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Northern Michigan FruitNet 2010
Weekly Update
NW Michigan Horticultural Research Station

Nikki Rothwell, District Horticulturist
Erin Lizotte, District Fruit IPM/IFP Agent
Bill Klein, Farm Mgr, NWMHRS
Duke Elsner, Agricultural & Regional Viticulture Agent

June 1, 2010

GROWING DEGREE DAY ACCUMULATIONS through May 31st at the NWMHRS

Year	2010	2009	2008	2007	2006	2005	20 yr. Avg.
GDD42	920	578	535	766	797	639	617.7
GDD50	505	270	257	406	436	302	309.3

Growth Stages at NWMHRS (6/1/10 – 8:00 a.m.)

Apple: Red Delicious – 14 mm fruit
Gala – 17 mm fruit
Yellow Delicious – 16 mm fruit
Pear: Bartlett: 16 mm fruit
Sweet Cherry: Hedelfingen: 14 mm fruit
Napoleon: 13 mm fruit
Gold: 12 mm fruit
Tart Cherry: 11 mm fruit
Balaton: 12 mm fruit
Apricot: 31 mm fruit
Plum: 15 mm fruit
Grapes: 10-16" shoots

Weather
Conditions have remained unseasonably warm for the end of May. Daytime temperatures reached into the mid-80's and even into the low 90's in parts of the north. Nighttime temperatures were also higher than any time this spring, and we observed lots of insect activity with these warmer overnight conditions. We are still considerably further ahead of our 20-year average; this spring, we have accumulated 920GDD base 42 and 505GDD base 50, and the average is 618GDD base 42 and 309GDD base 50. Very little rain fell in the region, and most stations received less than 0.1" of rain. Conditions remain particularly dry here in the north.

Crop Report
Please see above for growth stages of different fruit crops. As tart cherries begin to size, growers can see where blocks have and do not have fruit. The variability in crop loads across different orchards is striking. Some orchards have considerable fruit on the trees, and the crop is distributed throughout the tree while in other orchards, a single fruit is hard to see from the ground. In some cases where inversion frosts were an issue, fruit is evident in the tops of the trees and nothing half to a third of the way down the tree. Sweet cherries are estimated to be about 40% of a crop overall, but again, some orchards have more fruit than others. Apples are also sizing with the warm temperatures, and most orchards are past or close to past the thinning window. Thinning was a challenge for growers this season due to the recent heat and the frost damage that occurred earlier this spring. Most growers applied thinners on the lighter side, and many growers did not thin because of their small crop size. Again, variability is apparent in apple blocks across the region. Strawberries are still in bloom, but thimble size fruit is evident. Further south, some early sizing berries are starting to color. Strawberry harvest is predicted to start around 15 June. Raspberries are not yet in bloom, but continue to grow well with the warm temperatures.

Pest Report

Apples. Most of the weather stations in the region received 1/10" of rain or less on 31 May, with average temperatures in the high 60's during the wetting period. This event was not enough to trigger a **scab** infection period, and we caught no spores in our trap site in Leelanau County. Based on a biofix of 4/2 (McIntosh green tip), the model is predicting 100% maturity and 91% discharge of spores as of 30 May. According to the forecast, there is a significant chance of rainfall in the coming week. Apple tissue should be kept covered with protectant fungicide applications, and as we move into warmer weather and the risk of fruit scab increases, growers should be considering second generation sterol inhibitors (Indar and Inspire Super). Growers should also be aware of the potential for **powdery mildew** infections, particularly if growers relied on the early season EBDCs and Captan. Strobilurins and sterol inhibitors control powdery mildew. Growers should be aware of the risk of **fire blight** where bloom is still present and should consult the model regularly with epiphytic infection

potentials (EIP's) well above 100 this week (100 is the indicator to spray if we have a wetting/trauma event).

Spotted tentiform leafminer numbers continue to decline with an average of 19 per trap. We caught an average of 38 **Oriental fruit moth** per trap this week, slightly less than the 64 trapped last week. **Redbanded leafroller** and **oblique-banded leafroller** larvae were observed rolling leaves in apple orchards for the second week in a row; no adults in apple traps so far. There are numerous insecticides that are effective against these early season Lepidopterans, including but not limited to Delegate, Mustang Max, Belt, Voliam Flexi and Leverage. When choosing an insecticide, consider secondary pests that can be controlled with an individual application as multiple early season insects are susceptible to the same chemistries. **Codling moth** was trapped for the first time on 20 May and that date has been set for biofix for the NW MI Horticultural Research Station. This week we had an average of 8 codling moth per trap, down from 19 moths per trap last week. According to the model, we have accumulated approximately 200DD since codling moth biofix, the window for ovicide applications has closed and larvacide applications will be well timed for early next week when we have accumulated 250DD post biofix or growers could use the 350GDD tactic if ovicides were applied at the 100GDD timing. Refer to the E-154 Fruit Management Guide for more pesticide information and always read and follow the pesticide label.

Cherry. American plum borers continue to emerge at a low level with an average of 5 per trap this week. **Lesser peach tree borer** was observed for the third week with an average of 27 per trap this week. We have not captured **greater peach tree borer**, but the larvae are present in the trunks at this time. Trunk applications of Lorsban are commonly utilized to manage for borer and should be applied in conjunction with adult emergence on farm. Mating disruption is also available for the peach tree borer species but should be deployed earlier in the year. Growers that have high borer pressure should consider disruption for 2011.

Plum curculio activity is significant around the region. Growers who have fruit coming out of the shuck should be covering the exposed fruit from egg-laying plum curculio females. Guthion (1.5 lb season maximum this year), Avaunt, Actara, Assail, and Imidan (on tarts only) are all rated as excellent against plum curculio. If growers are planning a Guthion application in conjunction with the 375DD PITS model, we have accumulated 314DD since Montmorency bloom. Full coverage, intensive scouting, and the use of Guthion are key to properly implementing the PITS model; this model should only be used in tart cherry.

Oblique-banded leafroller (OBLR) adults were trapped for the first time this week with an average of 12 per trap. There are a number of effective leafroller materials. Guthion, Asana, SpinTor, Entrust, Warrior. Baythroid, Proaxis, Delegate, Mustang Max, Altacor, Belt and Leverage are all rated as excellent against leafroller in both sweet and tart cherry. Lorsban (50W or 75WG) and Imidan are also available for management of OBLR in tart cherry. Keep in mind that pyrethroid materials have the potential to flare mites and leafroller that are resistant to organophosphates may be cross-resistant to pyrethroids (including the premix Leverage).

As leaf tissue emerges, growers should be aware of potential **cherry leaf spot** infections. The cherry leaf spot model predicted an infection period in conjunction with the wetting even on 31 May at the Bear Lake and Old Mission weather stations. As we approach second cover timing, growers should consider an application that contains both a leaf spot and mildew material as early season suppression of **mildew** have proven important to season long control. Products such as Pristine and Gem, which contain strobilurin fungicides, are effective against both leaf spot and powdery mildew and should be tank mixed with 3lb Captan to slow resistance development. Refer to the E-154 Fruit Management Guide for more pesticide information and always read and follow the pesticide label.

Grape. Many varieties are up to 4-5" of shoot growth. The first **grape berry moth** was caught in Leelanau County on 19 May and reports of wild grape bloom have spanned from 26 May through 1 June around the region. The grape entomology team has been working to develop and perfect a model for this pest. The model tracks the predicted percent of egg laying and the start of second and third generation egg laying to help identify key treatment timings. According to the model, we have accumulated 95 DD47 if wild grape bloom occurred on 26 May in your vineyard. The first treatment window in sites with significant pressure is at 810 DD47 after biofix, and this timing is a ways off.

Potato leafhopper has been observed in Benzie County orchards, and we have reported leafhopper in cherry blocks further north. However, leafhoppers have not been reported from vineyards further north. Given their arrival in the southern portion of the region and the potential for thunderstorms in the coming week, there is a real potential for leafhopper to arrive soon.

MINIMAL SPRAY STRATEGY FOR FROSTED APPLE TREES

Nikki Rothwell, District Horticulturalist, MSU Extension
Amy Irish-Brown, District Fruit IPM Educator, MSU Extension
Jim Nugent, Former District Horticulturist, MSU Extension

After the freeze, many apples in the northwest region were affected. After growers determine the damage on their farms, if they find their trees suffered a lot of frost damage, they may want to opt for a minimal management program. This program is designed to keep the trees healthy for next year, but also to reduce input costs on acreage with no expected returns.

Fire Blight – Fire blight is still an issue for a lot of the region, especially with this recent wet weather, and the big question is whether we can still become infected from fire blight with so many dead blossoms. There has been little work done on this topic, but we know that dead pistils on frosted blossoms cannot support a population of *Erwinia amylovora*, the causal agent of fire blight; hence, the more dead blossoms there are in the orchard, the lower the potential of fire blight infection. We are in essence reducing our fire blight inoculum in the orchard by eliminating the number of viable fire blight infection areas (flower pistils). Although most growers fear the worst, ie. 100% destruction, we cannot assume all flowers in the orchard are dead. Therefore, we must continue to monitor and potentially spray for fire blight because we may have some viable flowers still in the block. We especially cannot assume we have a total wipe out in blocks with susceptible varieties. In addition, trauma blight situations still may occur with high winds and hail, and these events can still cause devastation to orchards. Trauma blight situations should still be managed with applications of streptomycin, Mycoshield, Serenade, or copper. Streptomycin is the best material to use and will give the best management of fire blight in a post-trauma blight situation where resistance is not an issue. Mycoshield, Serenade, and copper applications should be made ahead of a trauma blight situation, and this option is not always the most economical choice as growers attempt to stay one step ahead of the weather forecast, which we all know is virtually impossible.

Apple Scab – As for all blocks, those with and without a crop, apple scab is best controlled if growers stayed ahead of

primary scab. The best method to control scab blocks with little crop would be to control these initial scab lesions before growers reduce or eliminate fungicide applications from the block. If blocks have scab in them now, these blocks could defoliate early and have reduced winter hardiness and a high potential inoculum level for 2009. As we are still in primary scab (approximately 85% of ascospores have been discharged), growers should not cut back on fungicides at this time. If an orchard makes it through primary scab this season **without infection**, we could reduce and potentially eliminate all other fungicide applications for the season.

Powdery Mildew (PM) – Just as with apple scab, powdery mildew left uncontrolled can lead to reduced vigor and winter hardiness. Again, as with apple scab, most commercial blocks have had some mildewcides in their programs already this year, so mildew will not probably be a concern in most blocks with no crop. If you have a mildew problem now, treat it soon in order to reduce the inoculum potential for the 2009 season.

Plum Curculio (PC) – If there is no crop, there is no reason to spray for PC (or for other fruit feeders like apple maggot). However, growers should keep in mind that PC are good fliers, and if one block has no apples, those buggers can move from the no-apple block to an orchard with fruit in a short amount of time. Growers should be keeping an eye for PC in the orchard as well as on their neighbors' crops to determine if PC may be migrating from one orchard to another. Under light fruit load conditions, plum curculio will compete heavily for the fruit that is present. If the remaining fruit are left unprotected, these weevils can oviposit many times in one fruit, and ultimately may result in a much higher percent damage level per fruit than normal. The good news is that most of this fruit will drop, but the larvae that emerge could be the source of next year's "resident" population. Next season, growers will need to account for the difference in managing a resident population versus the predominant situation of controlling immigrants moving in from outside wild hosts. The other factor to consider is the amount of freeze damage you have, and this issue remains true for other fruit insect pests: the fewer fruits per block, the less food insects will have to consume. Growers should know in the next weeks how many fruits are left in their blocks, and this information can be considered for fruit insect pest control strategy.

Potato leafhopper (PLH) – PLH is normally controlled when broad-spectrum insecticide programs are used to control primary pests like plum curculio, codling moth, and oriental fruit moth. If growers reduce or eliminate insecticides for these key pests because of little or no crop, PLH should not be ignored. The PLH first arrives in late May with southerly-based weather fronts (this past week for this year). Those adults lay eggs, which hatch and begin feeding on the phloem of foliage and shoot tips of actively growing terminals in mid-June. Populations vary greatly year to year. PLH often reach high populations by early July. The resulting damage appears as necrotic cupped-leaf margins and can stunt growth significantly. Apple growers should check for potato leafhopper during weekly orchard monitoring beginning in early June. Look for curled leaves and shoots that are not growing as vigorously as they should. Check the undersides of leaves for nymphs and adults. As leafhoppers are easily disturbed, and move off the leaf, it is important to do assessments in the field. Turn the leaf over slowly when monitoring to assess how many leafhoppers are on the lower leaf surface. In apples, one or two nymphs per leaf can cause leaf curling if they are allowed to feed for a prolonged period of time (four to seven days). Control will be particularly important in young blocks that still have space to fill.

