

# EASTERN MICHIGAN APPLE HARVEST REPORT

## REPORT #6 – September 29, 2010

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### APPLE HARVEST SUMMARY

Apple maturity and harvest continues to move very quickly at most farms this year. I tested eleven apple varieties this week. Many growers' farms have reduced the size of the picking crews as they see an end to apple harvest in the next week or so. I continue to see high levels of internal ethylene developing in apples, which is telling me that maturity is marching along very quickly this year. Fruit color continues to improve, particularly with the recent cooler weather. Fruit pressure or flesh firmness and brix levels are generally reduced this year as I look across all apple varieties.

Golden Delicious, Red Delicious and Empire are being harvested this week, as are Northern Spy at some farms. Fuji, Idared and Crispin are a few days to a week away from being ready to harvest, and Law Rome's and Braeburn's are not far behind. Winesap are still quite green at this time.

Table 1 Apple Maturity at a glance

Variety	Color (Range)	Firmness (Range)	Starch (Range)	Brix
Empire	81% (79-83%)	15.4 lbs (14.8-16.0)	5.4 (4.4-6.3)	13.2%
Jonagold	88% (75-95%)	16.6 lbs (13.6-18.9)	5.4 (3.0-7.0)	17.2%
Golden Delicious	25% (20-30%)	15.9 lbs (13.9-17.8)	7.0 (6.4-7.6)	14.8%
Red Delicious	94% (90-97%)	16.2 lbs (15.1-17.7)	3.0 (2.8-3.1)	13.0%
Northern Spy	58% (29-72%)	16.6 lbs (15.6-17.6)	3.1 (2.8-3.4)	12.9%
Idared	80% (60-88%)	15.1 lbs (12.7-16.5)	3.0 (2.0-4.7)	13.1%
Crispin	3 (1-5%)	16.8 lbs (15.3-18.1)	3.6 (2.8-5.0)	14.1%
Fuji	48% (62-83%)	16.7 lbs (14.7-18.7)	4.3 (4.0-4.6)	14.0%
Rome (Law)	87% (70-95%)	19.7 lbs (16.5-26.0)	3.0(2.0-4.0)	13.6%
Winesap	53% (43-63%)	17.7 lbs (17.2-18.1)	1.5(1.0-2.0)	12.3%
Braeburn	86% (80-90%)	19.5 lbs (17.9-21.1)	2.6 (2.0-3.2)	14.1%

### INDIVIDUAL VARIETY RESULTS

**Empire** were sampled for the fourth week of the fall harvest season. The percentage of apples with internal ethylene levels greater than 0.2 parts per million (ppm) have jumped dramatically from 38% last week to 85% this week. The color has improved to 81%, and over all fruit size has also improved this week. The background color has dropped to 2.1 and the flesh firmness is about the same at 15.4 lbs. The starch index has moved from 4.2 last week to 5.4 this week. The brix has improved as well to 13.2%. Empire are ready for harvest at all farms that were sampled this week. Now that fruit size has improved, growers will be harvesting Empire once they finish Golden Delicious harvest.

**Jonagold** were sampled for the fourth week of the fall apple harvest, and there are just a few farms that have not harvested Jonagold. Just over 70% of the fruit is showing internal ethylene levels greater than 0.2 ppm. The color has improved to 88%, and background color has dropped back from 3.6 last week to 1.0 this week. The pressure remains firm on Jonagold at 16.6 lbs and the starch removal index at 5.4, which was the same as Empire. The brix has jumped up dramatically this week to 17.2%. All these indices tell me that Jonagold indeed were ready for harvest late last week.

**Golden Delicious** were sampled for the fourth week of the fall harvest season. All fruit tested have internal ethylene levels greater than 0.2 ppm. The color has improved dramatically on Golden Delicious this week with 25% of the fruit showing a blush. The background color has also improved and the fruit remain firm at 15.9 lbs. The starch removal index averaged 7.0 and the brix has improved to 14.8%. All Golden Delicious blocks tested indicated that they are mature to over mature. Many blocks of Golden Delicious have already been harvested and in the blocks that remain many are at the peak of maturity for short term or immediate sales or are over mature at this time.

**Red Delicious** were sampled for the third week of the fall harvest season with a good number of samples taken. Red Delicious seem to be moving along at its own pace this year, a pace slower than many other varieties. All the fruit tested are showing internal ethylene levels greater than 0.2 ppm. The fruit color and background color has continued to improve. The pressure remains firm at 16.2 lbs and starch tested at 3.0. Many growers are harvesting early maturing strains and sites of Red Delicious, but are holding off a bit on the strains until they eat a bit better. Some blocks of Red Delicious are still eating a bit on the green side and are not mature or ready for harvest. Red Delicious may be four or five days away from being mature at some farms and at other farms they are ready now.

**Northern Spy** were sampled for the third week of the season. All of the fruit tested have internal ethylene levels greater than 0.2 ppm. Fruit color has improved to 58% and background color has dropped to 3.5. The fruit remain firm at 16.6 lbs and the starch index is still at 3.1. At a few farms growers have begun to shell pick Northern Spy, primarily for color. At most farms growers are waiting for fruit to eat better and color to improve to do the main picking. I would give Northern Spy another three to five days and they should be mature all around the district.

