

MSU Fruit Team 2011 Apple Maturity Report

Northwest Region Reports

During the harvest season, apples from different regions are collected for maturity testing. The data is then compiled by MSU Extension educators into recommendations for harvest and storage of the most commonly grown apple varieties. Growers use this information as guidance for scheduling harvest on their farms.

There are several sponsors that make this testing possible through monetary donations. Please acknowledge the following companies and producers:

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The following pages contain helpful resources and **2011 reports from September and October (beginning on page 5)**.

HOW TO INTERPRET MATURITY INDICES

http://msue.anr.msu.edu/news/checking_apple_maturity_what_to_look_for

MATURITY REPORTS FROM OTHER REGIONS

http://msue.anr.msu.edu/news/apple_maturity_reports_for_making_harvest_decisions

THE NUANCES OF STOP DROP APPLICATIONS IN APPLES

We use NAA to thin apples in spring, and growers are keenly aware of the impact of temperatures and slow drying conditions for that application. We also use NAA to delay fruit drop near harvest, so how do environmental conditions come into play at this near harvest timing? Slow drying conditions are favorable for NAA as a stop drop material and are probably more important than temperature. Temperature is not as critical for stop drop application as it for when NAA is used for thinning in spring. However, there will be better uptake of NAA at 70° to 75°F than at lower temperatures such as 50°F. As with most plant growth regulators, warmer temperatures result in increased activity of the material. Also, slow drying conditions are better than fast drying ones. Morning applications, when there is dew present, and temperatures are rising are ideal conditions for NAA applications. If temperatures reach 85° or 90°F (which is unlikely, but not unheard of for harvest season in Michigan), growers should use caution when applying NAA.

NAA works as a stop drop material by blocking the abscission layer (the site of where the apple stem connects to the spur). It takes about 3 days for NAA to kick in, and its effect breaks down in about 7 days after that, for a total of 10 days from the NAA application. If growers apply NAA too far ahead of the anticipated harvest date, a re-application may be warranted. A second NAA application needs to go on 7 days after the initial application - don't wait until the tenth day or it will be too late. Once the effect wears off, drop can begin quite quickly and drastically. Research has also shown that the actual process of spraying the second application can cause fruit to drop if it is done too late.

Growers should also note that the use of NAA for stop drop does sacrifice some storage life of apples, so growers need to be aware of these consequences if long-term storage of particular varieties is desired. Fruit targeted for fresh fall sales is the more appropriate use of NAA, rather than fruit for long-term CA storage.

Weather conditions aren't as critical with Retain applications, but as a stop drop material, the timing for Retain might be too late if fruits are already producing ethylene. Retain and NAA might be best used together as a team. The reason NAA and Retain work well together is because Retain blocks the ethylene blocks that the NAA can suddenly promote when it wears off.

DOESN'T THE COLD JUST FROST YOUR APPLES?

With threats of frost or freezes around Michigan predicted for later this week, there have been questions about the effects of frost on apples yet to be harvested. Light frosts (temperatures of 28°F to 32°F) are usually not an issue, but several nights of just mild frosts with temperatures around 28°F can cause some fruit drop. A hard frost/freeze, when temperatures are down around 24°F in the overnight even for just one night can cause significant drop.

These cold weather events turn on ethylene production and create or hasten the development of abscission layers. Fruit drop typically occurs about one week after a cold weather event - either a one night cold snap or several nights of just below freezing.

Fruit drop can be minimized by applying a stop drop material like NAA within two days of the cold event. Soon after a frost event the abscission process will be too far along to stop and an NAA treatment will not prevent fruit from dropping. Significant drop will occur about a week after the cold event.

To determine if stop drop applications are needed, growers should be aware of the temperature differences across orchards, and they should pay special attention to frost pockets where it could be much colder than at the tops of hills. It might be feasible to only spray to frost pockets with NAA to prevent drop.

Also, after a cold event, harvest should wait until apples have had enough time to thaw. If growers harvest when fruit is still frozen, even slightly frozen, pickers can cause significant finger bruising when tiny ice crystals in the cells puncture cell walls.

PREDICTED 2011 APPLE HARVEST DATES

Erratic weather conditions set predicted apple harvest days two to seven days behind normal. Published July 12, 2011, MSU-E News for Agriculture - Fruit Phillip Schwallier and Amy Irish-Brown, Michigan State University Extension.

