Northern Michigan FruitNet 2013
Northwest Michigan Horticultural Research Center

Weekly Update

September 10, 2013

CALENDAR OF EVENTS

2013

9/12	**Apple Field Sorting Machine Demo** Sparta, MI
9/14	**Roadblocks to MAEAP Verification Workshop** Putney Beef and Fruit
9/24	**Trevor Nichols Field Day** Fennville, MI
11/12	**Making It In Michigan Conference** Lansing Center, Lansing, MI
12/10-13	**Great Lakes Expo** Amway Grand Plaza, Grand Rapids, MI

2014

1/14-15	**NW Michigan Orchard & Vineyard Show** Grand Traverse Resort
2/18-19	**IPM Academy**

Northwest Regional Report

Nikki Rothwell and Emily Pochubay, NWMHRC

Early apple harvest has begun across northwest Michigan

Apple harvest began for early varieties last week, and growers are pleased with the crop load and quality on many varieties. Rainfall is needed, especially for apples grown without irrigation. Some sweet cherry trees are also showing signs of drought stress following another prolonged dry period in the 2013 growing season. The last big rain event was on 27 August where the NWMHRC received almost 2.75" of rain. However, rainfall was variable across the region, and many other Enviroweather stations recorded far less rain than we received at the NWMHRC. In short, much of the region remains dry, and apples could use a good rain to increase size. Current temperatures still make it feel like summer, but conditions are expected to cool off over the weekend. So far this season, we have accumulated 3156GDD base 42 and 2102GDD base 50. Cool nights will help improve color in apples.

Apples. **Codling moth** (CM) numbers are down at the NWMHRC and across the region. Summer adult flight is over, and second generation larvae could be present in orchards without a good CM control program. Apples need to be protected through harvest, and growers should be sure to check pre-harvest intervals (PHIs) before any insecticide application. **Obliquebanded leaf roller** numbers are in the double digits at many farms, and this internal feeder will also need to be controlled to have clean fruit at harvest. Little fruit scab has been observed as we head into harvest.

Cherry. Most growers did an excellent job of controlling **cherry leaf spot** this season—the disease is just starting to cause defoliation in the tops of both tart and sweet cherry trees in many orchards. **Two spotted spider mites** are still evident in many orchards, but we observed many colonies starting to turn orange and move out of tree canopies. If most of the colony is at the base of the tree, we recommend waiting until next season for control. **Spotted wing Drosophila** numbers have dramatically increased in some sites across the region. Some traps have captured over 300+ flies while many traps are catching 30-50 flies/trap. We will continue to monitor all of our SWD traps for at least a few more weeks. Blackberries are still susceptible to SWD infestation and control measures should be taken to protect fruit. SWD has not been documented to be a major pest in wine grapes, and we are currently conducting tests to determine the infestation potential of this pest in some of our thinner-skinned varieties.

Wine Grapes
Duke Elsner, Grand Traverse County MSUE

Most early and mid-season cultivars are showing signs of berry softening and coloring. A few early cultivars are nearing harvest. Insect activity has been very light in recent weeks. Unless a vineyard has had a history of **grape berry moth**, there may not be a need for further insecticide treatment.

Powdery mildew is common on clusters and inner leaves of susceptible cultivars, but only a few sites are at excessive levels. Cluster rots will soon be a concern as fruit ripening continues.

NEW EDUCATOR AT THE NORTHWEST MICHIGAN HORTICULTURAL RESEARCH CENTER
Dr. Nikki Rothwell, NWMHRC

The Northwest Michigan Horticultural Research Center (NWMHRC) is pleased to announce a new member to their team: Emily Pochubay. Emily will fill the Fruit Educator role at the NWMHRC and will be working with growers across northwest Michigan as well as with fruit growers throughout the state. She will coordinate Extension educational programming on pest management and horticulture in tree fruit, primarily tart and sweet cherries, apples, and wine grapes. This position will also work across disciplines on a breadth of basic and applied research projects. Emily will provide leadership in the horticultural management of tree and small fruits, management of pests and other plant stressors of the fruit industry centered in northwest Michigan. She will participate in teams to support statewide outreach activities directed toward the state's fruit industry. Because the link of extension and research is vital at field research stations, Emily will develop and maintain an applied research program centered in northern Michigan and will coordinate site-specific research with other MSU researchers.

Emily completed her Bachelor of Science in Entomology from Michigan State University in 2009. After graduation, Emily worked as a research aide in the Organic Pest Management Lab (www.opm.msu.edu) directed by Dr. Matt Grieshop. She assisted Dr. Grieshop and many graduate students with several tree fruit and greenhouse pest management projects. Her dedication to pest management research led to three grant-funded projects that supported Emily's graduate program at MSU. Her graduate work on biologically-based pest management in greenhouse crops provided the industry with insights on techniques for introducing predators to manage key greenhouse pests. Emily worked closely with MSU researchers, Extension educators, and growers of greenhouse crops throughout her degree program and has presented her findings at conferences across the country. She received several awards throughout her graduate degree including the Academic Achievement Graduate Assistantship from MSU, the Joseph H. Camin Fellowship from Ohio State University, and the Paul Wooley award for outstanding achievement in her master's program from the Department of Entomology at MSU.

