



Northern Michigan FRUITNET 2000

Weekly Update

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

August 1, 2000

GROWING DEGREE DAY ACCUMULATIONS through July 31st at the NWMHRS

Year	2000	1999	1998	1997
GDD42	2217	2476	2456	1948
GDD50	1352	1622	1580	1231

WEATHER

By Jim Nugent

Drought Symptoms – Many blocks of sweet and tart cherries are currently showing drought-related symptoms. These symptoms include yellowing and drop of older leaves and/or "firing" of leaves on individual branches. The "firing" symptom is generally caused by a combination of high populations of two-spotted and/or plum nursery mites along with severe drought. Firing condition is a sudden browning and collapse of leaves on a limb, which includes the terminal leaves but does not always extend to the basal leaves. The past few days of rain will provide much needed tree stress relief!

Evaporation and rainfall rates at the NWMHRS are as follows (for irrigation scheduling purposes we have included the 75% of evaporation vs rainfall calculation):

	Evaporation	Rainfall	Evaporation less Rainfall	75%of Evaporation	75% Evaporation less Rainfall
Past 2 weeks	2.35	1.63	.72	1.76	.13
Past 4 weeks	5.81	1.87	3.94	4.36	2.49
Since May 1	18.31	8.03	10.28	13.73	5.70

PESTS AND DISEASES

By Gary Thornton, District Fruit IPM Agent

Cherry leafspot infection periods have been frequent lately. The NWHRs had infection periods for leaf spot of heavy, moderate and moderate on July 29th, 30th and 31st respectively. Growers who already applied their postharvest sprays should be in good shape. Those who did not should keep in mind that Chlorothalini (Bravo) is only a protectant and will do nothing to stop the infections that have recently occurred. Growers who have leaf spot started in their orchards should consider adding a SI with Bravo to control some of the recent infections. Growers, who have orchards free of leaf spot so far, most likely only need to apply Bravo by itself. Recent infections will take about three weeks for symptoms to appear due to the age of the leaves. If boron is needed, postharvest sprays are a good way to apply it. Foliar applications of 5lbs of Solubor (20% boron) per acre are adequate for cherries.

Plum nursery mites are in high numbers in some orchards. Some blocks have seen some firing, but plum nursery mites have not always been present. Growers should check their blocks for infestation. It is hard to say what the threshold is, but it is based on soil moisture levels. Now that we have had some much-needed rain, the threshold has risen. Leaves with high numbers typically have some browning on the underside and greenish-brownish appearance on the top. Firing typically results when high numbers of plum nursery mites are present in combination with drought stress. Now that moisture is not in such short supply, the firing should not occur until we experience drought conditions again. Pyramite appears to be the material of choice at this point. Growers should apply the material with as much water as they can and use a surfactant.

Two spotted spider mites - Despite the dry weather, these mites have been few and far between so far. The recent rains should help to keep further migration into the trees from taking place. Be aware though that where low numbers are present, eggs are being laid and the number of adults will increase dramatically in the next few weeks. A generation in warm weather may take as little as 9 days to complete.

Codling moth trap catches have been flat for the last two weeks, with an average trap catch of less than two at the NWMHRS. We have been in between generations for the last few weeks. The second-generation flight should be starting right now, so expect trap catches to start to rise in the next week or so. Growers who experienced high trap catches two weeks ago are now at the point where those eggs are hatching and need to have an insecticide on for control now. Sprays applied prior to the recent rains should not be counted on for control.

Apple maggot adults, whom had been very slow to emerge due to the dry weather, have emerged in full force. The abandoned site went from a total of three flies caught last week to a total of 91 this week. Most commercial orchards have had adults caught in them at this point.

Spotted tentiform leafminer are in the sapfeeding and tissue feeding stage now. Trap catches have remained very high for this pest, again averaging over 1000 per trap. Many orchards are still in fine shape in regards to this pest; however, some orchards are being hit very hard! Mines are showing up at more than five per leaf in the worst areas that I have seen. At this point in the season, 2 to 3 mines per leaf is the economic threshold. Keep in mind the cropping load and the end market before treating for this pest.

Green Apple aphids are slowing down where the terminal buds have set or controls applied. Predator populations have been good to excellent.

Fireblight has once again reared its head in some orchards. Being from a month or more ago spread

Fireblight has once again reared its head in some orchards. Rains from a month or more ago spread inoculum from the few infections that existed to the rapidly growing terminals. As the terminal buds set, secondary spread will slow down. To prevent further spread, the infected trees or portion of them (depending on how bad the infestation is) should be removed from the orchard. By now, though, most of the damage for the year has been done.

