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Northern Michigan FruitNet 2007 Weekly Update NW Michigan Horticultural Research Station

[Nikki Rothwell](#)

District Horticulturist

District Fruit IPM Agent

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Farm Mgr, NWMHRS

[Duke Elsner](#)

Agricultural & Regional Viticulture Agent

Leelanau Extension Director

April 10, 2007

Welcome to the first FruitNet newsletter for the 2007 growing season.

GROWING DEGREE DAY ACCUMULATIONS THROUGH APRIL 9 AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	106	69	110	63	59	20	74.9
GDD50	32	19	39	11	14	0	25.4

Growth Stages at NWMHRS (4/10/07—8:00am)

Apple: Silver tip

Pear: Bartlett: Bud swell

Sweet Cherry: Hedelfingen, Gold, and Napoleon: Swollen bud

Tart Cherry: Montmorency: Swollen bud; Balaton: Swollen bud

Apricot: Swollen bud

Plum: Dormant

Grapes: Chardonnay: Scale crack

WEATHER

The weather so far in 2007 is as crazy as ever. We collected degree days pretty quickly at the end of March and into April, but around April 5, we were revisited by winter. Temperatures on April 4 and 5th were chilly, but the winds made those temperatures seem downright freezing! Wind speeds on those dates were up around 15-20mph with gusts even higher. Sunday night, April 8, we had very cold temperatures around the region: the most notable lows were 7.8 degrees (F) in East Leland and 3.8 degrees (F) in Elk Rapids.

As of today, April 10, we have accumulated 106GDD base 42 (32GDD base 50), where we were only at 69 GDD base 42 (19GDD base 50) at this same time last year. The forecast is predicting 30-40's (F) during the day with 20's at night for the remainder of the week.

Tree Fruit Crop Report

Nikki Rothwell, District Fruit IPM Educator

The thing on most growers' minds is the state of the crop after the strong winds last week followed by the low temperatures of Sunday night. In the past, we thought most of our cold injury was a result of inversion freezes—cold air settling into the lower areas of the landscape or even the lower portion of the tree causing primary bud kill. However, 2002 showed us that our temperatures do not need to fall to single digits to have severe damage; we had temperatures fall to 26-27 degrees (F), which under calm conditions would not have resulted in bud damage. However, when these types of temperatures coalesced with strong winds, this weather combination resulted in >95% crop loss. In the case of 2007, we seem to have had cold temperatures (mid-20's) with very strong winds AND calm extremely cold temperatures.

Based on this weather one-two punch, many growers are wondering where we stand. We have conducted some bud damage assessments in Leelanau County, and we can only surmise at the damage we have so far. At this point, our estimates represent only a very small glimpse into what we might expect for the 2007 crop—they are from limited sites/areas and from a limited section of each orchard. These cuttings were also collected early on Monday morning, and the full impact of the low Sunday temperatures may not be reflected in these numbers. We will not know the full effects of these spring weather events for a few weeks. Overall, we have observed some damage in both tart and sweet cherries, and far less in apples.

As for cold weather around the fruit growing regions of Michigan, we have information from the MSU Fruit Agents around the state. Again, these damage estimates are first assessments, and further information will be forthcoming in the next few weeks. Southwest Michigan reported record high temperatures on April 4, but on the following day, snow was reported. In general, crop nearest Lake Michigan fared much better than crops further from the water. Both peaches and apples look much better the closer the orchards were to the lake. As apricots were in bloom last week, they suffered much damage. Tart cherries were observed to be in better shape in Berrien County than Van Buren County, but no concrete conclusions can yet be drawn. In the southeast part of the state, the lowest temperatures were 16.5 degrees (F) in Commerce. Noticeable water soaked tissue was observed in apples. Sweet cherries were in the water bud stage while tarts were not as far along. On the ridge, there was considerable variation between early and later flowering varieties, and sweet cherry damage is still unknown at this time. No damage data was reported in the west central region.

Small Fruit Crop Report

Duke Elsner, Grand Traverse Co. Ag. Educator

Grapes: It is too early to tell the extent of cold injury from the recent bout of cold weather. In a sample of over 600 buds taken at the NWMHRS on April 9, Vinifera cultivars averaged about 10% injury to primary buds; nearly all of this bud mortality looked to have occurred well before the April freeze. Bud mortality was worse on small or poorly-colored canes, as would be expected even if such critical temperatures had not occurred.