After graduating in 2012 with her Master of Science in Entomology, Emily transitioned into a research technician position in the Organic Pest Management Lab. In this role, she assisted in and led research experiments in tree fruit and high tunnel grown raspberries and sweet cherries. Some projects Emily contributed to include the Solid-Set Canopy Delivery System project (www.canopydelivery.msu.edu) – an ongoing multi-state effort investigating the development, installation, and use of micro-sprinklers in orchards, two-spotted spider mite management using predators in high tunnel grown raspberries, and a monitoring study of Brown Marmorated Stink Bug predators in Michigan. Throughout her time in the Organic Pest Management Lab, Emily mentored several undergraduate student researchers who are now taking the lead on research projects at MSU.

"Emily brings a terrific set of skills to the IPM position", said Mark Miezio, President of the NWMHR Foundation Board, "We are pleased that we found a person that has a solid pest management background, which will help her hit the ground running next field season. We are also appreciative of MSU's commitment to the Northwest Station and think Emily will be a great addition to our team." Welcome Emily!

IN FIELD APPLE SORTING MACHINE DEMO THIS THURSDAY

Renfu Lu will demonstrate his field sorting machine on **Sept 12 from 10 AM to 12 PM** at Brett Anderson's farm. This machine allows for in the field sorting. Lu is an agricultural engineer with USDA's Agricultural Research Service and he partners with Michigan State University's Agricultural Engineering Department on various projects related to the apple industry as well as the sugar beet industry.

You will be busy with harvest by September 12, but it's during harvest that we have to do this demo. We hope you can slip away to see what it's all about.

Date: Thursday, September 12, 2013

Time: 10 AM to Noon

Place: Brett Anderson's Farm
2909 11 Mile Rd
Sparta, MI 49345

If area growers are interested in attending the demonstration, please call the NWMHRC at 231-946-1510, as we may be able to coordinate a carpool or get you in touch with others interested in going.

ReTain and NAA RECOMMENDATIONS FOR 2013

Harvest management and stop drop are primary reasons growers use ReTain on apples, but there are many other benefits that ReTain can offer.

Posted on **September 5, 2013, MSUE News,** by **Phil Schwallier**, and Amy Irish-Brown, Michigan State University Extension

Introduction

According to Michigan State University Extension, primary reasons apple growers use ReTain on apples are harvest management and strop drop. However, ReTain offers many other benefits to growers. The ReTain effect will improve storage quality, a major objective of shippers and processors. ReTain stops the production of ethylene in the apple fruit and thus delays maturity, stops drop and lengthens shelf life. The best ReTain recommendation is to apply at full rate split into two sprays at 30 and 14 days before harvest. This "Full Rate Split Application" will give reliable, successful annual ReTain use. Add NAA at 10 ppm with the 14-day before harvest spray for best stop drop.

A major benefit of ReTain includes its stop drop impact on apples. ReTain stops ethylene production, which stops the ethylene ripening effect and thus dropping fruit, a ripening effect. NAA stops drop as well, but by a different action. It delays the formation of the fruit abscission zone. Unfortunately, NAA alone also turns on ethylene, which in turn will ripen fruit; and after the NAA abscission zone effect wears off, fruit drop will be enhanced by the increased ethylene. ReTain, however, will eliminate the NAA-induced ethylene. Thus, using the combination of ReTain plus NAA provides the best of both worlds, improved stop drop from both materials and ReTain's control of the NAA induced ethylene ripening.

ReTain also reduces watercore, greasiness, cracking and improves fruit size. More research on lower rates of ReTain plus NAA needs to be done. Overall, ReTain plus NAA has performed well in the past four years of trials on all varieties.

ReTain nuances

ReTain is dose dependent, time dependent and variety dependent. ReTain is very effective at controlling ethylene production in apples. Even low rates can eliminate ethylene production for some time. The standard full rate is 333 gallons per acre (1 pouch per acre) applied at 30 DBH (Days Before Harvest). Full rate and even low rates provide improvements of other fruit problems such as cracking, greasiness and watercore. ReTain can be applied in split applications or for maximum maturity delay, apply up to two full rates of ReTain. Additional stop drop control will occur when ReTain is combined with NAA at 14 DBH.

Major ReTain characteristics

- Variety dependent.
- Dose dependent.
- Time dependent.

