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Northern Michigan FRUITNET'99
Weekly Update

James E. Nugent Gary E. Thornton William M. Klein
NW Michigan Horticultural Research Station
Michigan State University

May 5, 1999

WEATHER:

Hot and dry! Evaporation since April 1 has totaled 5.47" (exceptionally high for this time of the year), with precipitation (rain and snow) since April 1 totaling 2.36", all of which fell in early April. For irrigation scheduling purposes I have always considered the important time to begin accumulating evaporation data is approximately May 1, as this is approximately when tree growth begins. But this year I feel we should consider that at least a portion of the April deficit would want to be replaced. The rule of thumb for irrigation scheduling in orchards is to replace 75% of evaporation that occurs through a combination of rain and irrigation. For April, I suggest using a 25% to 35% replacement for the last 2 weeks. This is designed to replace moisture evaporation from soil that occurred since the snow melted, but is lower than the 75% growing season figure because of the lack of leaf surface on the trees for moisture loss via transpiration.

DEGREE DAYS at NWMHRS:

Base 42: 315; Base 50: 136

GROWTH STAGES:

Apricot: Harcot – petal fall
Plum: Stanley – 50% bloom
Apple: Red Delicious – pink
Sweet Cherry: Napoleon – full bloom
Tart Cherry: Montmorency – full bloom
Pears: Bartlett – 25% bloom
Peaches: Red Haven – full bloom
Grapes: Bud burst

INSECTS:

Cutworms – Activity has been very low this year. They remain a threat on recently planted trees and grapes.

European Red Mites – No hatch has been reported yet. Many of the orchards that I have looked at have had very low egg numbers. I suspect that the first of them have already hatched out. Oil applications can go on anytime before pink.

Green Fruit Worm – Small larva have been found in cherries. Control should be aimed at the petal fall time period.

Spotted Tentiform Leafminer – Eggs are now being laid on the underside of leaves. Adult trap catches are average for this time of year, but continue to rise.

Pear Psylla – Nymphs should be hatching out within the next few days and begin feeding on the underside of leaves. Adults continue to lay eggs. Three good options are available for controlling psylla. Agrimek can be applied at first cover. The Pyramite label has been expanded to allow for higher rates. It should be used at no less than 8.8 oz, and 10 oz per acre is better. This should be applied at first cover. If applied at petal fall the residue will not be great enough to control the hatching nymphs. This is a more expensive control option, but it is an excellent resistance management strategy. Provado is another option that should work equally as well. Provado can be applied earlier at petal fall, as it is locally systemic.

Codling Moth – Growers who plan on monitoring for this pest should get their traps out at petal fall.

June Beetle - Adults are now emerging. The adult will feed at night on cherry leaves but more importantly, their larvae (white grubs) feed on the roots of fruit trees (particularly cherry). There is no good method of larval control, so it is wise to control the adults in young orchards to minimize egg laying. Guthion works well for June beetle adult control.

DISEASES:

Apple Scab – No scab infections have occurred yet this season. We can expect a large spore release with the next rain greater than ¼ inch. Even without any scab pressure growers should apply a fungicide for powdery mildew at this time on susceptible varieties like Idared and Jonathon.

Powdery Mildew – After another mild winter we can expect powdery mildew to have another banner year. When we have winters where the temperatures drop below –10*F. approximately 90% of the inoculum is killed. This winter the low temperature at the NWMHRS was –3*F. so there should be plenty of inoculum to get the season started. Nova is still the best at controlling PM, with Elite being the next best. Sulfur will provide some protection in cherries, but only for 3-4 days. Pink is the ideal timing for control in apples.

Brown Rot pressure has been very low so far. If rain falls later this week, then sweet cherry in particular, should be treated to prevent blossom blight. Brown rot is a concern with any rains that may occur during bloom.

Cherry Leaf Spot – Once the leaves of cherry are fully expanded then the stomata on those leaves are opened and susceptible to infection. At that point growers need to control for leaf spot for the remainder of the season.