Obliquebanded leafroller (OBLR) – The OBLR is largely a foliage feeder, but can do significant damage to fruit. Fruit damage from the summer generation of OBLR is often related to when terminal growth slows or buds set, forcing larvae from the preferable young foliage to fruit. Fruit damage is also common under conditions of heavy fruit set where full clusters and adjacent foliage prevent adequate penetration of targeted insecticides. Light fruit-load conditions like this year should reduce the risk of OBLR damage compared to normal years.

Codling Moth (CM) – No control is required in blocks with no fruit. If growers have a few fruits on the trees – perhaps as few as 10 or 20 fruits on a dwarf tree – codling moth will easily infest these fruits in their first generation if you eliminate cover sprays for CM. Eliminating early sprays can lead to very high CM numbers and increases the potential damage for the 2009 season. Growers should also be aware of CM moving in from an orchard with little fruit to a neighboring orchard with fruit. This movement can happen with the first generation but will be more of a concern for second generation CM. If growers have orchards **with** a crop, they should be conscious of any nearby orchards that may be on a reduced insecticide program because of no crop. If a neighboring block has no crop, the CM that are residents in those apple trees will most likely move to nearby blocks with fruit to lay their eggs. If a neighboring block has a few fruits and the first generation CM is not controlled, then the second generation CM will most likely move to neighboring blocks to look for more favorable egg-laying sites. Older orchards generally have higher resident populations than younger blocks.

Oriental Fruit Moth (OFM) – OFM larvae bore into new growing terminals and cause the terminals to look ragged and flagged over. This injury is most apparent in first generation OFM, but second generation will appear as the fruit sizes and become more desirable to OFM. Populations of OFM are generally very low in NW Michigan, so reducing or eliminating spray for other pests will not likely lead to an OFM problem. However, if OFM is present, then a light fruit set will likely increase the incidence of terminal flagging during the second-generation OFM egg hatch period (July). Also, if insecticide cover sprays are eliminated from apple blocks, OFM and some other insects may build in number, likely increasing pest pressure the following year.

Apple Maggot (AM) -- As this insect pest can be found on other trees outside of commercial apple blocks, ie. hawthorns, crabapples, and abandoned blocks, they move into a block to infest fruit. If no fruit is present then there is no need for an insecticide, in which case the adult will seek egg laying sites elsewhere. There is evidence of AM building up in orchards that remain unsprayed, so we may potentially increase AM in blocks that have some fruit but do not have insecticides. However, in a year with little fruit, there will be few oviposition sites (apples) in which AM will lay their eggs. So, if a grower plans to harvest a block with a light crop, keep in mind that the apples that do remain will be a haven for many AM larvae. Again, growers should monitor their apple crop in order to make the decision to spray for AM.

European Red Mites (ERM) and **Two-spotted Spider Mites** (TSSM) – Left uncontrolled, ERM's and TSSM's can reduce photosynthesis and overwintering carbohydrate reserves. These reserves provide the tree with its winter hardiness, as well as help set the next year's crop. They can cause severe bronzing, but if this occurs in a year without a crop, the damage will not be as severe, due to the lack of competition for the carbohydrates from fruits. In other words, the tree can tolerate more mites. Plus, if certain broad-spectrum insecticides are left out of an orchard system (for codling moth, for example), then mite predators will have a chance to build their populations to help curb the ERM. This season may be one to save some money by eliminating a miticide spray!

****Some growers may find they may have to spray more than these general rules of thumb while other growers may not need as many applications. One important thing growers can do to reduce the number of chemical applications is to diligently monitor for insects and diseases throughout the season. This scouting could be the difference between**

spraying and not spraying based on the pests in the field.

Other concerns

Benefits of Beneficials: One possible benefit of reducing broad-spectrum insecticide sprays would be a potential increase in biological control organisms such as beneficial insects. By eliminating the number of insecticide applications could be helpful for the future of an orchard system.

Return Bloom for 2011: Next year will most likely have a tremendous return bloom. With little crop, the vegetative growth should be at a maximum for 2010, which will lead to extra pruning for the dormant season. A strong dormant pruning program will help regulate the 2011 crop. Apogee applications will help reduce terminal growth and could reduce pruning costs by as much as 30%. Apogee applications are not inexpensive, and a grower should weigh the costs of the applications against the costs of dormant pruning. Also, Apogee is best timed when the king bloom is starting to drop petals, so you may be out of the window for good growth control with Apogee for this current season.

Eliminating fruit: If you have a small crop, you might want to consider eliminating fruit completely from the trees. You can limit the infestation from the apple insects like codling moth and apple maggot, by eliminating the fruits on the trees. Chemical fruit removal may be done with high labeled rates of spray thinners, such as NAA and Sevin XLR pus a spray oil. The best program would be to make two applications. If weather is warm (favorable for thinning), the first chemical thinners should be applied as soon as the flower petals are 80% fallen (not too soon in bloom or you can harm pollinators). A second application, 10 to 14 days later, may be needed to remove more fruit. Even with two applications of chemical thinners, there may be some fruit remaining that may need to be removed by hand. If only one application is planned, then suggest applying when the first period of warm weather occurs after petal fall. Suggested fruit removal program: 15-20 PPM NAA (6-8 oz. NAA in 100 gallons of water) PLUS 1 quart Sevin XLR plus 1 quart spray oil/100 gal.

Large Fruits: Fruit size will most likely be large on trees with a light to moderate crop set. Large fruits have some potential inherent problems such as bitter pit, water core, and cracking, which can cause storage and marketing problems. Calcium sprays can help and might be justified in certain higher value varieties that commonly have problems such as bitter pit.

Scarred Fruits: There may be a lot of surface damage on apples this year due to the cold weather during bloom. Growers should evaluate crop quality – if it is poor, eliminating the fruit and using a reduced spray schedule should be considered.

Nutrition: Trees with little to no crop do not need as much nitrogen. If a split application was planned, the second application should be reduced or eliminated. If no apples will be harvested, apply only foliar nutrients where a known deficiency exists. For example, if N was applied to the soil prior to the freeze, then there should be no need for foliar N this season. As noted above, if a light crop will be harvested, then foliar calcium will be especially important on bitter pit susceptible varieties.

In Conclusion
Be sure of your crop situation before you decide to eliminate cover sprays entirely from an apple block. Apple fruit set can fool the eye sometimes, especially now that the foliage if growing so rapidly. One week may look like a total loss and the next week, the fruit will start to show up more readily. Also, if you have crop insurance, be sure to check with your insurance representative of the details that they may require of your pest management program so that you are not disqualified in any way.

HOW TO MINIMIZE COSTS IN FROST DAMAGED CHERRY ORCHARDS
N.L. Rothwell, District Horticulturist, NWMHRS

The initial step in determining how to manage cherry orchards with frost damage is first assessing the amount of damage. Enough time has elapsed that cherries not damaged by frost or those that were successfully pollinated are starting to adequately size. Cherries that are still in the shuck, brown in color, or very small in size are not likely to develop this season. The second decision is whether growers will harvest a particular block. If growers do intend to harvest, minimizing costs is probably not the best strategy.

If growers do indeed have too few cherries to shake a block, a few management strategies are still necessary for this season. First and foremost, cherry leaf spot (CLS) control is vital. This pathogen infects the leaves, and even with no fruit, trees are still susceptible. Brown rot control, on the other hand, becomes a minimal concern as this pathogen infects the fruit. If no fruit is visible on the tree, brown rot control can be reduced. However, growers should keep in mind that even a small number of fruit on the tree can result in a brown rot infection, and these infected fruits can increase inoculum in subsequent years. The same type of minimal control is warranted for powdery mildew in orchards with little fruit. However, powdery mildew should not be allowed to establish a solid foot hold in a block or inoculum levels could be extremely high next season.

Blocks where cherries will be harvested will need insecticide sprays to ensure marketable fruit. Trees with minimal fruit are more likely to be infested as there are simply fewer fruit in which plum curculio (PC) or cherry fruit fly (CFF) females can lay eggs. If growers do not intend to harvest a particular block, insecticide sprays for PC and CFF can be eliminated. Growers should keep in mind that reducing or eliminating insecticide sprays for these pests could result in higher insect populations the following season.

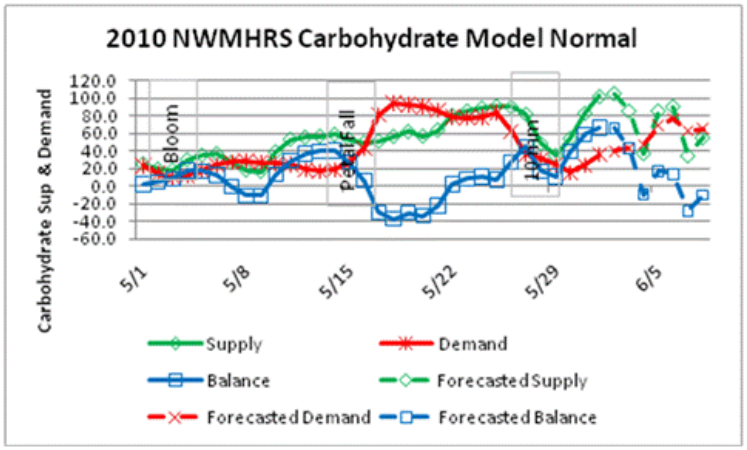
Borers—lesser peachtree, greater peachtree, and American plum borer—are all still potential problems for cherry orchards with minimal fruit. Borers do not feed or depend on the cherry fruit for their life cycle, and trees without fruit will still be susceptible to borer infestations. Trunk sprays are still recommended in orchards with little or no fruit.

For other management strategies, we offer the following recommendations: 1) miticide applications could be reduced or eliminated in blocks with no fruit as trees with no crop have a higher tolerance for mites, 2) gibberellic acid is necessary this season to ensure that the trees will not overset next year, 3) weed control can be minimized, but not eliminated, as trees without fruit will require less water, 4) micronutrients can be reduced unless growers observe a deficiency, and 5) lastly, nitrogen applications could also be reduced but more than likely spring applications have already been made this season.

IPM GRAPE UPDATE FRIDAY JUNE 4TH!
Erin Lizotte, Nikki Rothwell, and Duke Elsner
It's time for the second in our summer series of *Winegrape IPM Updates*. Topics to be covered include horticulture, pathology and entomology. Feel free to bring along insect and disease samples for diagnosis and management recommendations. These *free* updates run from 3-5 PM and Pesticide Recertification Credits will be available. On **June 4,**

Dr. Duke Elsner will be at the NW MI Horticultural Research Station to discuss training systems and canopy management. We will also discuss the current season's progress and report on pest and disease information. Mark your calender for subsequent meetings on **July 9** (Dr. Paul Jenkins and Dr. Paolo Sabbatini at 2 Lads Winery), **August 6** (Dr. Sabbatini at the Ligon Farm at 3130 Old Mission Rd), and **September 3** (Dr. Rufus Isaacs at Mawby's). We hope to see you all there!

CARBOHYDRATE MODEL - NWMHRS



Oil and Gas Lease Education Program
June 3, 2010, 6:00 – 9:00 p.m.
Northland Community Church
5855 S Morey Rd (M-66)
McBain, MI 49657

Agenda
Welcome and Introductions
David Stroud, County Extension Director, Missaukee County

Unconventional Shale Gas Development
Bob Versical, Senior Geologist, Michigan Dept Natural Resources and Environment

New technology and laws
DNRE's role in oil & gas production
Royalties and leases

Environmental concerns
Local Considerations
David Stroud, County Extension Director, Missaukee County

Understanding the Lease
Curtis Talley, MSUE Farm Management Educator

Know what it says and the implications for the future
Negotiable items
Bringing it all Together for a Win-Win Lease
Susan Topp, Attorney

Common pitfalls to avoid
Pros and cons of cooperative pooling
Facilitated Panel Discussion / Questions and Answers
Shari Spoelman, County Extension Director, Wexford County

Conclusion & Next Steps
Jerry Lindquist, County Extension Director, Osceola County

YOUNG WOMAN LOOKING TO WORK ON A FARM

Following is information for Peyton Ginakes, (904)207-8518, ginak002@umn.edu

University of Minnesota, Twin Cities campus
College of Food, Agriculture and Natural Resource Sciences (CFANS)
Just completed my sophomore year, expected to graduate May 2012
Pursuing Bachelor of Science in Environmental Science, Policy, & Management, with emphasis on Conservation and Resource Management. Minor in Soil Science.