- Delays maturity.
- Stops fruit drop, and even better stop drop with NAA combinations.
- Improves fruit quality, fruit firmness and shelf life and reduces cracking, greasiness and watercore.
- Can reduce red color.
- Can improve fruit size.

Varieties

Gala, Jonagold and Honeycrisp

ReTain is variety dependent. Gala and Jonagold are noted for their high degree of sensitivity to ReTain. Honeycrisp has intermediate sensitivity to ReTain. Because of these varieties elevated sensitivity to ReTain, the normal recommended rate for these three varieties is half rate (165 gallons per acre). This rate will have the same impact on these three varieties as the full rate (333 gallons per acre) does on all other varieties. These three varieties respond to even lower rates of Retain (one-quarter and one-third rate), but not all low rates have been thoroughly tested and thus, one-quarter rate may not perform well some years.

McIntosh

McIntosh is a special case variety because it is a high producer of internal ethylene and has considerable variation in ripening. McIntosh is notorious for a mix of maturity on the tree and are prone to heavy fruit drop. Some apples on the same tree mature early and produce significant ethylene while many others are still green. McIntosh starts producing ethylene early up to three weeks before harvest in some fruits and thus, drop in some years can start early. This makes it important to spray ReTain early (30 DBH) to make sure the successfully control this early producing ethylene tending McIntosh variety. This is particularly important during those years when summer heat or drought stress is above normal. High summer stress tends to elevate ethylene early and runaway fruit drop may occur.

Figure 1. ReTain rate and variety maturity chart.

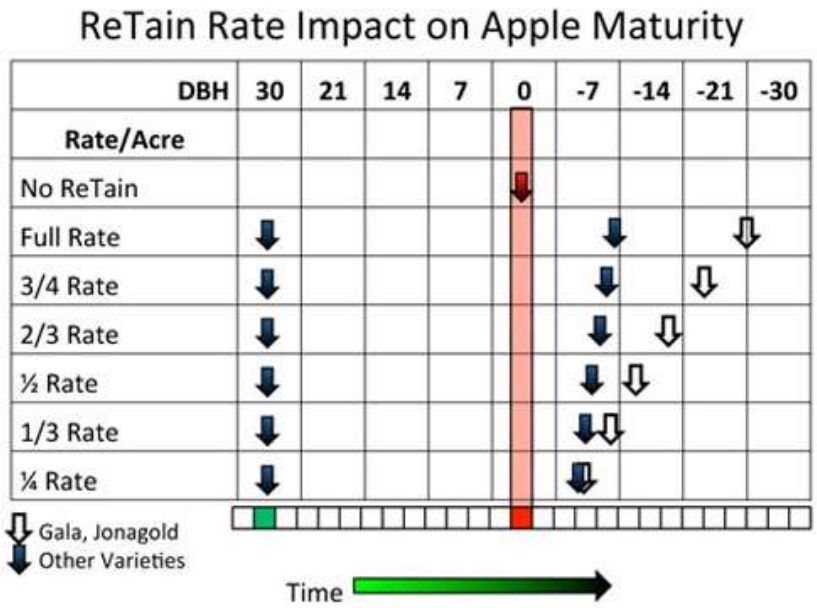
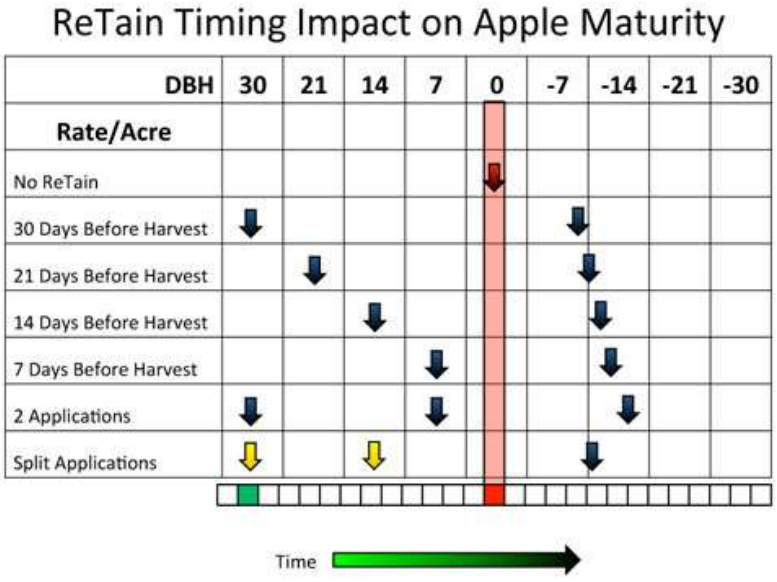


Figure 2. ReTain timing maturity chart.