Black Knot can still be cut out in plums to lower inoculum. The most susceptible time for infection is from white bud to shuck split. Long wetting periods during this time should be considered infection periods and treated accordingly. Bravo, when used as a protectant, has been shown in Canada to offer superior control of black knot, when compared to a Benlate/Captan tank mix.

MISCELLANEOUS:

Reminder on B9 Rootstock

By Gary Thornton, District Fruit IPM Agent

One of the dwarfing apple rootstocks that growers can choose from is B.9. B.9 is a stock which produces trees 10% smaller than M.9 EMLA, and in most situations it is not vigorous enough for northern Michigan. B.9 is also unique, as it is susceptible to crown gall. When growers are planting this rootstock into old stone fruit ground they should treat the roots with Galltrol. Galltrol is a gel mixture of Agrobacterium radiobacter, strain 84, which is a biological control for the crown gall bacterium. When the Galltrol is mixed with water, the roots can then be dipped or sprayed prior to planting.

Irrigation – If the rains bypass us this week, growers will want to get their irrigation going, particularly on young trees and apples. It is the cell division for the first 30 days after bloom that determines the full size potential in apples. Without good growth in this time period, then all the water in the world won't swell that apple to a 3" apple. This extra size on each apple will greatly increase yields in bushels per

acre.

Eight Old Cherry Tanks Needed at NWMHRS

By Jim Nugent, Station Coordinator

We need 8 old cherry tanks for a research project. They don't need to hold water. In fact, we will cut holes in the bottom for water drainage. We'll be planting some fruit trees in the tanks so that we can move them from one location to another. If you have some old tanks that you would like to get rid of, please let us know. We could either buy them or, if donated, you could get a tax deduction for a charitable gift of an item that you no longer use. Please give Bill Klein or me a call. Thanks!

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ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1 1999 (*)

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Northern Michigan FRUITNET'99
Weekly Update

James E. Nugent Gary E. Thornton William M. Klein
NW Michigan Horticultural Research Station
Michigan State University

May 11,1999

WEATHER:
By Jim Nugent, District Horticulturist, MSU-E

Rain this past week helped to lay the dust, but conditions remain quite dry in most areas. Evaporation rates have slowed in recent days. Evaporation in the past 7 days (5/5 - 5/11) amounted to 1.20", and the prior week (4/28 - 5/4) was 1.94". Since April 1, evaporation has totaled 6.30". Rainfall this past week at the NWMHRS totaled 0.57". This was the first precipitation since snow fell on 4/12. For irrigation scheduling purposes in tree fruit, research suggests that rainfall and irrigation should replace about 75% of evaporation to match moisture losses due to a combination of transpiration and soil moisture evaporation. This suggests that during the past two weeks tree moisture needs have been 2.35" (75% of 3.14" of evaporation), while rainfall has replaced only 0.57" of this demand. I should note that this 75% estimate may overstate water needs in early season due to low leaf surface area for transpiration.

DEGREE DAYS at NWMHRS: Base 50: 200; Base 42: 428

GROWTH STAGES:

Apricot: Harcot – shuck split
Plum: Stanley – late petal fall
Apple: Red Delicious - full bloom
Sweet Cherry: Napoleon – late petal fall
Tart Cherry: Montmorency – petal fall
Grapes: Bud break to 1/2" shoot

DISEASES:

A light **cherry leaf spot** infection period occurred last Thursday at the NWMHRS. Saturday's rain did not result in an infection period.

Fire blight pressure in **apples** was high during rains last week, if bloom was open long enough. Most pears were open for enough time and required streptomycin sprays. Weekend rains came when temperatures were too low for fire blight infection.

An **apple scab** infection period occurred last Thursday at the NWMHRS. No infection took place on Saturday.

Powdery mildew - Initial infections require rain for germination and development. Growers should be cautious with this disease this year, as inoculum levels should be high due to the mild winter.

INSECTS:

Black cherry aphids can be found in **sweet cherries**. Control is rarely needed in NW Michigan.

