

Harvest Maturity Report #6



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This is the sixth Apple Maturity Report for the 2013 harvest season. Reports will be sent out every week (usually Wednesday afternoons), with supplemental reports during peak season if needed.

- **Gala – First** spot-pick completed for many, **see pages 2-3**.
- **McIntosh** – The harvesting of early Macs strains has begun for most, including Marshall and Spur Mac. Most of the regular maturing Mac strains are won't be ready at least until the middle of next week. This week internal ethylene remained fairly low on untreated samples and those treated with Retain (plus or minus NAA). It seems there was almost as much detectable internal ethylene in the treated samples. However, the heat of the past two days could bring problems for those who have had a history of preharvest drop in the past. **Monitor Mac blocks closely.** There is relief in the form of cooler weather patterns forecasted for much of the next 10 days, which would lend itself to holding back ethylene and preharvest drop potential. As always, this is a block by block decision, **with past history being a key**. See **pages 3-4** in this report for testing data on different strains of Macs, including how to tell the difference between push-off and drop.
- **Jonamac** – Picking finishing up soon. The 3 untreated samples I looked at this week had an averages firmness of 15.9 pounds, a brix of 10.8%, and a starch index of 3.2.
- **Honeycrisp** – There are **very few** blocks that warrant a first pick this week. Most blocks will see the first spot pick next week. **See pages 4-5**.
- **Autumn Crisp (NY674)** - The 4 samples I looked at this week had wide variability in maturity. Some are ready for harvest for the slicer market, while some will be ready early next week for processing, and still others are quite unripe and needed final coloring and development of varietal flavor. Firmness was at 12.5-15.7 pounds, brix 10-12.5%, and starch indices 2.9-6.
- **SnapDragon (Formerly NY1)** – I just started to look at a few samples this week. **Fruit are quite a ways from harvest.** There was little starch movement or varietal flavor. Full color break and final sizing is needed as well. Fruit were well over 20 pounds firmness.

Overall Maturity Issues:

If the 5-10 day weather forecast proves correct, fruit will move through the harvest window rather quickly. Growers should monitor individual blocks every 2-3 days.

Weather Forecast For most of the fruit belt in Western NY, after the record heat of the past 2 days, things will return more towards normal. Forecasted thunderstorms with highs in the upper 70's seem to be at 80% for Thursday. Much cooler weather will prevail from Friday through Tuesday, with highs in the upper 50s through upper 60s, with lows in the 40s and 50s. If you can believe in the accuracy of a 10 day forecast (HAHA!) the remainder of next week looks similar. There should be some days full sun and some partly cloudy with only 10-30% chance for rain any day after tomorrow, for what it's worth!

Gala- First spot-pick finished or in progress for most

Color on most of the Gala I've seen are excellent, as is size. There are some blocks of fruit out there that still need more color and development of varietal flavor, however. With inadequate thinning on some blocks, along with extended bloom and fruit on 1 year wood, some Gala may require more picks than usual. Keep in mind it is inherent in this variety to have such variability in maturity.

In concert with acceptable flavor, Gala for long-term CA storage should be picked when the background color is changing from light green to cream. Fruit intended for short term CA or regular storage should be picked with cream to light yellow background. Fruit that are bright yellow are over-mature and should not be put in storage-i.e. market those immediately. As your block gets close to first pick, check blocks every two to three days for color and varietal flavor development.

Please know your different strains- a highly coloring strain is not necessarily more mature than an older, lesser coloring strain. Although color change is usually one of the best indicators for this variety, keep in mind that varietal flavor is also extremely important.

Watch for greasiness and stem-cracking on Galas, a sign of over-maturity. Do not put these fruit in the bin.

15 non-Retain + 7 Retain-treated Gala blocks tested in Western NY on September 9th & 10th, 2013.

Index	Non-Retain September 9-10, 2013		Retain September 9-10, 2013		Non-Retain September 3-4, 2013		Non-Retain September 4-5, 2012	
	Average	Range	Average	Range	Average	Range	Average	Range
	n=15		n=7		n=20		n=5	
Firmness (lb.)	19.1	17.0-21.7	20.1	19.4-21.2	20.3	17.3-23.0	20.2	18.5-21.7
Soluble Solids (%)	11.3	9.0-13.2	11.6	10.1-13.3	10.8	9.5-13.5	13.5	10.8-17.7
Starch Index	3.7	1.8-5.0	3.3	1.5-5.0	2.5	1.1-4.1	4.2	3.3-5.5

McIntosh – Harvest of Marshall& Spur Macs occurring, other strains not ready yet

Where color allows and varietal flavor and other maturity indices are acceptable, Marshalls and Spurs are being picked. Rogers & Buhr Macs, your standard strains, will not be ready until mid to late next week for most blocks in our territory. The later strains (Pioneer, Linda, Ruby, Red Max, etc.) will follow a few days after that. CA storage guidelines have Macs at 5-6 starch index, with pressures above 15 pounds.

