

SUPPORTING  FRUIT PRODUCTION

OHIO FRUIT NEWS

August 2017

Mini-Newsletter

Tree Fruit Update

By: Diane Miller

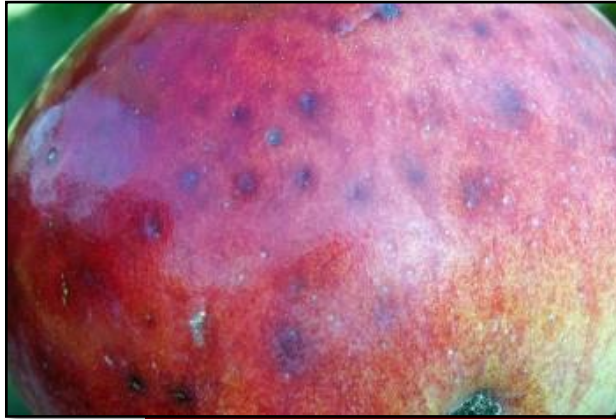
1) Honeycrisp Nutrition

As we enter August in this earlier-than-usual 2017 season, Honeycrisp apple is on the radar. Honeycrisp is a challenge to grow but the rewards in price achieved and consumer satisfaction make it a 'must have' apple. From a grower perspective, the challenges of growing Honeycrisp predominately revolve around mineral nutrition management (at least until the fruit pecking birds arrive). Viewed through that lens, crop load is an aspect of mineral nutrition management. Let's take a quick tour through the problems that might be found right now in Honeycrisp:

Cork spot/bitter pit: Apples from young trees and trees with a light crop load often exhibit corking on the bottom half. This is from inadequate calcium in the fruit. Calcium is essential for cell structural integrity, and in lack, cells are essentially tearing apart (and patching over) as these large fruit expand (cellular breakdown on the tree). Bitter pit (cellular breakdown off the tree) can show up in storage and result in unsatisfied customers.

How to get more calcium into the fruit? If corking is seen, the problem cannot be solved this time of year. The trick is to work at getting calcium into the fruit, although calcium naturally flows much more to the shoots and leaves. The GoodFruit Grower had an excellent article based on Dr. Lailiang Cheng's research at Cornell on year-long calcium management strategies for Honeycrisp (<http://www.goodfruit.com/managing-honeycrisp-nutrition/>). Dr. Cheng discusses the interactions among nitrogen, potassium, magnesium (avoid sprays during the season) and calcium (do spray) throughout the season and how to get the balance needed to get adequate calcium into the fruit. As opposed to other varieties where this balance just sort of happens, with Honeycrisp and its extra textural crispness, grower intervention helps/is essential. A recent Fruit Growers News article (<http://fruitgrowersnews.com/article/crop-load-better-nutrient-management-curb-bitter-pit/>) relays the work ongoing at Penn State by Drs. Baugher, Marini and Schupp to really quantify bitter pit as affected by crop load and N+K+Mg/Ca levels.

Poorly colored fruit: Over-cropping of trees results in green color, small size and lower sugar levels. Since Honeycrisp is harvested so early, we can't rely on cool nights to get red fruit color (as with later season red apples). As with other apples, over-cropping will reduce bloom next season resulting in that dreaded biennial-ness.



Apple with symptoms of bitter pit

Leaf Chlorosis: It is amazing to see zonal chlorosis (yellowing of Honeycrisp leaves) variable even within a tree. This is not a nitrogen issue and don't spray nitrogen to solve it! Leaves turn yellow from an excess of carbohydrates, and poor carbohydrate source/sink movement. In other words, carbohydrates build up in the leaves and don't get translocated out. Since fruit are a 'sink' for carbohydrates, heavier fruit trees tend to have less yellowing and more draw for the leaf 'source' carbohydrates. This chlorosis can be ignored (for the moment), however, realizing the tree system is not functioning optimally. Likely an overall strategy for optimizing the crop load and N+K+Mg/Ca levels will minimize leaf chlorosis.

2) Honeycrisp Progeny Varieties:

Honeycrisp has been a very good parent in the Midwest Apple Improvement Association (MAIA) apple breeding project. There is no doubt that apples with Honeycrisp-type texture are the customer-preferred future of apples. Ideally the baggage of the Honeycrisp production difficulties is not present in progeny. There are several new MAIA releases with Honeycrisp as a parent; and there are more on the way.

EverCrisp has Honeycrisp as a parent. EverCrisp can exhibit the leaf chlorosis of Honeycrisp. EverCrisp has a variation on the very crisp texture of Honeycrisp as well as very long keeping quality and a late harvest date. EverCrisp hasn't shown the bitter pitting tendencies of Honeycrisp, although we will see what shows up as it is grown in wider and wider circumstances. Certainly any apple can bitter pit from young trees or very light cropping.

MAIA-12 has Honeycrisp as a parent. This apple ripens in a similar season to Honeycrisp, hasn't shown leaf chlorosis or bitter pit and has a very crisp texture that is not quite as explosive as Honeycrisp but is close. This very grower friendly selection has been preferred to, or equal to, Honeycrisp in MAIA consumer tastings at on-farm markets. MAIA-12 stores well but doesn't have the long-term Honeycrisp keeping.