I am looking for an internship where I can learn about sustainable farming, specifically ways to conserve soil, compost, market locally, etc. I want a farm in the future, but since I have never had any farming experience, I want an internship that can help me learn how to go about the farm-building process. A CSA experience might work fine. I can work from early June through August. I love being and working outdoors, and I'm hard-working and able. Compensation is optional.

WEBSITES OF INTEREST

Insect and disease predictive information is available at:
http://www.enviroweather.msu.edu/home.asp

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
http://www.ipmnews.msu.edu/fruit/

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, 2010

Please send any comments or suggestions regarding this site to:
Bill Klein, kleinw@msu.edu

Last Revised: 6-2-10

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June 8, 2010

GROWING DEGREE DAY ACCUMULATIONS through June 7th at the NWMHRS

Year	2010	2009	2008	2007	2006	2005	20 yr. Avg.
GDD42	1048	653	700	922	954	833	749.6
GDD50	578	299	355	510	522	440	387.9

Growth Stages at NWMHRS (6/7/10 – 5:00 p.m.)

Apple: Red Delicious – 20 mm fruit
Gala – 21 mm fruit
Yellow Delicious – 21 mm fruit
Pear: Bartlett: 18 mm fruit
Sweet Cherry: Hedelfingen: 16 mm fruit
Napoleon: 15 mm fruit
Gold: 14 mm fruit
Tart Cherry: 12 mm fruit
Balaton: 12 mm fruit
Apricot: 32 mm fruit
Plum: 18 mm fruit
Grapes: 10-16" shoots

Weather

Since 1 June, temperatures have been more 'normal' than the extreme heat we had over Memorial Day weekend. The high temperature for the past week was 82 on 1 June, and from that date, daytime temperatures have been in the high 60's. Degree day accumulations are still well above our average: 1048 GDD base 42 and 578 GDD base 50. Rainfall was variable around the region, where precipitation totals range from 0.5-1". The NWMHRS received 0.62", and despite what seemed like cool wet conditions over the weekend, we have received a similar amount of rainfall that is typical of our 6-year average from 1 March to 8 June: 6.11" so far this year.

Crop Report

Please see above for crop development. Sweet cherries are sizing, and dark varieties are starting to color. Estimates about the sweet cherry crop remain consistent across the region at about 40-50% of a crop. Tart cherry estimates still vary at this time. Some growers predict 80 million pounds while others are down at 50 million pounds for northwest Michigan. Considerable effort is underway to provide a solid number for the annual estimate (to take place next week) due to the drastic differences in the estimate and actual amount harvested we experienced last season. Again, the crop is variable between orchard blocks and within individual orchards. Apples are also sizing, and many growers feel confident about their thinning tactics in blocks where there is a crop. Grapes are growing well this season, and most growers feel that the spring frosts did not do substantial damage to the vines. Early strawberries are starting to color, and raspberries will be in bloom in the coming week.

Pest Report

Apples. Most of the weather stations in the region received 1/3 - 1" of rain over the weekend, with average temperatures in the 50's and 60's during the wetting period. The wetting period spanned from 18-72 hours based on location and triggered a moderate to heavy **scab** infection period at all regional weather stations. Based on a biofix of 4/2 (McIntosh green tip), the model is predicting 100% maturity and 96% discharge of spores as of 7 June. According to the forecast, there is a significant chance of rainfall in the coming week. Apple tissue should be kept covered with protectant fungicide applications of second generation sterol inhibitors (Indar and Inspire Super). Growers should also be aware of the potential for **powdery mildew** infections, particularly if they relied on the early season EBDCs and Captan. Strobilurins and sterol inhibitors control powdery mildew.

Spotted tentiform leafminer and **Oriental fruit moth** emergence has ended this week at the NWMRHS. **Obliquebanded leafroller** moths were caught for the first time in apple this week, with an average of 2 per trap. **Codling moth** was

trapped for the first time on 20 May, and that date has been set for biofix for the NW MI Horticultural Research Station. This week, we had an average of 7 codling moths per trap. According to the model, we have accumulated approximately 300DD since codling moth biofix, the window for larvacide application (250DD post biofix) based on NWMHRS emergence data was last week. Those utilizing the early ovicide application and delayed larvacide application should be targeting the quickly approaching 350DD window post-biofix. Refer to the E-154 Fruit Management Guide for more pesticide information, and always read and follow the pesticide label.

Cherry. American plum borer emergence stopped this week, and **lesser peach tree borer** slowed this week, with an average of 13 per trap compared to 27 last week. We have not captured **greater peach tree borer**. Trunk applications of Lorsban are commonly utilized to manage for borer and should be applied in conjunction with adult emergence on farm. Mating disruption is also available for the peach tree borer species but should be deployed earlier in the year. Growers that have high borer pressure should consider disruption for 2011.

Plum curculio activity is significant around the region. Guthion (1.5 lb season maximum this year), Avaunt, Actara, Assail, and Imidan (on tarts only) are all rated as excellent against plum curculio. Growers using a Guthion application in conjunction with the 375DD PITS model should have made that application based on a bloom date biofix of 30 April at the NW Station, we have accumulated 430DD since Montmorency bloom.

Oblique-banded leafroller (OBLR) adults were trapped for the second week in a row with an average of 27 per trap. There are a number of effective leafroller materials; Guthion, Asana, SpinTor, Entrust, Warrior. Baythroid, Proaxis, Delegate, Mustang Max, Altacor, Belt and Leverage are all rated as excellent against leafroller in both sweet and tart cherry. Lorsban (50W or 75WG) and Imidan are also available for management of OBLR in tart cherry. Keep in mind that pyrethroid materials have the potential to flare mites, and leafrollers that are resistant to organophosphates, may be cross-resistant to pyrethroids (including the premix Leverage).

Growers with **lecanium scale** issues are approaching another treatment window and controls will target the crawler stage. During the crawler stage, the insects are once again susceptible to insecticides. The rule of thumb is that vigorous and healthy trees and plants can tolerate some scale infestation, but if high populations of lecanium scale are found, control programs should be considered. Natural enemies usually regulate scale populations and prevent outbreaks of these pests, but growers with high populations this season should consider chemical control options. Most insecticides (including pyrethroids) that are active on scale are targeted at the crawler stage after the insect has emerged from the waxy covering. Growers can scout for crawlers by placing some double-sided sticky tape near to scales on infested shoots, and checking with a hand lens until you see tiny dots (the young crawlers) on it. Crawlers resemble tan colored footballs, and unless they are in high numbers, they are difficult to see without a hand lens.

As leaf tissue emerges, growers should be aware of potential **cherry leaf spot** infections. The cherry leaf spot model predicted moderate to high potential infection periods in conjunction with the rain over the weekend. If not already applied, growers should consider an application that contains both a leaf spot and mildew material as earlier applications of mildewcides have proven more effective at season long control. Products such as Pristine and Gem, which contain strobilurin fungicides, are effective against both leaf spot and **powdery mildew** and should be tank mixed with 3lb Captan to slow resistance development. Refer to the E-154 Fruit Management Guide for more pesticide information and always read and follow the pesticide label.

Grape. The first **grape berry moth** was caught in Leelanau County on 19 May and reports of wild grape bloom have spanned from 26 May through 1 June around the region. The grape entomology team has been working to develop and validate a model for this pest. The model tracks the predicted percent egg laying, and the start of second and third generation egg laying to help optimize key treatment timings. According to the model, as of 7 June we have accumulated 200 DD47, if wild grape bloom (biofix) occurred on 26 May in your vineyard. The first treatment window for sites with significant pressure is at 810 DD47 after biofix, and this timing is a ways off.

This week, we observed sometimes high infestations of **forest tent caterpillar** in vineyards. It appears that the caterpillars crawled or were blown in from neighboring woodlots. At this stage of development, the caterpillars have begun to form a protective yellow case (sometimes on grape leaves and vines) where they will develop into the adult moth stage. Management for this pest is not recommended at this time. Forest tent caterpillar follow a boom-bust cycle of population density and the 2009-10 seasons have seen extremely high populations around northwest Michigan. Forest tent caterpillars are a native species with indigenous natural enemies, diseases, and resource limitations that are expected to naturally control populations in the coming seasons.

Potato leafhopper was trapped this week but appears to be at relatively low levels, growers should remain vigilant for the tell-tale signs of leafhopper damage. Potato leafhoppers can be very destructive on hybrid or vinifera varieties that are sensitive to the saliva they inject while feeding. Feeding is concentrated on young tissues near the shoot tips. On sensitive varieties, only a few adults are needed to cause leaf yellowing and cupping or shortened shoot internodes. Tiny **hornworms** were also observed in area vineyards. Hornworms (Sphingid larvae) can be found feeding on leaves in vineyards. Larvae may be brown or green with spots on the sides of the body and a distinctive "horn" on the rear end. The larvae can grow to 5 inches long, and they feed voraciously during development. Because of this feeding, hornworms are more of a concern in young vineyards with limited leaf area. Larger vines can usually tolerate some leaf area loss from their feeding. Lastly **grape plum moth** larvae were observed in multiple vineyards, and deer damage was evident as well. The beneficials are also out in full force this week, the **lady beetle** population in the vineyards seem particularly high. **Assassin bugs** were also spotted in one biodynamic site. Adult assassin bugs are medium to large insects, and their color ranges from brown to green. They have long heads with a groove between the eyes and curved beaks with a tendency to "stand up" on their back legs when startled, a behavior reminiscent of a praying mantis. The nymphs of assassin bugs are also important predators.

FUNGICIDE RESISTANCE MANAGEMENT CONSIDERATIONS FOR CHERRY LEAF SPOT CONTROL

George Sundin, Dept. of Plant Pathology, MSU
Nikki Rothwell, Northwest Michigan Horticultural Research Station
Erin Lizotte, Northwest Michigan Horticultural Research Station

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 often with yellow halos around the spots on the tops of the leaves. As spots accumulate on foliage, the leaves turn yellow and fall. The amount of lesions

required causing leaf yellowing and drop is variable. Sweet cherries can tolerate quite a few lesions before leaf drop occurs; however, Montmorency tart cherries will drop with only a few lesions, signifying the importance of proper leaf spot management. Balatons can have more lesions than Montmorency before leaf drop, but Balatons are just as susceptible to leaf spot as Monts.

Preharvest defoliation can result in a crop that does not mature adequately in order for the fruit to be marketable. Additionally, early defoliation can cause serious tree damage. Even 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 winter injury and/or mortality. Early-defoliated trees also typically exhibit reduced flower bud formation and often set less fruit the following season.

There are five major classes of fungicides and one mixture registered for leaf spot control that could be used as cover sprays (Table 1). Of the five classes, only the SI's represent a poor choice for management due to resistance to SI fungicides in the cherry leaf spot fungus that occurs universally throughout Michigan orchards. Thus, SI fungicides should never be used alone for leaf spot control. SI resistance is quantitative meaning that leaf spot populations exhibit a wide range of susceptibilities to these fungicides. However, use of SI's will continually shift orchard populations such that they contain more and more highly resistant individuals. These shifts result in significant control failures, and we have observed such control failures in several orchards over the last few years.

After shuck split, the use of the strobilurin Gem (3.0 to 3.8 oz / A) or the strobilurin/boscalid Pristine (10.5 to 14.7 oz / A) at the 1st cover timing is an excellent choice because both of these materials are also excellent powdery mildew materials. However, growers should remember that both Gem and Pristine are excellent fungicides but both are at risk long-term for the development of fungicide resistance. Growers need to think about long-term protection of these materials such that they remain effective over a significant number of years. Overuse of these fungicides now could compromise the effectiveness of these products against leaf spot in the future. We suggest that both Gem and Pristine are not used more than two times per season.

In addition, and more important that limiting use of Gem and Pristine, **long-term preservation of these fungicides will require more active resistance management strategies**. Strobilurin resistance has emerged in the apple scab pathogen *Venturia inaequalis* and is completely widespread in Michigan currently. This emergence happened quite fast, with the first resistant strains probably developing in 2006, only 7 years after the registration of the strobilurins. Because of the incidence in apple scab, we think that resistance management strategies for Gem and Pristine for cherry leaf spot control need to include the incorporation of the broad spectrum fungicide Captan. **Similar to tank mixing fungicides with an EBDC for apple scab control, tank mixes with Captan should be utilized for leaf spot control.** This way, if a strobilurin resistant isolate does emerge, the Captan component in the fungicide program should control that effectively.

Gem is also available as one component of the fungicide Adament. Adament is a mixture of two fungicides – Gem and the SI Elite. For leaf spot control, the Elite component of Adament would be essentially ineffective. Thus, Adament would be most effective when used at a timing where brown rot control is also needed. It is also critical to use a rate of Adament that ensures that the Gem component is present at a rate sufficient for leaf spot control. Adament at the 6 oz/A rate is equivalent to 3 fl oz Gem + 3.3 oz Elite. Adament at the 8 oz rate is equivalent to 4 fl oz Gem + 4.4 oz Elite. Adament should also be tank-mixed with Captan for resistance management.

