

## Harvest Maturity Report #11



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This is the eleventh Apple Maturity Report for the 2013 harvest season. **Next week (Wednesday, October 23<sup>rd</sup>) will be the final report for the season.** As always, your comments and suggestions are always appreciated via email or cell phone.

### Overall Issues:

The end to harvest for fresh market fruit is near. The predicted showers for good portions of the next several days may interfere with harvest operations. Let's hope 20-40% chance of rain means hit/miss light showers that will allow picking to continue. **The main message continues to be to prioritize your picking, concentrating on first harvesting the blocks that are going to give you the largest potential returns. Work closely with your field men, marketers, and storage operators to try and make the most informed decisions possible.**

Thanks to cooler temperatures that will no doubt continue, internal ethylene levels have really been held in check. However, if you have drop-susceptible block(s) not treated with a stop-drop material (i.e. Red Delicious without Retain), you should make harvest a priority if the fruit meet maturity requirements. Continue to monitor.

- **Empire** – Unfortunately, there are a quite a bit of blocks that have not been harvested. Remaining fruit should in all likelihood be directed to short storage or quick sales.
- **Red Delicious** – Reds harvest should be your main priority at this point. Non-Retain fruit may not have legs for any CA storage beyond short-term. Most Retain-treated samples that I looked at this week were ready for harvest for CA. As usual, watercore and moldy core are prevalent. **See pages 2-3.**
- **Ruby Frost (Formerly NY2)** – **If you have 2<sup>nd</sup> and 3<sup>rd</sup> leaf trees that are bearing fruit that are supposed to go to farmer's markets, harvest should be taking place now.** Some peel greasiness/waxiness, although quite mild at this point, is starting to show up on quite a bit of fruit. Sugars are likely maxed out and flavor is quite good. Keep in mind this is a tarter apple with a mild flavor. **See pages 3-4.**

- **Crispin/Mutsu** – Harvest is in full swing for processing and fresh as well- depending on your market requirements. Color and flavor for fruit destined for the fresh market have really come on in the past week. An increasing amount of Crispin is being treated with Retain to push harvest out of the Red Delicious and other variety windows. **See pages 4-5.**
- **Idared** – With processing and the fresh slicer markets taking the lion’s share of fruit from this variety, there is a dwindling supply for fresh market. However, most of the samples I looked at this week (including Retain-treated & untreated) that were destined for fresh were in the range for CA. The 8 samples I tested averaged nearly 12.0% brix, had a firmness of 15 pounds, and a starch index of 3.5.
- **Fuji** – Sugars are already quite high, however, varietal flavor is quite bland and fruit need final coloring as well. Watercore is a given with this variety, but it will dissipate in storage given the right amount of time and storage conditions. Fuji harvest can best wait until next week. **See pages 5-6..**
- **Cameo** - Most fruit I looked at this week were not ready. Keep in mind Cameo usually requires 2 picks, and suggested CA maturity guidelines are 40-50% red color and background change from green toward creamy. **See page 6.**

## **Red Delicious** - Finish harvesting fruit ASAP to have any hope of quality storage

Nearly every block (Retain and untreated) of fruit I looked at this week had the color, flavor, pressure, and starch to sugars conversion in range for harvest. Moldy seed core along with watercore are highly prevalent, no surprise for this variety. Understand that fruit infected with a moldy seed core will drop prematurely. 17% of the apples I cut this week had moldy core. Cut dropped fruit to look for moldy core. If sound fruit are dropping prematurely, then this is true preharvest drop. In addition, when performing a starch iodine test, do not include fruit with a moldy seed core- these fruit will have much higher starch index values than sound fruit. Cortland, Macoun, Red Delicious, and Cameo all have high incidences of moldy core.

Because Reds are a drop-susceptible variety with a picking window that overlaps a lot of other high-volume varieties, many growers are treating their Reds with Retain. Cooler temperatures have held internal ethylene in check the past week; however harvest of Reds (regardless if they have Retain) should be your major priority this week.

