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Northern Michigan FruitNet 2003 Weekly Update

NW Michigan Horticultural Research Station

[Jim Nugent](#)

District Horticulturist

[Gary Thornton](#)

District Fruit IPM Agent

[Bill Klein](#)

Farm Mgr, NWMHRS

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Agricultural Agent

[Jim Bardenhagen](#)

Leelanau Extension Director

June 3, 2003

GROWING DEGREE DAY ACCUMULATIONS as of June 2, 2003 at the NWMHRS

Year	2003	2002	2001	2000	1999	13 yr. Av. (90-2002)
GDD42	604	490	714	763	814	646
GDD50	278	249	364	366	427	330

WEATHER

Scattered frost occurred on the morning of 6/1. Small amounts of rain fell on 5/30 and 5/31.

GROWTH STAGES at NWMHRS

Apple: Red Delicious – petal fall

Pear: Bartlett – no fruit

Sweet Cherry: Napoleon – 10 mm

Tart Cherry: Montmorency – shuck split

Apricot – no fruit

Plum: European type – Petal fall

Grapes: Chardonnay – 4-8" shoots

INSECTS & DISEASES

By Gary Thornton & Jim Nugent

Apple scab lesions can be found in many commercial blocks now, particularly on the older leaves. Late last week we had a moderate infection period in most areas of NW Michigan.

Codling moth flight has been relatively high despite the cool temperatures. Trap catches for codling moth has averaged 7 per trap in Leelanau County. Many blocks will be reaching biofix this week where monitoring is taking place. Actual spray timing for codling moth should take place 250 degree days base 50 after biofix. **Spotted tentiform leaf miner** trap catches are starting to decline now, with trap catches averaging 171 per trap. Sap feeding mines should be showing up shortly. **Rosy apple aphids** are curling the leaves of untreated apples, making control more difficult. **European red mites** are common in untreated blocks, though rarely above threshold. Keep in mind that the rapidly expanding leaf area will dilute the mite

populations somewhat until the next generation starts to hatch out. Mite predators can be found both in the trees and in the ground cover.

With **sweet and tart cherries** out and/or coming out of the shuck now, **plum curculio** becomes a worry. PC is now beginning to lay eggs in cherries. Sweet cherry growers should be sure to have an appropriate insecticide on to prevent worms at harvest. Tart cherry growers who are monitoring can postpone their plum curculio sprays until 375 degree days base 50 after full bloom. **Green fruit worm (GFW)** are common in cherries this year; the largest are now about 1/2". Growers should monitor for this pest closely this year. The best options for controlling GFW in cherries are pyrethroids and or Lorsban (tarts only). Good results have also been achieved with tank mixes using a half rate of Guthion combined with a half rate of a pyrethroid or Lorsban. Avoiding the use of a pyrethroid in tarts reduces the risk of mite problems later in the season.

Gypsy moth have been found near the woods in both apple and cherry. **American plum borer** trap catches averaged 9 moths per trap. Trunk sprays targeting this pest should start next week. If you are targeting **lesser peach tree borer** they should go on in about 2 weeks. If the current dry spell continues **early season weed control** will be all the more important.

As **peaches** come out of the shuck they are very susceptible to **tarnished plant bug** injury. Tarnished plant bug nymphs can be easily found in untreated strawberry bloom.

Injury from road salt combined with cold weather has resulted in tree deaths in apple and reductions in bloom in stone fruits along or near roadways

reductions in bloom in stone fruits along or near roadways.

TANK MIX ADVISORY

Introduction by Gary Thornton

This spring has been cool and some periods have been cloudy as well. These climatic conditions can keep leaf cuticle development at a minimum. This article below reminds us of the importance of treating each season as a unique one in its own right and to spray accordingly.

Growers who wish to minimize any leaf injury from sprays applied should also try to keep the materials that they tank mix together to a minimum. I personally have a rule of thumb to not tank mix more than four compounds at a time together, including surfactants.

