



Researcher Resources



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Northern Michigan FruitNet 2007 Weekly Update NW Michigan Horticultural Research Station

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Agricultural & Regional Viticulture Agent

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July 10, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH JULY 9th AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	1816	1738	1754	1343	1501	1446	11557.9
GDD50	1148	1054	1105	737	880	914	944.4

Weather

Rain has finally come to northwest Michigan. Not surprising, but we did have a bit of rain on the fourth of July, a little on the fifth. Another rain event came through over the past weekend, and we received around 0.4" of rain at the NWMHRS on Sunday and Monday (July 8 and 9). Based on a 26 year precipitation average here at the NWMHRS, we are approximately 2 ½ inches below normal so far this year. We have accumulated 1148 GDD Base 50 so far this season, still the hottest year on record since 1991.

Crop Report

Growers all over northwest Michigan are harvesting now. Sweet harvest began the week of July 4 and is continuing this week. Some growers have also started to harvest tart cherries in more southern locales. Quality of cherries this year has been exceptional so far. Brix levels are high in many sweet varieties. We are hoping that this last rain event is not going to lead to extensive cracking in sweet cherries.

Apple: This last rain event resulted in a **apple scab** infection in most locations around the northwest. We are still not seeing much scab in the orchards, but we can find an occasional scab lesion here and there. **Spotted tentiform leaf miner** numbers are climbing again, but overall insect numbers remain low. Only an average of three **codling moths**/trap, and only one **oriental fruit moth** and **obliquebanded leaf roller**/trap were captured in our trap line this week. We have our **apple maggot** traps out, but we have not caught a fly as of yet.

Cherry: The rain early this week also caused a **cherry leaf spot** infection in the region, except for the Bear Lake area whose wetting event only lasted for four hours. We have observed very little CLS so far. However, **powdery mildew** is not difficult to find in any cherry block. **Brown rot** is not prevalent in sweet cherries, but we have noticed an occasional cherry with the disease. We are still catching **cherry fruit flies** in the unsprayed entomology block, approximately 8/trap. **Greater peach tree borer** numbers are at an average of 6/trap while **American plum borer** numbers have also risen again to an average of 10/trap.

Grapes: We have observed a small amount of **powdery mildew** in a few vineyards in the area. The lesions are still quite small at this time, but growers should continue to scout for this disease as we are still susceptible for fruit infestation at this time. **Rose chafer** numbers have declined this week, and **potato leaf hopper** numbers are also down where insecticides have been applied. We have not captured any **grape berry moths** from second generation flight.

Where are the codling moths?

Nikki Rothwell, District Horticulturist, MSU Extension

Many growers are wondering why they are seeing very low numbers of codling moths (CM) this season, especially after a bumper crop of these pests last year. We are not sure as to why numbers are so low this year, but some speculation has been tossed around among researchers and extension staff. One potential reason is the new codling moth virus. Growers on the Ridge were noticing that blocks where virus was applied, the numbers of CM were drastically lower than other blocks that did not receive virus treatments. We are hopeful that this virus is effective at lower overall CM populations as this product was intended to do so. Another suggestion is that we threw everything, but the kitchen sink at them last season, which again dropped the overall population. We also do not have a lot of experience with new products, especially the insect growth regulators like Rimon; these products could have a longer term impact on populations than we had originally thought. We will continue to look for a reason for this decline in CM numbers, but at the same time, we cannot help but to be happy about it!

Larry Gut has assessed that most CM in the more southern regions are only second instars at this time. Based on this information, we do not expect to see second generation CM flight until the middle of August. Although the thought of not applying insecticide until those days seems nerve-wracking, Dr. Gut feels that spraying prior to that timing would be wasting money. Growers should be trapping on their own farms to determine if they have a different situation. Individual farm trapping will guide management decisions for this pest.

Japanese Beetle –What to do?

Nikki Rothwell, District Horticulturist, MSU Extension

As many of you remember from last season, we trapped thousands of Japanese beetles in Leelanau County. They were found primarily in the 'hot zone' or area of infestation, which was located around Sugarloaf Resort in Cedar. Growers in that area reported feeding damage on apples, cherries, and wine grapes last season. However, based on our trapping data, we found that these insects have moved beyond that location into many other parts of the county. We have seen them on the M-204 corridor, and Bill Klein had one land on his arm at the NWMHRS. We are expecting the adults to be emerging at this time.