Rate

ReTain is dose dependent (Fig. 1). The greater the rate of ReTain, the greater delay in maturity and the longer the ReTain will have effect. The gold standard (standard recommendation) use of ReTain is to apply it 30 DBH at full rate, 333 gallons per cre (1 pouch per acre). This early application will provide maximum ethylene control, maximum maturity delay and maximum stop

drop protection and will delay harvest seven to 10 days. However, this 30 DBH application will also wear off earlier than later applications of the same rate. Using a reduced rate 30 DBH (Fig. 1) will provide similar benefits, but wear off earlier – that is, half rate will provide only four to seven days delay in maturity instead of the seven to 10 day delay of the full rate. A 30 DBH full rate of ReTain will also have maximum impact on red color development. Gala and Jonagold maturity will be delayed much longer than most other varieties (Fig. 1).

Timing

ReTain is time dependent. Early applications (30 DBH) will have a greater impact on the fruit then later applications (Fig. 2). Applying ReTain closer to harvest will have less impact on reduced fruit color and will extend the days to harvest. Also, fruit may start dropping before a late application of ReTain can gain control of internal ethylene. Varieties prone to drop should receive a ReTain application no later than 14 DBH, but 21 DBH would be a better timing, especially on drop prone varieties. First ReTain applications made as late as seven DBH will increase the risk of poor stop drop control but lessen impact on fruit quality (red color) and extend harvest maturity, but drop may still be a challenge.

Split treatments

ReTain can be applied as a split treatment for example, half rate 30 DBH plus one-quarter rate 14 DBH (Fig. 2). This treatment is always one of the best treatments for controlling drop, managing harvest and achieving excellent fruit quality. Split applications of ReTain are always at least as good as or better than a single application.

Maturity

ReTain is dose dependent, higher rates have greater impact on delaying maturity. Some varieties are very sensitive to ReTain and high rates will delay maturity 20 to 30 days. To have maximum impact on delaying maturity, use the full rate and apply two applications. Gala and Jonagold are highly sensitive (Fig. 1). Heavy crop loads will mature later (Fig. 3).

Fruit quality

ReTain will improve fruit quality (Figs. 6-7). ReTain is a very effective material even at low rates. Fruit cracking is a bothersome problem with some varieties. Lower rates such as one-quarter to one-third rate will control cracking plus provide other fruit quality control such as watercore and greasiness.

Red color

ReTain will delay the development of red color especially if applied early (30 DBH). Delaying ReTain application until fruit are closer to harvest (10 to 7 DBH) will reduce the impact on red color, but may also have less impact on stop drop. Fruit treated with ReTain will recover the red color levels of untreated trees, but growers need to be patient and wait for fruit to achieve full maturity. Harvesting fruit in a premature condition will have lesser red color.

Figure 3. ReTain crop load maturity chart.

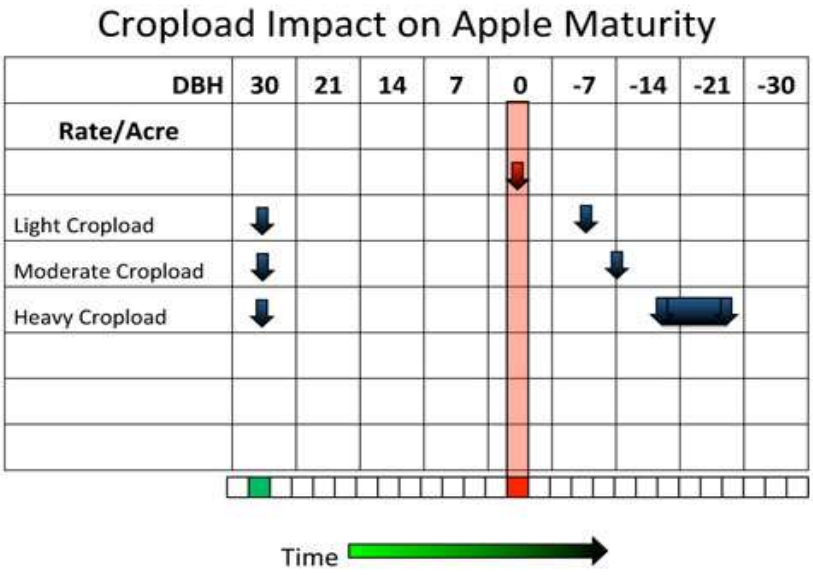


Figure 4. ReTain and NAA Honeycrisp stop drop 2010.