This season started out slow and late with considerable cold temperatures and above normal rainfall. Frost events were few and only minor in scope. Harvest dates appear to be about normal to a few days behind normal. The state experienced short bouts of near record hot temperatures and then below normal cool temperatures around the bloom stage. The whole state experienced these wild fluctuations in temperature. Bloom dates were behind normal this year, but not by much. Apple maturity for 2011 is expected to be two to seven days behind normal. Southeast Michigan has the greatest delay in predicted harvest dates due to the extreme rainy cool period near bloom and during the fruit set period.

The delayed bloom and erratic weather following bloom give us predicted harvest dates (Table 1) about two to seven days behind normal. These predicted harvest dates are for the center or peak harvest of these varieties for CA storage. This year, the 2011 predicted harvest dates are 9 to 23 days behind last year's predicted harvest dates (Table 2). Last year was a very early year.

Hot temperatures during July and August will hasten the maturity of some varieties. Gala is notorious for ripening early when late summer temperatures are above normal. Other varieties are less prone to hot temperatures, advancing fall maturity. Still, other varieties ripen when cold temperatures occur near harvest time.

The normal harvest dates for other varieties are listed in Table 3 for the Grand Rapids area. This year's 2011 predicted dates are a rough estimate based on the McIntosh, Jonathan and

Red Delicious predicted dates. Other areas of the state should adjust non-predicted varieties based on their own history.

Table 1. 2011 predicted peak harvest dates.

Full bloom date				Predicted harvest date			Observer
Station	McIntosh	Jons	Reds	McIntosh	Jons	Reds	
SWMREC	5/11	5/12	5/12	9/12	9/26	10/2	Shane
Deerfield	5/13	5/15	5/17	9/15	9/29	10/5	Tritten
Romeo	5/19	5/21	5/21	9/17	10/2	10/8	Tritten
Peach Ridge	5/18	5/19	5/20	9/16	9/29	10/6	Schwallier
Ludington	5/21	5/22	5/22	9/20	10/4	10/10	Danilovich
NWMHRS	5/23	5/27	5/27	9/24	10/10	10/16	Rothwell

Table 2. Predicted 2011 peak harvest dates compared to normal and last year.

Days ahead of normal				Days ahead of last year		
Station	McIntosh	Jons	Reds	McIntosh	Jons	Reds
SWMREC	-5	-5	-4	-13	-10	-11
Deerfield	-7	-8	-3	-15	-10	-9
Romeo	-4	-7	-5	-16	-14	-14
Peach Ridge	-2	-3	-2	-14	-13	-14
Ludington	-2	-1	4	-16	-20	-19
NWMHRS	-2	-4	1	-20	-23	-23

Table 3. Normal peak harvest dates for varieties for the Grand Rapids area.

Variety	Normal date	2011 predicted date
Paulared	8/24	8/26
Gingergold	8/26	8/28
Gala	9/10	9/12
McIntosh	9/14	9/16
Honeycrisp	9/18	9/20
Empire	9/22	9/24
Jonathan	9/26	9/29
Jonagold	9/28	9/30
Golden Delicious	10/2	10/4
Red Delicious	10/4	10/6
Idared	10/10	10/12
Rome	10/15	10/17
Fuji	10/25	10/27
Braeburn	10/25	10/27
Goldrush	11/1	11/3

NW MICHIGAN APPLE MATURITY REPORT #1
September 7, 2011

The NWMHRC will be testing apples for maturity for 2011, and results will be sent via fax and email to past apple maturity list subscribers. Results will also be available at http://msue.anr.msu.edu/news/apple_maturity_reports_for_making_harvest_decisions.

If growers are interested in having fruit tested, they should drop off a 10 to 12 apple sample at the NW Station on Mondays. Fruit should be picked randomly from the outside portion of the trees and should be large in size and free of blemishes with the stem attached.

With the lack of rainfall in July and August, fruit size is smaller than in past years. Color has not developed in most varieties, and we are hoping for cool evenings and sunny days to help with coloring and maturation.

Summary of northwest Michigan apple maturity samples taken on 6 September, 2011

Variety	Color % (range)	Firmness lbs. pressure (range)	Starch (range)	Brix (range)
Gingergold	19.3 (14.5-23.5)	18 (16.2-20.1)	3.2 (2-5)	11.4 (10.7-11.9)
Gala	67.5	22.1	10.8	10.8
McIntosh	80.5	19	10.2	10.2
Honeycrisp	52.1 (48.6-55.5)	18.5 (17.3-19.6)	11.2 (10.3-12)	11.2 (10.3-12)

PaulaRed - None tested, should be mature. Much of this variety was harvested around the 1st of September, and color was decent for most growers.