Rosy apple aphids can be found on suckers in the interior of Ida Reds. Provado at petal fall is the next control option.

Plum curculio adults are active in trees now. Any **stone fruit** coming out of the shuck are at risk to injury.

Adult American plum borers have begun flight.

European red mite nymphs hatched out last week. Overwintering mites are generally low this year due to great predator populations last year.

Tarnished plant bugs are active. **Strawberry** growers are at risk from the nymphs feeding during bloom.

Strawberry clippers have been reported in strawberries. Damage from this pest is usually very light in NW Michigan.

MISCELLANEOUS:

Apple Thinning
By Jim Nugent, District Horticulturist, MSU-E

Following are some factors to consider as you assess apple thinning strategies:

1. Last season's early harvest and mild fall allowed for an unusually long period post harvest for trees to build overwintering reserves. This should result in larger reserves in the trees, making thinning more difficult.

2. Bloom looks strong in most blocks, which generally results in heavy fruit set.

3. Some blocks have frost damage in low areas that might result in adjusting rates down in those areas or even avoiding thinners altogether in these areas.

4. Weather has generally been quite nice so far this spring for fruit set; ie., generally warm and sunny. The more sunny weather that occurs the

next 3 weeks, the heavier will be natural fruit set, resulting in the need for more aggressive thinning.

5. I do not expect dry conditions to decrease fruit set.

6. With apple markets getting more competitive, there is no money to be made growing small fruit. Therefore, I think that based on observations to date that thinning needs to be fairly aggressive, with the exception of frost damaged and low areas and trees with very little return bloom.

Finally, I've become progressively more convinced that warm temperatures following thinning are very critical for success. Phil Schwallier reported earlier this month at a grower meeting here at the Station that several researchers are now finding that temperature at the time of application is not so important. What is more important is temperatures during the first 2-3 days following application. In other words, apply when a warm spell is predicted.

While the ideal time for thinning is 8-12 mm king fruit size, this window is too narrow to expect in NW Michigan to have the warm conditions necessary for good thinning year in and year out. Therefore, both Phil Schwallier and I now suggest beginning to look for the right conditions at petal fall or shortly there after. When they arrive, apply thinners at the same rate as you would apply if using at 8-12 mm. Remember, apples are actually more difficult to thin both before and after the 8-12 mm size. They do not thin easier prior to 8 mm. Phil has written an excellent thinning guide, which suggests using lower rates when thinning early, but he has since changed his opinion and now agrees that early thinning requires the same rates as 8-12 mm thinning.

Thinning early also gives a better opportunity to reapply if thinning is inadequate while fruit is still small enough for applying thinners.

Phil's thinning guide is titled, "Apple Thinning Guide" and is available for $13.00 (includes shipping and handling) from Great Lakes Publishing, 343 S. Union St., Sparta, MI 49345, 616/887-9008.

The Small Hive Beetle
By Greg Hunt, Bee Specialist
"Facts for Fancy Fruit", May 5, 1999 Issue
Purdue University

A new pest of the honey bee called the small hive beetle, Aethina tumida, was found in Florida last year and caused extensive damage to bee hives. Thousands of hives were destroyed. This pest has also been found in Georgia, South Carolina and North Carolina. Recently, the beetle also showed up in some packages of bees that were shipped to Ohio. There is a good chance that some of these beetles could be introduced to Indiana this year. We don't know how these beetles will survive in Indiana. They are used to warm weather because they come from South Africa. It seems they were present in South Carolina for two years before they were found in Florida without causing any serious problems. The adult beetle is small - about half a centimeter long. The adults and larvae eat bee brood and honey. They spoil the honey for the bees and they can quickly ruin the hive for the bees, at least in Florida.

