



Friday, September 18, 2020 Vol 27:157

Maturity Report

Fruit maturity at Highmoor Farm on Wednesday September 16

PLUMS American plums: Alderman is ready to pick and it the last of our American plums.

European plums: Castleton is nearing peak harvest.

Long John is too sour for harvest and ripens very unevenly.

PEARS – The unknown green variety has softened slightly and developed good flavor, ready to harvest for short-term storage.

APPLES – A high degree of variability in stage of ripening occurs with Honeycrisp among different orchards, so check each one rather than relying on regional averages.

Honeycrisp are reaching a stage where they are susceptible to chilling injury in cold storage. It’s recommended that they be conditioned for five to seven days first. Hold them at warm temperature (50 to 70 °F for five to seven days) before they go into cold storage. If temperatures are above 70 °F, the conditioning can be shortened to five days.

Recommended storage temperature is 37 °F.

McIntosh are also ready for first pick or harvest for long-term storage.

The Apple Starch Index is on a scale of 1 to 8. Starch breakdown values are expected to be off from normal because of the extended dry weather.

	Starch index 1 – 8			Normal First Harvest
	Thur., Sept 3	Thur., Sept 10	Wed., Sept 16	
McIntosh (spur type)	3.8	4.2	4.7	Mid-September
McIntosh (nonspur)	2.6	4.3	5.1	Mid-September
Honeycrisp	1.4	3.3	5.2	Mid-September
Gala	1.1	3.0	3.3	Late September
Snowsweet	4.7	6.2	5.8	Late September
Cortland	1.0	1.1	2.5	Late September
Macoun	1.0	2.4	2.5	Late September
Sweet 16	--	2.5	3.0	Late Sept. Spot pick now for storage.
Northern Spy	--	1.2	1.6	Mid-October

The Delta absorbance meter is a relatively new tool for measuring maturity in fruits that show chlorophyll breakdown with ripening. McIntosh does not do this. The IAD values for McIntosh are shown to illustrate that point.

The IAD values have been useful in Honeycrisp when starch index does not follow normal patterns. The values listed below for Honeycrisp are based on two years of research in Maine. Standards for when to harvest are specific to each variety and are not fully developed for most.

	DA Meter Index			Value associated with harvest date
	Thur., Sept 3	Thur., Sept 10	Wed., Sept 16	
McIntosh (spur type)	2.02	1.85	1.73	Unknown
McIntosh (nonspur)	2.03	1.90	1.85	Unknown
Honeycrisp	1.32	0.98	0.73	First pick: 0.8 to 1.0 Midharvest: 0.5 to 0.7 End of harvest: 0.3 to 0.4
Gala	0.87	0.72	0.39	0.4 to 0.8, but not tested in Maine.
Snowsweet	1.01	1.23	1.58	Unknown
Cortland	2.15	1.79	1.77	Unknown
Macoun	2.03	1.93	1.94	Unknown
Sweet 16	--	1.23	1.11	Unknown, but ready for first pick.
Northern Spy	--	2.07	2.06	Unknown

Effects of 1-MCP Orchard Spray (Harvista) on Apple Quality

By Dr. Jennifer DeEll, Fresh Market Quality Specialist, Hort Crops, OMAFRA, Simcoe

1-Methylcyclopropene (1-MCP) is an inhibitor of ethylene action, which in turn slows fruit ripening. 1-MCP is the active ingredient in postharvest gaseous treatments, such as SmartFresh and Fysium, which are often used in apple storages to delay fruit ripening and retain good quality.

Harvista™ 1.3 SC is an orchard spray containing 1-MCP and it is currently registered for use. Application timing is 3 to 21 days prior to estimated harvest date (fruit ripening). Higher rates should be used for more advanced stages of maturity.

The following is a summary of the major effects of Harvista during our 15 years of study:

For most apple cultivars, Harvista will inhibit ethylene production and therefore, reduce fruit drop, improve apple color and size, and reduce the number of harvests. It will also provide less variability in fruit maturity at harvest and thus allow for more effective postharvest 1-MCP treatments.

'McIntosh' is a high producer of ethylene and therefore, highly susceptible to fruit drop. Harvista can substantially reduce fruit drop in 'McIntosh', allowing for improved color and size. It also helps to improve firmness retention, especially in combination with postharvest 1-MCP treatments. After 3 months in air storage at 0°C, 'McIntosh' with no 1-MCP had 9.7 lb firmness (not marketable), while those sprayed with Harvista 9 days prior to harvest and treated 3 days after harvest with 1-MCP (SmartFresh, 1 ppm) had 14.2 lb firmness (significantly different from 13.2 lb firmness with only postharvest 1-MCP).