CAUTION WITH CAPTAN

Dave Rosenberger, (Plant Pathology, Highland, New York, [Scaffolds Fruit Journal](#), May 27, 2003, Vol. 12, No. 11)

Fruit growers should be very cautious about using captan during the next 7-10 days because weather conditions over much of the state have left apples, peaches, plums, and cherries unusually susceptible to captan injury. Captan is an effective, broad-spectrum fungicide that is labeled for many fruit crops. However, when absorbed into plant tissue, captan causes phytotoxicity that appears as leaf spotting, shot-holing, and leaf yellowing. When combined with other products that enhance uptake into leaves, captan applied at this time of year can cause complete defoliation of peach and nectarine trees. To be safe, growers should avoid applying captan until trees have had several days of sunny, dry weather.

The risk of captan injury is greatest when the annual spring growth flush of fruit trees coincides with an extended period of cloudy, cool, damp weather. The growth flush on fruit trees begins when terminal shoots start growing during or shortly after bloom. The cuticle (the waxy layer on the leaf and fruit surfaces) develops in response to heat and water stress. During cloudy and damp weather, there is little danger from heat or water loss and trees therefore produce only a thin cuticle to protect the newly formed leaves and enlarging fruitlets.

The same waxy cuticle that serves to prevent water loss also prevents captan from entering and injuring living cells beneath the plant cuticle. Some varieties of plums and cherries almost always develop a leaf spot or shot-hole after captan is applied because, even under the best conditions, some captan enters and kills leaf cells of these varieties. For most other fruit crops, captan causes little or no injury except during unusual seasons when weather conditions inhibit cuticle development.

Even when plant tissue has only a thin cuticle, captan by itself will rarely cause phytotoxicity (except to those plum and cherry varieties that are especially susceptible to captan injury). Problems often arise, however, when captan is mixed with other agrichemical products. Spray adjuvants that enhance the transport of captan through the plant cuticle can greatly increase the phytotoxicity of captan, especially when the plant cuticle is thin at the time spray is applied. Adjuvants that enhance uptake of captan include spray oils, some spreader-stickers, and other petroleum-based carriers commonly found in products that are formulated as liquids or emulsifiable concentrates.

Where apple scab symptoms are appearing in orchards, the best option for stopping further spread of apple scab is to apply a combination of an SI fungicide along with the maximum label rate of captan. To avoid phytotoxicity problems, however, growers may need to use an SI-plus-mancozeb combination for the next week to avoid the potential phytotoxicity that could result if captan is applied at this time. This is especially true if Sevin XLR Plus will be applied for thinning or if spray oil will be applied with a miticide during the next week. Those who opt to apply captan despite the risks are advised not to use spray adjuvants that might enhance trans-cuticular movement of captan.

[ACTUAL AND PREDICTED DEGREE-DAY ACCUMULATIONS SINCE MARCH 1, 2003](#)

Please send any comments or suggestions regarding this site to:

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Leelanau Extension Director

June 10, 2003

GROWING DEGREE DAY ACCUMULATIONS as of June 9, 2003 at the NWMHRS

Year	2003	2002	2001	2000	1999	13 yr. Av. ('90-2002)
GDD42	729	610	822	904	1000	779
GDD50	347	317	422	455	557	411

WEATHER

Recent rains this past weekend delivered 0.25" to 0.72" of rain. An additional 1.16" fell on Tuesday at the NWMHRS.

GROWTH STAGES at NWMHRS

Apple: Red Delicious – fruit set

Pear: Bartlett – no fruit

Sweet Cherry: Napoleon – 12 mm

Tart Cherry: Montmorency – 12mm

Apricot – no fruit

Plum: European type – 7mm

Grapes: Chardonnay – 4-8" shoots

INSECTS & DISEASES

By Gary Thornton

Apple: The rains that started on Sunday resulted in a heavy infection period for **apple scab** in all areas except the Benzie county weather station. Tuesday's rains resulted in a heavy infection for apple scab in most areas. Spores are still being caught in some areas in southern Michigan, so primary has not ended yet for scab. **Fireblight** was not a threat during recent rains, however, the warmer temperatures forecasted for later this week indicate that growers with open bloom in their orchards will need to spray if a rain is imminent from Friday through the weekend. **Codling moth** trap catches have been higher than usual this year. Trap catches averaged 7.3 moths per trap this past week in Leelanau County. Most growers have biofixed by this time. **Rosy apple aphids** are curled up tightly now and are difficult to control. **Oblique banded leafrollers** remain active in some orchards; control is difficult when they are rolled up in leaves. **Spotted tentiform leafminer** trap catches were down to 88 per trap in Leelanau County.