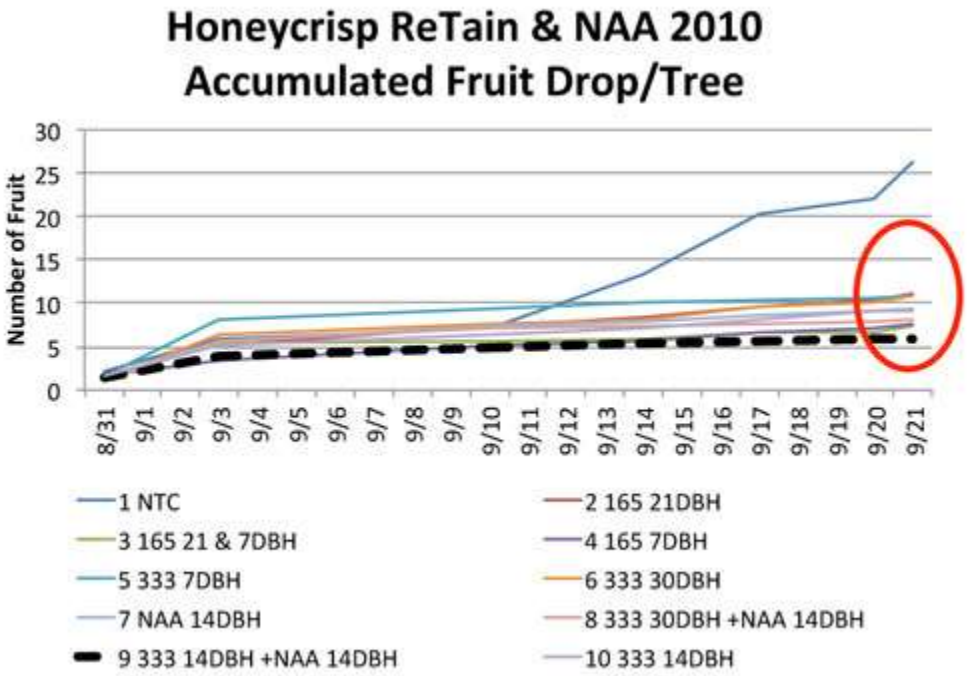
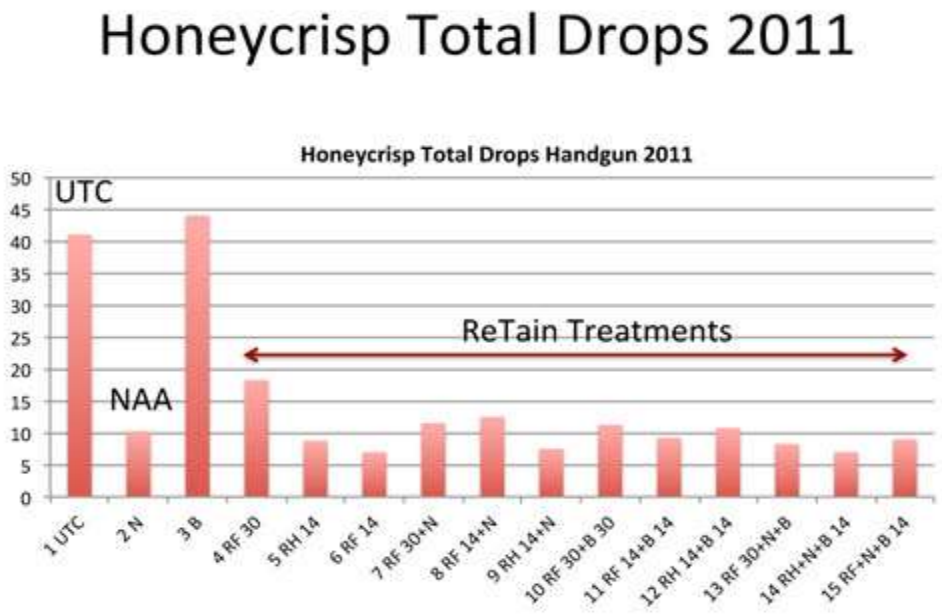


Figure 5. ReTain and NAA Honeycrisp stop drop control.



Fruit Size

Apple fruit growth will slow in when ReTain is applied. ReTain, however, will hold fruit on the trees and can increase fruit size in some years. Usually ReTain-treated fruit size is larger or not different than untreated trees when harvested at proper maturity.

Stop drop

In those years of stressful summer conditions (hot and dry), fruit will start ripening early and fruit will drop early. In those type years apply ReTain earlier and at higher rates. ReTain is very effective at stopping drop if applied early enough to provide control before drop commences. ReTain plus NAA will provide even better stop drop. Many years all ReTain rates provide excellent stop drop control, but the best treatments are split applications and NAA combinations (Figs. 4-5).

Figure 6. Fruit cracking of ReTain and NAA treatments.