One fungicide which is definitely worth a look is Syllit (dodine). Syllit FL at 27 fl oz per acre is an excellent leaf spot material. In a survey conducted in 2007, we did not isolate strains of the leaf spot fungus that were resistant to Syllit. However, experience tells us that Syllit is a fungicide that is resistance prone, thus, Syllit should be tank-mixed with Captan as a resistance management strategy to prevent any buildup of dodine resistance. Also, Syllit is not as effective in controlling powdery mildew or brown rot. Thus, the 2nd and 3rd cover timings represent the best timings for a Syllit + Captan application. Although the current Syllit label indicates an incompatibility with Captan, these fungicides can be tank-mixed and a revised label indicating this is planned for 2011.

Copper has proven to remain a highly effective fungicide for CLS control. Results from several years of experiments consistently show that CLS treatments utilizing one, two, or three cover sprays of copper sulfate (1.2 lbs metallic Cu per acre) provided excellent CLS control equivalent to or better than standard programs using conventional fungicides, such as strobilurins. Successful efficacy of copper compounds aids both conventional growers, as copper extends the life of traditional fungicides, and organic growers because copper is the only viable option for disease control in tart cherry. The only detriment to copper use is the potential for phytotoxicity effects to tart cherry trees. When copper compounds are applied to tart cherry trees in advance of hot, dry weather, the trees can exhibit phytotoxicity symptoms such as bronzing on the undersides of leaves, large yellow and brown blotches on the upper surface of a few leaves, or blackening of veins on the undersides of leaves. In severe cases, copper phytotoxicity can also cause leaf defoliation. Thus, the 2nd and 3rd cover timings are good for copper use if temperatures are not projected to remain above 80°F for several days. However, we have been trying to quantify the phytotoxicity of copper use for many years, and we have not been successful in showing the potential impacts of multiple copper sprays in hot conditions

Table 1. Class of chemistry and fungicides registered for cherry leaf spot control.

Sterol-inhibitors (SI's)	Elite, Indar, Nova, Rubigan - a
Strobilurins	Gem, Pristine - b
Mixture (strobilurin + SI)	Adament
Guanidine	Syllit (dodine)
Heterocyclic	Captan - c
Inorganic metal ion	Copper

a Because of widespread resistance in Michigan, SI's should never be used alone and are not recommended for leaf spot control.

b Pristine is a mixture of a strobilurin and boscalid, another fungicide (separate chemistry).

c Captan should only be used in combination with other fungicides because the rate (2.5 lbs/A Captan 80WDG) allowed on cherries is too low for effective disease control.

HIGH TUNNEL TWILIGHT MEETING

When: Wednesday, **June 16, 2010**, **6:00 to 8:00** pm
Where: Southwest Michigan Research and Extension Center, Benton Harbor, MI.

Interested in the use of high tunnels for fruit, vegetable, or flower production? Join us for a tour and discussion of tunnel research at the SWMREC, Michigan State University facility. On hand will be MSU researchers and Extension Educators, as well as representatives from Haygrove Tunnels Inc. Greg Lang will discuss sweet cherry production systems and display fruit some early-ripening varieties. Ron Goldy will discuss vegetable production experiences and options, including approaches for organic producers. Eric Hanson and Diane Brown will review results of trials with strawberries and raspberries, and discuss current efforts with blackberries. Visit the SWMREC website http://www.maes.msu.edu/swmrec/ or call (269/944-1477) for directions to SWMREC. Call Eric Hanson (517/355-5191 x1396) for questions.

UNCERTAINTY IN CHERRY CROP
Nikki Rothwell, NW Michigan Horticultural Research Station

Over the past weeks there has been much discussion of the tart cherry crop estimate for northwest Michigan and an astounding range of opinions. Last week, we ran an article that helped growers consider management strategies to reduce inputs in blocks with no fruit. However, there are external considerations that may influence these pest management control strategies. First, if growers have some type of insurance policy, they will need to consult the rules for crop loss/disaster. Policies can vary, and growers want to qualify for their individual policies. Secondly, depending on the size of the NW crop (regulated or unregulated), growers may have the option to use diversion in blocks. Diversion policy states that growers must have marketable fruit that would be inspected at the time of harvest. Hence, fruit infested with larvae would disqualify growers from receiving diversion credits. The uncertainty about the size of the crop makes on-farm decisions more difficult, and accurately projecting the crop this season more critical.

SASKATOON GROWER TOUR OF NW MICHIGAN

Date: **Monday, June 21, 2010**
Invitees: Anyone Interested In Planting and Growing Saskatoons

TOUR SCHEDULE:

8:00 am Meet at **Jacob's Farm**, 7100 M-72 West, Traverse City (4 miles from West Grand Traverse Bay towards Empire/Sand Dunes)
Host: Steve Fouch
Coffee and treats served

Tour 1 acre of 1 – 3 year-old saskatoons

8:45 Leave For Next Stop

9:45 Arrive at **Cross Farm**, 11966 East Sugar Bush Rd, Northport
Host: Rick Cross
Tour the 1 acre of 2 to 3 year-old saskatoons

10:30 Leave For Next Stop

11:30 Lunch at Elk Harbor Restaurant, Elk Rapids

12:30 Leave For Next Stop

1:00 Arrive at **Burdo Farms**, Torch Lake
Host: Richard Burdo
Tour 1 acre of 2-year-old saskatoons

1:45 Leave For Next Stop

2:15 Arrive at **Ducheney Farm**, 7924 Saylor Rd, Williamsburg
Host: Steve Ducheney
Tour 1 acre of 1- year-old saskatoons
Water and snack provided

2:45 Leave For Next Stop

4:00 Arrive at **Putney U-Pick Operation**, 7603 Love Rd, Benzonia
Hosts: Todd and Leslie Putney
Tour the 5- year-old saskatoons that are nearly in full production along with some 1 and 2 year-old plants. These are the oldest commercial plantings in Michigan

4:45 Return to Jacob's Farm To De-program and Pick Up Vehicles

IMPORTANT NOTE:
Reservations have been made at Boone's Long Lake Inn, 7208 Secor Rd, Traverse City for anyone who wants to continue discussion over dinner at 6:45 pm. This will offer an excellent opportunity for growers to discuss growing and marketing concerns.

In addition, Sarah Lutz, from the Saskatoon Project, will be on hand to discuss plans to ship in over 50,000 plants from Canada in late August for anyone interested in discounted volume orders. Sarah is working closely with Jarvis Blushke on this effort.

To **RSVP** for the Tour, Lunch, and Dinner, call MSU Extension-Benzie County, 231/882-0025 **by Friday, June 18th.**

We will be car pooling from Jacob's Farm to save fuel and have more opportunity to share.

Cost: Each person will be responsible to pay for lunch and dinner, if they participate. There is a nominal fee of $10 per person to cover the cost of coffee, water, and treats during the tour at various stops.

Please make checks payable to MSU Extension-Benzie County, and mail to:
MSU Extension-Benzie County
P.O. Box 349
Beulah, MI 49617-0349

SEE YOU ON THE 21ST OF JUNE!
Steve Fouch
County Extension Director

CIAB GROWER MEETINGS

Tuesday, June 22

9:00-11:00 a.m. Peninsula Fire Station #2
8150 Center Rd
Traverse City

1:00-3:00 p.m. Milton Township Hall
Kewadin

7:00-9:00 pm. NWMHRS
6686 S. Center Hwy
Traverse City

SUMMER FIELD DAY AT CHES

When: Tuesday, **July 20**, from 2 pm to 6 pm.
Where: Clarksville Horticultural Experiment Station

Program

2:00 pm	Cherry Breeding	Dr. Amy Iezzoni
2:30	Sweet Cherry Work	Dr. Greg Lang (Tiffany)
3:00	Herbicide Plots	Dr. Bernie Zandstra
3:30	Honeycrisp Work	Dr. Jim Flore
4:00	PGR Work	Dr. Flore and Phil Schwallier
4:30	Tall Spindle	Phil Schwallier
5:00	Dinner	
6:00	Adjourn	

For additional information or to make a reservation, call Donna DeYoung at 800-767-1345 or email: stewar28@msu.edu by **July 16th.** Dinner and refreshments will be furnished.

Oil and Gas Leasing Resources for Private Landowners
(compiled by Russell P. Kidd, Roscommon Co MSU Extension P.O. Box 507, Roscommon, MI 48653 and Curtis Talley Jr. MSU Extension 210 East Johnson Street, Hart, MI 49420)

This publication is intended to help private landowners who need assistance when negotiating a mineral lease (primarily oil and gas) on their property. Listed below is a brief listing of legal services that are available for hire as well as some informational type of resources that are available at little or no cost (i.e. through the Internet, etc.)

The **first part** of this document contains a listing of the names of attorneys and law firms that can provide legal services as it pertains to oil and gas laws. This is an update of a 2003 list, with some additions. The attorneys were contacted and asked if they were currently actively representing landowners in oil and gas matters.

This list is merely provided as a starting point for landowners searching for legal counsel relating to oil and gas leasing. Negotiating a mineral lease that truly protects the interests of a landowner involves both legal and technical knowledge of the crude oil and natural gas industry in Michigan. Therefore, in selecting legal counsel, landowners may wish to verify that the potential law firm has experience in working with landowners concerning oil and gas leasing (e.g. ask for references of previous landowner clients that they helped with negotiating an oil & gas lease). Landowners may also wish to ask whether said legal counsel is currently representing or on retainer to any of the oil and gas companies seeking to contract with the landowners in the area.

The **second part** of this document contains a listing of informational resources available at little or no charge (i.e. through the Internet, MSU Extension, etc.) that landowners may wish to consult to see if any of these sources can provide answers to their questions about oil and gas leasing.

It's All in the Lease Language …
MSU Extension advises landowners that a lease to extract minerals from underneath your land is a legally binding document. Be sure you know what the lease language really means! When negotiating a lease, a landowner should be sure to focus on more items (e.g. damage clauses, etc.) than just the monetary rewards (i.e. royalty and per acre lease payments) that they will receive. Therefore, be sure you completely understand everything contained in the lease (and its consequences) **before** signing it. If in doubt, a landowner may wish to seek legal counsel or do further research on their own. Hopefully, the information provided here can help landowners to "wade through" the often confusing and arduous process of leasing.

These names are being provided as a public service. MSU Extension makes no claims as to the completeness of this listing nor is MSU Extension endorsing any of the individuals or law firms listed below. Furthermore, any legal firm that can document that their organization provides such legal services to landowners can ask to be added to this list (see mailing address above).

Legal Services

Mr. Norman D.Beauchamp
Kelly, Whipple, Zick, Keyes, P.C.
627 Fort Street
Port Huron, MI 48060

231-873-4022

Doug Springstead
Springstead Law Offices, PC
214 Washington St.
Hart, MI 49420

Mr. David L. Leonardson
114 E. Main Street
Suite B, P.O. Box 1705
Gaylord, MI 49735
989-732-7724

Susan Hlywa Topp, P.L.C.
213 E. Main Street
Gaylord, MI 49735
989-731-4014

Jeffrey Jocks
Olson & Bzdok, P.C.
420 E. Front Street
Traverse City, MI 49686
231-946-0044

Mr. Peter J. Zirnhelt, P.C.
400 E. 8th Street
Traverse City, MI 49684
231-946-8630

Joe Quandt
Zimmerman, Kuhn, Darling, Boyd, Quandt & Phelps PLC
412 S. Union Street
P. O. Box 987
Traverse City, MI 49685
231-947-7900

Philip R. Rosi
Rosi & Gardner, P.C.
735 S. Garfield Avenue, Ste. 202
Traverse City, MI 49686
231-941-5878

Mark Pehrson PC
409 West Ludington Ave.
Ludington, MI
231-843-3709

Informational Resources

On the Internet...

Pennsylvania State Natural Gas (excellent) www.naturalgas.extension.psu.edu
Oil and Gas Leases www.oil-gas-leases.com
National Association of Royalty Owners http://www.naro-us.org/
Rocky Mountain Mineral Law Foundation (industry oriented) www.rmmlf.org
Michigan Department of Natural Resources and Environment
Gas, Oil and Minerals http://www.michigan.gov/deq/0,1607,7-135-3311_4111---,00.html
Michigan Oil and Gas Association (O&G industry news)
htttp://www.michiganoilandgasassociation.org/

MSU Extension

Your local Michigan State University Extension (MSUE) office also has access to several documents pertaining to oil and gas leasing *(ask for* "Grant of Right of Way Information for Pipelines, Power Lines, Etc.", "Landowner Information for Oil/Gas/Mineral Leases," Bulletin E2124, Seismic Testing on Your Property.