14 non-treated and 10 Retain/NAA treated (many different strains) blocks tested in WNY on September 9 & 10, 2013

Index	Sept. 9 & 10, 2013 untreated		Sept. 9 & 10, 2013 Retain +/- NAA		Sept. 3 & 4, 2013 untreated		Sept. 3 & 4, 2013 Retain +/- NAA	
	AVG.	Range	AVG.	Range	AVG.	Range	AVG.	Range
	All strains n=14 samples		All strains n=10 samples		All strains n=14 samples		All strains n=8 samples	
Firmness (lb.)	15.4	14.6-16.4	15.7	14.8-16.7	16.4	15.3-18.4	16.4	15.5-17.2
Sol. Sol. (%)	11.0	10.0-12.2	10.1	8.0-11.8	11.2	8.7-12.5	11.3	9.2-13.5
Starch Index	4.2	3.1-5.0	4.5	3.5-5.7	3.5	2.9-4.4	3.8	3.0-5.1
Ethylene (ppm)	4.4	0.01-55.0	6.6	0.01-64.2	8.67	0-72.7	0.14	0.03-0.37
Producing > 0.5 ppm ethylene	5% (6/120)		15% (8/55)		25% (35/140)		5% (2/40)	

As a reminder, some of the newer highly-coloring Mac strains such as Linda & Ruby may be fully colored now but there are by no means mature. They actually mature slightly later than your standard Rogers/Buhr strains. There is little varietal flavor and some final sizing may be needed. Color is usually a poor indicator of maturity. We are waiting on varietal flavor development, final sizing/coloring, pressures declining, and starch movement into acceptable range for intended market.

Preharvest drop risk: Start with blocks that have a history of preharvest drop. Examine fruit already on the ground. Any fruit on the ground that has bitter bit, or major pest damage- or anything that caused the fruit to mature ahead of the rest of fruit should not be considered preharvest drop. Gently tap limbs and look for drop or push-off. **PUSH-OFF** – fruit is missing stems, has flat spots or limb creases – often occurs from large clusters of fruit bumping one another, seen this year- this is not drop, nor it is it ethylene-driven.

DROP – fruit is loose on tree, fruit has stems.

Evaluate each block for drop and storage potential on an individual basis. Consult with your marketer and storage operator if applicable.

Honeycrisp – first spot pick starting sometime next week for most

The cooler weather prior to Tuesday really helped HC coloring and overall advancement of maturity. However, full color break is not quite there for nearly every block I've looked at, and full varietal flavor was also lacking. Remember, this is a multiple-pick variety (plan to pick 3-4 times), but only the earlier picks tend to store best. Young trees also tend to have poor-storing fruit.

Do not pick fruit that has not developed varietal flavor and proper color. Picking under-ripe fruit will kill repeat sales! Look for color that “jumps out” when the yellow background color makes the red almost florescent or iridescent. **Once color change has happened, then an every other day walk-through is warranted to determine readiness.**

Honeycrisp is susceptible to soft scald and soggy breakdown. **The correct storage temperature is 38F** in regular atmosphere, and we recommend a delay of 7 days at around 50F before cold storage. A starch index above 7 and a pressure above 14 pounds is recommended for storage beyond a few days. Consider using SmartFresh on air-stored Honeycrisp to delay greasiness and retain acid flavor components. If fruit have high bitter pit risk, however, the delay treatment will aggravate the risk of bitter pit development. It may be better to cool these fruit immediately after harvest and market them quickly. If you see bitter pit in fruit on the trees, more will show up in storage, so do not delay cooling in these cases.

Low rates of Retain (some growers are using ¼ rate) will provide some drop control.

12 untreated blocks tested in WNY on Sep 9 & 10, 2013

Index	Non-Retain September 9 & 10, 2013		Non-Retain September 3 & 4, 2013		Non-Retain Sept. 6 & 7, <u>2011</u>	
	AVG. n=12	Range	AVG. n=6	Range	AVG. n=5	Range
Firmness (lb.)	16.1	14.7-18.0	16.9	15.4-18.7	15.8	13.4-19.9
Soluble Solids (%)	11.4	10.1-14.1	11.5	10.1-13.2	10.7	9.1-12.3
Starch Index	4.1	1.6-6.3	3.6	1.0-6.9	3.6	1.7-4.9

Reminders

Please follow recommended maturity indices for each variety in addition to consulting with your marketer. Make sure there is adequate varietal flavor prior to harvest. **While I realize inventories are very low and the large demand for fresh apples have marketers screaming for fruit, picking under-mature fruit will only kill repeat sales.**

Variation between individual blocks and orchards always occur. Because of this inherent variation, the average maturity index readings of several grower blocks (as developed by the regional testing program) has often provided a better guide to harvest than readings from individual orchards. **BE SURE TO CONSULT WITH YOUR MARKETER – before harvesting the block.**

Crop load effects maturity. Trees with lighter crop loads, along with stressed trees (i.e. drought and frost damage/loss) and very young trees usually mature earlier. Maturity is usually delayed in trees carrying a larger crop.

Cooling fruit as soon as possible following harvest is critical in maintaining quality!

- **At the very least, shade your fruit right after harvest** – temps even in the low 80's with strong sunlight will result in fruit surface temperatures well over 100 degrees, sun-scalding fruit at the tops of bins.
- **Rapid cooling** – importance cannot be under-estimated, especially if harvest temperatures are high, in concert with higher respiration rates in fruit.

The harvest maturity report for next week (9/18) will focus on testing data of McIntosh, Gala, Honeycrisp, and SnapDragon (formerly NY1). Testing will start on Aceymac/Spartan and Cortland.

Harvest maturity report subscription reminder – tell a friend. Call or email Kim Hazel to subscribe at 585-798-4265 ext. 26, krh5@cornell.edu.

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