'Gala' typically has a wide range of fruit maturity at harvest time. Harvista can slow starch degradation and provide a narrower range of fruit maturity, which can result in fewer harvests. For example, 'Gala' showed starch value ranges of 1 to 2 and 1 to 5 (Cornell chart) with and without Harvista, respectively, after 6 days of spraying. Harvista can also improve firmness retention in 'Gala' after harvest and during storage, as well as substantially reduce stem cavity cracking and internal flesh browning development during storage. After 8 months in CA storage (2.5% O₂ + 2% CO₂) at 1.5°C, 'Gala' sprayed with Harvista at the highest rate 16 days prior to harvest, or with two half rates sprayed 16 and 10 days prior to harvest, had significantly lower incidence of stem-end internal browning compared to fruit without Harvista (6-7% versus 23% incidence, respectively). After 4 months in air storage at 0.5°C, similar 'Gala' with Harvista had significantly less stem cavity cracking than those without (7-10% versus 26% incidence, respectively). In the same trial, ReTain treated fruit had around half of the reduction in stem cavity cracking, with 16% incidence and not significantly different from non-sprayed 'Gala'. These effects on stem cavity cracking were also observed in the field prior to harvest.

'Honeycrisp' is extremely susceptible to soft scald and soggy breakdown, chilling-related disorders. Harvista can substantially reduce these storage disorders, with the most pronounced effects found using the full high rate. After 6 months of storage at 0°C, 'Honeycrisp' sprayed with 'Harvista' had significantly lower incidence of soft scald compared to fruit without Harvista (i.e. <2% versus 9-18% incidence, respectively (Year 1); 3-11% versus 45-47% incidence, respectively (Year 2)).

Similarly, in a year of high soggy breakdown development, Honeycrisp' sprayed with 'Harvista' had significantly lower incidence compared to fruit without Harvista (i.e. 8-9% versus 42% soggy breakdown, respectively). Interestingly, these effects are not found with postharvest 1-MCP treatments.

'Delicious' is very prone to watercore, as sorbitol accumulates due to hastened or advanced fruit maturity. Harvista can reduce watercore development, along with the associated flesh browning during storage. Large improvements to firmness retention (+6 lb) have been found in 'Delicious' with Harvista and no other treatments.

'Ambrosia' loses acidity (flavor) and softens rapidly if not harvested at proper maturity. Harvista can improve acidity and firmness retention in 'Ambrosia' after harvest and during storage. It also can reduce internal/flesh browning and soft scald development in storage.

1-MCP in general, as well as other types of ethylene inhibitors (i.e. ReTain, AVG), will delay red color development as some maturation processes are delayed. Therefore, it is important to think of this aspect as you decide on application timings and rates. This has been especially true for 'Ambrosia', 'Gala', and 'Honeycrisp'. Such ethylene inhibitors will also increase fruit sensitivity to CO₂ and thus the incidence of CO₂ injuries during storage. Therefore, storage regimes should be revised accordingly if diphenylamine (DPA) is not being used on CO₂ susceptible cultivars.

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Maine Climate Council

The Science and Technical Subcommittee report to the Maine Climate Council is available online at <https://www.maine.gov/future/initiatives/climate/climate-council/reports>. It includes a chapter Maine agriculture (pages 348-396) that covers greenhouse gas emissions and mitigation opportunities, and the positive and negative impacts of climate change on crop and livestock production in Maine. A webinar to review the STS report is scheduled for Friday September 25, at 10 – 11:30am. The webinar link is coming soon.

The STS report is a review of knowledge and issues related to climate change in Maine. It does not include the recommendations of the Maine Climate Council (MCC, <https://climatecouncil.maine.gov/>). Those recommendations have not been created yet. They will be formulated over the next two months.

The MCC has six working groups. Agriculture is being addressed by the "Natural and Working Lands" group (NWL). The introduction to the two part, 75-pages (total) "Proposed Strategy Framework for the Maine Climate Action Plan" that were published on September 4 and 15 says that it is a first draft version to be presented to the Maine Climate Council that "includes the recommendations proposed by the six Maine Climate Council working groups in summary form and incorporated into consolidated strategies." And that "The Maine Climate Council members have not yet taken a position on the draft proposed strategies and framework (and ultimately the Action Plan) which will continue to be refined, clarified, and shaped by the Council process."

As a framework with recommendations in summary form, it is not surprising that the ‘Strategy Framework’ adds no detail with respect to agriculture than a list of more specific strategy recommendations published by the NWL on June 8. However, seeing which items made it through to the summary could be a way to identify what might be the top priorities and most likely recommendation areas, so I went through the ‘Strategy Framework’ to extract statements that directly related to commercial farm operations.