MAIA-11 has Honeycrisp as a parent. This apple ripens in the Golden Delicious window. In limited production trials, we have not seen leaf chlorosis or bitter pit in MAIA-11. This apple stores very well if it enters storage intact. It is a sweet apple with some floral overtones.

Stink Bugs in Tree Fruit

By: Celeste Welty



Apple damaged by brown marmorated stink bug

Stink bug injury is becoming noticeable in ripening peaches as well as in apples. At our orchards in Columbus, the most common species that is currently active is the brown marmorated stink bug, but we are also seeing the dusky stink bug, which is a small brown bug, and occasionally some one-spotted stink bug, which is a medium-sized brown bug, and the green stink bug. The population of brown marmorated stink bug at the present time is mostly late-stage nymphs, but this week we are starting to see new adults. The brown marmorated stink bug is a new invasive species that is slowly spreading around Ohio, with known hot-spots in Columbus, Cincinnati, Youngstown, and Marietta. We have stink bug pheromone traps deployed at 21 locations around Ohio; weekly trap counts can be viewed online:

(<https://docs.google.com/spreadsheets/d/1LtyYFH06PRhb2OOij97pMULqDuL9zOnDRuNinl3dxzk/edit?usp=sharing>)

It is typically in late July and early August that the new adults emerge and disperse through the orchards, at which time we see an increase in their injury to fruit if insecticide sprays are not applied to kill the bugs. Trials in the mid-Atlantic region, where the brown marmorated stink bug is now well established, have shown that the neonicotinoids are generally the most effective insecticides, as well as some carbamates and some pyrethroids. Insecticide options for peaches and apples are shown in the table below, with their required pre-harvest interval (PHI) and maximum number of applications allowed. Keep the pre-harvest intervals in mind, particularly on early-ripening varieties.



Peach being attacked by brown marmorated stink bug

Product	Efficacy on BMSB ^a	Pre-harvest interval (days) ^b	Maximum number of applications (when used at high rate)	Pre-harvest interval (days) ^a	Maximum number of applications (when used at high rate)
Neonicotinids (group 4A):					
Actara	E	14	2	(14)	(3)
Admire Pro	G	0	3	(7)	(5)
Assail	E	7	4	(7)	(4)
Belay	E	21	2	7	1
Carbamates (group 1A):					
Lannate	E	4	6	14	5
Sevin	F	(3)	(2)	(3)	(8)
Vydate	G	-	-	(14)	(4)
Pyrethroids (group 3A):					
Asana	F	14	5	21	7
Baythroid XL	G	7	2	7	1
Danitol	E	3	2	14	2
Mustang Maxx	F	14	6	14	6
Pounce	F	(14)	(3)	-	-
Proaxis	F?	14	5	21	5
Warrior	G	14	4	21	4

^a Efficacy ratings: E = excellent; G = good; F = fair.

^b Products for which PHI and applications are in parentheses are those which do not include stink bugs on the label as target pests for the crop, but which are known to provide control of stink bugs.

Summer Care of Blackberries

By: Gary Gao

The 2017 growing season has been very strange so far with above average rain fall during the summer months and air temperatures on the mild side. Although it is refreshing to have a few pleasant days during the summer! We are growing Chester Thronless, Natchez, Ouachita, and several Polish blackberry cultivars in our cultivar trial this year. Our research crew members have been picking blackberries at OSU South Centers in Piketon for several weeks and except for cv. Chester, which is a late-ripening cultivar, most of our blackberry fruit have been picked. Berry quality has been very good with a large fruit set and lots of large sized fruit.

There are several summer care chores that grower can do to maintain healthy and productive blackberry bushes. These are mainly for hedge row production systems since rotatable cross arm trellis system (RCA™) has a different to-do-list (look for a future article on



Ripe blackberries

1. **Keep picking ripening fruits:** Any unripened (and ripe) fruit that remains on the bush can be a source of disease and attract insects resulting in insect damage from continued feeding.
2. **Spray for insect pests:** Apply labeled insecticides to control spotted wing drosophila, if needed. Make sure you choose an insecticide with a post-harvest interval that will not interfere with harvesting.
3. **Practice summer tipping:** Remove 4-6 inches of the shoot tips on primocanes after they reach the top wire to encourage the formation of lateral shoots. Only remove portions of the shoot tips that are above the top wire.
4. **Remove floricanes:** Remove fruited floricanes any time after they fruit and turn yellow. Some growers may wait until the dormant season to do this too. I was told that delaying floricanes removal may help bushes recycle more nutrients and carbohydrates back to the crowns and roots, thus helps them with winter hardiness.
5. **Get fertility tested:** Take tissue samples and have them tested for major nutrients. Nutrient tests will assist you with managing fertility this fall and next spring.
6. **Apply fertilizer:** Apply phosphate and potassium in September or October.

(Right) Chester Thornless blackberry bushes with ripening fruits
(by Gary Gao)



(Left) Summer tipping of primocanes promotes the development of laterals for berry fruit production next year
(by Gary Gao)

Grower Resources:

[Midwest Fruit Pest Management Guide 2017](#)

[OSU Fruit Pathology Resources](#)

[OSU Fruit and Vegetable Pest Management](#)

[OSU Fruit and Vegetable Diagnostic Laboratory](#)



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