In a nutshell, growers should keep an eye out for this insect. Japanese beetles are very distinctive: brilliant metallic green with coppery-brown elytra that do not cover abdomen, row of five lateral brushes of white hairs on each side of abdomen, and the insects total 8-11mm in length. Growers should also know a 'false' Japanese beetle and how it differs from the real deal. False Japanese beetles have a head and thorax that is a dull, metallic green and its wings are brown; these insects are also narrower (more like the shape of a Rose chafer) than the round-looking Japanese beetle. Check out the article below about JB control.



Real Japanese beetle
False Japanese beetle

Controlling Japanese beetles in fruit crops
Rufus Isaacs, John Wise and David Epstein,
Dept of Entomology, MSU

Japanese beetles have only one generation per year, but these beetles emerge over a long period in July and August, and they live for over 30 days. They feed on the foliage and fruit

of various fruit crops grown in Michigan, causing damage to the plant and increasing the risk of fungal disease in fruit. Their emergence during mid-summer can also result in their presence during harvest, creating a risk of contamination. They are also highly mobile insects and can fly into fields from surrounding areas. This article provides information on insecticide options based on tests over the past few years conducted at the Trevor Nichols Research Complex and at grower's farms.

Broad-spectrum options:

The carbamates Sevin and Lannate provide immediate kill of beetles present during the spray. They are also stomach poisons, so if beetles eat treated foliage they will also receive a higher dose. This can be a good property for control of Japanese beetles, since they eat so much that a strong dose of insecticide is taken up. Lannate has a short residual activity of a few days, whereas Sevin provides a week or more of protection. Sevin has a three or seven day PHI depending on the crop, and Lannate ranges from 3-14 days. The organophosphates Guthion and Imidan (buffer to pH 6.0) provide excellent lethal activity on adult beetles, although it can take a few days for their effects on Japanese beetles to be seen as the beetles take up the insecticide. They provide 10-14 days of activity, with 3-21 day PHI, depending on the crop. The pyrethroids Danitol, Warrior, Asana, Brigade, Baythroid, Mustang Max and Capture give instant knockdown and mortality of adult beetles, with 7-10 days of activity. It is important to remember that the pyrethroid class of insecticides is quite sensitive to hot and sunny conditions, so performance in mid-summer will be less than that expected in the spring. Beetles that do not receive a lethal dose of pyrethroid may also be repelled from treated fields, providing an additional mode for reducing infestation of crops. PHI's for pyrethroid insecticides may vary widely across crops, so check the label before using this class of materials.

Selective insecticides:

The labeling of Provado for use in some fruit crops after bloom provides a selective option for Japanese beetle management. Provado provides two to three days of lethal activity from the surface residues before it is absorbed into the foliage. Thereafter, beetles must eat treated foliage to get a dose of the insecticide. Once inside the foliage, Provado is rainfast and provides significant sub-lethal effects of repellency and knockdown activity, but with much less direct mortality from the residues. This neonicotinoid will also control aphids and leafhoppers. It has a zero to seven day PHI depending on the fruit crop. Another member of this chemical class, Assail, can provide some protection of foliage from feeding by Japanese beetles, though the level of beetle mortality may be lower than expected from the broad-spectrum options. The rate allowed in different crops will have a big impact on the effectiveness of Assail. Other neonicotinoids labeled in fruit crops include Actara, Calypso, Clutch and Venom.

Short PHI and organic options:

For growers looking for beetle control immediately before harvest or in organically grown fruit crops, some selective insecticides with zero day PHI's can provide a tool to repel beetles and help achieve beetle-free fruit during harvest. Compounds containing neem (Azadirect, Ecozin, Neemix etc.) have a zero day PHI and pyrethrum (Pyganic) has a 12 hour PHI. These compounds are labeled for organic use, and have a short but effective impact on adult Japanese beetles, with some mortality, some knockdown off the crop and some repellent activity. Typically, there is only one to two days of activity against beetles because the residues do not remain active for long. The non-organic form of Pyganic, called Evergreen, also has a 12 hour PHI, and is much more effective against Japanese beetle than Pyganic due to the addition of a chemical that inhibits the beetle's ability to break down the insecticide.

Soil-applied insecticides:

Japanese beetles typically lay their eggs in moist grassy areas and many fruit farms have a large amount of this suitable habitat. An additional approach to managing Japanese beetle populations is to target the grub stage of this pest in these areas to reduce the abundance of beetles in the following year. If the location of high grub densities near fruit fields is known, these areas could be treated with a soil insecticide to get maximum return on this treatment. Our experience in Michigan blueberry fields has been that application of Admire (16 oz/acre) to grassy field perimeters reduced the abundance of beetles on bushes for the first few weeks of their flight period. After that, beetles flying into the area from outside swamped out this effect, so there is only a short-lived benefit from targeting the grubs in fields that are surrounded by infested grassy areas.