WEBSITES OF INTEREST

Insect and disease predictive information is available at:
http://www.enviroweather.msu.edu/home.asp

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
http://www.ipmnews.msu.edu/fruit/

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, 2010

Please send any comments or suggestions regarding this site to:
Bill Klein, kleinw@msu.edu

Last Revised: 6-8-10

2010 USDA TART CHERRY ESTIMATES

(Reported in Million #'s)

Michigan		
	72.5	NW
	53.0	WC
	14.5	SW
Total Michigan	**140**	
New York	**6.7**	
Oregon	**2.0**	
Pennsylvania	**2.3**	
Utah	**24.0**	
Washington	**16.0**	
Wisconsin	**4.3**	
Total U.S.	**195.3**	

2010 USDA SWEET CHERRY ESTIMATES

(Reported in Tons)

Michigan	**17,000**
New York	**1,100**
California	**90,000**
Idaho	**1,500**
Oregon	**45,000**
Utah	**800**
Washington	**160,000**
Total U.S.	**315,400**

USDA figures provided by Dr. Nikki Rothwell
NW Michigan Horticultural Research Station
6/17/10

NASS
FACT FINDERS FOR AGRICULTURE
UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D.C.

Cherry Production

Released June 17, 2010, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on *Cherry Production* call Fred Granja at (202) 720-4288, office hours 8:00 a.m. to 4:30 p.m. ET.

Special Note

NASS is in the process of modifying report layouts in order to improve readability. This report issue is published using both layouts but all future issues will only be produced with the new layout, which is available on the NASS website: http://www.nass.usda.gov. This is the last issue using this layout.

Tart Cherry Production Down 46 Percent

U.S. tart cherry production is forecast at 195 million pounds, 46 percent below the revised 2009 production.

Michigan, the largest producing State, expects a crop of 140 million pounds, down 47 percent from the revised 2009 crop. The crop potential was reduced markedly by frosts during bloom. Yields vary substantially among varieties. Bacterial canker was reported by growers as a problem in some orchards.

Washington expects to produce 16.0 million pounds of tart cherries in 2010, down 4 percent from 2009. Columbia Basin spring weather was predominately cool, wet, and windy this year. Frost was a problem during bloom and conditions were less than optimal for pollination.

Utah production is forecast at 24.0 million pounds, down 49 percent from 2009. A late frost, cold wet spring, and tree fatigue from last year's extra heavy crop resulted in production at about half of last year's record level.

New York is expected to produce 6.70 million pounds of tart cherries, 40 percent lower than the 2009 crop. Frost damage and poor weather after bloom was reported in the Lake Ontario fruit region. Producers in the Lake Erie area and Hudson Valley reported some frost and poor weather.

Pennsylvania expects to produce 2.30 million pounds of tart cherries, 41 percent below 2009. Tart cherry growers are anticipating a poor crop due to cold temperatures during bloom.

Oregon's production is forecast at 2.00 million pounds, down 38 percent from 2009. Production was affected by an extremely cold night in early April which led to a poor set for this year's crop.

Wisconsin production is forecast at 4.30 million pounds, down significantly from last year due to multiple frosts during blossoming and cold rainy weather during pollination.

Tart Cherries: Total Production by State and United States, 2008-2009 and Forecasted 2010

State	Total Production		
	2008	2009	2010
	Million Pounds	*Million Pounds*	*Million Pounds*
MI	165.0	266.0	140.0
NY	9.6	11.2	6.7
OR	2.8	3.2	2.0
PA	3.9	3.9	2.3
UT	20.0	47.0	24.0
WA	12.5	16.7	16.0
WI	0.6	10.9	4.3
US	214.4	358.9	195.3

Sweet Cherry Production Down 27 Percent

U.S. sweet cherry production is forecast at 315,400 tons, down 27 percent from 2009.

The Washington crop forecast of 160,000 tons is down 35 percent from 2009. The crop has fallen behind on maturity due to cool, wet weather this spring.

Production in California is forecast at 90,000 tons, 15 percent higher than the 2009 production. Spring weather generated occasional rain and cool temperatures during the critical development of the crop. A strong bloom occurred in March.

Oregon production is forecast at 45,000 tons, down 33 percent from 2009. Cold, wet weather conditions hindered bloom, pollination, and growth.

The Michigan crop is forecast at 17,000 tons, 41 percent below the 2009 production. A wind freeze in early April killed buds on trees on high sites that are generally less susceptible to frost damage.

Idaho is expecting a sweet cherry crop of 1,500 tons, down 75 percent from last year. Sweet cherries in Idaho experienced freezing weather during pre-bloom that damaged this year's crop. Producers are expecting a light crop.

New York production is forecast at 1,100 tons, 11 percent below the 2009 crop. The majority of sweet cherries had a big bloom and the crop looked good. Only a few growers reported frost damage this year.

Utah production is expected to total 800 tons, down significantly from 2009. A late frost, cold wet spring, and tree fatigue from last year's extra heavy crop negatively impacted production, which is about half of last year's level.

Sweet Cherries: Total Production by State and United States, 2008-2009 and Forecasted 2010

State	Total Production		
	2008	2009	2010
	Tons	*Tons*	*Tons*
CA [1]	86,000	78,000	90,000
ID	1,900	6,000	1,500
MI	26,500	28,700	17,000
MT [2]	1,560	2,390	
NY	1,050	1,240	1,100
OR [1]	31,000	67,000	45,000
UT	50	1,540	800
WA [1]	100,000	245,000	160,000
US	248,060	429,870	315,400

[1] Forecast carried forward from "Crop Production" released June 10, 2010.
[2] The first estimate for 2010 sweet cherries in MT will be published in the January 2011 "Noncitrus Fruits and Nuts 2010 Preliminary Summary".

Subscription Information

To subscribe to **NASS** reports or to order single copies, call toll free, **1-800-999-6779**. You may write: **ERS/NASS**, 5301 Shawnee Road, Alexandria VA 22312.

Northern Michigan FruitNet 2010
Weekly Update
NW Michigan Horticultural Research Station

Nikki Rothwell, District Horticulturist
Erin Lizotte, District Fruit IPM/IFP Agent
Bill Klein, Farm Mgr, NWMHRS
Duke Elsner, Agricultural & Regional Viticulture Agent

June 15, 2010

GROWING DEGREE DAY ACCUMULATIONS through June 15th at the NWMHRS

Year	2010	2009	2008	2007	2006	2005	20 yr. Avg.
GDD42	1193	765	866	1123	1065	1070	913.0
GDD50	667	358	466	581	622	439	496.4

Growth Stages at NWMHRS (6/14/10- 1:30 pm)
Apple: Red Delicious – 25 mm
Gala – 27 mm
Yellow Delicious – 26 mm
Pear: Bartlett: 23 mm
Sweet Cherry: Hedelfingen: 20 mm
Napoleon: 17 mm
Gold: 16 mm
Tart Cherry: 15 mm
Balaton: 14 mm
Apricot: 35 mm
Plum: 21 mm
Grapes: First bloom

Weather Report
Temperatures have been in the mid-60's up to the mid-70's over the past week. We have accumulated 1193 GDD Base 42 and 667 GDD Base 50. We are still ahead of our 20-year average by about 280 GDD Base 42 and 150 GDD Base 50. We did receive rainfall in the past week: 2.8" of rain were reported on 12 June here at the research station, and the overall June rainfall total is 3.87". Overall, conditions have been cloudy and humid. Growers were pleased with the needed rainfall but are concerned about disease control under these humid conditions.

Crop Report
Please see above for crop development. Cherries continue to ripen, and it seems the past few days, both sweets and tarts are starting to color. Dark sweet cherries are red on the tree, and with the past rain event, size of the fruit has noticeably increased. Frost scars are an issue in the sweet cherry crop. Growers that will harvest for the stem-on brine market anticipate getting started in the latter part of next week. Tart cherries are also coloring, and blocks with fruit seem to be moving along quickly. The USDA estimate will take place this Thursday. There is variability in the apple crop by variety—later bloom varies fared better than those varieties that bloom earlier in the spring. Raspberries are in bloom, and strawberry harvest is in full swing here in the north. Grapes are also growing quickly with the recent rainfall and are in bloom here at the station. Growers have been trying to cover between rain or wetting events.

Pest Report
Apples. Most of the weather stations in the region received .33-2.5" of rain on Friday and triggered apple scab infection period at all regional weather stations. Based on a biofix of 4/2 (Macintosh green tip), the model is predicting 100% maturity and 98% discharge of spores as of 14 June. Based on the lack of apple scab spore catch during monitoring in Leelanau and the significant amount of rainfall in the last weeks, it is likely that we are through primary scab season. As we will be starting the secondary phase of the scab infection cycles, there are a number of fungicides that are effective, including Indar, Rally, Inspire Super, Captan, Ziram and Rubigan. If you were utilizing SIs (Indar, Inspire super, Procure, Rally or Rubigan) in an extended application program for primary scab, the last transition spray moving from the use of SI fungicides to protectants for secondary scab and summer diseases should contain the full label rate of a protectant fungicide (such as Captan) in combination with the SI. Do not apply EBDC fungicides mancozeb or Polyram within 77 days of harvest. Refer to the "First Cover" section in the apple portion of the E-154 Fruit Management Guide for more information.
We caught 3 Oriental fruit moth per trap this week, and 0 last week. Obliquebanded leafroller moths were caught for the second week in a row with 5 per trap. This week we had an average of 2 codling moths per trap. Codling moth was

trapped for the first time on 20 May, and that date has been set for biofix for the NW MI Horticultural Research Station. According to the model, we have accumulated approximately 381DD since codling moth biofix, the window for larvacide application (250DD post biofix) is well behind us. Those utilizing the early ovicide application and delayed larvacide application should be targeting the quickly approaching 350-400DD window post-biofix. Still no sign of scab symptoms on the leaves. Refer to the E-154 Fruit Management Guide for more pesticide information, and always read and follow the pesticide label.

Cherry. We caught one lonely American plum borer this week; the traps were empty last week. Lesser peach tree borer emergence decreased again this week with an average of 3 per trap (13 per trap last week and 27 per trap two weeks ago). We still have not caught greater peach tree borer, but there are reports of GPTB catches around the region. We are seeing lilac borer in greater peach tree borer traps so be sure to positively identify the borer species you are trapping. Trunk applications of Lorsban are commonly utilized to manage for borer and should be applied in conjunction with adult emergence on farm. Mating disruption is also available for the peach tree borer species but should be deployed earlier in the year. Growers that have high borer pressure should consider disruption for 2011.

Plum curculio are still active around the region with everything from eggs through 4th instar larval exit wounds being observed in tarts collected in northwest Michigan. Proportionally, the number of eggs observed in fruit has dropped dramatically this week, which is an indicator that egg laying may be subsiding. Oblique-banded leafroller (OBLR) adults were trapped for the third week in a row with an average of 43 per trap. There are a number of effective leafroller materials. Guthion, Asana, SpinTor, Entrust, Warrior. Baythroid, Proaxis, Delegate, Mustang Max, Altacor, Belt and Leverage are all rated as excellent against leafroller in both sweet and tart cherry. Lorsban (50W or 75WG) and Imidan are also available for management of OBLR in tart cherry. Keep in mind that pyrethroid materials have the potential to flare mites, and leafrollers that are resistant to organophosphates may be cross-resistant to pyrethroids (including the premix Leverage). We have still **not** caught cherry fruit fly. Black cherry aphid and **rose chafer** are also appearing in high numbers in sweet cherry at the Research Station. There are a number of excellent materials against black cherry aphid registered on sweets, including Provado, Actara, Assail, Beleaf, Voliam flexi, Movento, and Leverage.

Growers with lecanium scale issues are approaching another treatment window and controls will target the crawler stage. During the crawler stage, the insects are once again susceptible to insecticides. Most insecticides that are active on scale are targeted at the crawler stage after the insect has emerged from the waxy covering. Growers can scout for crawlers by placing some double-sided sticky tape near to scales on infested shoots, and checking with a hand lens until you see tiny dots (the young crawlers) on it. Crawlers resemble tan colored footballs, and unless they are in high numbers, they are difficult to see without a hand lens. We have not yet observed lecanium scale crawlers in the region.

As leaf tissue emerges, growers should be aware of potential cherry leaf spot infections. The cherry leaf spot model predicted infection periods in conjunction with the rain over the weekend. Scouts from around the region have reported the first symptoms of cherry leaf spot but we have not observed any, even in untreated blocks at the Station. Refer to the E-154 Fruit Management Guide for more pesticide information and always read and follow the pesticide label.