- **Telling the difference between “PUSH-OFF” and “DROP”:**
  - PUSH-OFF – fruit is missing stems, has flat spots or limb creases
  - DROP – fruit is loose on tree, fruit has stems

4 untreated and 6 Retain-treated Red Delicious blocks tested in WNY on October 14 & 15, 2013

Index	Oct. 14 & 15, 2013		Oct. 14 & 15, 2013		Oct. 7 & 8, 2013		October 10 <sup>th</sup> , 2011	
	Untreated		Retain		untreated		4 untreated + 2 Retain	
	Average	Range	Average	Range	Average	Range	Average	Range
	n=4		n=6		n=6		n=6	
Firmness (lb.)	17.1	16.3-18.3	17.1	15.6-18.0	18.1	17.1-19.5	17.4	16.6-18.1
Soluble Solids (%)	11.6	10.5-12.5	11.3	9.7-12.2	11.1	10.3-11.9	11.9	10.9-12.4
Starch Index	3.5	2.1-4.5	3.0	2.5-3.3	2.7	2.2-3.0	3.1	1.9-3.7
Ethylene (ppm)	2.53	0.02-5.71	0.22	0.08-0.40	6.31	0.03-27.42	8.67	0.09-30.84
Producing > 0.5 ppm ethylene	11/40 (28%)		13/60 (22%)		35% (21/60)		33% (20/60)	

### Ruby Frost (Formerly NY2) – Pick now for Farmer’s markets

As mentioned on page one, brix levels and varietal flavor have in all probability maxed out on this milder flavored apple. Greasiness/waxiness of the peel is starting, so harvest should be a priority. Full color and size was present in every set of samples I looked as well. Internal ethylene stayed in check, although this is not considered a drop-susceptible variety. As a reminder, we are still trying to establish maturity guidelines for this new and promising variety. Therefore this is a learning process - developing maturity indices and harvest windows for the correct storage and markets, and observing/trying to solve problems encountered.

### 9 Ruby Frost blocks tested in WNY on October 14 & 15, 2013

Index	October 14 & 15, 2013		October 7 & 8, 2013		October 17-18, 2011	
	Average	Range	Average	Range	Average	Range
	n=9		n=10		n=3	
Firmness (lb.)	17.9	16.5-19.7	19.6	16.8-21.5	16.8	16.5-17.1
Soluble Solids (%)	12.7	11.5-14.0	12.8	10.8-14.9	12.5	12.3-12.8
Starch Index	5.5	3.9-6.5	4.6	3.6-6.4	6.5	5.8-7.5
Ethylene (ppm)	0.32	0.04-1.60	0.88	0.04-2.75	0.05	0.03-0.08
Producing > 0.5 ppm ethylene	17% (15/90 apples)		47 % (42/90 apples)		0% (0/30 apples)	

### Crispin/Mutsu – Harvest based on market requirements

4 untreated & 3 Retain-treated Crispins tested in Western NY on October 14 & 15, 2013

Index	October 14 & 15, 2013		October 14 & 15, 2013		October 7 & 8, 2013	
	untreated		Retain		untreated	
	Average	Range	Average	Range	Average	Range
	n=4		n=3		n=6	
Firmness (lb.)	17.8	16.5-18.8	17.5	17.2-17.8	18.3	17.3-19.9
Soluble Solids (%)	12.7	11.2-13.5	11.7	11.1-12.7	12.2	9.5-14.4
Starch Index	4.2	2.7-5.1	3.7	3.2-4.2	2.6	1.6-3.6
Ethylene (ppm)	0.04	0.02-0.06	0.21	0.12-0.32	0.50	0-2.11

Crispin destined for fresh market finally had the color change and varietal flavor development in most samples I looked at over the past 2 days. There is an increase in the use of Retain on this variety, to push harvest out of the Red Delicious window if needed. Work with your marketer to determine color requirements- some markets like Crispin still green, and some want the color break from green to yellow.