2007 Fruit Insecticide Registration Update

John Wise, Rufus Isaacs, and Larry Gut

This is a summary of insecticide/miticide label additions and corrections to the 2007 MSU Fruit Management Guide. Agri-chemical labels and regulations change quickly so use this information within the context of each compound's actual label.

Insecticide additions, label changes, restrictions:

<u>Compound</u>	<u>Label</u>	<u>Changes/Restrictions</u>	<u>Crop</u>	<u>Target pests</u>
Battalion 0.2EC		New Use	pome fruits	codling moth, leafrollers, hoppers
Brigade 2EC		replaces Capture label	grape	berry moth, Jap. beetle, hoppers
Centaur 70 WSB		New Use	pome/stone fruit	scale, leafhopper, psylla
Danitol 2.4EC		New Use	blueberry	fruitworms, Japanese beetle
Guthion 50W		New Label Restrictions see below*		
Mustang Max		New Use	grape, pome/stone fruit	leafrollers, hoppers, plant bug
Portal 5EC		replaces FujiMite 5EC	pome fruits	mites, leafhoppers, psylla

New labeled insecticide descriptions: MSU Fruit Management Guide product numbers in ()

Battalion (70) (Deltamethrin) is a pyrethroid insecticide registered for use on apples and pears for control of a broad spectrum of insects including codling moth, leafrollers, plant bugs, plum curculio, leafhoppers, and San Jose scale crawlers. This material is highly toxic to mite predators and should be used carefully to prevent mite population buildup. Battalion 0.2 EC is restricted to 26.9 fl oz per acre per season.

Brigade (20) (bifenthrin) is a pyrethroid registered for use on grapes, pears and caneberries for the control of many insect and mite pests, including leafrollers, grape berry moth, plant bugs, leafhoppers, crown borers, Japanese beetles and spider mites. This product has a short period of activity after application and is disruptive to natural enemies.

Centaur (84) (buprofezin) is an Insect Growth Regulator (IGR) insecticide that is active on insect nymph stages by inhibiting chitin biosynthesis, and also suppresses egg laying of adults, and reduces viability of eggs. Centaur is labeled for use on apples, pears and peaches for the control of scale insects, leafhoppers and psylla. It is also known to be of general low toxicity to biological control agents of fruit systems. Centaur 70 WSB is restricted to 1 application per acre per year.

Danitol (44) (fenpropathrin) is a pyrethroid insecticide newly registered for use on blueberries for control of a fruitworms, leafrollers, blueberry maggot, and Japanese beetle. This material is also highly toxic to mite predators and should be used carefully to prevent mite population buildup. Danitol 2.4EC has a 3 day PHI and 24 hr REI for use in blueberries, and can be applied by air.

Mustang Max (zeta-cypermethrin) is a pyrethroid expected to be registered (Federal and State labels pending) for use on pome and stone fruits, and grapes for the control of many insect and mite pests, including cutworms, plant bugs, leafhoppers, leafrollers, grape berry moth, beetles, and spider mites. This product has a short period of activity after application and is disruptive to natural enemies.

Portal (78) (fenpyroximate) is an insecticide/miticide registered for use in apples and pears. Portal works as a contact miticide/insecticide that provides good knockdown and residual control of mites, leafhoppers, and psylla and should be applied when pest populations are beginning to build and before they reach economic thresholds. It is effective on a broad spectrum of mite pests (European red mites, twospotted spider mites, pear rust mites, apple rust mites) but requires thorough coverage to ensure pests will contact the product. Portal 5EC has good in-season flexibility and is restricted to 2 applications per season and a total of 2 pints per acre per year.

Guthion (8) (azinphos-methyl) is no longer labeled for use on peaches, nectarines, plums, caneberries, cranberries, and grapes. Guthion is still registered for use in apples, pears, cherries, and blueberries, with some use restrictions. The maximum yearly amount of Guthion 50 WP to be applied has been reduced to 8 lbs on apples, 6 lbs on pears, 3 lbs on blueberries, and 3 lbs on cherries. The Pre-Harvest Interval (PHI) for apple and pear use is 14 days, with a 21-day PHI if the last application is greater than 2 lbs of Guthion 50 WP per acre. Additionally, growers must observe a 60 foot buffer from permanent bodies of water and occupied dwellings (which do not include farm buildings and barns), and Pick-Your-Own apple growers must observe a pre-harvest interval of 44 days when applying between 2.02 lbs. per acre and 3 lbs. per acre of formulated product, 39 days when applying 1.2 lbs. per acre to 2 lbs. per acre of formulated product and 33 days when applying 1.2 lbs. per acre or less. Be sure to check the label before all Guthion applications.

