A Multi-Pronged Strategy for Managing Honeycrisp in 2020

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Six key strategies to managing Honeycrisp in 2020

1) Precision pruning to manage biennial bearing
2) Bloom Thinning to manage biennial bearing
3) Precision Post bloom thinning to manage crop load
4) Fruit mineral analysis to segregate fruit at harvest and to adjust fertilizer programs
5) Passive bitter prediction assay to determine pre-storage conditioning, storage temperature and marketing strategy
6) Using PGR's to manage harvest if bitter pit risk is low (Retain=August 24, Harvista= Sept. 7 Blush=Aug. 24+Sept. 7)

The Key Actions for Managing Honeycrisp in 2020:

1. Precision Prune trees to 1.8 flower buds per final target fruit number.
2. Blossom Thin using ATS and the PTGM.
3. Chemically Thin using the "Precision Thinning Program" and measure response with fruit growth rate model.
4. Apply summer return bloom sprays of Ethrel (2X in late June) and NAA (2-3X in July).
5. Use precision hand thinning when fruits are 25 mm or June 15
6. Measure Fruit Mineral Concentration. Sample fruitlets in mid-July and measure peel levels of K/Ca (<25). Use this information to adjust nutrition program.
7. Passive Bitter Pit Prediction: Sample 100 fruits on Aug. 11 and store at 68°F and evaluate bitter pit after 3 weeks.
8. Segregate fruit based on bitter pit risk and nutrient status.

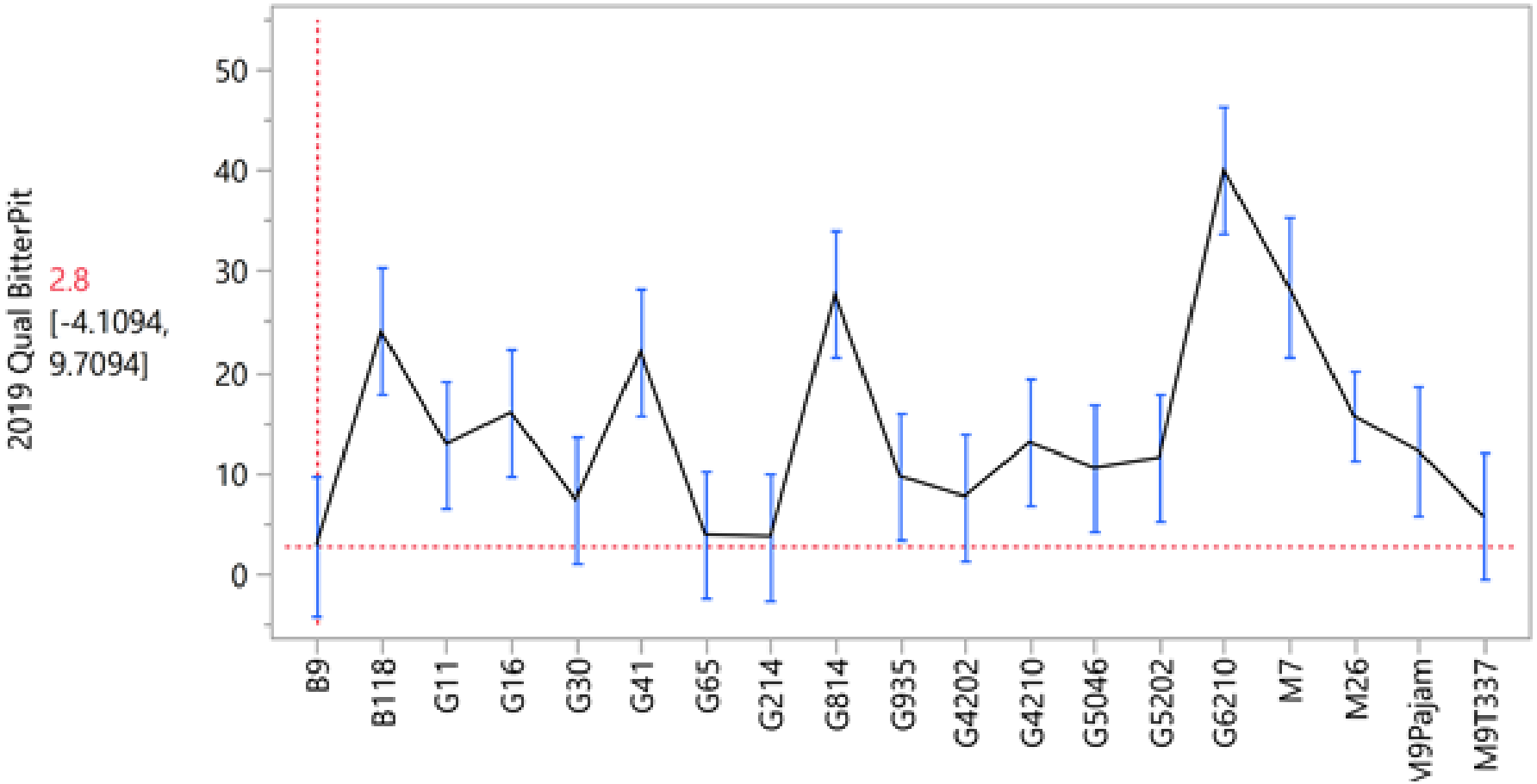
Peel Sap Nutrient Results for Honeycrisp in WNY - 2020

- 287 samples
- 5 Counties (Niagara, Orleans, Wayne, Ontario, Onondaga)

WNY	Ca	K	Mg	P	K/Ca	Mg/Ca	P/Ca	K+Mg+P/Ca
Mean	89.7	2224.0	159.7	117.2	25.4	1.8	1.3	28.6
Minimum	36.7	892.3	73.2	63.1	13.6	1.1	0.6	16.5
Maximum	143.2	3127.0	229.2	206.2	45.7	3.2	2.7	50.7

- No differences among counties
- No clear effect of irrigation
- No clear differences among rootstocks although few B.9 samples had high ratios

Rootstock effect on Bitter pit in Honeycrisp



Suggestions for post harvest treatment and storage based on fruit mineral ratios

- If K/Ca ratio is below 23 (or K+Mg+P/Ca is below 26) then consider long-term storage
- If K/Ca ratio is between 23-26 or (K+Mg+P/Ca is between 26-29) then consider medium term storage
- If K/Ca ratio is above 26 or (K+Mg+P/Ca if above 29) then store for only short period (1 month then) market. TLR opinion: No smart fresh on these blocks

The Next Steps for Managing Honeycrisp in 2020:

1. Measure crop load on same trees used for peel sap analysis. (Send data to Terence Robinson)
2. Determine pre-conditioning strategy based on bitter pit risk
   - Precondition at 50°F for one week when risk of bitter pit is low then store at 38°F
   - Don't pre-condition when risk is high store immediately at 38°F.
3. With high bitter pit fruit store for 1 month at 38°F (with no pre-conditioning) before packing.
4. Segregate fruit based on bitter pit risk and nutrient status
   - If nutrient ratios are good and risk of bitter pit risk is low then consider storing for late sales.
   - If nutrient ratios are intermediate then store for mid-season sales.
   - If nutrient ratios are poor then sell soon after harvest with no Smartfresh.