Cherry: Cherry growers experienced a heavy infection period for **cherry leaf spot** from Sunday's rain, and a moderate infection from Monday's. **European brown rot** was found in one tart cherry block in Northport. Indar and Benlate/Captan are the two main control options. **Green fruitworms** are up to ¾ inch long. **Plum curculio** stings have been found in **tart and sweet cherry**. Sweet cherries need to be protected from now until harvest. In tart cherries with low populations of plum curculio, treatments will not be needed until 375 DD base 50 after full bloom. Currently the NWMHRS is 209DD base 50 past its full bloom date of May 17.

Salt injury to trees along the highways desiccated the buds and fine wood, but did not kill the structural wood. Adventitious buds are breaking or will break, even on tart cherry. Most of these trees will recover.

Rose chafer was found in SW Michigan, so be on the watch for it in NW Michigan. This is the week it typically shows up here.

Strawberries have shown some **crown injury** where there was no snow and straw covering. This injury doesn't appear to be severe and should heal.

Peaches are just coming out of the shuck. This is a critical time for **tarnished plant bug**

injury. Growers should be sure to have an insecticide on, particularly prior to mowing.

GIBBERELIC ACID ON CHERRIES

By James E. Nugent
District Horticulturist, MSUE

Gibberellic acid (GA) is used in young tart and sweet cherries to reduce flowering and fruiting which maximizes growth and minimizes pollen transmitted virus infection. GA is used in mature tart cherries to increase the fruiting capacity by stimulating the development of lateral shoots and spurs.

Tips for use:

1. The proper application timing for GA on tart cherries is typically 3-4 weeks after full bloom, or when trees have 5 to 7 leaves (3 to 5 leaves fully expanded) on terminal growth.

2. Apply when high temperatures are expected to be above 70 ° F for a couple of days, if possible. Applications made when high temps are expected to be below 60 ° F have given poor results. Leaves expanding under low temperatures are less efficient at uptake than leaves growing under normal to above normal temperatures.

3. For mature tart cherries – to increase long-term fruit production.

a) Use 10-20 ppm of gibberellic acid. Lower rates are typically used on more vigorous orchards or where GA was used successfully last year; higher rates are used on low vigor orchards. Rates of about 15 ppm are most common.

b) Rates of ProGibb 4% on mature trees are as follows:

10 ppm response = 6 fl oz/acre

15 ppm response = 9 fl oz/acre

20 ppm response = 12 fl oz/acre

c) Research with surfactants has given results varying from no effect to over-response with phytotoxicity. The phytotoxicity occurred with silicon based surfactants. Therefore, we suggest not using a surfactant with GA unless a grower has enough experience with a particular surfactant to have confidence in the response. Never use a silicon-based surfactant.

4. In non-bearing tart and sweet cherries – used to greatly reduce flowering and fruiting to achieve faster growth and delay pollen-transmitted virus infection.

a) With a handgun, apply **either** 100 ppm (40 fl. oz. of Pro-Gibb 4% per 100 gallons of water) in a single application 3-4 weeks after full bloom (slightly later if temperatures are exceptionally cool); **or**

b) 50 ppm (20 fl. oz./100 gal) about 3 weeks after full bloom plus a second application at 50 ppm 2½ - 3 weeks later. This two-application system at 50 ppm nearly always is more effective than a single application at 100 ppm.

c) Do not apply to trees the year of planting.