Bacterial Canker and Cold Spring Temperatures

Nikki Rothwell, NWMHRS

George Sundin, Dept. Plant Pathology, MSU

Bacterial canker is caused by the bacteria *Pseudomonas syringae*, and this pathogen can infect sweet and tart cherry and plums throughout Michigan. This disease is most problematic in sweet cherries, and epidemics often occur in conjunction with cold, frost-prone weather in the spring. Freezing temperatures can also dispose cherry tissues to bacterial canker infection, especially if the freeze event is followed by wet weather. Therefore, growers should be particularly diligent about early bacterial canker control in the coming weeks after these cold spring temperatures.

Early copper sprays are the most common methods of control for bacterial canker on cherry. However, sweet cherry tissues are extremely sensitive to copper, and the sprays must be adequately timed to reduce *P. syringae* inoculum without causing phytotoxicity.

If the trees are still in the dormant stage, two copper applications can be applied at 1-2 week intervals at a rate 1.2-2lbs of metallic copper with either one pint of spray oil per 100 gallons of water or 6-9 lbs of hydrated lime per acre. Copper products sprayed during the dormant stage should have good retention properties to enhance disease control as longer residuals for copper should translate into an extended period of bacterial disease suppression after the spray is applied (Rosenberger, 2007). If the trees have broken dormancy and are in the pre-bloom stage (bud swell through white bud), copper rates should be reduced to 25-35% of the dormant rate. Up to two copper applications with a one week interval should be used at this time. In tart cherries, copper compounds can be used at the 1.2-2lb actual copper rate at bud burst with weekly repeated applications until late May. Some of these later sprays may result in some leaf yellowing, bronzing, and potentially defoliation. Adding hydrated lime at 6-9 lbs/acre will reduce the phytotoxic effects of copper, but we do not recommend applying copper at temperatures above 75 degrees (F).

Literature cited:

Rosenberger, D. 2007. Early season copper sprays. Scaffolds Fruit Journal. April 9. 16:4.

NEW QUALIFIED FOREST PROPERTY ACT WORKSHOP

Daniel Schillinger, Leelanau/Grand Traverse Conservation Districts

When: April 16, 2007

Where: NW MI Horticultural Research Station

Time: 7:00 to 9:00 pm

Cost: \$15.00 payable at the door, includes a detailed information packet

Registration: Please RSVP to Leelanau MSU Extension Office by phone (231-256-9888) or email (msue45@msu.edu)

The purpose of the workshop is to explain the elements of the new Qualified Forest Property Act of 2006. This new law offers a tax incentive of exemption from non-homestead property taxes (18 mills) for private forestland owners of parcels of 20 to 320 acres in size. The workshop will cover:

- Information about the Qualified Forest Property Act of 2006
- Eligibility requirements
- Program Benefits
- Program requirements
- Forest Management Plans
- Information about other Forestry and Conservation programs with tax incentives

The resource speakers include Karen Potter-Witter, MSU forestry professor, Local Conservation Districts, Local Conservancies.

This workshop is being sponsored by the MSU Extension Forestry Team, Michigan Department of Natural Resources, Local Conservation Districts, Local Conservancies and Local MSU Extension Offices.

Call the Leelanau MSU Extension office with any questions.

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SWEET CHERRY PRUNING DEMONSTRATION

Good news! Jim Nugent has agreed to come back and give us one last pruning demonstration for sweet cherries. We will focus our pruning efforts on dwarf sweet cherries at the Bardenhagen Farm where they have 1, 2, and 3 year old sweet cherries on Gisela rootstocks. We will take a good look at the strategies for pruning these trees to adequately manage fruit load and vegetative growth. Please come join us on **April 11 at 1pm** at 7881 Pertner Road in Leelanau County. Please call the NWMHRS for directions: 946-1510.