----- After some editing for brevity and reordering to put items in a logical sequence, here are summary statements:

*** Improving carbon sequestration in Maine’s natural and working lands and waters is essential to enable the state to reach its goal of carbon neutrality by 2045.**

* Farms are presently a net source of emissions in Maine, but **increasing crop cover, reducing tillage, and increasing nutrient management practices can reduce those emissions.**

* Financial incentives would **help private landowners implement more carbon-friendly land management practices.**

*** Property taxation policy for working lands and open space is a critical incentive for climate-friendly land management.** State and federal programs that currently provide incentives to local landowners should be refocused to ensure that **financial assistance is targeted specifically to climate mitigation and adaptation measures.**

* Maine industries that are inextricably linked to the health of our natural resources need **information and technical support and tools to adapt to the rapidly intensifying impacts of climate change and take advantage of new opportunities.**

* **Financial support** should be provided in addition to **technical assistance to strengthen Maine’s food systems so that more food can be produced and processed locally, distributed efficiently, and priced affordably.** With approximately 90% of the food we consume currently coming from outside the state, increasing our capacity to grow and process food in Maine will ensure that a greater portion of **the food we consume is produced using climate-smart practices.**

Public comment in written form will continue to be accepted by the Maine Climate Council through September 24, 2020, for consideration prior to final climate council decision making. The final four-year Maine Climate Action Plan is due to be submitted to the Governor and Legislature on December 1, 2020. Comments can be emailed to maineclimaticouncil@maine.gov or sent by a form at <https://www.maine.gov/future/initiatives/climate/climate-council/contact>.

The summary statements in the ‘Strategy Framework’ do not provide much detail for consideration or comment. In order to represent the more specific NWL recommendations, I combed through the 41-page “Natural and Working Lands Work Group Final Strategy Compilation June 8, 2020” (https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/NaturalWorkingLandsWG_FinalStrategyRecommendations_June2020.pdf).

Four pages of excerpts from that document are included as an attached file to the newsletter email.

Maine Board of Pesticides Control News

The Maine Board of Pesticides Control issued the following notices this week.

Pesticide Container Fee/Tax Exemption

In 2020, following adoption of [Public Law 2020, Chapter 548](#), the Maine Revenue Service implemented a \$0.15 fee on each container of pesticide sold in Maine. Collected fees will fund, in part, the University of Maine Cooperative Extension Research and Diagnostic Laboratory.

Maine licensed private and commercial pesticide applicators may obtain a self-certified affidavit of exemption from the pesticide container fee. To obtain an affidavit of exemption, please use [this document](#) from the Maine Revenue Service.

For questions pertaining to the affidavit please contact Maine Revenue Services by calling (207) 624-9693 weekdays, or by emailing sales.tax@maine.gov.

Seasonal Parking Lot Exams

Beginning in April this year, the Board of Pesticides Control began offering drive up parking lot exams. We can proudly say that this has been a successful effort thanks to cooperation with many of you. Exams will continue, weather permitting, through the end of October 2020 with the last day of testing scheduled for Wednesday, October 28.

Staff are currently assessing alternative approaches to offering exams. At present, tentative plans for exams include reopening parking lot exams in late April 2021. Regulatory and oral exams for prospective commercial master applicators will continue to be offered until the end of October. As we navigate this new landscape, your continued cooperation with BPC staff is much appreciated.

For more information about exam registration please contact the Board of Pesticides Control by calling (207)287-2731 or by emailing pesticides@maine.gov.

Successful Exam Completion

Finally, some exam applicants have commented that they do not have study manuals or time to prepare for exams. The BPC would like to encourage examinees and their employers to utilize the [study manuals](#) developed by the University of Maine Cooperative Extension and Board of Pesticides Control. All Maine pesticide licensing exams are based on the [exam specific study manual](#).

For help with identifying the exam manual you need contact the University of Maine Cooperative Extension using the links above or contact the Board of Pesticides Control by calling (207) 287-2731 or by emailing pesticides@maine.gov.

Recertification Credit Opportunities

The BPC, in collaboration with the University of Maine Cooperative Extension, will be offering several, free, online opportunities for recertification credits. Information about these classes may be found on the [credit calendar](#). If you prefer pre-recorded on-line programs, numerous classes are listed in [Online & Home Study section of the BPC credit calendar](#).

If you would like credit for a class not listed on the credit calendar, please contact the BPC. Staff can review the course agenda and determine if it qualifies for credit. For additional information, please contact the Board of Pesticides Control.

Closing Wordless



The smoke-obscured sun over the Washington Monument. (Phil Yabut/Twitter)

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