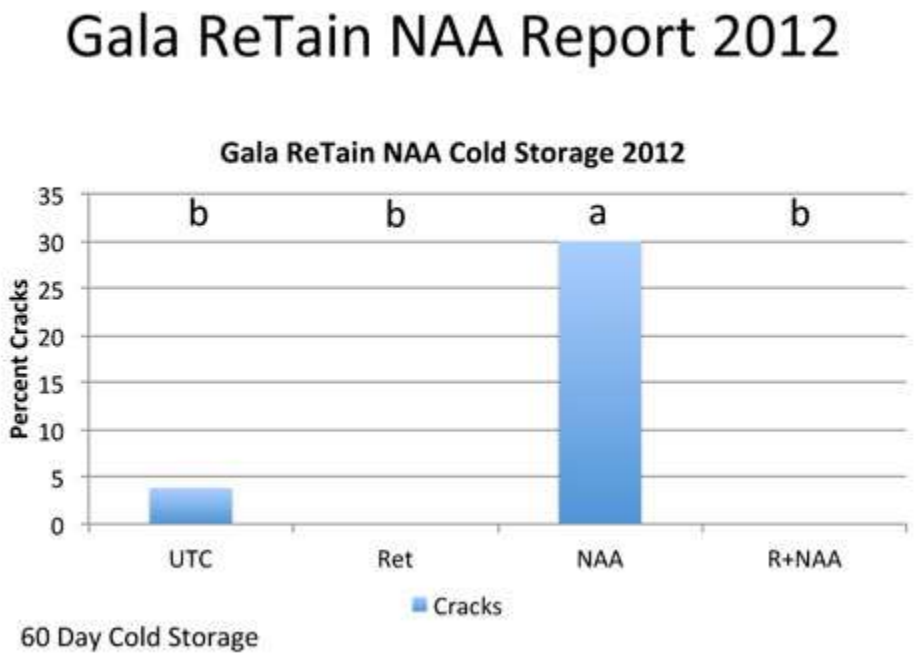
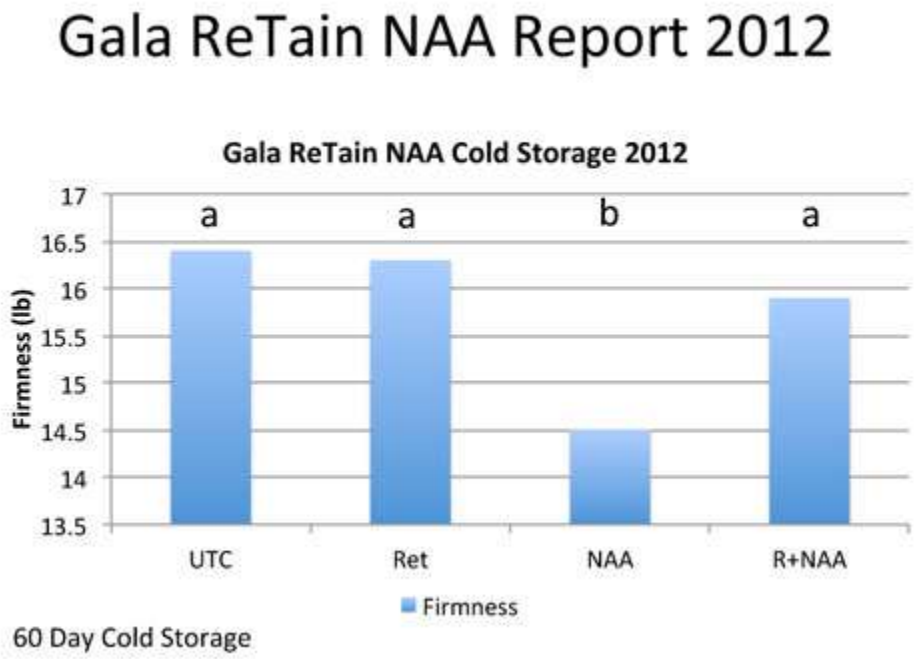


Figure 7. Firmness of ReTain and NAA treatments.



ReTain and NAA recommendations 2013

Table 1 lists 2013 recommendations for the use of ReTain and NAA and for certain sensitive varieties. Generally, to delay maturity, use early applications and multiple full rates. When summers are stressful (hot and dry), use early applications and add NAA. On McIntosh that are prone to drop, use half rate ReTain plus NAA twice at 30 DBH and 14 DBH. Gala and Jonagold are very sensitive to ReTain, thus half rate will work well. Two one-quarter rates will work well and add NAA as needed. Honeycrisp responds nicely to one-quarter rate ReTain plus NAA 14 to 21 DBH. All other varieties respond well to half to two-thirds rate ReTain plus NAA 14 to 21 DBH. Full rates will work well also.

Table 1. ReTain and NAA Recommendations for 2013. NAA at 10 ppm. Will not stop push-offs.