Insect and disease predictive information is available at:

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

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Bill Klein, kleinw@msu.edu

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Agricultural & Regional Viticulture Agent

Leelanau Extension Director

April 17, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH APRIL 16 AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	113	155	179	96	119	122	109.3
GDD50	33	62	73	30	49	61	41.6

Growth Stages at NWMHRS (4/17/07—8:00am)

Apple: Silver tip

Pear: Bartlett: Bud swell

Sweet Cherry: Hedelfingen, Gold, and Napoleon: Swollen bud

Tart Cherry: Montmorency: Swollen bud; Balaton: Swollen bud

Apricot: Swollen bud

Plum: Dormant

Grapes: Chardonnay: Scale crack

ANNUAL IPM KICKOFF REMINDER

Reminder for the 3rd Annual IPM Kickoff—be there or be square! Tuesday (4/17) at 7pm-9pm at the NWMHRS.

WEATHER

As everyone knows, this spring weather has been a bit crazy, which is not anything new for northern Michigan. However, many growers are interested in hearing the damage report for this week. We collected samples from around the research station, and we intend to take more cuttings this afternoon. Based on our initial look this past Monday, we found slightly more damage than we recorded last week. As I indicated last week, we collected our cuttings early in the morning on Monday following that very cold Easter Sunday night. Our bud damage ratings may not have reflected that Sunday night damage, so the somewhat higher damage we saw this Monday may reflect those cold Sunday temperatures. Overall, the damage does not look extensive from the samples around the research station. We will pass along more information as we know it.

HONEYBEE ISSUE

Dr. Nikki Rothwell, District Horticulturist

Colony collapse disorder (CCD) is a new and potentially very serious problem impacting honeybees around the country. Over 20 states have recorded CCD, and all of the hives affected by this disorder are those that are migratory (hives that are moved south for pollination during the winter). This disorder has also been called 'disappearing disease', and so appropriately named because when beekeepers check their colonies in the spring, there are no bees in the hive. There are also no remains of dead or dying bees; it is as if the hive has literally disappeared. At this time, there is no conclusive evidence of what is causing the collapse of the honeybee hives, although there are many current hypotheses. The first is related to the parasitic mites we have been fighting for many years. Entomologists think that these mites have the potential to weaken hives, hence reducing the overall honeybee populations. However, a mite infestation cannot account for the outright disappearance seen with CCD. There have also been virus or bacterial disease hypotheses, but to date, no evidence of such a disease has been determined through autopsies of the few bees remaining the hives. The newest evidence researchers have found to be causing CCD is pesticides, and more specifically neonicotinoid insecticides. These somewhat newer insecticides have been found in pollen and nectar collected from honeybee hives. However, no conclusions have been drawn from this new information. Imidcloprid (Admire, Provoado) has been reported to cause high mortality in honeybees, and that it may be responsible for part of this overall decline. Again, there are no conclusive data that show imidicloprid is harmful to bees, but research has shown that bees may lose orientation when this insecticide is in the orchard.

Therefore, we are still unsure as to the cause of CCD. Growers should be calling their beekeepers to find out the status of their hives. All

hives that remained in Michigan for the winter have not reported CCD, but the hives suffered the typical winter kill we usually experience. The other disturbing part of this puzzle will be the cost of renting honeybee hives for pollination this season. We anticipate an increase in costs, but we have heard many different estimates. The best recommendation we have is to contact your past beekeeper for more specific information.

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April 24, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH APRIL 23 AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	192	247	258	156	148	179	155.4
GDD50	76	107	113	54	61	96	61.5

Growth Stages at NWMHRS (4/23/07—8:00am)

Apple: Early Tight Cluster

Pear: Bartlett: Late Bud Burst

Sweet Cherry: Hedelfingen: Green Tip: Gold and Napoleon: Bud Burst

Tart Cherry: Montmorency: Green Tip; Balaton: Early Bud Burst

Apricot: 25% Bloom

Plum: Bud Burst

Grapes: Chardonnay: Scale crack

WEATHER

The weather was very warm this past weekend with Sunday reaching into the 80's. The temperatures cooled down to more April-like on Monday, and the rest of the week will follow suit. We have moved along in phenological development: tart cherries are at green tip, sweet cherries are at green tip to bud burst, Balatons are at early bud burst, and apples are at early tight cluster.

Crop Report

Tree Fruit: The damage in the northwest still seems a bit too early to call for an overall estimate. At this time, we have reported some damage in tarts and sweets, but it does seem to be spotty throughout the region. If the weather continues to cooperate and we have good pollination conditions, we anticipate a good crop in the region.