Summer leafroller control: Scouting will save you money!

Larry Gut, David Epstein and John Wise, Dept of Entomology, MSU

Scout to determine need for control measures

The availability of several excellent obliquebanded leafroller control materials has growers asking advice for proper timing and sequencing of these materials, but before insecticide applications are undertaken, growers are best advised to first determine whether such applications are necessary. Due to the difficulty in scouting for overwintered obliquebanded leafroller larvae in early spring, obliquebanded leafroller insecticides are routinely recommended as part of an early spring spray program on farms with historical leafroller damage. As larvae mature in late spring, though, their presence is far easier to detect, and visual inspections for larvae or signs of their presence can save growers the cost of unnecessary, and often expensive, summertime insecticide applications. In other words, a key piece of information growers need to make a good economical decision for summer leafroller control is the extent to which larvae survived the early season treatment. With the excellent control provided by the new compounds registered in recent years, fewer and fewer are surviving.

Moth captures in pheromone traps provide valuable information to the scout and grower, including the establishment of biofix, but are not a reliable indicator of leafroller abundance or potential damage. Obliquebanded leafroller traps have a large active space, potentially catching moths that originate from within the trapped orchard, neighboring or more distant orchards and native habitats. Thus, high moth catches may or may not indicate that the orchard being monitored has a leafroller problem. Very low catches of less than five per week strongly hint that obliquebanded leafroller is not a problem. In either case, assessing larval activity is highly recommended to determine if a treatment is warranted.

Scouting orchards for surviving obliquebanded leafroller larvae in growing terminals is the best way to judge whether intervention in the summer is likely to be needed. Larvae are green with brown to black head capsules and are about 25 mm long when fully grown. Often, a scout will detect signs of leafroller activity rather than the actual larva. The name leafroller comes from the larva's habit of rolling leaves to form a shelter. These feeding sites are most often found at the tips of growing shoots. Larvae also will use silk webbing to attach two leaves or a leaf and fruit together to form a shelter. The presence of webbing is a good clue that leafrollers are around. Orchards in which **less than 2 percent** of the terminals were infested should be monitored in the summer, but controls may not be warranted. Higher levels of shoot infestation are cause for concern and control measures are likely needed to prevent fruit injury. This investment of time could result in saving several sprays.

Seasonal Evaporation & Precipitation				
Beginning May 1, 2007, at NWMHRS				
Date	Evap/week (in.)	75% of Evap/week	Rainfall/wk at NWMHRS (in.)	Rainfall minus 75% of Evaporation
5/2	0.89	0.67	0.92	0.25
5/9	1.52	1.14	0.02	-1.12
5/16	1.5	1.13	1.14	0.01
5/23	1.21	0.91	0.12	-0.79
6/6	1.35	1.01	0.49	-0.52
6/13	2.00	1.50	0.03	-1.47
6/19	2.01	1.51	0.78	-0.73
6/26	1.72	1.29	0.24	-1.05
7/4	1.86	1.40	0.15	-1.25
7/10	1.51	1.13	0.71	-0.42
Totals	15.57	11.69	4.60	-7.09

Insect and disease predictive information is available at:

<http://www.enviroweather.msu.edu/home.asp>

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

<http://www.maes.msu.edu/nwmihort/faxnet.htm>

[ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1, 2007](#)

Please send any comments or suggestions regarding this site to:

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Last Revised: 7-10-07

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July 17 , 2007

WEATHER

Not much new to report in the weather. We have had some rain in the region on the 14 and 15 July, but not much accumulation. We are still pretty dry up in the area. We have also had some cooler temperatures, especially during the nights.

CROP

Most growers are finishing up harvesting sweet cherries, and many have started on tarts. The quality of cherries is particularly good this year, albeit some small size due to lack of rainfall. In our soft fruit trials at the NWMHRS, we are having a hard time finding soft fruit! Good news for growers.

Apple

The wetting events of the weekend resulted in an **apple scab** infection in Northport, Old Mission, and Elk Rapids areas. Otherwise, we have not observed anything new in apple diseases this week. **Codling moth** numbers are very low—only an average of one moth/trap. **Spotted tentiform leaf miner** counts are still high, almost 300/trap. We caught no **obliquebanded leaf roller** this week, and we have yet to catch an **apple maggot**.