Pest	Insects per Trap
Apple Maggot (abandoned)	30.0
Codling moth	1.7
Oriental Fruit Moth	3.7
Spotted Tentiform Leafminer	1034.0
Greater Peach Tree Borer	6.7
Lesser Peach Tree Borer	14.0
American plum borer	4.3

BULL'S-EYE ROT REMINDER

Dr. Alan Jones, Dept of Botany and Plant Pathology, MSU

Bull's-eye rot was a problem on some lots of apples coming out of storage in April, May, and June of 2000; therefore, affected growers likely need late-season fungicide sprays to prevent bull's eye problems next spring.

Bull's eye can be a problem on fruit held in long-term cold storage. Fruit for processing and short-term storage rarely exhibit symptoms because the disease develops so slowly in storage. The disease is a localized problem affecting isolated orchards; historically, it has been observed on apples grown from about Fremont to Traverse City, and in isolated orchards near Ionia and in eastern Michigan. Basically growers with a history of the problem are the ones that need to be concerned about this disease.

Bull's eye infection occurs in the orchard in late summer and is favored by late summer rains. Growers who have had a bull's-eye rot problem and plan to put fruit from problem blocks into long-term storage need to consider late-season fungicide sprays. This disease is controlled with fungicides, starting in early August until 1 or 2 weeks before harvest at 2-week intervals. Benlate 50%W at 1.5 lb per acre and Ziram

at 6 to 8 lb per acre are the best fungicides (both have a 14 day pre-harvest interval). Captan 50%W at 6 to 8 lb per acre is a possible alternative where preferred fungicides cannot be used.

MISCELLANEOUS

Samples for Tissue Analysis

By Jim Nugent

Collect samples for tissue analysis now. Tissue analysis is the best method to assess tree and vine nutrient needs. The window for collecting nutrient samples is from mid July to mid August. I strongly

nutrient needs. The window for collecting nutrient samples is from mid-July to mid-August. We strongly encourage nutrient analysis be done at least every two to three years. It is best to combine this with soil samples taken from the same blocks. This combination allows a good analysis of nutrient and lime needs.

If you have any questions on how to collect tissue samples, call either the NW Michigan Horticultural Research Station (946-1510) or your local county Extension office. The cost per sample will be \$20 again this year.

[ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE February 15, 2000 \(*\)](#)

Please send any comments or suggestions regarding this site to:

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Northern Michigan FRUITNET 2000

Weekly Update

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NW Michigan Horticultural Research Station
Michigan State University

August 8, 2000

GROWING DEGREE DAY ACCUMULATIONS through Aug. 7th at the NWMHRS

Year	2000	1999	1998	1997
GDD42	2402	2648	2668	2134
GDD50	1481	1738	1736	1361

WEATHER

By Jim Nugent

We received some much needed rainfall at the NWMHRS during the last 4 days of July, with a storm total of 1.44". However, the total rainfall since July 1 has only been 2.15 inches.

Evaporation and rainfall rates at the NWMHRS are as follows (for irrigation scheduling purposes we have included the 75% of evaporation vs. rainfall calculation):

	Evaporation	Rainfall	Evaporation less Rainfall	75% of Evaporation	75% Evaporation less Rainfall
Past 2 weeks	2.6	1.59	1.01	1.95	0.76
Past 4 weeks	5.89	1.75	4.14	4.42	3.11
Since May 1	23.52	9.3	14.22	17.64	10.67

PESTS AND DISEASES

By Gary Thornton, District Fruit IPM Agent

The main concern for **cherry** growers at this time is **cherry leafspot**. Many growers have a post harvest spray on now, while others with clean orchards have chosen not to apply one. Populations of **two spotted spider mites** remain low in most orchards; a few blocks, however, are near or above threshold. If it remains dry they will likely continue to increase in number. **Plum nursery mites** are causing browning in some tart cherry orchards. When mite damage is combined with drought stress, firing can occur. Pyramite seems to work fairly well on plum nursery mites when used with lots of water (2x) and a surfactant. Growers should continue to keep an eye their mite numbers for another 10 days. Many **yellow leaves** have been dropping from sweet cherries, due generally to a combination of ethephon and drought.

Apple growers who have not been trapping for **apple maggot** should keep their fruit protected by an insecticide. Apple maggot have emerged in very high numbers since the rains came about 12 days ago.

Plums are also susceptible to apple maggot. **Codling moth** is between generations, with moth trap catches down to 1 per trap. The second generation should begin emerging anytime. **Spotted tentiform leafminer** adult flight remains high at 523 per trap at the NWMHRS. Although most apple orchards are below threshold, some have more than 5 mines per leaf. Provado, Lannate and Vydate will control the sap feeding stage, but not the tissue feeding stage. **Potato leafhoppers** remain active in orchards not treated with Spintor.

Peaches become very susceptible to **brown rot** in the pre-harvest period. Pre-harvest fungicide sprays not only protect the fruit prior to harvest, but also extend the post harvest shelf life.