Gingergold - Nearing mature (3 samples). Firmness at 18.0 lbs. Starch index at 3.2. Harvest has begun in the area. Background color should just be starting to turn yellowish at the time of harvest. Fruit that ripens to the point of full yellow will not hold up well in storage. There have been reports of early Gingergold harvest, and there are starchy apples on the market.

McIntosh - Immature (1 sample). Firmness at ~ 19.0 lbs. Starch index at 2.5. Brix level at 10.2. Color is at 80%.

HoneyCrisp - Immature (2 samples). Firmness at about 18.5 lbs. Starch index at 1.8. Brix level at 11.2. Color is at 52%. This variety needs multiple pickings over several weeks for premium quality fruit. Watch for first 2 to 3 apples per tree to color for the first picking. Honeycrisp color is not optimal at this time.

Gala - Immature (1 sample). Firmness at 22.1 lbs. Starch index is at 1.0 and brix levels are at 10.8. Color is nearing 70%. Gala size is small, particularly on heavily cropped trees.

NW MICHIGAN APPLE MATURITY REPORT #2
September 14, 2011

The NWMHRC will be testing apples for maturity for 2011, and results will be sent via fax and email to past apple maturity list subscribers. Results will also be available at http://msue.anr.msu.edu/news/apple_maturity_reports_for_making_harvest_decisions.

If growers are interested in having fruit tested, they should drop off a 10 to 12 apple sample at the NW Station on Mondays. Fruit should be picked randomly from the outside portion of the trees and should be large in size and free of blemishes with the stem attached.

With the lack of rainfall in July and August, fruit size is smaller than in past years. Rain is expected this week, and temperatures are predicted to cool down for the coming four days; daytime highs will reach only into the 50's. Color has improved on most varieties, but many varieties still need improvement. Cool nights should help with color, but the forecast predicts cloudy days. Quality of apples remains high across the region, and insect pressure has been low in the past few weeks. Overall brix in the fruit tested is in the 10-11 range.

Summary of northwest Michigan apple maturity samples taken on 12 September, 2011

Variety	Color % (range)	Firmness lbs. pressure (range)	Starch (range)	Brix (range)
Gingergold (3)	21 (9.5-34)	17 (15.3-19.6)	3.4 (1.9-6.2)	11.7 (11.2-12.3)
Gala (3)	81 (67.5-96.5)	21 (19.5-21.9)	1	10.7 (9.8-11.5)
McIntosh (7)	69 (64.5-86)	15.9 (14.1-18.7)	2.6 (1-4.5)	10.9 (10.6-11.7)
Honeycrisp (4)	69 (59-81.5)	17.6 (16.4-20)	2.2 (1.7-3.9)	11.6 (10.2-13.7)

NWMHRS Predicted Harvest Dates

Full Bloom			Predicted Harvest		
McIntosh	Jonathan	Red Delicious	McIntosh	Jonathan	Red Delicious
23-May	27-May	27-May	24-Sep	10-Oct	16-Oct

Dates Compared to Normal			Dates Compared to 2011		
McIntosh	Jonathan	Red Delicious	McIntosh	Jonathan	Red Delicious
-2	-4	1	-20	-23	-23

Apple Maturity Report

September 14, 2011

Gingergold – Approaching mature (3 samples). Fruit firmness is still fairly high at an average of 17.0 lbs, but the starch removal index shows variability between samples with two samples around 2 while the third sample shows the fruit approaching over maturity. Most Gingergeold harvest is wrapping up around the region, but the starch removal of some fruit is shows that apples are not quite mature; some of the samples still tasted starchy.

Gala - Immature (3 samples). Firmness of Galas has not changed in the past week, and most samples still have firmnesses in the 19lb pressure range. Starch index levels also remain constant. This variety seems to be slower to ripen than other varieties. Color has improved over the last week by about 10%.