Beekeepers receiving packages of bees this spring should be on the lookout for beetles in their hives. But be aware that many non-harmful beetles are often present in hives. Indiana has just received permission under EPA section 18 to use Coumaphos to control this beetle and also varroa mites. The Coumaphos can be bought from Mann Lake company in the form of Checkmite Strips. They look like the Apistan strips that are used for controlling varroa mites, but contain a different pesticide. But at this point, we cannot recommend that beekeepers buy these strips unless they have a problem with small hive beetles or varroa mites that are resistant to the compound in Apistan strips. Neither small hive beetles or Apistan-resistant varroa have been found in Indiana. Beekeepers should use special care when handling and using the Checkmite strips because they contain an organophosphate pesticide which is a nerve toxin. The EPA says they will have a zero tolerance for Coumphos in honey. Never leave honey supers on hives when using either Checkmite or Apistan strips.

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Northern Michigan FRUITNET'99

Weekly Update

James E. Nugent Gary E. Thornton William M. Klein
NW Michigan Horticultural Research Station
Michigan State University

May 18, 1999

WEATHER:

By Jim Nugent, District Horticulturist, MSU-E

We received some much-needed rain in NW Michigan, but amounts were variable. At the NWMHRS rainfall on 5/16-17 totaled 0.45". Rainfall for the past 5 weeks has totaled only 1.02". Evaporation during the past week has totaled 1.40". Evaporation since April 1 totals 7.70". Soil moisture conditions are very dry in most areas under heavy vegetation.

DEGREE DAYS at NWMHRS:

Base 50:272; Base 42: 543

GROWTH STAGES:

Apricot: Harcot – 15mm fruit
Plum: Stanley – early shuck split
Apple: Red Delicious - petal fall
Sweet Cherry: Napoleon – 9-10mm
Tart Cherry: Montmorency – shuck split
Grapes: 3" shoots

DISEASES:

-Cherry leaf spot. The rains of the last few days have produced a moderate and a currently ongoing heavy infection period. Growers should take these very seriously and have a full cover of protection on tart cherries in particular.

-**Apple scab**. Monday we had a moderate infection period, and today we have a moderate ongoing apple scab infection period.

-**Fireblight**. The recent rains have produced an infection period for fireblight. Growers needed to have a strep spray on prior to the rain or within 24 hours after the beginning of the rain.

-Brown rot. Sweet cherries, once out of the shuck, enter into their most resistant stage of growth. Growers should still keep some level of protection on sweet cherries. Elite, Indar, Ziram and Ferbam are all options. Keep in mind that Ziram and Ferbam are weaker on leafspot and brown rot in high-pressure situations. Orbit can be used again in the preharvest period.

INSECTS:

-Codling moth. The first catch of adults was reported last week in the warmer regions of NW Michigan.

-**Plum curculio**. Sweet cherries, peaches, apricots and plums are all susceptible to injury at this stage.

-**Green fruitworm** are approximately 1/2 " long and can be found feeding in terminals.

-**Pear psylla** nymphs are feeding on the underside of leaves. Agrimek should go on 10 days after petal fall and no later than 14 days. Don't forget the oil with the Agrimek.

-**White apple leafhopper** nymphs have been found in apples.

-**Rosy apple aphid** colonies are building and curling up in the leaves.

-**Green apple aphid** colonies are developing.

-**American plum borer** trap catches are up, at 25-30 per trap. Trunk sprays targeting American plum borer should start to be applied on May 23rd in the warmer parts of the district.

-**Lesser peach tree borer**. First trap catches occurred this past week. Trunk sprays targeting this pest should begin on May 27th.

-**Spotted tentiform leafminer**. Provado should be used at petal fall to control the sap feeding stage.

NW Michigan Horticultural Research Station
Insect Trap Count Averages - 1999

DATE	Codling Moth	Spotted Tentiform Leaf Miner	Lesser Peach Tree Borer	American Plum Borer
5/18	0	660	8	30

MISCELLANEOUS:

Deer are becoming active in young orchards. Growers need to check for damage and put on appropriate repellants.