Variety	**Objective**	**30 DBH**	**21 DBH**	**14 DBH**	**7 DBH**	**Comments**
General use	Full maturity delay.	Full rate		Full rate +NAA		Provides early stop drop and maturity delay and best for stressful years.
Stressful years	Stop drop	Apply 1st ReTain early and add NAA		Apply 2nd ReTain add NAA		Stressful years will hasten drop, early control is required.
Variety specific recommendations						
McIntosh (Drop prone)	**Maturity delay and stop drop.**	**Half rate +NAA**		**Half rate +NAA**		**Provides best overall performance.**
	Some maturity delay and stop drop.	1/3 rate +NAA		1/3 or 1/4 rate +NAA		Less maturity delay and color impact, but still excellent stop drop.
	Reduced maturity delay, stop drop, less color impact.		1/2 rate +NAA		1/4 rate +NAA	Less maturity delay and color impact, but still excellent stop drop.
	Least maturity delay, but still stop drop, less color impact.			1/2 rate +NAA		Less impact, but still good stop drop (non--stressful years).

Gala, Jonagold, Honeycrisp (ReTain sensitive)	**Maturity delay and stop drop.**	**1/4 rate**		**1/4 rate +NAA**		**Provides excellent performance.**
	Maturity delay, stop drop, less color impact.		**1/4 rate +NAA**		**1/4 rate +NAA**	**Provides best overall performance.**
	Especially for Honeycrisp			1/4 rate +NAA		Less maturity and color impact, excellent stop drop.
All other varieties	Maturity delay and stop drop.	1/2 rate		1/2 rate +NAA		Provides excellent overall performance.
	Maturity delay, stop drop, less color impact.		**1/2 to 2/3 rate +NAA**			**Provides best overall performance.**
	Less maturity impact, stop drop, fruit quality.		1/4 to 1/3 rate +NAA			Less maturity and color impact, excellent stop drop.

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ONE-STOP SITE FOR APPLE MATURITY RESOURCES FOR 2013

All your educational needs for apple harvest decisions can be found at the Apple Maturity Program and Reports resource page.

Posted on **September 5, 2013, MSUE News,** by **Amy Irish-Brown**, Michigan State University Extension

After a dismal 3 million bushel crop in 2012, the predicted Michigan apple crop of 30 million bushels requires growers to use all available resources to properly manage the harvest of this large crop. Michigan State University Extension educators have compiled various regional harvest reports and other useful resources into one place, the Apple Maturity Program and Reports resource page, to make it easier to find the educational tools to help with harvest management. Articles from MSU's Department of Horticulture post-harvest lab are also posted.

Our goal is to provide updates every week by the end of the day on Wednesdays through the harvest season, so please check back often.

Visit the Apple Maturity Program and Reports resource page now!

Sponsors for this program include:

- Michigan Apple Committee
- Michigan State Horticultural Society
- MSU AgBio Research
- MSU Extension
- AgroFresh

This article was published by **Michigan State University Extension**. For more information, visit http://www.msue.msu.edu. To contact an expert in your area, visit http://expert.msue.msu.edu, or call 888-MSUE4MI (888-678-3464).

APPLE MATURITY PROGRAM AND REPORTS

After a dismal 3 million bushel crop in 2012, the predicted Michigan apple crop of 30 million bushels requires growers to use all available resources to properly manage the harvest of this large crop. This page is a compilation of maturity reports from apple growing regions around the state and resources to help you in your harvest decisions.

2013 reports

September 5, 2013 - Early apple varieties (Paula Red, Gingergold, etc) have been harvested in much of the state at this time. So far, it appears that the original predicted harvest dates are mostly on target. Read each regional report for more details on specifics for that area.

- Southwest Michigan
- Southeast Michigan
- Grand Rapids area
- Northwest Michigan

Additional resources

- Apples.msu.edu
- Predicted 2013 apple harvest dates, MSU Extension
- ReTain and NAA recommendations for 2013, MSU Extension

- Starch chart for Honeycrisp apple fruit, MSU Extension
- Lenticel infections and bitter rot of apples, MSU Extension
- Checking apple maturity: What to look for, MSU Extension
- Predicting harvest date windows for apples, Cornell University

Apple Maturity team will provide updates to some of these articles and write new ones.

Sponsors for this program include:

- Michigan Apple Committee
- Michigan State Horticultural Society
- MSU AgBio Research
- MSU Extension
- AgroFresh

DETERMING WHEN HOPS ARE READY FOR HARVEST

A simple equation for calculating alpha and beta acid levels at 10 percent moisture.

Posted on **September 5, 2013, MSUE News,** by **Diane Brown**, Michigan State University Extension

You've spent an entire season nurturing and tending your hops, eagerly waiting for harvest. How can you determine whether or not your hops are ready to harvest? Before breweries will buy your hops, among other things, they will want to know what the alpha acid levels are.

A sample of cones can be sent to a lab for analysis to determine alpha and beta acids. Fresh hops are typically dried down to 8 to 10 percent moisture to prevent spoilage. Here is a formula to convert alpha acid and beta acid concentrations derived from analysis of wet hops to estimated dry hop concentrations at 10 percent moisture. Actual dry hop values may be different and will need to be tested to ensure accuracy, but the estimated values will help to determine whether or not the hops are ready to harvest. To use this formula, you will need the tested values for alpha acids, beta acids and the percent moisture in the test sample. Thanks to KAR Laboratories, Inc. for providing the formula below.