Grape. The first grape berry moth was caught in Leelanau County on 19 May and reports of wild grape bloom have spanned from 26 May through 1 June around the region. The grape entomology team has been working to develop and perfect a model for this pest. The model tracks the predicted percent of egg laying and the start of second and third generation egg laying to help identify key treatment timings. According to the model, as of 14 June we have accumulated 294 DD47, if wild grape bloom (biofix) occurred on 26 May in your vineyard. The first treatment window for sites with significant pressure is at 810 DD47 after biofix.

A second wave of lecanium scale reports are flooding into the Research Station. As the scales have increased in size and become more obvious, the scope of the infestation on some sites is becoming more apparent. Growers with lecanium scale concerns are approaching a treatment window when controls will target the crawler stage. Potato leafhopper continued to be trapped this week at relatively low levels, so growers should remain vigilant for the tell-tale signs of leafhopper damage. Potato leafhoppers can be very destructive on hybrid or vinifera varieties that are sensitive to the saliva they inject while feeding. Feeding is concentrated on young tissues near the shoot tips. On sensitive varieties, only a few adults are needed to cause leaf yellowing and cupping or shortened shoot internodes. Grape plume moth larvae were also spotted causing some feeding damage on foliage. These moths typically do not reach a population density warranting management. The first rose chafers have also been reported by growers and the grasshopper population has been problematic in some sites.

This week, the spider population looked particularly healthy in area vineyards. Spiders can be valuable predators of small insects of all types. There are also larval casing of **bagworm** on everything, including grape leaves, but these insects as larvae or adults are not a pest of grape. Still no sign of **mildews** or **disease** symptoms, but growers should remember that we are entering the critical management period for powdery mildew from bloom through 3-4 weeks post bloom to ensure no powdery mildew will be present on fruit at harvest.

STEM-ON WORK FOR BRINE CHERRY MARKET

Dr. Nikki Rothwell, Station Coordinator
NW Michigan Horticultural Research Station

Here is a link to the **article in PDF format** to preserve the photos, graphs and tables.

2010 REDHAVEN HARVEST DATE PREDICTION

Dr. Bill Shane, District Horticulturalist
SW Michigan Research and Extension Center

Here is the 2010 prediction of Redhaven harvest onset for Michigan peach growing regions. The goal is to help growers, shippers, marketers, and buyers plan their season. For Michigan, the start of significant peach volume is with the Redhaven season. Although the acreage of this variety in Michigan has declined with the availability of new varieties, it still is the most widely grown peach variety in Michigan and a handy benchmark time point.

The estimate is based on records I have collected on commercial Redhaven harvests in Berrien County since 1995. The Redhaven harvest onset model is based on weather data at the SW Michigan Research and Extension Center (SWMREC) automatic weather station approximately 4 miles southwest of Benton Harbor, Michigan. Regression analysis was used to determine a relationship between degree days and onset of harvest. The resulting predictive equation is $D = -0.0386x + 234.9$, $r2 = 0.752$, where x is the cumulative degree days (DD) base 50 F from January 1 through June 3 and D = the estimated harvest day of year (e.g. January 1 = 1 and December 31 = 365 in a non leap year). The estimation is for the onset of the main season Redhaven harvest, not including fruit with split pits that ripen several days earlier than peaches

without split pits.
For 2010, the estimated onset of Redhaven for Berrien County is predicted to be July 28th, 2010, which is about 5 days ahead of the long-term average of August 3rd and 5 days ahead of last year. Over the years, the estimated harvest date are generally within a few days of the actual observed harvest.
The model was used to estimate Redhaven harvest (non-split pit fruit) for 4 locations in addition to SWMREC. The spread of harvest dates were from July 28 in the southwest corner of Michigan to Aug 1 at the NW Michigan Horticultural Research Station, northwest of Traverse City. The effect of the relatively warm season from south to north in Michigan in 2010 can be seen in the prediction of early Redhaven harvest, for example, the Hart area is predicted to harvest Redhaven 9 days earlier than 2009.
Table 1. Estimated Redhaven harvest onset in 2010 and 2009 for 5 locations based on Berrien County prediction model.

Weather station location	Estimated harvest date for 2010	Estimated harvest date for 2009
SW Mich Res & Ext Ctr (Berrien County)	July 28	Aug 3
Sparta	July 30	Aug 8
Romeo	July 29	Aug 7
Hart	Aug 1	Aug 10
NW Michigan Horticulture Res. Station	Aug 1	Aug 12

The application of the model to other locations is only preliminary. In applying this model, it is important to bear in mind that heavy crop loads and cool weather shortly before harvest can slow down peach harvesting.

Gas (Mineral) Leasing Educational Program for Landowners

Are you being contacted by oil exploration companies to lease your land for natural gas drilling? If so, you need to learn about the practices and pitfalls to avoid so that you not only get appropriately compensated, but perhaps more importantly so you ensure your land and other rights are protected. To help landowners better understand gas (mineral) leasing, contracts, and environmental concerns, MSU Extension is sponsoring a FREE educational program. The event will feature oil and gas experts, lawyers, MSU Extension personnel, and a panel discussion to answer pertinent questions.

Oil, Gas and Mineral Leasing Program
Thursday, June 24th, 2010
Time: 6:00 – 9:00 PM
NMC Maritime Academy Hagerty Center (Just east of the Holiday Inn)
715 E. Front Street
Traverse City, MI 49686
For more information, please contact Leelanau County MSU Extension at 231- 256-9888.

OIL AND GAS LEASING RESOURCES FOR PRIVATE LANDOWNERS
(compiled May/2010 by Russell P. Kidd, Roscommon Co MSU Extension P.O. Box 507, Roscommon, MI 48653 and Curtis Talley Jr. MSU Extension 210 East Johnson Street, Hart, MI 49420)

This publication is intended to help private landowners who need assistance when negotiating a mineral lease (primarily oil and gas) on their property. Listed below is a brief listing of legal services that are available for hire as well as some informational type of resources that are available at little or no cost (i.e. through the Internet, etc.)

The **first part** of this document contains a listing of the names of attorneys and law firms that can provide legal services as it pertains to oil and gas laws. This is an update of a 2003 list, with some additions. The attorneys were contacted and asked if they were currently actively representing landowners in oil and gas matters. This list is merely provided as a starting point for landowners searching for legal counsel relating to oil and gas leasing. Negotiating a mineral lease that truly protects the interests of a landowner involves both legal and technical knowledge of the crude oil and natural gas industry in Michigan. Therefore, in selecting legal counsel, landowners may wish to verify that the potential law firm has experience in working with landowners concerning oil and gas leasing (e.g. ask for references of previous landowner clients that they helped with negotiating an oil & gas lease). Landowners may also wish to ask whether said legal counsel is currently representing or on retainer to any of the oil and gas companies seeking to contract with the landowners in the area.

The **second part** of this document contains a listing of informational resources available at little or no charge (i.e. through the Internet, MSU Extension, etc.) that landowners may wish to consult to see if any of these sources can provide answers to their questions about oil and gas leasing.

It's All in the Lease Language …
MSU Extension advises landowners that a lease to extract minerals from underneath your land is a legally binding document. Be sure you know what the lease language really means! When negotiating a lease, a landowner should be sure to focus on more items (e.g. damage clauses, etc.) than just the monetary rewards (i.e. royalty and per acre lease payments) that they will receive. Therefore, be sure you completely understand everything contained in the lease (and its consequences) **before** signing it. If in doubt, a landowner may wish to seek legal counsel or do further research on their own. Hopefully, the information provided here can help landowners to "wade through" the often confusing and arduous process of leasing.

These names are being provided as a public service. MSU Extension makes no claims as to the completeness of this listing nor is MSU Extension endorsing any of the individuals or law firms listed below. Furthermore, any legal firm that can document that their organization provides such legal services to landowners can ask to be added to this list (see mailing address above).

Legal Services

Mr. Norman D.Beauchamp
Kelly, Whipple, Zick, Keyes, P.C.
627 Fort Street
Port Huron, MI 48060

Doug Springstead
Springstead Law Offices, PC
214 Washington St.
Hart, MI 49420 231-873-4022

Mr. David L. Leonardson
114 E. Main Street
Suite B, P.O. Box 1705
Gaylord, MI 49735
989-732-7724

Susan Hlywa Topp, P.L.C.
213 E. Main Street
Gaylord, MI 49735
989-731-4014

Jeffrey Jocks
Olson & Bzdok, P.C.
420 E. Front Street
Traverse City, MI 49686
231-946-0044

Mr. Peter J. Zirnhelt, P.C.
400 E. 8th Street
Traverse City, MI 49684
231-946-8630

Joe Quandt
Zimmerman, Kuhn, Darling, Boyd, Quandt & Phelps PLC
412 S. Union Street
P. O. Box 987
Traverse City, MI 49685
231-947-7900

Mark Pehrson PC
409 West Ludington Ave.
Ludington, MI
231-843-3709

Law Offices of Lawrence M. Elkus, Professional Corporation
30833 Northwestern Highway, Ste 204
Farmington Hills, MI 48334
248-539-3232
Fax: 248-53-9191

Informational Resources

On the Internet...

Pennsylvania State Natural Gas	www.naturalgas.extension.psu.edu
Oil and Gas Leases	www.oil-gas-leases.com
National Association of Royalty Owners	http://www.naro-us.org/
Rocky Mountain Mineral Law Foundation (industry oriented)	www.rmmlf.org
Michigan Department of Natural Resources and Environment	
Gas, Oil and Minerals	http://www.michigan.gov/deq/0,1607,7-135-3311_4111---,00.html
Michigan Oil and Gas Association (O&G industry news)	http://www.michiganoilandgasassociation.org/

MSU Extension

Your local Michigan State University Extension (MSUE) office also has access to several documents pertaining to oil and gas leasing *(ask for* "Grant of Right of Way Information for Pipelines, Power Lines, Etc.", "Landowner Information for Oil/Gas/Mineral Leases," Bulletin E2124, Seismic Testing on Your Property.

WEBSITES OF INTEREST

Insect and disease predictive information is available at:
http://www.enviroweather.msu.edu/home.asp

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
http://www.ipmnews.msu.edu/fruit/

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, 2010

Please send any comments or suggestions regarding this site to:
Bill Klein, kleinw@msu.edu

Last Revised: 6-15-10

Northern Michigan FruitNet 2010
Weekly Update
NW Michigan Horticultural Research Station

Nikki Rothwell, District Horticulturist
Erin Lizotte, District Fruit IPM/IFP Agent
Bill Klein, Farm Mgr, NWMHRS
Duke Elsner, Agricultural & Regional Viticulture Agent

June 29, 2010

GROWING DEGREE DAY ACCUMULATIONS through June 28th at the NWMHRS

Year	2010	2009	2008	2007	2006	2005	20 yr. Avg.
GDD42	1558	1182	1180	1522	1428	1454	1271.2
GDD50	920	663	668	942	832	894	743.8

Growth Stages at NWMHRS (6/28/10- 4:00 pm)
Apple: Red Delicious – 40mm
Gala – 35 mm
Yellow Delicious – 39 mm
Pear: Bartlett: 29 mm
Sweet Cherry: Hedelfingen: 24mm
Napoleon: 23 mm
Gold: 21 mm
Tart Cherry: 21 mm
Balaton: 20 mm
Apricot: 40 mm
Plum: 25 mm
Grapes: Late bloom

Weather
Conditions have been summer-like with some heat, rain, and humidity. Daytime temperatures have been in the mid 70's to low 80's. We are still considerably ahead of last year and our 20-year average. We have accumulated 1558 GDD base 42 and 920 GDD base 50. Our average is 1271 GDD base 42 and 744 GDD base 50. We are two to three weeks ahead of last season. We had some rainfall throughout the region over the past week, and amounts varied between sites. At the NWMHRS, we received 0.81" on 26 June, 0.19" on 27 June. The rainfall for June is 6.14". Humidity levels have been particularly high in this past week.

Crop Report
Please see the above table for crop growth stages. Sweet cherry harvest for the stem-on market has been underway for over a week. Growers in more southerly areas are shaking sweet cherries for the traditional stem-off markets. There have been challenges in sweet cherries with the frost scars, cracking from the many rain events, and American brown rot is moving in with the high humidity and injured fruits. Brown rot is going to be a challenge for growers this season. Tart cherries continue to ripen, and their harvest will likely bump up to sweet cherry harvest. Tarts seem to be ripening very quickly this season. Grapes are in late bloom and growing well with the heat and ample rainfall. Strawberry harvest continues and will likely wrap up in the coming week.