Apple Set
By Jim Nugent, District Horticultural Agent

As thinning time rapidly approaches, one important factor to consider is that trees naturally thin fruit more readily if conditions are particularly cloudy during the period from pink to about 12mm fruit size. The amount of cloudiness is probably most critical between bloom and 10mm. So this current period of cloudy weather is coming at a critical time, but if it lasts for only three days or so, I don't think it would be advisable to count on it for very much reduction in fruit set. If, however, the weather were to remain mostly cloudy for the coming week, one would want to be significantly less aggressive with thinning. Cloudy weather will also result in a thinner leaf cuticle, a phenomenon which enhances the uptake of chemical thinners. The cuticle will re-thicken with a few sunny days prior to application, so the effect on increasing uptake will be minimized.

Armillaria Site Needed!
By Jim Nugent

Amy Iezzoni and I are looking for a cherry site with armillaria, where we could plant a few trees to test for armillaria resistance. The species of cherry being evaluated is black cherry (the forest species of cherry native to northern Michigan) to see if it has the genetic potential for resistance. The trees will only need to be grown for 5-6 years, so we would like to find a block of cherries with armillaria that is at least 5-6 years from removal. If we can find natural resistance, Amy can then use the genetics in her rootstock breeding.

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Northern Michigan FRUITNET'99

Weekly Update

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NW Michigan Horticultural Research Station
Michigan State University

April 21, 1999

Weather:

Cooler conditions this past week have slowed bud development, so while about 10 days ago the degree day accumulation equaled last year's very early season, it is now behind last year (though still well ahead of normal). Precipitation for April (including snowmelt) at the NWMHRS has totaled 2.36".

Degree Days:

	This Year	Last Year
Base 42°	170	213
Base 50°	61	93

Growth Stages:

Apricot: Harcot – early pink
Plum: Stanley – bud burst
Apple: Red Delicious – green tip
Sweet Cherry: Napoleon – late swollen bud
Tart Cherry: Montmorency – swollen bud

Insect:

European Red Mites – Overwintering populations look to be moderate in number. This recent mild winter has resulted in very little injury to the eggs. Oil sprays are still strongly recommended at least every third year for apples. It is wise to include the oil to prevent resistance to other miticides from showing up in the population. Oil will also keep the San Jose Scale population in check.

Green Fruit Worm – Adults continue to fly.

Pear Psylla – Egg laying activity has been light up to now, but should pick up as warmer weather moves in. Oil sprays will help to deter egg-laying activity when applied at the swollen bud stage.

Diseases:

Apple Scab – Green tissue is showing on the early varieties and is now susceptible to scab infection. According to the spore maturity model, 6% of the spores are now mature and ready to be released. Growers should be a little cautious this year and not delay their first spray beyond tight cluster. I suspect that a higher number of spores have matured this year than in an average year for us. This is due to the mild winter that we experienced, where spores matured at any of the temperatures that we had that were above 32° F.

Powdery Mildew – Look for 1999 to be a similar, if not a worse year for powdery mildew than 1998 was. In a cold winter where temperatures drop below –10 F. up to 95% of the overwintering inoculum is killed. This winter we did not have temperatures that cold in the fruit region and there also is an enormous overwintering population, which should provide us with some control challenges this year.

Crop Report:

Tart Cherries – Utah is reporting frost damage to tarts. I am not aware of problems in other growing districts.

Peaches – SW Michigan lost most of their peach crop this past winter. Temperatures one morning in January at the SW Michigan Research Station hit -16° F, while our low that same morning was +13° F (we had a cloud cover). The fresh peach market will be short this year in Michigan.

Miscellaneous:

AG TASK FORCE ON AGRICULTURE PRESERVATION -- TIME CHANGE
Jim Bardenhagen, County Extension Director Leelanau County

Michigan Senate Task Force on Agriculture hearings were announced in the last newsletter. The time of the NW Michigan hearing has been changed. The hearing will take place on **April 26th at 10 a.m.** (**not** 9:00 a.m.) at the NW MI Horticultural Research Station.

