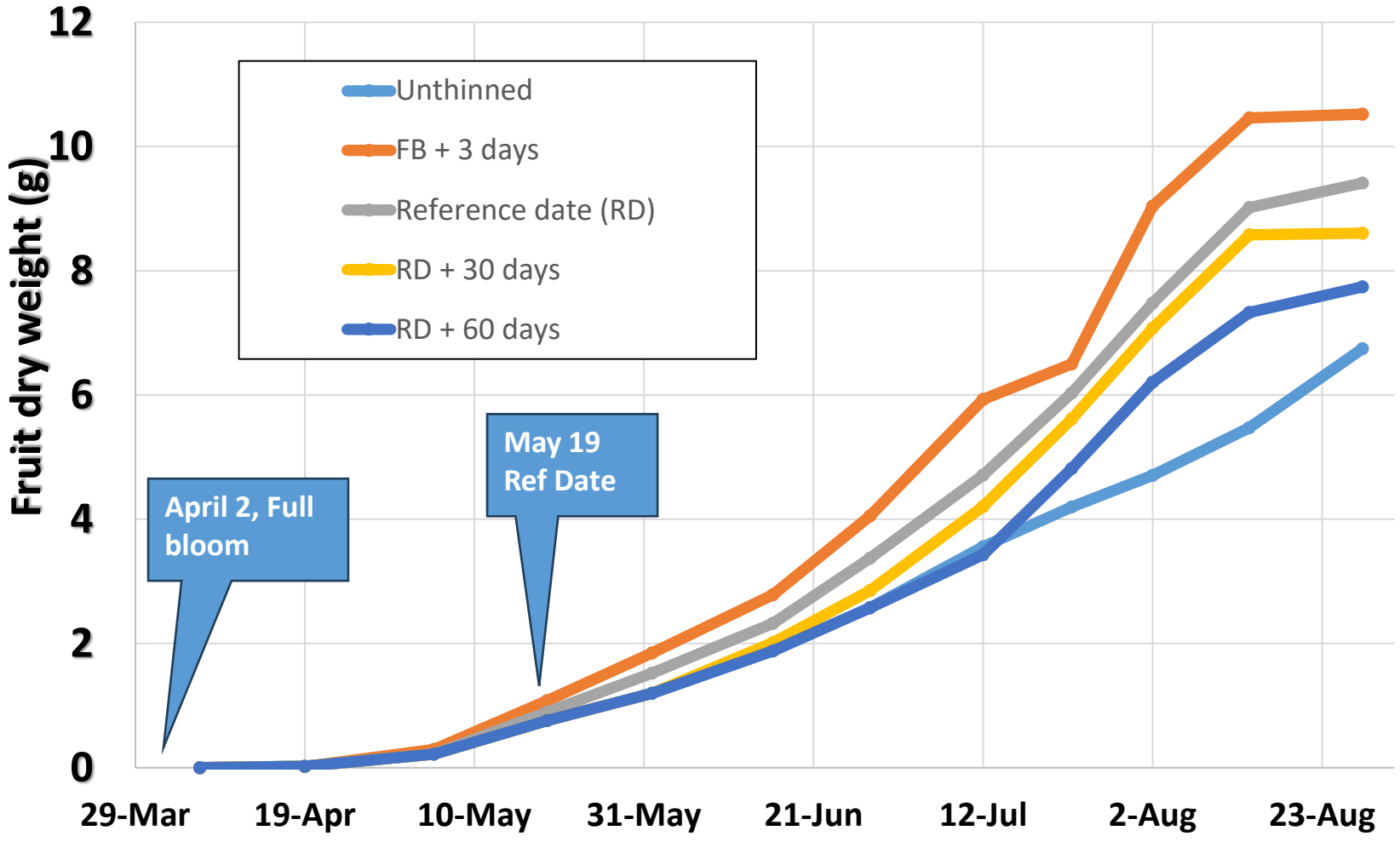

Questions?