

September 12, 2007

TO: Apple Growers in Southeast Michigan
MSU Extension Fruit Educators and Specialists

FROM: Bob Tritten
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SUBJECT: Apple Harvest Update Report #3 – Southeast Michigan

APPLE HARVEST SUMMARY

Growers are nearing an end of McIntosh harvest, and Gala harvest finished for the most part last week. Honeycrisp are being picked for the fourth and in most cases the final time. There appears to be a gap in apple maturity this year between the varieties that I've just listed and the next group that are coming along, which include Empire, Cortland, Jonagold and Jonathan. So, to keep harvest crews around, growers have been looking for other jobs for them over the last several days. I sampled Golden Delicious, Red Delicious and Crispin for the first time this season, it appears at this early stage that Golden's will be behind Red Delicious this year, but more details will follow from results from next week's apple maturity sampling. The order of apple maturity is definitely different this year than any other year that I have seen. While we have had seasons where Gala were harvested ahead of Mac's, other varieties like Jonathan and Red Delicious appear to be maturing quickly, and Empire, Cortland and Golden Delicious are maturing very slowly. There is also quite a spread in maturity on the tree this year, due to the fact that so much of our fruit this season is born on one year old wood. Fruit born on one year old wood generally matures more slowly than fruit on wood that is two or more years older. Thus, there will be quite a spread of maturity on one tree this year for most varieties.

| Variety | Color (Range) | Firmness (Range) | Starch (Range) | Brix |
|------------------|---------------|----------------------|----------------|-------|
| McIntosh | 62% (58-66%) | 15.6 lbs (15.1-16.7) | 5.3 (5.0-5.5) | 12.1% |
| Honeycrisp | 76% (61-87%) | 14.9 lbs (13.4-17.8) | 5.9 (4.7-7.0) | 14.1% |
| Empire | 70% (56-77%) | 17.1 lbs (16.0-17.6) | 2.5 (1.5-3.7) | 11.9% |
| Cortland | 67% (39-87%) | 16.1 lbs (14.4-18.1) | 1.2 (1.0-1.5) | 13.0% |
| Jonagold | 41% (9-72%) | 22.3 lbs (16.8-21.0) | 2.3 (2.0-2.6) | 13.3% |
| Jonathan | 60% (51-78%) | 15.6 lbs (15.3-15.9) | 4.1 (3.8-4.4) | 13.2% |
| Golden Delicious | 4% (0-9%) | 18.0 lbs (16.5-19.1) | 1.3 (1.0-1.6) | 13.9% |
| Crispin | 5% (4-7%) | 22.0 lbs (20.5-22.6) | 1.5 (1.0-2.0) | 12.1% |
| Red Delicious | 75% (64-90%) | 16.5 lbs (16.0-17.0) | 2.0 (1.6-2.3) | 11.5% |

INDIVIDUAL VARIETY RESULTS

McIntosh were sampled for the third time of the season. It was difficult to sample the same exact strains of McIntosh that I did last week, as most of those were already harvested. The sample results from this week are for later maturing strains, so the data is going to be hard to compare to last week. A good amount of this late McIntosh is showing internal ethylene levels greater than 0.2 parts per million (ppm). The color is fairly good at 62%, and background color is now indicating that fruit is mature. The fruit firmness has dropped to 15.6 lbs, from 16.9 lbs last week. The starch index for this week's fruit averaged 5.3, with a brix of 12.1%. All this

indicates that the remaining McIntosh are indeed ready for harvest. This will be the last week for sampling McIntosh.

Honeycrisp were sampled this week as well. It is difficult to compare to last week's results as growers are picking Honeycrisp three and four times to insure maximum fruit quality. All (100%) of the fruit sampled this week were showing greater than 0.2 ppm of internal ethylene. The pressure has dropped from 17.4 lbs last week to 14.9 lbs this week. The starch index has moved along quickly from 3.2 last week to 5.9 this week. The brix remains about the same at 14.1%. All these indices are pointing to the fact that Honeycrisp is now ready for its fourth and possibly final picking.