The bipartisan task force, chaired by Sen. George McManus, is soliciting testimony in person and in writing, which will provide the basis of their recommendations and report. Farmland preservation will be a key topic. Please come with your suggestions on what may be done at the local, state and federal level to preserve both farming and farmland! Your ideas are important to the future of agriculture; **you** can make a difference!

CODE-A-PHONES
By Gary Thornton, District Fruit IPM Agent

The Code-A-Phones are now scheduled to start up on **April 26th**. Until approximately mid-May, the phone numbers and the operation of them will remain the same as in years past. Sometime in mid-May we will hook up to our new menu driven "code-a-phone." At that point, the number to call will only be **947-3063**. This number will access both stone and pome fruit information at that time. This will ring into the computer and if someone is on the line, it will roll over to another line. In the event two callers are using the system at the same time, then the line will be busy. Once on the system, you will then be asked to press 1 for the cherry message, 2 for the apple message, 3 for the grape message, 4 for additional information on controlling plum curculio in tart cherries and so on. The system will eventually have a fax-back system, so additional bulletins or information can be requested at any time of the day.

We also will have a toll free number at that time for those of you outside the Traverse City area; that number is **1-877-763-PEST (7378)**.

The major improvements will be fewer busy signals, toll free access, expanded topics and less waiting for the information that is needed.

Until then, use these numbers as in the past.

Stone Fruit (cherries, peaches, plums)
616/947-3064

Pome Fruit (apples, pears, grapes, strawberries)
616/947-3063

Pre-Season Fruit Pest Management and Thinning Update
By Gary Thornton, District Fruit IPM Agent

Where	*Date*	*Time*
NWMHRS	April 26th	7:00-9:00 p.m.

With the trouble in the apple markets this past year, there does not look like there is a lot of room for undersized fruit. Phil Schwallier, District Horticultural and Marketing Agent, will be joining us for half of the evening to share with us the latest in thinning strategies and materials.

Doug Sandmann, Bayer Crop Protection Products, will be joining me for the IPM update. There are quite a few label changes this year and the significance of those will be discussed, as well as control strategies for the upcoming season. The annual "pesticide cost comparison" guide will be available at this meeting.

Pesticide recertification credits have been applied for. In the past, 2 credits have been granted for this session.

Pesticide Update:
By Gary Thornton

LABEL CHANGE POAST HERBICIDE: The poast label has been expanded. It is now labeled for bearing and nonbearing apple, apricot, cherry, nectarine, peach and pear orchards. It can not be used on bearing plum trees.

LABEL CHANGE - APOLLO SC label for apple has been modified to now allow applications up to 45 days before harvest. Dr. Jim Johnson's original work with this product was at a first cover timing. This timing performed exceptionally well, as the leaf area is vastly greater at this stage than at the old-labeled timing of "no later than tight cluster". Apollo and Savey are similar in chemistry and although allowed to be used every year, growers should refrain from doing so. Resistance has shown up in some areas in as little as 3 years when used consecutively. An acceptable rotation is to use Agrimek in year 1, Apollo or Savey in year 2 and oil and Pyramite (if needed) in year 3. It is beneficial to use the oil in other years too, if the egg numbers in a given block are heavy.

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Northern Michigan FRUITNET'99
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Michigan State University

May 25,1999

WEATHER:
By Jim Nugent, District Horticulturist, MSU-E

The evaporation rate this past week has been very low at only 0.36" (this is less than the daily evaporation on 5/5!), with only 2.06" during the past two weeks. This is the lowest weekly evaporation rate since April 1. Two very long, cool wetting periods have occurred during the past ten days. Rainfall at the NWMHRS has totaled 1.10" during the past week; in addition, 0.45" fell at the end of the preceding week.