5. To bring young trees into bearing following treatment with high rates during non-bearing years, it is **very** important to not discontinue GA all at once. This results in oversetting of fruit and stunting of trees. In the past, we have suggested decreasing the rate to 15 ppm, however, this is not enough GA! There are probably two reasons why trees still tend to overset. First, trees that have been kept vegetative have tremendous capacity to set fruit. Second, often at this time growers are switching from handgun application to airblast and may be underestimating the amount of GA needed on these young trees. Based on recent experience (but unfortunately not based on research), I now suggest weaning trees off GA over two or three years. The year prior to desired first fruiting, I suggest 30 to 40 ppm be applied if spraying dilute (12-16 fl oz ProGibb/100 gal), or about 20-24 fl. oz./acre if applied concentrate. This rate per acre for concentrate spraying already takes into account the average tree size of this age tree; i.e., do **not** reduce the rate further based on tree row volume. The next year, decrease this rate to 15 to 20 ppm applied dilute (6-8 fl oz./100 gal) or 10-12 fl oz./acre applied concentrate. The following year, 10 ppm is optional but often not required. In orchards where growth is weaker, it may be desirable to simply continue annual GA applications at 10-15 ppm as described above rather than discontinue at this time.

GA may also be applied later in the season on sweet cherries to increase fruit firmness and delay harvest. Results in Michigan have not been very consistent and may lead to increased cracking. This use is not discussed in this article.

PESTICIDE UPDATE

By Gary Thornton, District Fruit IPM Agent

Lorsban 50W – Gowan company, the manufacturer of Lorsban 50W has made the decision to stop manufacturing this product. Growers can continue to use existing stocks and purchase any that may still be available at distributors.

IMPACT OF COOL WEATHER ON CODLING MOTH MONITORING AND MANAGEMENT

John Wise and Larry Gut, MSU Dept. of Entomology

The cool temperatures over the last three weeks have prolonged the calendar time normally necessary for codling moth to go from first sustained flight (biofix) to egg hatch. Most counties in the central and southern regions of the state biofixed for codling moth on the May 17-18 weekend, but have only accumulated 150 GDD base 50 since that time. The research that the codling moth degree-day model is built on shows early egg hatch to be at 250 GDD

after biofix. Therefore the eggs that were laid by those initial codling moth adults three weeks ago still require an additional 100 GDD base 50 to hatch. This illustrates the benefits of monitoring GDDs, which correlate to insect development, instead of making management decisions solely on a calendar date basis.

It should be noted that not all insecticides should be timed for the 250 GDD egg hatch timing. For example, if you plan to use the insect growth regulator, Intrepid, then biofix + 150 GDD spray timing is optimal. The following chart, modified from the *Michigan Fruit Management Guide* (E-154) should help distinguish optimal timing and use of some insecticide options.

Common name (Trade name)	GDD timing post-biofix	Rate/acre	PHI	REI
Azinphosmethyl (Guthion 50WP) * 14 day REI for activities like hand thinning (see label)	250	2 lb	14 d	48 hr*
Phosmet (Imidan 50WP)	250	2.25-3.0 lb	7 d	24 hr
Esfenvalerate (Asana XL 0.66EC)	250	9.6-14.5 oz	21-28 d	12 hr
Fenpropathrin (Danitol 2.4EC)	250	10.6-21.3 oz	14 d	24 hr
Spinosad (SpinTor 2SC)	250	7.5-10.0 oz	7 d	4 hr
Acetamiprid (Assail 70WP)	200-250	3.4 oz	7 d	12 hr
Methoxyfenozide (Intrepid 2F)	150	16 oz	14 d	4 hr
Pyriproxifen (Esteem 35WP)	100	5 oz	45 d	12 hr

MICHIGAN STATE UNIVERSITY ORGANIC APPLE PROJECT THIRD ANNUAL FIELD DAY WEDNESDAY, JUNE 18, 1:00 TO 4:00. CLARKSVILLE HORTICULTURE EXPERIMENT STATION.