McIntosh – Approaching mature (7 samples). Fruit firmness at has dropped over the last week, and in some blocks firmness has decreased by 4lbs. There was some variability by block in Macs, where some of the apples have a starch index of mature, 4.5, to other blocks that are showing immature fruits: 1-2.5. Brix levels are similar to last week, and apples still eat on the green side. Most McIntosh around the region are still colored at ~70%, and we are predicted to harvest this variety 1 ½ weeks. At this time of the season, Macs typically have more color than we are seeing this year.

HoneyCrisp - Immature (4 samples). Firmness in Honeycrisp has not changed much over the last week in most blocks. However, some blocks are approaching maturity with starch index readings at 3.9. Again, there is variability in ripening across blocks. Color has improved quite a bit over the last week, from 52% color to an average of 69%. This variety needs multiple pickings over several weeks for premium quality fruit.

HONEYCRISP STORAGE FOR 2011

As we head into the Honeycrisp harvest season, and a big crop at that, it's time to consider what might be the best strategy for your Honeycrisp storage.

Published September 13, 2011, MSU-E News for Agriculture - Fruit
Randy Beaudry, Michigan State University Extension, Department of Horticulture

It's very well recognized that Honeycrisp fruit are quite sensitive to the low temperatures commonly used for apple storage. Storage at 38°F helps to reduce the disorders of soft scald and soggy breakdown. Holding the fruit a few days at elevated temperatures improves storability even further. Our best current recommendation is to precondition for five days at 50°F and store at 38°F, but only if the fruit is expected to have a low propensity to develop bitter pit. With a relatively big crop this year, bitter pit incidence should be low. While storage for up to six or seven months has been successfully reported, Honeycrisp can probably be expected to hold its best quality in air storage for no more than four or five months.

SmartFresh has successfully been used for Honeycrisp, helping to prevent over ripening, but caution should be exercised to refrain from selling SmartFresh-treated fruit too soon after harvest, so that the fruit will have a chance to develop its characteristic aroma. Controlled atmosphere storage for extending the marketing season is an alternative that is being explored commercially and in the laboratory. Honeycrisp are sensitive to both low O₂ and elevated CO₂, but especially the latter. It's a little too early to make a firm recommendation, but we have had some success in the lab using preconditioning and the use of diphenylamine to suppress the CO₂ injury.

If you are going to use CA, it is advisable to extend the preconditioning for an extra two days. The CA conditions used successfully are 1.5 to 3 percent O₂ with 1 percent CO₂ for the first month if DPA is

not used. CO2 can be allowed to increase to 3 percent after the first month of storage. Because the fruit are sensitive to CO2, **be sure to ventilate well while the fruit are in the preconditioning room and being readied for storage** – turn on the O2 and CO2 analyzers and make sure the CO2 stays low.

Dr. Beaudry's work is funded in part by [MSU's AgBioResearch](#).

NW MICHIGAN APPLE MATURITY REPORT #3 September 21, 2011

The NWMHRC will be testing apples for maturity for 2011, and results will be sent via fax and email to past apple maturity list subscribers. Results will also be available at http://msue.anr.msu.edu/news/apple_maturity_reports_for_making_harvest_decisions.

If growers are interested in having fruit tested, they should drop off a 10 to 12 apple sample at the NW Station on Mondays. Fruit should be picked randomly from the outside portion of the trees and should be large in size and free of blemishes with the stem attached.

We tested five varieties this week, and the fruit has moved along compared to last week's samples. However, there is a bit of a lull at this time as Gingergolds have been harvested, and growers are waiting on maturity in many varieties. There is some spot picking of Honeycrisp and Graham Spy are also being picked at this time. Most growers are ready to start picking, and boxes are in place in the orchards. Color has improved on most varieties, and the cool nights and sunny days over the weekend helped with color. Quality of apples remains high across the region, despite a small amount of hail last week.

Summary of northwest Michigan apple maturity samples taken on 19 September, 2011

Variety	Color % (range)	Firmness lbs.		Brix (range)
		pressure (range)	Starch (range)	
Gala (4)	91 (85-99)	19.3 (18.2-20.8)	1.5 (1.2-1.9)	10.7 (9.8-11.3)
McIntosh (5)	90 (80.5-98)	15.2 (14.5-17.2)	2.6 (1-3.2)	10.9 (10.2-12.4)
Honeycrisp (4)	77 (66.5-84.5)	16.3 (14.8-19.9)	4.5 (1.8-6.9)	12 (10.6-15)
Golden Delicious (3)	32 (21-45)	18.6 (18.2-18.8)	1.6 (1.1-2)	11.7 (11-12.8)
Jonagold (3)	83 (69-97)	19 (17.6-19.5)	1.8 (1.3-2.3)	11.9 (11.2-12.6)