Grapes now have ample symptoms of **powdery mildew**, **black rot** and **downy mildew** in unsprayed vineyards. Additional sprays of a sterol inhibitor will only increase the chances for resistance. Stylet oil is labeled in Michigan and works well to suppress established populations of powdery mildew. This has been used successfully in New York. The recent hot, muggy weather and frequent rains has been ideal for downy mildew development. **Potato leafhoppers** are active in some vineyards. **Two spotted spider mites** are above threshold in some areas.

NWMHRS Insect Trap Catches, Aug. 7th

<u>Pest</u>	<u>Insects per Trap</u>
Apple Maggot (abandoned)	22
Codling Moth	1
Oriental Fruit Moth	6
Spotted Tentiform Leafminer	523
Greater Peach Tree Borer	2.6
Lesser Peach Tree Borer	5.6
American Plum Borer	2.3

If you are interested in the weekly CIAB raw product report, you can access it at CIAB's website:

www.cherryboard.org

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Northern Michigan FRUITNET 2000

Weekly Update

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

August 22, 2000

GROWING DEGREE DAY ACCUMULATIONS through Aug. 21st at the NWMHRS

Year	2000	1999	1998	1997
GDD42	2734	2984	3061	2438
GDD50	1702	1962	2017	1554

WEATHER

By Jim Nugent

We could sure use some rain!

Evaporation and rainfall rates at the NWMHRS are as follows (for irrigation scheduling purposes we have included the 75% of evaporation vs. rainfall calculation):

	Evaporation	Rainfall	Evaporation less Rainfall	75% of Evaporation	75% Evaporation less Rainfall
Past 2 weeks	2.35	1.30	1.05	1.76	0.46
Past 4 weeks	4.95	2.89	2.06	3.71	0.82
Since May 1	25.87	10.60	15.27	19.40	8.80

PESTS AND DISEASES

By Gary Thornton, District Fruit IPM Agent

Tart cherry trees with high populations of **two spotted spider mites** only have until about Sept. 7th to put up with them. After that the adults will be turning orange and leaving the trees. Miticides at this time would only be warranted on stressed young trees. Post harvest fungicide sprays should be completed by now.

Apple growers should be seeing the second generation of **codling moth** adult flight now. The trap catches at the NWMHRS for this week were 3 per trap, down from last week's 11 per trap. Growers should continue to monitor these closely. **Apple maggot** remain a threat, with the trap catches down to less than 4 per trap in the abandoned orchard we have been monitoring. Trap catches of **spotted tentiform leafminer** remained high, with 1100 per trap at the NWMHRS. They are in all stages now, control should only be considered where mines are greater than 3/leaf.

Bulls eye rot was a problem for some apples last year. This rot shows up in storage. Benlate and Ziram are both effective on a protectant basis for controlling this disease and should be applied to blocks that had the problem last year. The preharvest interval is 14 days on both of the materials.

Bartlett pears should escape the threat of **codling moth**, where flight was light in recent weeks, since harvest for processing will be next week. Later varieties of pear remain susceptible.

MISCELLANEOUS

NW Research Station Annual Open House

The annual Open House at the NW Michigan Horticultural Research Station will be held this year on *Thursday, August 31st*. As usual, the program is being held in conjunction with the Leelanau Horticultural Society's annual meeting. There is no equipment show this year (the equipment show is every other year).

The afternoon's educational format will have concurrent programs, in the field and possibly in the Station's conference room. Growers will move to various locations to attend the programs of their choice. The Open House educational program will begin at 2:00 p.m. with the first of the concurrent sessions beginning at 2:15 p.m. The concurrent programs will be scheduled in four 30-minute time slots, with 15 minutes in between, ending at 5:00 p.m.

From 5:00 to 6:00 p.m. there will be a social hour, and from 6:00 to 7:00 p.m. the Leelanau County Horticultural Society will hold a barbecue, followed by a short annual meeting and award presentations. Tickets for the barbecue will be available at the door for \$15.

Sponsors for the Open House are the Michigan Agricultural Experiment Station, MSU Extension, the Northwest Michigan Horticultural Research Foundation and the Leelanau Horticultural Society.