Tested acid value x (90/100-(percent moisture))

Here is an example using 'Cascade.' The normal range for alpha acids in Cascade is 4.5-7.0; the normal range for beta acids is 4.5-7.0. The values received from testing the wet hops in in our example were alpha acids = 3.38 beta acids = 5.23 and moisture: 34.38 percent.

Alpha acids = 3.38 x (90/(100-34.38)) = 3.38 x1.372 = 4.64

Beta acids = 5.23 x (90/(100-34.38))= 5.23 x 1.372 = 7.17

Based on this information, the 'Cascade' hops should be ready to harvest.

Here is an example using 'Chinook.' The normal range of values for Chinook = 12-14 percent alpha acid, 3-4 percent beta acid. The values received from testing the wet hops in in our example were alpha acids = 6.21 beta acids = 1.68 and moisture: 31.15 percent.

Alpha acids = 6.21 x (90/(100-31.15))= 6.21 x (90/68.85) = 6.21 x 1.307 = 8.1

Beta acids = 1.68 x (90/100-31.15))= 1.68 x 1.307 = 2.2

Based on these calculations, the 'Chinook' hops are not ready to harvest yet.

Determining whether the hops are ready to harvest comes with experience. In addition to testing, Michigan State University Extension recommends smelling the hops, checking the lupulin to see if it is bright yellow and perhaps brewing a cup of hop tea to taste the flavor of the hops and their bitterness.

Labs offering testing for quality analysis of hops

Contact individual labs for services offered, quantities of hops needed for testing and prices.

- Alpha Analytics, 203 Division St. Yakima, WA 98902; contact 877-875-6642 or info@alphaanalytics.com
- KAR Laboratories Inc., 4425 Manchester Rd., Kalamazoo, MI 49001; contact 269 381-9666
- Andre Venter, Western Michigan University Department of Chemistry, contact andre.venter@wmich.edu or 269-387-2420

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FIND MICHIGAN FOOD PRODUCTS FOR YOUR BUSINESS AT THE MAKING IT IN MICHIGAN CONFERENCE

The annual Michigan State University Product Center Making it in Michigan Conference Marketplace is the go-to place to find Michigan-made food items for your business.

Posted on **September 3, 2013, MSUE News,** by **Joanne Davidhizar**, Michigan State University Extension, Michigan State University Product Center

The Making it in Michigan Conference is the Michigan State University Product Center's annual conference for emerging Michigan food businesses. One of the features of the conference is the Marketplace of Vendors.

The Marketplace, held 12:30-4:00 p.m. on November 12, 2013 at the Lansing Center, 333 E. Michigan Avenue, Lansing, Mich., will feature more than 160 licensed Michigan food product businesses. This trade show provides an opportunity for chefs, restaurateurs, food service providers, winery, farm market and other retail establishment operators to sample and purchase local goods. The trade show is also an excellent forum for interacting with the business owner to understand the story of the product and maker. The Marketplace is free and open to the public.

"As a pioneer in the "made-in-Michigan" movement, I have been sourcing Michigan-made products for my specialty gift baskets since Gift Basket Classics began in 1991," said Carol Brandt who uses merchandise found at past Marketplace events. "There have been countless gift and gourmet shows, tradeshows, and conventions that I've attended in the past 22 years, but for me, the best source of all has been Making It in Michigan, Michigan's premier specialty food show. To walk into this incredible trade show and not have to weed through the exhibitors in a quest for Michigan-made products is quite a thrill for me! I would highly recommend any retailer who is seeking excellent products made in our Great Lake State to attend Making It in Michigan."

In addition to the Marketplace, the Making it in Michigan Conference offers a variety of seminars related to food businesses and networking opportunities.

Michigan State University Extension and Product Center sponsor the conference and work with emerging and established food entrepreneurs. To access assistance, request counseling at www.productcenter.msu.edu, or call 517-432-8750.

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WEBSITES OF INTEREST

Insect and disease predictive information is available at:

http://enviroweather.msu.edu/homeMap.php

This issue and past issues of the weekly FruitNet report are posted on our website

http://agbioresearch.msu.edu/nwmihort/faxnet.htm

60 Hour Forecast

http://www.agweather.geo.msu.edu/agwx/forecasts/fcst.asp?fileid=fous46ktvc

Information on cherries is available at the new cherry website:

http://www.cherries.msu.edu/

Fruit CAT Alert Reports has moved to MSU News http://news.msue.msu.edu

Tart Cherry Raw Product Reports – 2013

http://www.cherryboard.org/Week82013.pdf