MSU and the Organic Apple Team invite you to visit and experience the five-acre certified organic (OCIA) site and over 2500 trees now in the 4th growing season. First time participants will get an introduction to key organic orchard concepts related to soil quality and fertility, pest and disease monitoring and management, and ground floor management techniques. Returning participants will get an update on research progress and evolving management strategies.

To help us prepare adequate transportation and handouts, please RSVP to Sandy Allen by Monday, June 16. Let us know if you are a first time or returning participant.

Voice: 517-355-8362; email: allens@msu.edu. The station is located at Exit 59 off I-96 at 9302 Portland Road, Clarksville, MI. For additional information call CHES at 616-693-2193 or email the station at huntjan@msu.edu.

ACTUAL AND PREDICTED DEGREE-DAY ACCUMULATIONS SINCE MARCH 1, 2003

Please send any comments or suggestions regarding this site to:

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June 17, 2003

GROWING DEGREE DAY ACCUMULATIONS as of June 16, 2003 at the NWMHRS

Year	2003	2002	2001	2000	1999	13 yr. Av. ('90-2002)
GDD42	874	745	1026	1073	1161	947
GDD50	437	396	571	568	666	524

GROWTH STAGES at NWMHRS

Apple: Red Delicious –14mm fruit
 Pear: Bartlett – no fruit
 Sweet Cherry: Napoleon – 12 mm fruit
 Tart Cherry: Montmorency – 12 mm fruit
 Apricot – no fruit
 Plum: European type – 12 mm fruit
 Grapes: Chardonnay – 10"-16" shoots

INSECTS & DISEASES

By Gary Thornton

Apple scab primary season is over now, except in the cooler districts that have another week to go. The last spray of primary season should always have at least a half rate of a protectant in the tank mix. Shoot strikes of **fireblight** have not shown up yet, however the threat of blossom blight is high if growers still have open bloom and we have a rain. The threat for fireblight infection remains high through the weekend, again only if it rains and you have open bloom in apples or pears.

Codling moth trap catches averaged 16 per trap in Leelanau County this past week. If you are not trapping, then the first spray for codling moth should go on now. This spray is timed for the first egg hatch of codling moth. **Spotted tentiform leafminer** averaged 50 per trap in Leelanau County, down from last week. Sap feeding mines have still not been found. It is

likely with the warm winds that **potato leafhoppers** will start to increase their population.

Cherry leaf spot lesions can be found in sweet and tart cherries, but they are not numerous. Last Tuesday we had a moderate infection period. **Brown rot** pressure remains low until fruit starts to change in color. A few cherries infected with

moderate infection period. Brown rot pressure remains low until fruit starts to change in color. A few enemies infected with **bacterial canker** can be found in tarts. **Green fruit worm** are up to 1" long. **Plum curculio** remain active. Sweet cherries need an appropriate insecticide on from now until harvest. The critical time for control of plum curculio in tarts is nearing at the NWMHRS. The 375 DD base 50 after full bloom mark will be June 22nd or 23rd. After this time it is critical to control all plum curculio. **American plum borer** averaged 7 per trap, while **lesser peach tree borer** averaged 16 per trap in Leelanau County this past week. Trunk sprays should be going on now to control lesser and **greater peach tree borers**. Directing the spray to the base of the tree will control the most critical area of potential infestation. **Black cherry aphids** have been found in sweet cherry near woods. **Rose chafers** have emerged and are actively feeding in grapes, raspberry and young orchards.

Most tart cherries are at the stage where gibberellic acid sprays can go on now. The best response from gibberellic sprays is obtained when applied in slow drying conditions, when the temperature is above 70° F.

PROTECTING FRUIT FROM APPLE SCAB IN ORCHARDS WITH VISIBLE SCAB LESIONS

(Dave Rosenberger, Plant Pathology, Highland) From SCAFFOLDS Fruit Journal, Geneva, NY, Volume 12, No. 14. Update on Pest Management and Crop Development, June 16, 2003

Keeping apple scab under control is proving very difficult this year in orchards where primary scab was not completely controlled during April and early May. Over the last 30 days at the Hudson Valley Lab, we have recorded 17 separate wetting events for a total of 228 hours of wetting and 5.8 inches of rain. Unfortunately, this period of extended wetting started shortly after petal fall just when fruit and leaves are at peak susceptibility for apple scab infection.