Cherry

From the recent wetting event, the three weather stations mentioned above also reported a moderate **cherry leaf spot** infection. We have been observing a few more cherry leaf spot lesions in the past week, but overall the disease pressure has been low. **Powdery mildew** is easily observed in tart cherry. **American plum borer** numbers are down from last week (13) to an average of four moths/trap. **Obliquebanded leaf roller** numbers are higher in cherry than apple, with an average of nine moths/trap. **Lesser peach tree** numbers climbed this week to almost 18/trap, which is up considerably from last week when we only had about 3/trap. **Cherry fruit fly** numbers are also up considerably this week with an average of over 43 flies/trap.

Obliquebanded Leaf Roller Hatch

Summer generation obliquebanded leaf roller (OBLR) larvae have hatched in large numbers in many apple and cherry blocks across the region. The larvae are still small, most are still first and second instars at this time. OBLR seems to be becoming a bigger pest in recent years, and there are data to suggest that resistance is playing a role in this insect's more common debuts.

Overwintered larvae feed on leaves and fruit during the spring until they pupate, and the adult moths emerge throughout June and July. These adult females lay eggs (up to 900 eggs in 7-8 days), and the hatched summer generation larvae will feed on terminals and on older leaves near fruit. These larvae are the life stage we have been seeing on farms at this time. Because of the long period in which OBLR moths are on wing and females are laying eggs, the larvae will also be hatching for an extended period.

At this time, growers should be scouting their terminals as well as the leaves near fruit looking for small larvae. The summer larvae are lighter in color than the browner overwintered larvae, but they pretty distinctively green with a dark head capsule. If growers find OBLR larvae, they should treat sooner than later as these insects are much easier to kill when they are small than later in the season when they have grown in size.

Control options for summer generation can be something to consider, especially if a farm has codling moths as well as OBLR. Organophosphates (OP) are effective insecticides if a block does not have OP resistance in EITHER pest. Both insects have shown some level of resistance to OP's, and we have heard many more recent reports of failures to control OBLR larvae in both apple and cherry this season. Because of cross resistance, the pyrethroids are not good options for control of either pest in orchards with OP resistance. Additionally, OP's have never really been the best option for OBLR control; the MSU Management Guide gives Guthion a poor to fair rating against these pests. Proclaim is a new insecticide that works well against OBLR, but because it needs to be ingested, this product should be used in the spring rather than closer to harvest time (bug bites are never good near harvest, even if the bite is lethal). SpinTor is another good option for OBLR, but this product does not have much efficacy against codling moth. This product is also short-lived with a 7-10 day residual. Bt products are rated good against OBLR, but they are also very short lived, especially under sunny warm conditions, and they are not effective against codling moth. The best option for orchard with OBLR and codling moth is Rimon at a higher rate: 30oz. This product is an ovicide, and it works best when applied prior to egg-laying. Due to the longer oviposition period of OBLR, a Rimon application for summer control would provide that necessary layer on the leaf surface that would suppress egg development. This product also seems to work well on larvae as we have had great success controlling overwintered larvae in the spring when Rimon is used at codling moth egg laying timing. Remember that although Rimon is a good product, there is risk of resistance with overuse. Preliminary data suggest that OP resistance codling moth show decreased sensitivity to Rimon. If a grower used Rimon in the spring, he or she should opt for a different material this summer.

POST HARVEST SPRAYS FOR CHERRY LEAF SPOT

Nikki Rothwell, District Horticulturist, MSUE

Cherry leaf spot is the most important fungal disease of tart cherry in Michigan. The leaf spot fungus *Blumeriella jaapii* infects leaves with symptoms first appearing on upper leaf surfaces as small purple spots. As spots accumulate on leaves, the leaves turn yellow and fall. The amount of lesions required to cause leaf yellowing and drop is variable. Late summer (August, early September) defoliation reduces the ability of trees to store photosynthate in roots leading to an overall loss of vigor and leaving trees more susceptible to killing by winter injury. Early-defoliated trees also typically exhibit reduced flower bud formation and often set less fruit the following season.

As harvest will be winding down for cherries, many growers will be considering post-harvest applications for cherry leaf spot (CLS). Considering the shortage of rain this season, the disease pressure has been much lower compared to seasons past. We have also seen very few CLS lesions on cherry leaves in the region. These two reasons plus saving a spray, growers may want to opt out of a post-harvest spray. However, there are a few other factors to reflect on this season when deciding if a post-harvest spray is warranted: 1) Ethrel damage from the past two years, 2) drought-like conditions this summer, 3) mite numbers, and 4) predicting the precipitation for the rest of July and into August. All of these factors have caused stress to trees, and trees under stress can be more prone to winter damage.

