

EASTERN MICHIGAN APPLE HARVEST REPORT

REPORT #5 – September 22, 2010

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APPLE HARVEST SUMMARY

Our apple harvest continues to move along quickly this year, and to repeat my quote in last week's Apple Harvest Report, the "marching order" or order of ripening is different than most years. This week I sampled ten apple varieties to determine maturity. As I look over the results of testing of all varieties, in general there has been a great deal of internal ethylene developed over the last week. Fruit color has improved, and pressure or flesh firmness is generally much below normal this year.

Varieties that are ready for harvest for long term storage include Cortland's, Jonagold's, Jonathon's, Golden Delicious and some Red Delicious blocks. Some of these varieties are also ready for short term storage harvest these include Cortland, Jonagold, Jonathon, Golden Delicious and even a few Red Delicious blocks. Northern Spy and Idared were sampled for the second week of the season, and are moving along quite nicely, but are not ready for harvest yet. Crispin and Fuji were also sampled for the first time of the season, and I was surprised to see that Fuji was so far along and is most likely only a week or so away from being ready. More details on each of the varieties to follow in today's report.

Table 1 Apple Maturity at a glance

Variety	Color (Range)	Firmness (Range)	Starch (Range)	Brix
Cortland (Redcort)	71% (58-83%)	13.3 lbs (13.0-13.5)	4.4 (3.7-5.0)	12.6%
Empire	70% (56-78%)	15.2 lbs (14.9-15.7)	4.2 (4.0-4.4)	12.6%
Jonathon	91% (85-95%)	16.3 lbs (14.5-19.2)	4.9 (3.0-6.0)	13.3%
Jonagold	67% (52-74%)	15.6 lbs (13.9-18.3)	5.8 (3.5-7.0)	14.2%
Golden Delicious	7% (4-14%)	14.5 lbs (14.1-14.9)	5.2 (2.3-6.1)	14.5%
Red Delicious	86% (81-92%)	15.7 lbs (15.0-16.3)	5.2 (4.0-6.0)	11.9%
Northern Spy	47% (30-59%)	16.2 lbs (15.6-16.6)	3.7 (3.0-4.0)	12.5%
Idared	69% (36-82%)	16.6 lbs (15.1-17.9)	3.3 (2.0-4.0)	12.5%
Crispin	5% (5-5%)	16.1 lbs (16.0-16.2)	2.0(2.0-2.0)	12.4%
Fuji	59% (52-66%)	17.8 lbs (17.0-18.5)	3.7(3.0-4.4)	13.9%

INDIVIDUAL VARIETY RESULTS

Cortland were sampled for the second week of the harvest season, and all samples were the Redcort strain. Almost all the fruit (90%) are showing internal ethylene levels greater than 0.2 parts per million (ppm). The color remained the same at about 71%, and background color has improved from 4.5 last week to 2.4 this week. The flesh firmness has dropped dramatically from 16.9 lbs last week to 13.3 lbs this week, and the

starch index has jumped from 2.3 last week to 4.4 this week, with a brix of 12.6%. I have sampled Cortland's from a number of other orchards this week as well as the data from this week's samples Cortland's are ready for harvest for both long and short term storage and are ready for immediate or fresh sales. Cortland are also fairly loose on the tree, as I saw a fair amount of drop this week.

Empire were sampled for the third week of the fall harvest season. The internal ethylene levels on Empire remain low at 38% greater than 0.2 ppm. The color remained about the same at 70%, and the background color has dropped just a bit to 3.0. The flesh firmness has dropped over a pound to 15.2 lbs, and starch index has moved slowly from an average of 3.9 last week to 4.2 this week. The brix has improved slightly to 12.6%. Empire are not ready for harvest at this time, but are getting close. I feel that for a long term and intermediate storage that Empire will be ready for harvest in three to five days and for fresh sales will be ready in about a week.

Jonathon were sampled the third week of the fall harvest. All of the fruit are showing internal ethylene levels greater than 0.2 ppm. The color has improved from 70% last week to 91% this week. The background color is a solid 1.0, and the fruit is still fairly firm at 16.3 lbs. The starch index is now an average of 4.9; however there is quite a spread in the starch (3.0 – 6.0) in the different blocks tested. The brix is 13.3%, up almost a half percent from last week. Jonathon are ready for harvest for both intermediate storage and fresh sales, and most blocks are over mature for long term storage.