What is the best approach for keeping apple scab off of fruit in orchards with a moderate level of scab on terminal leaves? Unfortunately, there is no simple answer to this question. Below are four options to consider.

Option 1: Make at least two applications of captan alone at the maximum label rate per acre. Applications at this time of year can be 10-14 days apart unless rainfall (>1.5 inches) removes captan residues before 10 days have elapsed. Captan is very effective for protecting fruit, especially when combined with high temperatures of 80-85F. However, if cool wet weather persists into July, then continued applications (more than two sprays) using high rates of captan may be essential. If weather becomes more normal (hotter and drier), then the risk of fruit infection will subside until September when scab might become active again.

Option 2: Apply captan at maximum label rates as noted above, but tank-mix the high rate of captan with an SI fungicide (Nova, Rubigan, or Procure). The full rate of captan is needed because the SI's will shut down scab on leaves but will do little to protect the fruit. This option is considerably more expensive than Option 1. It will prove more effective than Option 1 **IF** orchards do not contain SI-resistant populations of scab and **IF** weather stays cool and wet for another month. Option 2 also provides extended control of mildew. However, if weather become hotter (days > 80-85F) and drier, then Option 1 will probably work just as well as the more expensive Option 2 for controlling scab.

Option 3: Apply captan at 50% of maximum label rates in a tank-mix with Flint or Sovran. Flint and Sovran will provide better protection of fruit than the SI fungicides so a half-rate of captan should be adequate. The fact that Sovran and Flint bind to cuticular waxes should make them more resistant to wash-off than is captan. However, Sovran and Flint will be less effective than the SI fungicides (in the absence of resistance) for arresting incubating but still invisible infections in leaves. Thus, the trade-off here is potentially better control of fruit scab with Sovran or Flint compared with greater reduction of total inoculum when SI's are applied to leaves with incubating lesions. It is very difficult to predict which option (2 or 3) will result in the least fruit scab. In two years of trials where I tested these products on trees with visible scab, I got better control with the SI's in one year and with the strobilurins (Sovran, Flint) in the other. The variation is largely due to the details of exactly when the products are applied within the scab incubation period. Be aware, however, that where Sovran and Flint have been used alone (without any contact fungicide) to stop previous scab epidemics in Michigan and Western NY, the results have generally been less than satisfactory. Thus, I personally would gamble on options 1 or 2 rather than option 3.

Option 4: Apply captan at 50% of maximum label rate in combination with a full rate of dodine (Syllit). This is an extremely risky approach because we cannot accurately predict which orchards have dodine resistance. However, if you have not used ANY dodine, not even in the first spray of the season, for at least 10 years, then this approach might be very effective. Only

one spray of dodine should be applied and the follow-up spray should be the full rate of captan because a single spray of dodine may be enough to re-select for dodine-resistant strains that survive at low levels in most orchards.

The specifics of the orchards involved should be considered when choosing among the options noted above. There is significantly more risk of getting scab on fruit of susceptible cultivars such as McIntosh and Ginger Gold and than on more scab-resistant cultivars such as Empire and Delicious. Therefore, captan alone might suffice for the more resistant cultivars, whereas an SI-plus-captan might be warranted for McIntosh blocks. Similarly, vigorous young trees that are still actively growing have the potential for several years of leaf scab when more older orchards with a heavy canopy will have most

growing have the potential for several more cycles of leaf scab, whereas older orchards with a heavy crop will soon set terminal buds. The SI-captan combination is more likely to pay for itself in orchards with vigorous terminal growth because the SIs can quickly reduce the amount of inoculum available for infecting new leaves (unless, of course, the scab is SI-resistant).