As many know, Ethrel (ethephon) damage has been observed in blocks all across the northwest, both in sweet and tart cherries. This damage occurred in the past when ethephon was applied during hot and dry weather conditions during 2006 and in many blocks in 2005. Trees under stress, particularly drought stress, become more susceptible to ethephon damage. Damaged trees exhibit excessive gumming, and branches lose their leaves. Growers with trees stressed by Ethrel damage in 2005 or 2006 (or 2007 if we should have any) should consider a post-harvest spray to ensure that excessive leaf loss from CLS does not predispose trees to winter damage.

Drought is another condition that will cause tremendous stress to trees. So far this season, we are approximately 2 ½ inches below our normal precipitation levels (based on the past 26 year average). Trees that have been under stress due to lack of moisture may also be less likely to withstand severe winter conditions, so again, growers should prevent leaf loss due to CLS. Mites are another stressor growers may not have considered when making a decision about a post-harvest disease application. Mites can cause early defoliation within the inner canopy of trees, and if that defoliation is combined with defoliation from CLS, trees could head into the winter at a severe disadvantage.

Lastly, we cannot guess as to the weather for the remainder of July and into August. Unfortunately, growers will have to gamble on the weather to decide if they will need a post-harvest application. Often growers do not notice CLS later in the season until they observe lesions forming on the leaves, and at that point, it is often too late for control. However, at this time, growers should be scouting the tops of trees for yellow leaves. This indicator is usually the first sign of cherry leaf spot infections that occur at this time. The tops of trees tend to be more infected at this time because of reduced spray coverage reaching these high areas. Growers also need to keep in mind that even a relatively low level of infection now could spread rapidly if sufficient rain events occur in the coming weeks.

Leaves typically defoliate a few weeks after they begin to show disease symptoms. Thus, the goal of a cherry leaf spot management program is to maintain a healthy canopy on trees at least through the end of September. This recommendation would ensure an adequate amount of leaves on trees into late October and beyond.

The fungicide of choice for leaf spot control after harvest is chlorothalonil (Bravo). Bravo 82.5 WDG at a rate of 3 lbs./A provides excellent leaf spot control. In addition, Bravo is a broad spectrum fungicide and thus is not subject to fungicide resistance concerns.

JAPANESE BEETLE SIGHTINGS!

Nikki Rothwell, District Horticulturist, MSUE

We placed Japanese beetle traps out in the Leelanau County hot spot last week, and we collected over a few thousand beetles in less than a week time span. This information tells us that these adults have emerged, and they are flying at this time. We also have had reports of Japanese beetles from Antrim County, which to my knowledge, we have not seen them in this area prior to this year. Growers in that region reported that these beetles were feeding extensively on cherry foliage and even on some fruit, which is not as common.

Growers should be on the lookout for a dime-sized beetle with copper colored elytra (wing covers), metallic green head, and an abdomen with five distinctive white tufts on both sides. Unfortunately, these adults feed on the foliage of over 300 different plant species, but they particularly love lindens, roses, and more specifically cherry, apple, and especially wine grapes. The following paragraphs summarize the control options for Japanese beetle in fruit:

Broad-spectrum options

The carbamates Sevin and Lannate provide immediate kill of beetles present during the spray. They are also stomach poisons, so if beetles eat treated foliage they will also receive a higher dose. This can be a good property for control of Japanese beetles, since they eat so much that a strong dose of insecticide is taken up. Lannate has a short residual activity of a few days, whereas Sevin provides a week or more of protection. Sevin has a three or seven day PHI depending on the crop, and Lannate ranges from 3-14 days. The organophosphates Guthion and Imidan (buffer to pH 6.0) provide excellent lethal activity on adult beetles, although it can take a few days for their effects on Japanese beetles to be seen as the beetles take up the insecticide. They provide 10-14 days of activity, with 3-21 day PHI, depending on the crop. The pyrethroids Danitol, Warrior, Asana, Brigade, Baythroid, Mustang Max and Capture give instant knockdown and mortality of adult beetles, with 7-10 days of activity. It is important to remember that the pyrethroid class of insecticides is quite sensitive to hot and sunny conditions, so performance in mid-summer will be less than that expected in the spring. Beetles that do not receive a lethal dose of pyrethroid may also be repelled from treated fields, providing an additional mode for reducing infestation of crops. PHI's for pyrethroid insecticides may vary widely across crops, so check the label before using this class of materials.