NWMHRS Predicted Harvest Dates

Full Bloom			Predicted Harvest		
McIntosh	Jonathan	Red Delicious	McIntosh	Jonathan	Red Delicious
23-May	27-May	27-May	24-Sep	10-Oct	16-Oct

Dates Compared to Normal			Dates Compared to 2010		
McIntosh	Jonathan	Red Delicious	McIntosh	Jonathan	Red Delicious
-2	-4	1	-20	-23	-23

Gala - Immature (4 samples). Firmness of Galas still has not changed in the past week, and most samples still have firmnesses in the 19 lb. pressure range. Starch index levels also remain constant and are only in the 1-2 range. This variety seems to be slower to ripen than other varieties. Color has improved over the last week to an average of 91%.

McIntosh – Approaching mature (5 samples). Fruit firmness has dropped over the last week, but is still in the 14-17 lb. range. Starch index is still fairly low, with an average of 2.6, and apples still eat on the green side. Color has improved to 90%.

HoneyCrisp - Immature (4 samples). Firmness in Honeycrisp has not changed much over the last week in most blocks, but there is quite a bit of variability in the starch removal index. Some blocks are reading in the 6-7 range while other blocks only have a starch removal of 1-2. There is variability in ripening across blocks. Color has improved quite a bit over the last week, from 69% to 77%. This variety needs multiple pickings over several weeks for premium quality fruit.

Golden Delicious – Immature (3 samples). Golden Delicious are still very firm at this time, and the average pounds of pressure is 18.6. Starch removal is an average of 1.6, and there is just starting to be a pink blush on the apple cheek.

Jonagold – Immature (3 samples). Jonagolds are firm at this time, and the color is looking good at an average of 83%. The brix was a bit of a surprise, where the samples averaged a brix reading of 11.9

NW MICHIGAN APPLE MATURITY REPORT #4
September 28, 2011

The NWMHRC will be testing apples for maturity for 2011, and results will be sent via fax and email to past apple maturity list subscribers. Results will also be available at http://msue.anr.msu.edu/news/apple_maturity_reports_for_making_harvest_decisions.

If growers are interested in having fruit tested, they should drop off a 10 to 12 apple sample at the NW Station on Mondays. Fruit should be picked randomly from the outside portion of the trees and should be large in size and free of blemishes with the stem attached.

We tested five varieties this week, and the fruit has moved along compared to last week's samples. Brix has gone up in most varieties, despite the rain across the region. Firmness of all varieties is still good, and even McIntosh is still in the 15 lb. range. Growers are moving into Gala harvest, and Galas are coming off in the more southerly regions and starting further north. McIntosh are also coming off this week, and they are eating well at this time. We did see Macs falling from the tree due to the wind on this past Monday. Honeycrisp spot picking has started, particularly for those growers sending fruit to the fresh market. Growers feel fortunate as the past two Mondays have started out rainy, but rain has cleared out later in the day and allowed growers to get into the orchards post-rainfall.

Summary of northwest Michigan apple maturity samples taken on 27 September, 2011

Variety	Color % (range)	Firmness lbs. pressure (range)	Starch (range)	Brix (range)
Gala (2)	87 (86.5-87)	19.0 (17.4-19)	2.4	11.7 (10.7-12.6)
McIntosh (3)	92	15.1 (14.2-16.5)	4.4 (1.4-6.7)	11.5 (10.7-13)
Honeycrisp (5)	79 (71.5-86)	15.5 (14.5-17.2)	5.5 (3.6-7.2)	12.5 (11.3-15.5)
Golden Delicious (2)	23	16.8	2.4	12.1
Jonagold (3)	87 (77-94)	18.4 (17.7-18.8)	3.4 (2.3-4.5)	13.6 (12.8-13.7)

Gala – Approaching mature (2 samples). Gala harvest has started across the region. Firmness of Galas still has not changed in the past week, and most samples still have firmnesses in the 19 lb. pressure range; this information is similar to last week's report. Starch index levels also remain constant and are in the 2.5 range, and starch removal was consistent across the different blocks tested. Color on Galas looks pretty good at this time.