FINAL TART CHERRY HARVEST REPORT

If you are interested in the weekly CIAB raw product report, you can access it at CIAB's website: www.cherryboard.org

ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE February 15, 2000 (*)

Please send any comments or suggestions regarding this site to:

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Northern Michigan FRUITNET 2000

Weekly Update

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NW Michigan Horticultural Research Station
Michigan State University

August 29, 2000

GROWING DEGREE DAY ACCUMULATIONS through Aug. 28th at the NWMHRS

Year	<u>2000</u>	1999	1998	1997
GDD42	2919	3188	3266	2593
GDD50	1831	2110	2166	1653

WEATHER

By Jim Nugent

Some much needed rain fell this past week in NW MI, though some areas received very little. Recent rainfall and evaporation at the NWMHRS are as follows:

	Evaporation	Rainfall	Evaporation less Rainfall	75% of Evaporation	75% Evaporation less Rainfall
Past 2 weeks	2.29	1.29	1.0	1.72	0.43
Past 4 weeks	4.82	2.55	2.27	3.62	1.07
Since May 1	23.13	10.58	15.15	17.35	6.77

PESTS AND DISEASES

By Jim Nugent

Apples: **Apple maggot** adult trap catches have declined rapidly in abandoned orchards since hitting their peak in late July and early August. This year many of the abandoned orchards and/or abandoned

trees have no fruit, following last year's heavy crop on these trees. As a result, all of the apple maggots that emerge from these sites leave these hosts in search of fruit for egg laying, and thus, more pressure from migration into commercial orchards. The good news is that next year the population of apple maggots and **codling moths** in these sites will be down, so in-migration should be significantly lower. Second generation codling moth adults are still flying, so continue to monitor traps and spray as necessary. There will be no third generation of codling moth in NW MI this year.

Cherry: **Cherry leafspot** symptoms and defoliation have become much more prevalent during the past week. Expect this to worsen as a result of recent infection periods in the weeks to come.

MISCELLANEOUS

NW Research Station Annual Open House

The annual Open House at the NW Michigan Horticultural Research Station will be held this week, on *Thursday, August 31st*, beginning at 2:00 p.m.. The afternoon's educational program, from 2:00 to 5:00 p.m. is outlined on the following page.

Following the educational sessions, from 5:00 to 6:00 p.m. there will be a social hour. From 6:00 to 7:00 p.m. the Leelanau County Horticultural Society will hold a barbecue, followed by a short annual meeting and award presentations. Also following the barbecue, Parallel 45 Vines and Wines will hold their August meeting in the Station Conference Room. Tickets for the barbecue will be available at the door for \$15.

Sponsors for the Open House are the Michigan Agricultural Experiment Station, MSU Extension, the Northwest Michigan Horticultural Research Foundation and the Leelanau Horticultural Society.

All are welcome, Please Come and Join Us!

See the following Educational Program Schedule for details.

NWMHRS Open House Educational Program -- Aug. 31, 2000						
RESEARCHER	PROJECT	2:15- 2:45	3:00- 3:30	3:45- 4:15	4:30- 5:00	LOCATION
Dr. Gary VanEe, Dick Ledebuhr	Improved Spray Application in Grapes	X				Stop 1 Grapes
Dr. Annameik Schilder	Grape Disease Management Update	X	X			Stop 1 Grapes
Dr. Rufus Isaacs	Insecticide Trials in Strawberry and Grapes		X	X		Stop 1 Grapes
Dave Stocking, Dr. Stan Howell	Evaluation of Wine Cultivars			X	X	Stop 1 Grapes
Dr. Annameik Schilder, Dr. Rufus Isaacs, Dr. Charles Edson	Grape Integrated Crop Management Trial				X	Stop 1 Grapes
Dr. Oscar Liburd	Advances in Cherry Fruit Fly & Apple Maggot Management			X	X	Stop 1 Entomology
Dr. Ron Perry	Q&A on Apple	X	X			Stop 2

	Rootstocks & Training Systems					Apples
Jim Nugent, Dr. Greg Lang	Growing & Training Dwarf Sweet Cherries for Processing	X				Stop 2 Cherry Systems Trial
Dr. Gary VanEe, Dick Ledebuhr, Jim Laubach	Pesticide Application--An Integral Part of IPM		X			Stop 2 Apples
Dr. Amy Iezzoni	Growing Balaton Cherries--The Latest Information		X			Stop 2 Plant/Balaton Blk
Dave Epstein, Dr. Dan Waldstein	Michigan Apple Implementation Project--Pheromone Placement & Plum Curculio Trapping		X	X		Stop 2 Apples
Dr. Ron Perry	Cherry Rootstocks				X	Stop 3 Cherry Rootstocks
Dr. Mira Danilovich	Promising Plum Varieties				X	Stop 3 Plums
Dr. Jeff Andresen, Joe Merillat	Weather Data Collection and Information Dissemination	X	X			Stop 4 Lobby
Dr. Charles Edson	Ground Cover/ICM Alternatives in Bearing Cherries--Results After 5 Yrs.	X				Stop 5 Gregory's
Dr. Charles Edson	ICM Alternatives in Young Cherries		X			Stop 5 East 20
Dr. Mark Whalon	Plum Curculio Research	Poster in Pole Building				
Dr. Ron Perry	Results of Various Rootstock & Apple Training System Trials	Posters in Pole Building				

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