Selective insecticides

The labeling of Provado for use in some fruit crops after bloom provides a selective option for Japanese beetle management. Provado provides two to three days of lethal activity from the surface residues before it is absorbed into the foliage. Thereafter, beetles must eat treated foliage to get a dose of the insecticide. Once inside the foliage, Provado is rainfast and provides significant sub-lethal effects of repellency and knockdown activity, but with much less direct mortality from the residues. This neonicotinoid will also control aphids and leafhoppers. It has a zero to seven day PHI depending on the fruit crop. Another member of this chemical class, Assail, can provide some protection of foliage from feeding by Japanese beetles, though the level of beetle mortality may be lower than expected from the broad-spectrum options. The rate allowed in different crops will have a big impact on the effectiveness of Assail. Other neonicotinoids labeled in fruit crops include Actara, Calypso, Clutch and Venom.

Short PHI and organic options

For growers looking for beetle control immediately before harvest or in organically grown fruit crops, some selective insecticides with zero day PHI's can provide a tool to repel beetles and help achieve beetle-free fruit during harvest. Compounds containing neem (Azadirect, Ecozin, Neemix etc.) have a zero day PHI and pyrethrum (Pyganic) has a 12 hour PHI. These compounds are labeled for organic use, and have a short but effective impact on adult Japanese beetles, with some mortality, some knockdown off the crop and some repellent activity. Typically, there is only one to two days of activity against beetles because the residues do not remain active for long. The non-organic form of Pyganic, called Evergreen, also has a 12 hour PHI, and is much more effective against Japanese beetle than Pyganic due to the addition of a chemical that inhibits the beetle's ability to break down the insecticide.

CIAB WEEKLY RAW PRODUCT REPORT

For the weekly CIAB "Weekly Raw Product Report" go to the following website: <http://www.cherryboard.org/Week32007.pdf>

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ACCUMULATIONS SINCE MARCH 1, 2007](#)

Please send any comments or suggestions regarding this site to:

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Northern Michigan FruitNet 2007

Weekly Update

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July 24, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH JULY 23rd AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	2158	2172	2238	1733	1841	1885	1949.1
GDD50	1379	1376	1478	1015	1108	1241	1223.8

Weather

No significant rainfall occurred in the past week. However, there were reports of hail in the Maple City and Old Mission areas.

Crop Report

Growers in the northwest are still harvesting tart cherries. Overall quality has been good, except where high winds resulted in some wind whip symptoms. Balatons are also nearing maturity, and a few growers have begun to harvest these trees. Many post-harvest sprays have gone on in the past week. Early plums are ripe at the NWMHRS. Summer red raspberries are wrapping up in the area.

Pest Report

Apple: No apple diseases have been observed at this time. **Codling moth** numbers remain low this week with only two moths/trap. **Obliquebanded leaf roller** (OBLR) numbers are also low in apple at the NWMHRS, but we have observed hatches of small larvae in the past week in the terminals. **Oriental fruit moth** numbers are higher at the station this week, with over 5 per trap. **Spotted tentiform leaf miner** numbers are through the roof. We caught our first **apple maggot** on sticky spheres this week at the NWMHRS; we had

reports of maggot from scouts at the middle of last week.

Cherry: Still no disease in cherry unless you really look hard—when we have, we can see a

bit of **brown rot** and **cherry leaf spot**, but your eyes are usually tired out by then! **Powdery mildew** is still prevalent in most orchards. Insect numbers are low overall, except for **greater and lesser peach tree borers** whose numbers rose from last week (16/trap and 31/trap, respectively). We have had reports of OBLR larvae during the harvest of tart cherries.

Predicted Peak 2007 apple harvest dates

Philip Schwallier, District Horticulture Agent, CHES Coordinator
Amy Irish-Brown, District ICM Agent, CHES

Apple maturity for 2007 is expected to be a week to 12 days ahead of normal for most of the state. Most of the state experienced an early end of winter. As a result, bud growth developed across the state with an early bloom in all areas. This year however, the south part of the state was damaged by a severe freeze in early April. Bloom was extended and fruits did not set well on older wood. Many areas have an apple crop born of 1 year old wood, which bloom later than our recorded bloom dates. Predicted dates in the southern part of the state are less accurate than most years for this reason. Also, there was an extended bloom which also contributes a less accurate prediction. Also, there is quite a variation in crop load. Trees with light crop loads will mature early than these predicted dates. Heavy cropped trees will mature after these predicted dates.

