

Use of PGRs to improve the growth and productivity of HLB-affected trees

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Take Home Messages

- Good canopy = more potential for fruit production
- Timely PGR application is critical for the desired benefit
- Gibberellic acid can improve yield and canopy
- 2, 4-D can reduce the pre-harvest fruit drop
- Cytokinin can improve canopy growth
- Use of 3 growth-promoting PGRs in combination can maximize benefit

Gibberellic Acid

- GA (10 oz per acre)+ adjuvant
- Repeated applications of GA are necessary
- GA will keep the fruit green, 2–4-month gap should be given between last application and harvest
- GA does not reduce Brix when appropriate gap is given between last application and harvest
- GA keeps fruit green and reduces the drop thus, extends harvest window

Gibberellic Acid Timing

- Hamlin: August-November
- Valencia: September-December
- GA application during October-January will reduce the return bloom
- GA should be avoided between January-May
- Spring (March-May) GA application enhances the fruit set which is not desirable given current tree conditions

Gibberellic Acid on Grapefruit

- GA application on grapefruit trees can help with improving canopy
- GA fruit are significantly greener, even after 2 months of gap between application and harvest
- Do not spray grapefruit or any fresh variety past September
 - Canopy boost
 - Is likely to not affect fruit drop in that season

Untreated



GA-treated

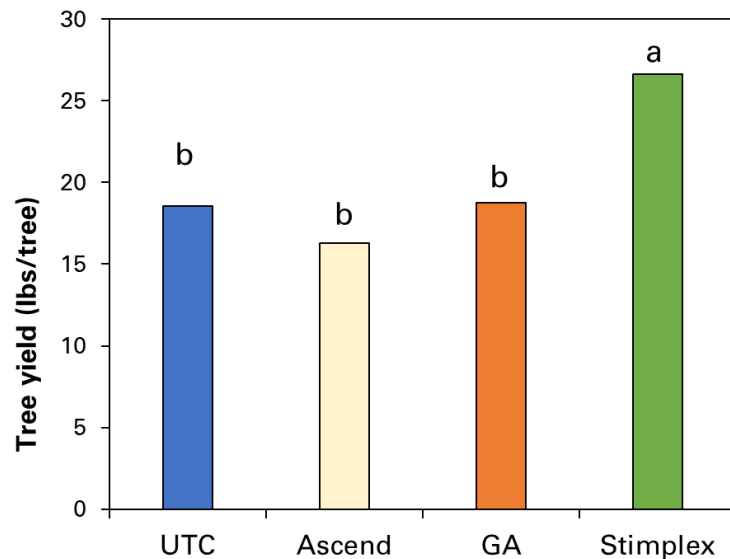


2,4-D

- 2,4-D (a synthetic auxin)
- Repeated application of 2,4-D (alone and in combination with GA) reduces fruit drop
- Repeated application of auxin counteracts the abscission signal, thus enhancing fruit retention
- Right timing of application is critical!
 - Too early or too late will not help
 - Know your variety

Cytokinin

- Spring application of cytokinin seems promising
- The buds of HLB-affected trees show reduced levels of cytokinin in spring
 - 0.5% Cytokinin (Validate)
 - Seaweed extract (rich in cytokinin), Stimplex



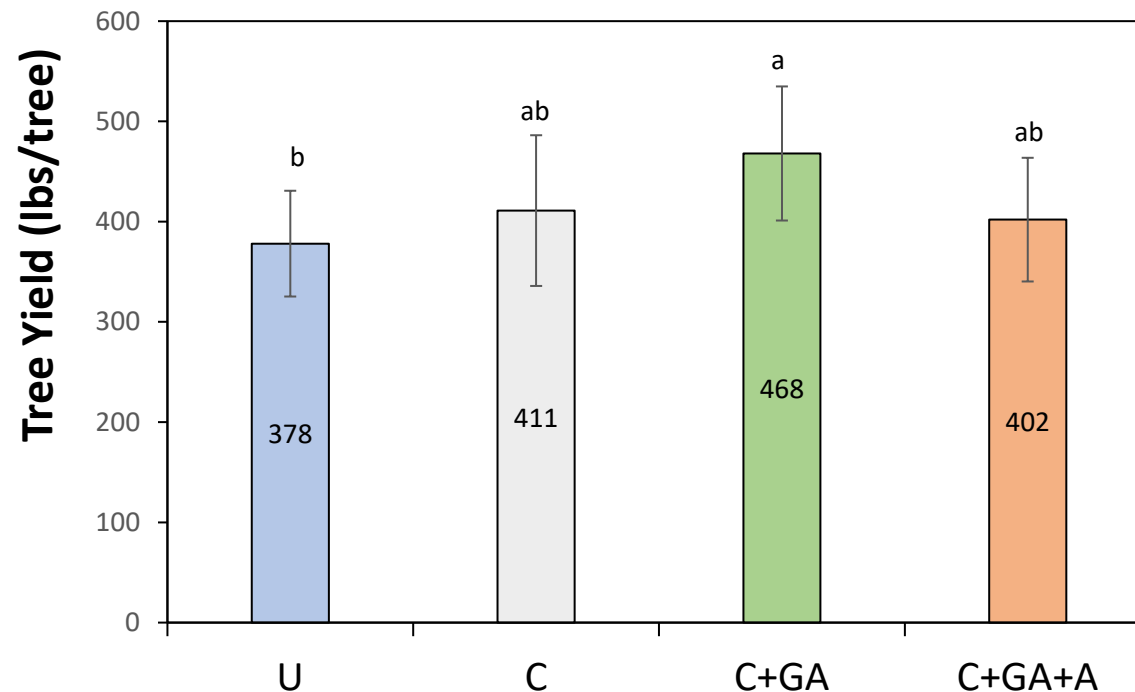
- Stimplex-treated trees had significantly higher yield than control, ascend, and GA
- Spring application of GA is not as beneficial

What can growers do?

- Rotating PGRs according to tree phenology
- Cytokinin in spring, GA in summer, and 2,4 D in late fall

The grower collaborator has very low fruit drop, 2,4-D does not seem to be helpful when fruit drop is not an issue.

Untreated Control	U
Cytokinin 12oz March/Apr/May	C
Cytokinin 12oz Apr/May + Progibb Jul/Sep/Nov	C+GA
Cytokinin 12oz Apr/May + Progibb Jul/Sep/Nov + 2,4-D (Sep/Nov)	C+GA+ A



Use of Cytokinin (Spring) and GA (Summer) increased yield by approximately 90 lb/tree

Number of PGRs are available for Florida use

- Comprehensive list of PGRs available for Florida use can be found in citrus production guide
- Read label carefully for concentration and rate of recommended use
- Example

	Progibb	Ascend	Radiate	Cytoplex	Home	Receptor	Stimplex
IBA (Auxin) (%)	0	0.045	0.85	0.005	0.005	0.0042	0
GA (%)	5.7	0.03	0	0.004	0.005	0.0026	0
Cytokinin (%)	0	0.09	0.15	0.01	0.01	0.0084	0.01
oz per acre	10	6	13	32	32	32	56
no. of application	4	3	2	12	12	12	5

Thank you!

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Any questions?

Thank you!