Jonagold were sampled for the third week of the season, and the maturity of blocks varies greatly depending on strain and site. Jonagold internal ethylene levels are still fairly high close to 80%, and the color remains good at 67%. The pressure has dropped from 17.1 lbs last week to 15.6 lbs this week, and the starch index has jumped dramatically from 3.6 last week to 5.8 this week. The brix is 14.2%. Jonagold are eating very good right now and again depending on the strain some may be a bit over mature for intermediate storage. Jonagold blocks tested are ready for fresh or immediate sales.

Golden Delicious were sampled for the third week of the harvest season. The internal ethylene levels greater than 0.2 ppm has jumped dramatically from 16% last week to 78% this week. Much of the fruit has now developed a nice blush, and the background color continues to improve. The pressure has dropped 2 lbs in the last week to 14.5 lbs this week. The starch index has also moved almost two points from 3.3 last week to 5.2 this week. The brix is much improved at the 14.5%. Depending on the strain of Golden Delicious and the site, there are many blocks that are ready for harvest at this time. In all the testing done this week it appears that there are just a few that are immature at this time. Watch Golden Delicious fairly closely as I am concerned about this low pressure, particularly for fruit that is going to stored for any length of time.

Red Delicious were sampled for the second week of the fall harvest season. With the exception of one sample, all samples were Red Chief strain Red Delicious. The amount

of internal ethylene level greater than 0.2 ppm has jumped to almost 80%. The color is still good at 86%, and background color has improved dramatically to 1.4. The pressure or flesh firmness has dropped a little over half of pound in the last week to 15.7 lbs, and the starch index has jumped dramatically from 2.9 last week to 5.2 this week. The brix has also jumped almost 1% to 11.9%. All of the samples that I checked last week were also available for testing this week, so my samples were very uniform from week to week. Based on the starch index of many of these blocks, some blocks and strains of Red Delicious are ready for long and midterm storage. I have also observed that Red's still don't eat well for fresh market sales, and still need another four or five days of maturity before harvest can begin. The predicted harvest dates for Red Delicious are September 26th for Deerfield and the 24th for Romeo. I think these predicted harvest dates are very close to what I am seeing in the field.

Northern Spy were sampled for the second week of the season. Almost all of the fruit (97%) are showing internal ethylene levels greater than 0.2 ppm. The color stayed about the same at 47% and background is also showing that fruit is fairly green still. The pressure has dropped dramatically from 19.6 lbs last week to 16.2 lbs this week, and the starch removal index has also jumped from 2.2 last week to 3.7 this week. The fruit brix has improved almost a full percent and is now standing at 12.5%. Northern Spy are not ready for harvest at this time, I would anticipate that for long and midterm storage fruit will be ready in four to eight days, and for fresh sales this fall fruit will mature in a week to ten days.

Idared's were sampled for the second time of the season. The amount of fruit that is showing internal ethylene levels greater than 0.2 ppm has jumped from 17% last week to 68% this week. The fruit color is still about the same at 69% and the background color is beginning to break on Ida's, now standing at 2.0. The pressure has dropped almost three quarters of a pound over last week, and the starch removal index has jumped from 2.0 last week to 3.3 this week. The brix remains about the same at 12.5%. While Idared are not ready for harvest at this time, they are showing about the same degree of maturity as Northern Spy. So, long term storage fruit may be five to ten days away, and fresh market sales are most likely about ten days to two weeks away from being ready for harvest.

Crispin or Mutsu were sampled for the first time of the season. There is very little internal ethylene, the background color is still very green and pressure is a surprisingly low however at 16.1 lbs. The starch index is 2.0 and brix is testing at 12.4%. Crispin are not ready for harvest, and I would anticipate at this time that they are most likely two weeks or more away from being ready for harvest. Stay tuned in next week's report for more details.

Fuji were sampled for the first time of the season with a limited number of Fuji being sampled. I was surprised to see just over half of the fruit are showing internal ethylene levels greater than 0.2 ppm. The color is fairly good for Fuji at 55%. The background is 3.5 and the pressure was a surprisingly low 17.8 lbs. I was also surprised to see that the starch index tested at 3.7, with a fairly tight range between samples. The fruit also

had a fairly high amount of sugar, as least for this year, at 13.9%. Fuji are testing at this time to be close to the same maturity as Northern Spy and Idared. Stay tuned for more details in next week's report.

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 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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