Unfortunately, some orchards may already have so much scab that spending more money for fungicides will only increase costs for a crop that is already lost. In cases where a significant number of fruit already have visible scab, one must assume that additional fruit may soon develop symptoms from infections that occurred last week unless heroic measures have already been employed to save the crop. There is no point in spending big dollars for SI or strobilurin fungicides for a crop that will not pay for itself.

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June 24, 2003

GROWING DEGREE DAY ACCUMULATIONS as of June 23, 2003 at the NWMHRS

Year	2003	2002	2001	2000	1999	13 yr. Av. ('90-2002)
GDD42	1039	925	1185	1231	1334	1122
GDD50	546	521	674	670	784	644

GROWTH STAGES at NWMHRS

Apple: Red Delicious –20mm fruit
 Pear: Bartlett – no fruit
 Sweet Cherry: Napoleon – 13 mm fruit
 Tart Cherry: Montmorency – 13 mm fruit
 Apricot – no fruit
 Plum: European type – 18 mm fruit
 Grapes: Chardonnay – 10"-16" shoots

INSECTS & DISEASES

By Gary Thornton

Growers with **scab** on their apples should continue on a schedule of protectant fungicides to keep the scab off of the fruit. Under NO circumstance should you continue to use the sterol inhibitor fungicides beyond the primary scab season. I have heard of growers doing this and this is a sure way to have widespread resistance on your farm!! The hot temperatures that we are experiencing will, for all practical purposes, shut down scab for the near future. Spray schedules of protectant fungicides can be loosened up until late summer when the temperatures cool down and apple scab can again be a problem. Most growers have made it through **fireblight** season in good shape. One situation occurred where McIntosh was not sprayed with strep, but despite the cool weather now has large numbers of blossom blight strikes. This block was unique, as it was small and surrounded by mature woods. I think that it ended up accumulating more heat than other orchards and thus built up higher numbers of bacteria. While surrounding orchards were barely at risk, this one obviously was at a much higher risk. All growers should know and be aware of the microclimates that their orchards have. The other concern that growers need to consider is the inoculum for fireblight that their apples are exposed to. It may be from your apples or it also could be from your neighbors. In making a determination to spray for fireblight, growers need to be aware how much fireblight is in their neighborhood.

Codling moth trap catches averaged over 20 per trap. This is very high for Leelanau County. Growers should be tightening up their spray schedules for this pest wherever high pressure exists. It is likely to be a tough year to control this pest. In most circumstances you should not be relying on alternate row sprays to control codling moth! **Rose chafer** is attacking young trees, although the numbers of this pest seem to be down this year. **Green apple aphids** are slow to build. **Rosy apple aphids** are curled up in the leaves. Controlling them now will not prevent the stunting of the fruit around them; it may help terminal growth, however. **Spotted tentiform leafminer** trap catches dropped to 22 per trap. Sap feeding mines are very rare this year. Rose chafer feeding continues on grapes, raspberry and young tree fruit plantings.

Cherry leaf spot has not been a major problem so far this year, although some young blocks that have not had as many sprays have some lesions showing up in them. With leaf spot pressure down due to the dry weather, growers have lightened up their spray intervals; this could lead to increased problems with **powdery mildew**. Mildew does not need rain events to spread at this time of the year, and will build to higher levels in dry weather. Ideal conditions are temperatures between 50 – 78 degrees and humidity >90%. Nova is still the best material for control, although I have heard reports of Flint being quite good too, if used on a protectant basis. Young trees will benefit the most from good mildew control. Sulfur has fungicidal activity but should not be used when the temperatures are > 90 degrees. Mildew has been reported on the fruit of tart cherry. Some early varieties of sweet cherry are beginning to turn color. When this occurs, the cherries become more susceptible to **brown rot**.

Plum curculio activity is slowing down, but all sweet cherries should be protected from now until harvest. Tart cherry growers in the warmer areas should be controlling for this pest now. Cooler districts may still have time before they absolutely need to control for this pest (check the PestNet reports for specifics). Trunk sprays for the **lesser and greater peach tree borers** can go on now. Sprays should be directed at the base of the tree and to any injury on the trunks. 95% of the damage I find on trees is right at the base and/or below ground. No **cherry fruit fly** has been caught yet in NW Michigan. I would suspect that we would see them after the rains come through on Thursday.