The early bloom and weather following bloom, give us predicted harvest dates (Table 1.) as much as 14 days ahead of normal. These predicted harvest dates are for the center or peak harvest of these varieties for CA storage. This year the 2007 predicted harvest dates are compared to the rough normal harvest dates and last year's predicted harvest dates. This year the state will harvest apples roughly 5 to 7 days ahead of last year (Table 2).

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 at near harvest time.

The normal harvest dates for other varieties are listed in Table 3 for the Grand Rapids area. This year's 2006 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. 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

Table 2. 2007 predicted 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	13	6	7	8	5	8
Deerfield	7	6	8	0	5	5
Flint	7	13	13	0	11	10
Peach Ridge	11	9	10	4	4	4
Ludington	2	12	15	1	11	13
NWMHRS	11	9	9	1	14	14

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

Variety	Normal date	2007 predicted date
Paulared	8-24	8-14
Gingergold	8-26	8-14
Gala	9-10	8-28
McIntosh	9-15	9-1
Honeycrisp	9-18	9-4
Empire	9-22	9-8
Jonathan	9-28	9-19
Jonagold	9-28	9-19
Golden Delicious	10-2	9-21
Red Delicious	10-5	9-26
Idared	10-10	10-2
Rome	10-15	10-7
Fuji	10-25	10-18

Braeburn	10-25	10-18
Goldrush	11-1	10-22

New Website to Link up Farmers!

The Michigan Land Use Institute has started a new website that is similar to a dating service—they are looking to connect farmers or those that have land available for farming. New growers can look at this website for land or older growers can look to sell their land to other farmers. They also hope that this website will contain farming news and events in Michigan as well as provide links to experts in financial and land conservation in order to preserve farmland in our region. If you would like to check out this new resource, go to <http://www.localdifference.org/getfarming/>

Seasonal Evaporation & Precipitation				
Beginning May 1, 2007, at NWMHRS				
<u>Date</u>	<u>Evap/week</u> (in.)	<u>75% of</u> <u>Evap/week</u>	<u>Rainfall/wk at</u> <u>NWMHRS</u> (in.)	<u>Rainfall minus</u> <u>75% of</u> <u>Evaporation</u>
5/2	0.89	0.67	0.92	0.25
5/9	1.52	1.14	0.02	-1.12
5/16	1.5	1.13	1.14	0.01
5/23	1.21	0.91	0.12	-0.79
6/6	1.35	1.01	0.49	-0.52
6/13	2.00	1.50	0.03	-1.47
6/19	2.01	1.51	0.78	-0.73

6/27	1.72	1.29	0.24	-1.05
7/4	1.86	1.40	0.15	-1.25
7/10	1.82	1.37	1.05	-0.32
7/18	1.51	1.13	0.27	-0.86
7/24	1.55	1.16	0.10	-1.06
Totals	18.94	14.21	5.31	-8.90

Insect and disease predictive information is available at:

<http://www.enviroweather.msu.edu/home.asp>

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

<http://www.maes.msu.edu/nwmihort/faxnet.htm>

**ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1, 2007**

Please send any comments or suggestions regarding this site to:

Bill Klein, kleinw@msu.edu

Last Revised: 6-26-07

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Last Updated: June 26, 2007

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July 31, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH JULY 30th AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	2387	2404	2433	1910	2026	2111	2143.4
GDD50	1552	1552	1617	1135	1237	1411	1362.1

Weather

Again, not much to report this week as the weather remains warm and dry. At this time, there is little chance of rain in the week's forecast.

Crop Report

As of 21 July, the northwest tart cherry crop was still looking very good in terms of quality, and 82.9 million pounds had been harvested. There have been some reports of wind whip in tarts from high winds last week. Most growers are starting to wrap up harvest for the year. Balatons are coming off this week, and peach harvest has started for some early varieties.

Pest Report

Apple: No diseases to report in apples this week. **Codling moth** numbers have jumped quite a bit this week, from one per trap to an average of over 15/trap. Growers should be monitoring this pest and looking for similar jumps in population size. This increase suggests that second generation moths are emerging, and growers should be thinking about a summer strategy for control. **Obliquebanded leaf roller** (OBLR) numbers are zero this week in apple, and **oriental fruit moth** numbers are 17 in one trap while the other trap is at zero. We caught a total of four **apple maggots** on sticky spheres this week.