## Fuji – Next week should be harvest for most

6 blocks tested in WNY on October 14-15, 2013

Index	October 14 & 15, 2013		October 17-18, <u>2011</u>		October 19-20, <u>2009</u>	
	Average	Range	Average	Range	Average	Range
	n=6		n=6		n=7	
Firmness (lb.)	17.6	17.0-18.0	17.7	16.3-19.0	18.8	16.9-20.3
Soluble Solids (%)	13.5	12.0-14.3	13.5	11.9-14.7	12.8	11.4-14.1
Starch Index	4.7	3.8-5.3	5.4	4.4-7.0	5.7	3.4-7.8
Ethylene (ppm)	0.69	0.12-1.23	0.21	0.02-0.48	0.61	0.28-1.13

Although sugars are already high, good varietal flavor is not yet present. There should not be a rush to harvest Fuji at this time. Nearly all of the fruit I looked at could use more color as well. Finishing picking of earlier varieties can be prioritized over Fujis in most of the region. Be aware that Fujis were bred for enhanced watercore in the Orient, where it is considered a desirable characteristic. Therefore it is a given that Fuji's will have watercore, and again this year I have seen it in every set of samples I looked at this week. However, watercore will dissipate in storage.

Ken Silsby at Agrofresh has recommended that SmartFresh™ treated Fuji with moderate to severe WC can be stored for 6 months (and possibly longer) in air while maintaining "near harvest" fruit firmness levels. The normal oxygen concentrations in regular air storage will speed the rate of WC disappearance. Contact Ken Silsby for more information.

In NY, elevated CO<sub>2</sub> levels in CA storage have resulted in internal browning in Fuji. If using a postharvest application of DPA for scald control, you can greatly reduce this disorder. If DPA is not used, Dr. Chris Watkins recommends that CO<sub>2</sub> be kept as close to zero as possible for the first few months, at least under 1%. Contact Chris Watkins for more information.

## Cameo – Next week should be first pick for most

5 Cameo blocks tested in WNY on October 14-15, 2013

Index	October 14-15, 2013		October 17-18, <u>2011</u>		October 19-20, <u>2009</u>	
	Average	Range	Average	Range	Average	Range
	n=5		n=6		n=8	
Firmness (lb.)	15.8	15.0-16.7	16.5	15.8-17.6	18.2	17.0-19.5
Soluble Solids (%)	12.3	12.0-12.8	12.5	11.1-13.8	13.1	11.3-15.2
Starch Index	4.0	3.5-4.5	3.9	2.6-5.2	4.4	3.2-7.8
Ethylene (ppm)	9.36	0-24.50	0.18	0.03-0.84	5.13	0.09-17.46
Producing > 0.5 ppm ethylene	40% (10/25 apples)		3 % (1/40 apples)		32 % (29/90 apples)	

**Cameo size and flavor are developing nicely.** Fruit do seem on the softer side this year. **Some final color finish is all that is needed for first pick harvest to begin.** Keep in mind Cameo usually require 2 picks, as color is usually variable on the tree. Suggested CA maturity guidelines: 40-50% red color and background change from green toward creamy. **Moldy core (especially in larger fruit) has been observed, and appears to be widespread, but tends to cause few problems in storage.**

## Reminders

**In some varieties, starch values seem to be falsely higher than actual maturity.** The weather during the growing season may not have allowed a lot of carbohydrate buildup in the fruit. Therefore, starch movement is faster than normal, and fruit may not be as mature as starch indexes may indicate. Look at varietal flavor, firmness, and color as well.

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.**

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 maturity indicators for many varieties, keep in mind that varietal flavor is also extremely important.

**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!**

**The harvest maturity report (the final of the season) for next week (10/23) will focus on testing data of Cameo and Fuji. I will also look at a few Braeburn, Stayman, and Granny Smith samples.**

**As always, your comments and suggestions are always appreciated via email or cell phone.**

Every effort has been made to provide correct, complete, and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying any pesticide.

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