Pest Report
Apples
Apple scab lesions are visible on leaves in abandoned orchards, but growers using conventional management programs are still reporting no signs of disease. As we are now in the secondary phase of the scab infection cycles, there are a number of fungicides that are effective, including Indar (14 day PHI), Inspire Super (72 day PHI), Captan (0 day PHI), and Ziram (14 day PHI). Captan has the additional benefit of having efficacy against sooty blotch/flyspeck material, which may be an issue this season with the ample rainfall and excess humidity.

We caught 1 oriental fruit moth per trap this week, continuing the trend of little to no emergence since 1 June. Obliquebanded leafroller (OBLR) emergence continued for the fourth week in a row since emergence began on 7 June (average of 10 per trap). Based on the OBLR model, the optimal timing for control (egg hatch of the summer generation) occurred over the weekend and into early this week depending on the biofix date (sustained catch) at your site. An average of 225 spotted tentiform leafminer (STLM) were trapped this week after 4-weeks of low trap catches, indicating the start of second generation emergence. A substantial amount of leafminer damage is present and pupae can still be found rolled in leaves and surrounded by a white, loose cocoon. We will likely see three generations of STLM this year, typical of this pest in Michigan. We continue to see plum curculio activity in apples.

This week we caught an average of 3 codling moths per trap. Codling moth was trapped for the first time on 20 May at the NWMHRS, and that date was set as the 1st generation biofix for the NW MI Horticultural Research Station. According to the model, we have accumulated approximately 621DD since codling moth biofix, the most effective window for ovicide and larvacide applications for 1st generation is well behind us. The vast majority of insecticides used for 2nd generation CM control is aimed at killing larvae and are typically applied based on the start of 2nd generation egg hatch. However, the actual onset of 2nd generation egg hatch is highly dependent on when (and if) the fruit were infested by 1st generation larvae. Thus, the best way to predict egg hatch is to calculate the GDD's after the first consistent catch of 2nd generation moths in pheromone traps. In most years (and this one is no exception), it is difficult to determine when 1st generation ends and 2nd begins, thus it may be helpful to examine your trap catches around the time that you accumulate 1,250 GDD post 1st generation biofix, which should be at the time 2nd generation egg hatch should occur. For more information refer to the CAT Alert Article "Codling Moth Management Decision Making, Part III, Second Generation." Refer to the E154 Fruit Management Guide for more pesticide information, and always read and follow the pesticide label.

Cherry
We continued to catch cherry fruit fly this week at NWMHRS with an average of 21 per trap. We also caught **black cherry fruit fly** with an average of 8 per trap. If flies are trapped on-farm, but a regional trap catch was recorded earlier, the treatment should be timed based on the earlier regional capture as this is the most conservative approach to preventing egg-laying. We have also had consistent reports of fruit fly trapping around the region. Monitoring adult flight is the key to management with yellow sticky boards baited with ammonium providing good detection. Traps should be placed on the south-facing side of the *top of the canopy* of trees in perimeter rows and checked twice a week until first catch, then once a week to indicate end of the flight. Refer to the CAT Alert article, "Monitoring and Management Strategies for Cherry Fruit Fly" for more information.

We caught an average of 6 American plum borer this week after little to no activity since the end of May. Lesser peach tree borer emergence continued this week with an average of 11 per trap. We also caught greater peach tree borer for the second week in a row with an average of 8 per trap. We continue to see lilac borer in greater peach tree borer traps so be sure to positively identify the borer species you are trapping.

Oblique-banded leafroller (OBLR) adults were trapped again this week with an average of 48 per trap. There are a number of effective leafroller materials but special attention should be paid to the pre-harvest interval (PHI's) as we approach harvest at many sites. Keep in mind that organophosphate resistance in OBLR is confirmed in northwest Michigan and that leafrollers that are resistant to organophosphates will be cross-resistant to pyrethroids, including those in premixes. **Plum curculio** remains active.

Growers with **lecanium scale** issues are approaching another treatment window and controls will target the crawler stage. We have begun to see crawler activity, but most crawlers are still under the female scale shell and are not walking about on the trees/vines. In order to target a large portion of the population, treatments should be delayed until significant emergence has occurred (50-80% or more).

The cherry leaf spot model has predicted infection periods in conjunction with the rain 26-28 June. Symptoms of **cherry leaf spot** and **powdery mildew** are visible in area orchards. For more information on cherry leaf spot refer to the CAT Alert article, "Fungicide Resistance Management Considerations for Cherry Leaf Spot Control." Refer to the E-154 Fruit Management Guide for more pesticide information and always read and follow the pesticide label.

Winegrape
We continue to monitor for **grape berry moth** activity, with no adult moths detected again this week. According to the model, as of 29 June we have accumulated 594 DD47, *if* wild grape bloom (biofix) occurred on 26 May in your vineyard. The first treatment window for sites with significant pressure should be targeted at 810 DD47 after biofix. Potato leafhopper continues to be trapped at moderate levels, with nymphs being spotted on the underside of leaves. Refer to the previous 11 June report for more information on potato leafhopper management.
Growers with **lecanium scale** issues are approaching another treatment window and controls will target the crawler stage. We have begun to see crawler activity, but most crawlers are still under the female scale shell and are not walking about on the trees/vines. In order to target a large portion of the population treatments should be delayed until significant emergence has occurred (50-80% or more).

Rose chafer populations are declining. Most growers did not report population levels warranting management in vineyards this year. Growers should remember that we are in the midst of a critical management period for powdery mildew from bloom through 3-4 weeks post bloom.

SAP BEETLES FOUND IN SWEET CHERRIES
N.L. Rothwell, District Horticulturist, MSU-E

Sap beetles have been found in ripening sweet cherries. These insects overwinter as adults in protected places such as decaying vegetation, debris or fruit buried in the ground. In the spring, adults come out of hibernation and mate. Egg-laying begins in May and June, and females lay 5 to 15 eggs per day, scattered at random near decomposing plant material. Larvae develop in food material in contact with the soil, and full-grown larvae leave their food when mature, wander through the soil and molt into the pupal stage. Adults emerge in June and July, and there is usually only one generation per year.

Sap beetle can be a problem in cherry if branches are low hanging and the fruit comes in contact with the ground or tall grass in the row middles. However, this year, these insects have been particularly problematic, even on trees with branches pruned up high. We hypothesize that the large populations of these occasional pests are a result of the fruit left in the orchard/shaken on the ground last season. Growers should be on the lookout for sap beetles in fruit that is ripening as they are attracted to ripe or overly ripe fruit. Control of these insects will likely be difficult as the adult beetles burrow into fruit to feed. Additionally, we are at or approaching harvest, so growers will need to pay special attention to the PHI's of the materials. At this time, spraying in the evening will result in optimal control. Pyrethroids have good knockdown and short PHI's, Sevin and malathion also have 3-day PHI's.

MONITORING AND MANAGEMENT STRATEGIES FOR CHERRY FRUIT FLY **(click on title for article)**

Luís Teixeira, Entomology;
John Wise, MSU Trevor Nichols Research Complex;
Nikki Rothwell, MSU Northwest Horticulture Research Station;

David Epstein, MSU IPM Program;
Larry Gut, Entomology;
and Erin Lizotte, IFP/IPM District Educator

PREDICTED 2010 APPLE HARVEST DATES **(click on title for article)**
Phillip Schwallier, District Horticulture Educator
Amy Irish-Brown, District ICM Educator
Clarksville Horticultural Experimentation Station

SPRING CANOLA RESEARCH 2010 PLOT DAYS

See over 20 varieties of Spring Canola in two different research plots in northern Michigan. The first plot day will be held on **July 6th** from 1:30 – 3:30 p.m. at the Shooks Farms, 10799 Klooster Road, northwest of Central Lake. The second plot day will be held on **July 7th** from 1:30 – 3:30 p.m. at the Dan Blackledge Farm, 9776 Haskell Lake Road, east of Marion. Dr. Russ Freed will be discussing the plot varieties and research efforts underway by Michigan State University. For more information, contact Antrim County MSUE at 231-533-8818.

WEBSITES OF INTEREST

Insect and disease predictive information is available at:
http://www.enviroweather.msu.edu/home.asp

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
http://www.ipmnews.msu.edu/fruit/

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, 2010

Please send any comments or suggestions regarding this site to:
Bill Klein, kleinw@msu.edu

Last Revised: 6-29-10

Northern Michigan FruitNet 2010
Weekly Update
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Duke Elsner, Agricultural & Regional Viticulture Agent

June 22, 2010

GROWING DEGREE DAY ACCUMULATIONS through June 21st at the NWMHRS

Year	2010	2009	2008	2007	2006	2005	20 yr. Avg.
GDD42	1375	952	996	1330	1270	1223	1083.2
GDD50	793	489	540	806	730	718	611.4

Growth Stages at NWMHRS (6/21/10- 4:00 pm)
Apple: Red Delicious – 30 mm
Gala – 31 mm
Yellow Delicious – 30 mm
Pear: Bartlett: 25 mm
Sweet Cherry: Hedelfingen: 22mm
Napoleon: 20 mm
Gold: 19 mm
Tart Cherry: 18 mm
Balaton: 17 mm
Apricot: 37 mm
Plum: 23 mm
Grapes: 50% bloom

Weather
Pleasant summer-like temperatures have been the norm for the northwest region in the past week. Night temperatures have been in the high 50's and low 60's. We have accumulated 1375 GDD base 42 and 793 GDD base 50. Conditions have been particularly humid. The big rain fell on 12 June, but we also received almost ¾" of rain on 16 June. Rain fell again last evening, and we are still undergoing an ongoing wetting period.

Crop
Please see crop development above. All types of fruit are sizing, and both sweet and tart cherries are coloring. Growers have begun harvest for stem-on sweet cherries, and there have been variable results depending on the orchard. Some growers have been successful at harvesting cherries with stems, albeit those fruit are on the small size. We started our stem-on harvest last year on 7 July, so we are considerably ahead of last season. Many sweet cherry varieties are already cracked, and brown rot is an issue with the cracks and bird pecks. Ethephon is going on in sweet cherries, and some growers with southerly tarts are considering ethephon sprays when the rain moves out. Strawberry harvest is underway, and raspberries are forming.

Pest Report
Apples
Most of the weather stations in the region received 0.01-0.78" of rain last Tuesday (15 June) which triggered the apple scab model to report an infection period at all the regional weather stations. However, based on the lack of apple scab spore catch in our monitoring site in Leelanau and the significant amount of rainfall in the last weeks, primary scab season is considered over. As we will be starting the secondary phase of the scab infection cycles, there are a number of fungicides that are effective, including Indar, Rally, Inspire Super, Captan, Ziram and Rubigan. Refer to the "First Cover" section in the apple portion of the E-154 Fruit Management Guide for more information. We still have observed no sign of scab symptoms on leaves.

We caught 0 Oriental fruit moth per trap this week, continuing the trend of little to no emergence since 1 June. Obliquebanded leafroller moth emergence increased for the third week in a row with 14 per trap. An average of 14 spotted tentiform leafminer were trapped this week after a 3-week hiatus. We continue to see fresh **plum curculio** egg-laying and the majority of larvae are 1st instar (immature).

This week we caught an average of 6 codling moth per trap. Codling moth was trapped for the first time on 20 May at the NWMHRS, and that date was set as the 1st generation biofix for the NW MI Horticultural Research Station. According to the model, we have accumulated approximately 527DD since codling moth biofix, the most effective window for ovicide and larvacide applications for 1st generation is well behind us. The vast majority of insecticides used for 2nd generation CM control are aimed at killing larvae and are typically applied based on the start of 2nd generation egg hatch. However, the actual onset of 2nd generation egg hatch is highly dependent on when (and if) the fruit were infested in a particular

orchard by 1st generation larvae. Thus, the best way to predict egg hatch is to calculate the GDD's after the first consistent catch of 2nd generation moths in pheromone traps. During some years it is difficult to determine when 1st generation ends and 2nd begins, thus it may be helpful to examine your trap catches around the time that you accumulate 1,250 GDD post 1st generation biofix (20 May at the NWMHRS), as this should be around the time 2nd generation egg hatch should occur. For more information refer to the CAT Alert Article "Codling Moth Management Decision Making, Part III, Second Generation." Refer to the E-154 Fruit Management Guide for more pesticide information, and always read and follow the pesticide label.

Cherry

We caught one cherry fruit fly at the NWMHRS on Friday, and 6 more in the trap line over the weekend. We commonly trap fruit fly very early at the NWMHRS due to high pest pressure. If flies are trapped on-farm, but a regional trap catch was recorded earlier, the treatment should be timed based on the earlier regional capture as this is the most conservative approach to preventing egg-laying. We have also had reports of area scouts trapping fruit fly over the weekend. Monitoring adult flight is the key to management with yellow sticky boards baited with ammonium provide good detections. Traps should be placed on the south-facing side of the *top of the canopy* of trees in perimeter rows and checked twice a week until first catch, then once a week to indicate end of the flight. Refer to the CAT Alert article, "Monitoring and Management Strategies for Cherry Fruit Fly" for more information.