McIntosh – Mature (3 samples). Fruit firmness at has dropped over the last week, but is still in the 15 lb. range, and growers are starting to pick Macs across the region. Starch index has increased in the past week, but from the samples tested, there is quite a spread in the starch readings: 1.4 - 6.7. Brix has also increased to an average of 11.5. Color on Macs is good at 92%.

HoneyCrisp - Mature (5 samples). Firmness in Honeycrisp is pretty consistent across the five samples, and the average firmness is in the 15.5 lb. range. Again this week, there is quite a bit of variability in the starch removal index, where the numbers range from 3.6 - 7.2. Color has remained consistent from last week, and the average is 79%. Growers have started spot picking this variety.

Golden Delicious – Immature (2 samples). Golden Delicious firmness has dropped a pound or so from last week, and the average firmness is 16.8 lb. Starch removal is an average of 2.4 this week, which is slightly higher than last week. Color of Golden at this time is 23%,

Jonagold – Immature (3 samples). Jonagolds are firm at this time, and the average is 18.4 lb., and from the samples we took this week, they are fairly consistent. Starch removal has increased this week, and the average is 3.4. Brix has also increased in the last week. And color is looking good at an average of 83%.

NW MICHIGAN APPLE MATURITY REPORT #5
October 5, 2011

The NWMHRC will be testing apples for maturity for 2011, and results will be sent via fax and email to past apple maturity list subscribers. Results will also be available at http://msue.anr.msu.edu/news/apple_maturity_reports_for_making_harvest_decisions.

If growers are interested in having fruit tested, they should drop off a 10 to 12 apple sample at the NW Station on Mondays. Fruit should be picked randomly from the outside portion of the trees and should be large in size and free of blemishes with the stem attached.

We tested six varieties this week, but sample sizes are smaller than in past weeks due to harvest. Most Galas have been harvested across the region, and Honeycrisp harvest is also moving along quickly. McIntosh harvest is wrapping up or has finished in most blocks. Jonagold harvest is anticipated to begin as soon as growers can harvest other varieties, and the samples we tested show this variety as mature in most sites. With the high winds over the weekend, some blocks had apples blown to the ground.

Summary of northwest Michigan apple maturity samples taken on 3 October, 2011

Variety	Color % (range)	Firmness lbs. pressure (range)	Starch (range)	Brix (range)
Gala (1)	84	17.7	3.7	11.4
Honeycrisp (2)	88 (81.5-94)	15.2	5.3 (4.9-5.6)	12.3
Jonagold (4)	80.5 (57-95)	17.1 (15.9-18.3)	4.8 (2.9-6.5)	13.7 (12.9-14.2)
Golden Delicious (2)	26	16.5	4.9 (2.5-7.3)	13.1
Northern Spy (1)	51	20.9	3.1	11.9
IdaRed (2)	88 (83.5-93)	17.3	3	12

Gala – Mature (1 sample). Gala harvest is winding down across the region. Overall color has been good, and Gala firmness is still relatively high.

HoneyCrisp - Mature (2 samples). Firmness in Honeycrisp is consistent with last week’s averages, and this week, our firmness for the two samples was 15.2 lb. Starch numbers have jumped this week, and both samples are reading in the mature range around 5. Color has improved from last week, and the average is 88%, up from 79% last week. Many growers are finishing Honeycrisp harvest, and many lost apples with the high winds.

Jonagold – Mature (4 samples). Jonagolds are still relatively firm at this time, and the average is 17.1 lb, which is down from 18.4 lb last week. Starch removal has increased this week, and there was variability in the samples where the range was from 2.9 - 6.5. Brix numbers from the samples ranged from 12.9 - 14.2, and the samples also had tremendous variability in color—from 57-95%.

Golden Delicious – Approaching mature (2 samples). There was a great variability in starch removal of the two Golden Delicious samples this week; one sample was a 2.5 while the other was overmature with a reading of 7.3. Color, firmness and brix were similar in both samples.

Northern Spy – Immature (1 sample). With only one sample, we do not have a good read on this variety, but many growers that grow Spys for the processing market are preparing to harvest them in

the coming weeks. Firmness in our one sample was still over 20 lbs. pressure, and the brix is rising at 3.1

IdaRed – Immature (2 samples). Of the two samples tested, they were consistent in our measurements other than a range in color. Firmness is at 17.3 lbs, brix readings were in the 12 range, and starch removal was an average of 3 for these samples.