Cherry: We are still not seeing much disease in our cherry orchards (unfortunately for our disease trials but great for growers!). All three borer moths were caught in traps this week, 15/trap for **lesser peach tree borer**, 16.5/trap for **greater peach tree borer**, and 15/trap for **American plum borer**. We are also still catching **cherry fruit flies** (CFF), lots in the unsprayed entomology block, and we had our first catch of CFF in our managed block here at the NW Station. We caught an average of six **OBLR** moths this week in cherry.

Avaunt is labeled for Use on Stone fruit and Grape

Although the Avaunt label is a bit late for stone fruit growers this year, this product is now labeled for both stone fruit and grapes. Avaunt is in the oxadiazine class, and it works to kill insects by preventing sodium ion entry into nerve cells. Insects are first paralyzed, and then are killed by this product. This product works primarily through ingestion, but there is some activity through the insect cuticle. Therefore, good coverage of the crop is necessary.

This product does not last long in the environment and becomes rainfast quickly. In grapes, Avaunt is labeled for grape leafroller and Japanese beetle at 2.5-6.0 oz/acre, and for grape berry moth and suppression of leafhoppers at 5-6oz/acre. No more than two applications of Avaunt can be made per season, and no more than 12 oz per acre can be used. The minimal spray interval is 21 days.

In stone fruit, this product is labeled for use against plum curculio at 5-6oz/acre and for oriental fruit moth at 6oz/acre. Growers cannot use Avaunt more than 4 applications per season, and no more than 24oz/acre can be used. The minimal spray interval is seven days.

Activity of codling moth insecticides on secondary pests

John Wise, Trevor Nichols Research Complex

David Epstein, Entomology

Second generation codling moth adult flight has increased over the last 10 days at the TNRC, initiating a July 15 biofix for the upcoming egg laying and hatch period. Field reports suggest that at the same time apple growers will be planning to control codling moth, several

secondary insect pests, including Japanese beetle, apple maggot and spotted tentiform leafminer may need to be managed. The following table includes a list of insecticides recommended for second generation codling moth control, and their activity on these secondary pests.

Table 1. Activity of insecticides on secondary insect pests

Compound trade name	Japanese beetle	Apple maggot	Tentiform leafminer	Leafhoppers
Guthion/Imidan	Excellent	Excellent	Poor	Good (PLH only)
Calypso/Assail	Good	Excellent	Excellent	Excellent
Rimon	Poor	Poor	Good	Poor

WE NEED LEAVES WITH POWDERY MILDEW!

In 2006 Michigan winemakers suffered huge losses from a powdery mildew (PM) outbreak. The fungicides (strobilurins and SI's) many growers rely on were not effective in controlling the epidemic. The failure to control the PM and the inability to minimize economic losses in the 2006 outbreak brought about questions about fungicide resistance and left many wondering if there were alternative fungicide programs to improve PM control. Michigan State University and the Northwest Michigan Horticultural Research Station are working on determining if wine grapes have developed a resistance to commonly applied strobilurins and SI's. The goal of the project is to design fungicide programs to improve PM control and to minimize potential fungicide resistance thereby curtailing economic losses. In order to do so the NWMHRS station **needs samples of powdery mildew** to carry on the lab work and to better understand the general distribution of fungicide resistance. Together, as growers and researchers, we can work towards better prevention, control, and potentially post-infection eradication of PM. Please Nikki or Karen at the NWMHRS at (231) 946.1510 if you have powdery mildew. Your participation is important!

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Date	Evap/week (in.)	75% of Evap/week	Rainfall/wk at NWMHRS (in.)	Rainfall minus 75% of Evaporation
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5/23	1.21	0.91	0.12	-0.79
6/6	1.35	1.01	0.49	-0.52
6/13	2.00	1.50	0.03	-1.47
6/19	2.01	1.51	0.78	-0.73
6/27	1.72	1.29	0.24	-1.05
7/4	1.86	1.40	0.15	-1.25
7/10	1.82	1.37	1.05	-0.32
7/18	1.51	1.13	0.27	-0.86
7/24	1.55	1.16	0.10	-1.06
7/31	1.65	1.24	0.04	-1.20
Totals	20.59	15.45	5.35	-10.10

CIAB WEEKLY RAW PRODUCT REPORT

For the weekly CIAB "Weekly Raw Product Report" go to the following website: <http://www.cherryboard.org/Week52007.pdf>
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