We caught no American plum borer this week after little to no activity since the end of May. Lesser peach tree borer emergence increased this week after a two week decline with an average of 15 per trap. We also caught greater peach tree borer for the first time this week with an average of 2 per trap. We continue to see lilac borer in greater peach tree borer traps so be sure to positively identify the borer species you are trapping. Trunk applications of Lorsban are commonly utilized to manage for borer and should be applied in conjunction with adult emergence on farm. Growers that have high borer pressure should consider disruption for 2011.

Oblique-banded leafroller (OBLR) adults were trapped again this week with an average of 14 per trap, compared to 43 last week. There are a number of effective leafroller materials. Guthion, Asana, SpinTor, Entrust, Warrior. Baythroid, Proaxis, Delegate, Mustang Max, Altacor, Belt and Leverage are all rated as excellent against leafroller in both sweet and tart cherry. Lorsban (50W or 75WG) and Imidan are also available for management of OBLR in tart cherry. Keep in mind that pyrethroids materials have the potential to flare mites, and leafrollers that are resistant to organophosphates will be cross-resistant to pyrethroids, including those in premixes. Black cherry aphid are also appearing in high numbers in sweet cherry at the Research Station, but reports from area growers have been minimal. There are a number of excellent materials against black cherry aphid registered on sweets, includingProvado, Acatara, Assail, Beleaf, Voliam flexi, Movento, and Leverage. **Plum curculio** remains active but egg-laying has decreased to very low levels and most larvae are at 2nd-4th instar developmentally (4th instar larvae are mature and ready to drop from fruit).

We have also observed **rose chafer** in blocks at the Research Station. However, the good news is that mating and egg-laying last only about two weeks, and the average life span of the adult is three weeks. Rose chafers management can be questionable in orchard or vineyard systems both because the insects are only present for a short time and because they can re-infest an area quickly after an insecticide application. The feeding damage and/or population size of this pest may not warrant an insecticide, particularly on older trees or vines with ample leaves present at this time of the year. Many insecticides will knock down the beetle population effectively, but most are only rated as fair or good because of the beetles' mobility and potential to re-infest an orchard or vineyard. There are many options for control, and growers should consult the E-154 Michigan Fruit Management Guide for specific insecticides.

Growers with **lecanium scale** issues are approaching another treatment window and controls will target the crawler stage. We have begun to see crawler activity, but most crawlers are still under the female scale shell and are not walking about on the trees/vines. In order to target a large portion of the population treatments should be delayed until significant emergence has occurred (50-80% or more).

The **cherry leaf spot** model predicted infection periods in conjunction with the rain last Tuesday at some regional weather stations-not all. Scouts from around the region have reported the first symptoms of cherry leaf spot, and we observed early symptoms late last week. Those symptoms seem to have intensified significantly over the warm weekend. For more information on cherry leaf spot refer to the CAT Alert article, "Fungicide Resistance Management Considerations for Cherry Leaf Spot Control." Refer to the E154 Fruit Management Guide for more pesticide information and always read and follow the pesticide label.

Winegrape

We continue to monitor for **grape berry moth** activity, with no adult moths detected this week. According to the model, as of 17 June we have accumulated 428 DD47 if wild grape bloom (biofix) occurred on 26 May in your vineyard. The first treatment window for sites with significant pressure should be targeted at 810 DD47 after biofix. **Potato leafhopper** continued to be trapped this week at relatively low levels, with the first nymphs being spotted this week on the underside of leaves. Growers should remain vigilant for the tell-tale signs of leafhopper damage. Potato leafhoppers can be very destructive on hybrid or vinifera varieties that are sensitive to the saliva they inject while feeding. Be on the lookout for leafhoppers with the coming thunderstorms.

Rose chafer populations have increased this week with significant damage to young trees and vines being observed on some sites. Rose chafers are in the family *Scarabaeidae*, and their larvae resemble the characteristic C-shaped white grub. These larvae overwinter deep in the soil, and in spring, they move up to feed on grass roots just below the soil surface. Adults emerge from the soil in late May and into June, and male beetles are attracted to females and congregate on plants to mate and feed. Rose chafers are often more problematic in vineyards and orchards that are adjacent to grassy areas, particularly those with sandy soils. Adults are tan, long-legged beetles, and this life stage is the most damaging because they feed on tree fruit and grape vine foliage. This feeding can be particularly damaging in young trees and vines. The good news is that mating and egg-laying last only about two weeks, and the average life span of the adult is three weeks. Rose chafers management can be questionable in orchard or vineyard systems both because the insects are only present for a short time and because they can re-infest an area quickly after an insecticide application. The feeding damage and/or population size of this pest may not warrant an insecticide, particularly on older trees or vines with ample leaves present at this time of the year. Many insecticides will knock down the beetle population effectively, but most are only rated as fair or good because of the beetles' mobility and potential to re-infest a site. There are many options for control, and growers should consult the E-154 Michigan Fruit Management Guide for specific insecticides.

Still no sign of mildews or disease symptoms as of yet, but growers should remember that we have entered the critical

management period for powdery mildew from bloom through 3-4 weeks post bloom.

ETHEPHON ON CHERRIES

N.L. Rothwell, District Horticulturist
J. Nugent, Retired District Horticulturist

Ethephon is a plant growth regulator, and its uses vary with plant species, chemical concentration, and time of application. Ethephon regulates phases of plant growth and development by application to various growth sites. This plant growth regulator has systemic properties where it penetrates the plant tissues and is decomposed to ethylene. This decomposition impacts the plants' growth processes. In cherry systems, ethephon promotes fruit loosening to facilitate mechanical harvesting. Ethephon, sold under the trade name Ethrel, has been used as a common management practice in both tart and sweet cherry harvest.

Ethephon releases ethylene, which penetrates plant cells and binds to receptors that affect expression of various genes. In the case of cherries, ethephon affects the gene that controls the synthesis/activation of cell wall loosening enzymes such as polygalacturonase and pectin methylesterase, thus dissolving the pectins between cells in the abscission layer. This chain-like reaction leads to cell separation in the developmentally-programmed abscission zone between pedicel and fruit or pedicel and spur. In short, ethephon loosens the cherries from the stem, which results in a gentle 'shaking' of the tree to remove the fruit.

One main concern in recent years (2005-2007) has been the amount of ethephon-induced damage with the hot, dry weather conditions. Ethephon can have excessive activity under a certain set of conditions, which can result in tree injury. As mentioned last season, we remind growers that we have observed quite a bit of ethephon damage in the past few years, especially in sweet cherries and of those varieties, Golds seem the most sensitive. This damage occurred when ethephon was applied during hot and dry weather conditions during 2007, 2006 and even 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. We have also noticed areas within a block may show considerably more ethephon damage than other areas. Most likely the trees that show the most damage were more stressed in some way at the time of application, and soils in a particular area can help showcase this ethephon damage.
Timing the ethephon application is an important factor. A lower rate of ethephon provides adequate loosening if given adequate time for action (10 to 14 days), while higher rates will loosen fruit to the same degree more quickly. Therefore, it is possible to substitute time for rate and obtain the same effect. Secondly, it is important that the chemical not be applied too early in the season. The fruit should be in Stage III of growth, where the fruit is growing rapidly and the grass-green color begins to yellow or take on a tinge of red. If ethephon is applied earlier than Stage III, the fruit may fail to grow further and has the potential to drop off the tree with the stems attached.
As mentioned above, both temperature and tree vigor are associated with the degree of response achieved. At higher temperatures during the 72 hours following application, the magnitude of response is increased and at lower temperatures it is decreased. Trees low in vigor or under stress respond to a greater extent, and gumming and leaf abscission may result. Do not treat such trees! Repeat, do not treat such trees!
The following recommendations should be used when applying ethephon to cherries:

Rate: Vary the rate depending on anticipated temperatures for 72 hours after application, days before harvest, tree stress and past experience. *Lower rates decrease the likelihood of tree injury.*
Light sweets -- When applied concentrate (80 gals. water/acre or less), 1 to 2 pts/acre applied 10-14 days before anticipated harvest should provide adequate loosening. Rates up to 2.5 pts/acre may be necessary for harvesting in less than 10 days. When applied dilute, use no more than ¾ pt/100 gals or 3 pts/acre.
Dark sweets -- When applied concentrate, use 1.5 to 2.5 pts/acre applied 10-14 days prior to anticipated harvest. Rates up to 3 pts/acre may be necessary for harvesting in less than10 days. When applied dilute, use no more than 1 pt/100 gals. or 4 pts/acre.
Tart cherries -- When applied concentrate, use 0.5 to 1 pt/acre applied 7 to 14 days prior to anticipated harvest. When applied dilute, apply no more than 1/3 pt/100 gals or 1 pt/acre.
Time of Application: Apply approximately 7 to 14 days before anticipated harvest. Do not harvest within 7 days of application (7-day PHI).
Temperature: Avoid application when high temperatures are expected to exceed 85° F or remain below 60° F for the 72 hour period after application. Use relatively high rates when high temperatures are expected to be in the 60's ° F and lower than normal rates when highs are expected in the lower 80's.
Tree stress: Do not spray trees that are low in vigor or under stress conditions.
Do not spray trees that had serious gumming the previous year.
Crop load: Heavy crop load, ie, low leaf to fruit ratio, is more difficult to loosen so use relatively higher rates or expect a longer time to achieve desired loosening.
Concentrate spraying: Applying ethephon with concentrate sprayers (i.e., 80 gallons of water/acre or less) achieves the same level of loosening at lower rates per acre than does dilute applications. Uniform coverage is important.
Tree size: Suggested rates/acre are based on full-sized trees. Adjust rates downward when treating blocks with smaller trees.
Growers should pay particular attention to the temperatures. As evident from the last three seasons, hot temperatures can really do damage to cherry trees. Growers that have had problems in the past years should avoid ethephon, especially if the trees showed serious gumming and leaf loss.

MICHIGAN'S ENVIRO-WEATHER STATIONS LOOKING FOR SUPPORT TO KEEP USERS UP TO DATE

Managing crops while dealing with the elements keeps growers on their toes all growing season. Whether it's raining, snowing, hot or cold, Michigan State University's (MSU's) Enviro-weather stations keep on working to provide Michigan's growers with up-to-date information they can use in their crop management plans 24 hours a day.
There are many sources of weather information, but Enviro-weather takes weather many steps beyond precipitation and storm forecasts -- it is specifically geared to assist growers in making timely crop management decisions that can affect crop production throughout the season. Enviro-weather provides growers with pest and crop management models and irrigation schedules, alerts them to specific pest and disease problems, explains how to deal with untimely frost and provides links to articles from MSU Extension specialists on timely crop information, pest identification and more.
Since its inception in 2005, the Enviro-weather station network has grown to 64 weather stations around the state. Now the Enviro-weather project is facing funding cuts and is looking for financial support to continue providing its services.
"Enviro-weather information is useful for most every crop grown in the state," Beth Bishop, MSU Enviro-weather

coordinator, says. "We've been adding features and updated the website, and continue to look for ways to improve our services for growers.
"Unfortunately, because of state funding cuts that have affected the university as well, we are also facing cuts in funding," she notes. "We are looking to our many users for support to keep generating the data that fuels growers' decisions."
There are numerous, tax-deductible options for anyone wanting to contribute, according to Bishop. Maintenance of a weather station is about $1,200 per year," she says. "Station sponsors are acknowledged for their support on a plaque at the station and on the Enviro-weather website." Individual donations are always helpful in keeping the program going, she says. Businesses or organizations may want to consider sponsoring a page on the Enviro-weather website as an option. Each sponsored page will feature the business or organization's logo and link to its website.
MSU's safe and secure online system makes it easy to contribute. Go to www.givingto.msu.edu, and select "Enviro-weather fund," or go to http://www.enviroweather.msu.edu/support.php. Checks payable to Michigan State University and designated for the Enviro-weather fund can be sent to: University Development – MSU, 300 Spartan Way, E. Lansing, MI 48824-1005.

Curious about what Enviro-weather has to offer and how you can help? Go to www.enviroweather.msu.edu, or contact Beth Bishop at 517-432-6520, or bishop@msu.edu for more information.

WEBSITES OF INTEREST

Insect and disease predictive information is available at:
http://www.enviroweather.msu.edu/home.asp

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
http://www.ipmnews.msu.edu/fruit/

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, 2010

Please send any comments or suggestions regarding this site to:
Bill Klein, kleinw@msu.edu

Last Revised: 6-22-10