CALCIUM SPRAYS FOR APPLES

By Eric Hansen, Dept. of Horticulture, Michigan State University

Note by Gary Thornton: Bitter pit tends to be worse in young plantings, plantings of particularly susceptible varieties (N. Spy, HoneyCrisp, JonaGold, Cortland) and in drought years (without irrigation). Considering the dry spell we are in now, growers should carefully assess their program to prevent bitter pit.

Foliar sprays of calcium (Ca) are recommended in apple blocks prone to Ca-related disorders such as bitter pit and Jonathan spot. These disorders appear as small brown lesions in the flesh just beneath the skin. They develop because some apple varieties do not transport adequate Ca into the fruit. Because this is a problem with transport rather than absorption, soil Ca applications seldom correct the problem. Conditions that increase Ca-related disorders are drought, and light crop loads due to frost damage, or poor bloom or fruit set.

In blocks with chronic Ca problems, the severity can be reduced by liming to maintain the soil pH between 6.5 and 7.0, avoiding excessive use of nitrogen or potassium fertilizers, and encouraging consistent cropping levels by appropriate pruning and thinning. Consider irrigation on drought-prone sites. Even when these practices are followed, Ca spray programs may still be needed for acceptable control.

Suitable Ca spray materials include calcium chloride and various commercial spray products. Calcium nitrate can be used, but the nitrogen in this material can stimulate additional shoot growth and potentially increase the problem. Most studies indicate that calcium chloride and various commercial products are equally effective in reducing disorders when compared at rates delivering similar amounts of Ca. Benefits are usually proportional to the amount of Ca applied. Since calcium chloride is less expensive than most other sources, recommendations below are for calcium chloride. Calcium chloride is a caustic salt that can corrode sprayer parts, so make sure sprayers are washed thoroughly after each spray. If commercial spray products are used, follow the manufacturer's recommendations.

Start spray programs a couple weeks after petal fall, and repeat every two to three weeks until harvest. Be careful with the rates, since high spray concentrations burn foliage. Early in the season, use 1-2 lb calcium chloride per 100 gallons spray. During the second half of the season, increase concentrations to 3-4 lb per 100 gallons. Do not apply sprays when temperatures are higher than 80°F, particularly when the humidity is also high. Also, do not apply additional sprays unless it has rained since the last application. Residues left from earlier sprays may increase the risk of leaf burn. The goal is to apply a total of 30 to 50 lb of calcium chloride (11-18 lb Ca) per acre over the season.

There is limited information and some disagreement about the compatibility of calcium chloride with apple pesticides. Grower experience indicates that calcium chloride can be tank mixed with many pesticides. Some problems have been reported

when calcium chloride is mixed with either guthion, captan, or basic coppers (increased foliar burn), or the growth regulator Apogee (not compatible). Others indicate that calcium chloride can be mixed with the WP and EC formulations of the more common fruit pesticides.

Growers can test compatibility by mixing materials in a jar and looking for precipitates, but this may not always warn of a reduction in pesticide efficacy. Addition of calcium chloride to typical Michigan well water would not change pH appreciably, so additions are unlikely to increase the potential for alkaline hydrolysis of pesticides. It is generally recommended not to tank mix calcium chloride with plant growth regulators, and to conduct a compatibility test in a jar before tank mixing calcium chloride with any pesticide. Consult the manufacturers of proprietary calcium products to determine their compatibility with pesticides.

NEW POCKET SCOUTING GUIDE AVAILABLE

A new MSU pocket-scouting guide for grapes has just been printed and will be available after July 7th. To order, visit your local county Extension office –OR find an order form on the internet at: <http://www.ipm.msu.edu/pdf/grapeGuide.PDF>

[ACTUAL AND PREDICTED DEGREE-DAY ACCUMULATIONS SINCE MARCH 1, 2003](#)

Please send any comments or suggestions regarding this site to:

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