**Idared** were sampled for the third week of the season. Idared's continue to show high levels of internal ethylene. The color has improved considerably from last week to 80% and the background color has dropped to 1.8. The fruit remains firm at 15.1 lbs, although they have dropped a pound in pressure over the last week. The starch index is averaging 3.0, but there is quite a spread of maturity in Idared's from farm to farm, the range is from 2.0 to 4.7. The brix has improved to 13.1%. Idared's are mature at some farms, and are just a few days away from being mature at most others.

**Crispin or Mutsu** were sampled for the second week of the season. There are some blocks where blister spot has heavily infected nearly all of the fruit, while others are very clean. There was a good jump in the number of apples with internal ethylene greater than 0.2 ppm over the last week. They still have fairly poor color or blush, however the background color has begun to change or improve. The fruit remain firm at 16.8 lbs and the starch index has jumped from 2.0 last week to 3.6 this week. The brix has also improved dramatically to 14.1%. Crispin are not ready for harvest at this time, I would anticipate that in five to seven days they will be mature or ready for harvest at most farms.

**Fuji** were sampled for the second time of the season, with a number of samples increased over the week. Nearly all the fruit are showing internal ethylene levels greater than 0.2 ppm. The fruit color and background has improved on Fuji. The fruit remains firm at 16.7 lbs; however that firmness has dropped over a pound from last week. The starch index for Fuji is now testing at 4.3, with a range of 4.0 to 4.6. The brix has also improved slightly to 14.0%. Fuji are still eating a bit green at all the farms that I sampled this week, however with a starch index of 4.3 and nearly all the fruit showing internal ethylene levels greater than 0.2 ppm, Fuji are nearly ready for harvest for long term and controlled atmosphere storage. For immediate or fresh sales Fuji are about four to six days away from being mature.

**Law Rome** were sampled for the first week of the season, and a very limited sample analyzed. There is little to no internal ethylene developing in Law Rome as of yet. The color is very good at 87% and background color is still 3.0. The fruit is very firm, averaging 19.7 lbs, with a range of 16.5 lbs to 26.0 lbs. The starch tested at 3.0, with a brix of 13.6%. Law Rome's are not ready for long term or CA storage as of yet. I am starting to be seen a bit of bleeding in some of the flesh of Law Rome's. Physiologically, I believe that Law Rome's are about seven to ten days away from being mature. I would like to do another set of samples next week to see where the starch and internal ethylene levels test at.

**Winesap** were sampled for the first week of the season. Just over 80% of the fruit are showing internal ethylene levels greater than 0.2 ppm. The color is lacking, at 53%. The background color is still testing green at 4.0 and fruit is firm at 17.7 lbs. The starch index tested at 1.5, with a brix of 12.3%. Winesap are most likely ten days or so away from being mature.

**Braeburn** were sampled for the first week of the season. Again like Winesap, just over 85% of the fruit tested are showing internal ethylene levels greater than 0.2 ppm. The fruit have good color at 86%, and background color at 3.0. The fruit is very firm, in fact some of the firmest fruit that I have seen this season, averaging 19.5 lbs. The starch removal is 2.6; however there is a spread in the starch levels that ranged from 2.0 to 3.2. The brix are fairly good for Braeburn at 14.1%. Braeburn are not physiologically mature. I want to sample for another week to give me a better read on their maturity. My early estimate is that Braeburn are about seven to ten days or so away from being ready for harvest for long term and CA storage.

The predicted apple harvest dates table will continue to be included in this update.

Table 2. 2010 Predicted peak harvest dates

Full bloom date				Predicted harvest date			
Station	McIntosh	Jons	Reds	McIntosh	Jons	Reds	Observer
SWMREC	24-Apr	28-Apr	29-Apr	30-Aug	16-Sep	21-Sep	Shane
Deerfield	26-Apr	29-Apr	30-Apr	31-Aug	19-Sep	26-Sep	Tritten
Romeo	29-Apr	30-Apr	1-May	1-Sep	18-Sep	24-Sep	Tritten
Peach Ridge	28-May	30-May	30-May	2-Sep	16-Sep	22-Sep	Schwallier
Ludington	1-May	1-May	3-May	4-Sep	14-Sep	21-Sep	Danilovich
NWMHRS	3-May	4-May	4-May	4-Sep	17-Sep	23-Sep	Rothwell

If you have any questions regarding this Apple Maturity Report or apple harvest, don't hesitate to email me at [tritten@msu.edu](mailto:tritten@msu.edu) or call (810-732-2177). If you would like this information sent to you via email instead of fax or vice versa, please let me know and this can be accomplished very quickly. This same harvest information is also available on the East Michigan Fruit Pest Management Code-A-Phone (810-732-1005).

*This Southeast Michigan Apple Harvest Report is produced by Bob Tritten and Debbie Clark, with the great support of Dr. Randy Beaudry and his staff from the Postharvest Laboratory at Michigan State University.*

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