DEGREE DAYS at NWMHRS:

Base 50:320; Base 42: 643

GROWTH STAGES:

Apricot: Harcot – 20mm fruit
Plum: Stanley – 8mm
Apple: Red Delicious - 8mm
Sweet Cherry: Napoleon – 12mm
Tart Cherry: Montmorency – 11mm
Grapes: 6" shoots

COMMODITY REPORTS

The **tart cherries** are setting a significantly lighter crop than in 1998. We are currently in a moderate infection period for **cherry leaf spot**. The current wetting period will likely extend long enough to be a heavy infection period. Growers should be sure to cover both sides for a heavy infection period. **Brown rot** conditions are low due to the cool temperatures. **Plum curculio** egg laying activity has been light so far. Insecticides can be delayed in controlling plum curculio in tarts when populations are low until 375 degree days base 50 after full bloom. We are currently 190.5 degree days base 50 after bloom at the NWMHRS. **Green fruitworm** are 1/2 in. long and can be found feeding on terminal leaves and fruit.

The **sweet cherry** crop is looking good. Sweets should be treated with an insecticide for **plum curculio** at this point.

The threat of **plum curculio** stings in **apples** is low until the fruit size more. The first catch of **codling moth** occurred at the NWMHRS last week, although trap catches were extremely light due to the cool weather. Provado can go on for **spotted tentiform leaf miner**, **leaf hoppers** and **green apple aphids**. It may, however, be too late to control **rosy apple aphids**. The current rains, which started on Sunday morning, produced a heavy infection period for **apple scab**. We are approaching the end of primary scab for apples.

In **apricots, plum curculio** and **tarnished plant bugs** are a threat.

Black knot is a threat in **Stanley plums** with the recent 45 plus hour long wetting event. If growers weren't covered, Benlate/Captan is the best choice. **Plum curculio** is a threat.

Bartlett pears are at 10mm. If thinning with NAD was missed, NAA can be used at this time, but care should be taken to not over thin. Agrimek should go on the next chance that a grower has, if it has not yet been applied. Be sure one gallon of oil is used with the Agrimek. Provado and Pyramite are also labeled and should be used at the high rates.

Grape pest pressure is extremely light.

Insect Trap Count Averages at the NWMHRS

Date	Codling Moth	Spotted Tentiform Leaf Miner	Lesser Peach Tree Borer	American Plum Borer	Oblique Banded Leafroller	Grape Berry Moth
5/18	0	660	8	30		
5/24	1	88	1.3	14.3	0	

MISCELLANEOUS:

Thinning Apples
By James E. Nugent, District Horticulturist, MSU-E

Several days of mostly cloudy weather will naturally reduce fruit set and increase the activity of thinners. In blocks where ten days ago we would have suggested thinning aggressively, rates should be reduced to a moderate thinning strategy. This weekend should provide good conditions

for applying apple thinners.

Gibberellic Acid on Cherries
By Jim Nugent

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. Here at the NWMHRS, we are currently just entering this window. By late this week and next week the growth stage should be right for application, though orchards further north are behind.

Tips for use:

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

3. For mature trees:

a) Use 10-20 ppm of gibberellic acid (GA). 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 Pro-Gibb 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) Prefer to apply with 50-150 gal of water per acre. Lower rates of water may reduce response.

d) 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 you have enough experience with a particular surfactant 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) Apply with a handgun 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) applied about 3 weeks after full bloom + 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. Bringing young trees into bearing following treatment with high rates during non-bearing years. It is **very** important to not discontinue GA as this results in oversetting of fruit and stunting of trees. In the past, we have suggested decreasing the rate to 15 ppm. This is not enough! 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 on research), I suggest that approximately 30 ppm be applied if spraying dilute (18 fl oz Pro-Gibb/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 farther based on tree row volume.

Establishing Wide Crotch Angles in Young Trees
By Jim Nugent
Now is the time when new limbs can be readily spread to form a 90°crotch angle. With stone fruits, I suggest using spring-type clothespins. Apple limbs can be spread either with clothes- pins or toothpicks. This job needs to be done soon or the crotch angles become too set and limbs will readily break when spread.

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ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1 1999 (*)

Please send any comments or suggestions regarding this site to:
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