Empire were sampled for the second week of the season, with an increase in the number of samples taken. Empire are showing low levels of internal ethylene and fairly good color at 70%, up from 52% last week. The pressure has dropped from 18.6 lbs last week to 17.1 lbs this week. The starch index has remained nearly the same at 2.5. Brix has moved a bit from 11.0% last week to 11.9 this week. With starch index at 2.5, this indicates that Empire are not ready for harvest at this time. I think that they need to have another week or so before the starch index levels begin to come up.

Cortland were sampled for the second week of the harvest season, most samples were the Redcort strain. Color has improved a bit from 62% last week to 67% this week. The background color has improved, and the pressure has dropped from 17.3 lbs last week to 16.1 lbs this week. The starch index however remains virtually unchanged at 1.2, with a brix of 13.0%. All of this data tells me that Cortland are not ready for harvest at this time, and need at least another week or ten days before they are mature. Look for more results in next week's testing.

Jonagold were sampled for the second time of the season. Color is virtually unchanged, however the starch index has moved from 2.0 last week to 2.3 this week. The fruit is still very firm at 22.3 lbs. Jonagold are not ready for harvest at this time, they are moving along on a rather slow pace this year and will most likely be harvested well after Jonathan and just before Golden Delicious. As I indicated in last week's report, it also appears that Jonagold are ahead of Cortland this year.

Jonathan were sampled for the second time this season, with a larger sample than last week. They are showing high levels of internal ethylene, with fairly good color at 60%, up from 40% last week. Pressure has dropped from 18.8 lbs last week to 15.6 lbs this week. The starch has also moved along fairly quickly from 2.0 last week to 4.1 this week. The brix has also jumped to 15.2% this week. Based on all these indices, it appears that Jonathan are ready for harvest for the long-term and CA storage at this time, and ready for fresh fall sales later this week.

Golden Delicious were sampled for the first time this year, with a good number of samples taken. They are showing low levels of internal ethylene, with poor color at this time. The background color is also poor. The fruit is firm at 18.0 lbs, with a starch index of 1.3. The brix is very good at 13.9%. This sample was taken to be an "early look" at Golden Delicious. It appears that it is maturing very slowly this year.

Crispin were sampled for the first time for the season as well. There is no internal ethylene, poor color and background color, and the fruit is staying firm at this time at 22.0 lbs. The starch index is 1.5, all indicating that fruit is not mature at this time.

Red Delicious were sampled rather extensively for the first time this season. A full 33% of the fruit is showing internal ethylene levels greater than 0.2 ppm. Color is good at 75% and

background color is already down to 2.5 (on a scale of 1 to 5 with 5 being green and 1 being mature). Fruit firmness was surprisingly low at 16.5 lbs, with a range of 16.0 to 17.0. The starch index was a 2.0, with brix at 11.5%. However it is too early to begin harvest of Red Delicious, based on this one week's worth of data. It appears that Red Delicious are ahead of Golden's this year, and that they are maturing fairly quickly. Where possible I sampled Red Chief strains of Red Delicious.

Table 1. 2007 predicted peak harvest dates.

| Full bloom date | | | | Predicted harvest date | | | |
|-----------------|----------|------|------|------------------------|------|------|------------|
| Station | McIntosh | Jons | Reds | McIntosh | Jons | Reds | Observer |
| SWMREC | 4-30 | 5-2 | 5-2 | 8-27 | 9-15 | 9-21 | Shane |
| Deerfield | 5-5 | 5-6 | 5-8 | 9-1 | 9-15 | 9-22 | Tritten |
| Flint | 5-5 | 5-5 | 5-7 | 9-3 | 9-12 | 9-19 | Tritten |
| Peach Ridge | 5-5 | 5-7 | 5-8 | 9-1 | 9-19 | 9-26 | Schwallier |
| Ludington | 5-9 | 5-11 | 5-10 | 9-14 | 9-21 | 9-27 | Danilovich |
| NWMHRS | 5-11 | 5-11 | 5-11 | 9-9 | 9-18 | 9-24 | Rothwell |

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

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