Grapes: Some bud mortality occurred as a result of the April freeze, but overall NW vineyards did not suffer badly from that weather event. Bud death in winter due to poor can maturation and powdery mildew infection is significant in some vineyards. Bud swell is just underway; most producers have completed pruning and tying. Growers planning on dormant sprays for disease control need to get these applications on soon. No pest insects have been seen to this point, although beneficials such as lady bugs and spiders have been seen in vineyards, and honeybees are collecting sap from pruning cuts.

There will be a series of "first Friday" **grape IPM meetings** this summer, from **3-5pm on May 4, June 1, July 6, and August 3**. Locations will be selected based on where problems develop in area vineyards and will be announced via the FruitNet and newsletter.

Pest Report

Tree fruit: With this recent wet weather, a few stations in the region have reported low infection levels for apple scab. East Leland, Kewadin, Northport, Benzonia, the NWMHRS areas all had enough moisture and warm temperatures to initiate an apple scab infection period.

Insects: We have observed low levels of apple rust mites, two-spotted spider mites, and green apple aphids in apple.

Important pesticide reminders

Nikki Rothwell, District Horticulturist

Codling Moth Control Materials

I know many growers are looking for a way to curb costs for codling moth control, especially those where Guthion is not an effective option. Lorsban and Lannate are the two products that come to mind for economical control chemistries. I have also received many questions regarding these products, and here are my recommendations. Lorsban works extremely well, but the problem these days is

timing; this product is not to be used after bloom, which limits effective use of Lorsban. I **do not** recommend pushing the limit of timing for this product. Lannate is a chemistry that had some efficacy against codling moth, but if an orchard has reported any amount of organophosphate resistance, Lannate typically wears out much faster than Guthion. In a nutshell, these products may be cost effective, but timing and efficacy are both considerations when making codling moth control decisions.

Important Guthion Reminder

As all of you know, Guthion has new restrictions on its use. This insecticide is **only** labeled on apples, pears, cherries, and blueberries. Guthion does not have a label for peaches, apricots, grapes, or plums. The 2007 Michigan Fruit Management Guide has two mistakes where it says Guthion is still an option on peaches and plums: THIS INFORMATION IS INCORRECT! Guthion cannot be used on these crops. Another reminder is that if the crop is NOT on the label, a grower CANNOT use Guthion. This rule is different than in the past, and currently there is NO allowable Guthion residue on crops that have been dropped from the label (peaches, apricots, plums, grapes).

The total amount of product allowed per acre is as follows: apples @ 8lbs./acre, cherry @ 3lbs./acre, and pears @ 6lbs./acre. PHI's for apple and pear is 14 days, and 21 days if last application is >2lbs. Growers must observe a 60ft buffer from permanent bodies of water, and they must observe 60ft buffer from occupied dwellings, which does not include farm buildings and barns. Please call the research station if you have further questions (946-1510).

Neonicotinoid Follow-up on CCD

As we mentioned last week, we have reported cases of colony collapse disorder (CCD) in our honeybee hives in the region. We also reported that neonicotinoid insecticides have been found in nectar and pollen in hives where bees have disappeared. The following recommendation has been issued from Dr. Zachary Huang, the MSU honeybee expert: Avoid using neonicotinoid insecticides near honeybees, if possible. If growers must rely on these chemistries, avoid using them during bloom or before bloom, as the pesticides are systemic and can be transported into nectar and pollen. As we do not use these insecticides around bloom time in cherry, this recommendation can be easily followed. In the case of apples, we recommend other chemistries that are more effective for first generation codling moth and obliquebanded leaf roller control when we would have potential contact with honeybees. Recent evidence suggests neonicotinoids can impair honey bee learning and disrupt their homing abilities.

Mustang Max Label on Grapes

Another new pyrethroid has been labeled for grapes this season. Mustang Max is also labeled for berry crops, including blueberries. We currently do not have much efficacy data for this product, and we anticipate having more information for growers by next season. Mustang Max is labeled for control of leafhoppers in grape and leafrollers and root weevils in berry crops.

Bacterial Canker Reminder

Sweet cherries here at the NWMHRS have reached green tip while other varieties are at budburst. If growers are planning to put on copper applications, they need to think about doing so soon. As we are in the pre-bloom stage (not dormant stage anymore), copper rates should be reduced to 25-35% of the dormant rate (dormant rate = 1.2-2lbs of metallic copper with either one pint of spray oil per 100 gallons of water or 6-9 lbs of hydrated lime per acre). Sweet cherries are very sensitive to copper applications, so make sure to safen the tank with spray oil or lime, and do not apply copper products any later in the season than white bud to avoid phytotoxicity.

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