



[Home](#)

[MAES Home](#) | [Field Stations](#) | [Station Home](#) | [Publications](#) | [FruitNet Weekly Report](#)

[Background & Projects](#)

Northern Michigan FruitNet 2007

Weekly Update

[Calendar](#)

NW Michigan Horticultural Research Station

[Publications](#)

[Staff Directory](#)

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[Links](#)

[Search](#)

August 7, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH AUGUST 6th AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	2626	2650	2669	2094	2226	2315	2337.7
GDD50	1734	1742	1797	1264	1381	1559	1500.5

Growth Stages at NWMHRS (8/6/07—8:00am)

Apple: 61 mm fruit
Pear: Bartlett: 47 mm fruit
Plum: 33 mm fruit
Grapes: Chardonnay: Green fruit

Weather

We have had no rain in the past week, and the forecast does not look promising for any significant rainfall.

Crop Report

The last of the Balatons are coming off at the beginning of this week. Both sweet and Montmorency tarts are also finished. Ethrel damage is evident everywhere in the northwest. Growers are harvesting peaches. Sizing apples and irrigation systems have been major concerns in the past week. Growers are irrigating apples if they have a system, and some are considering putting a system in yet this season.

Pest Report

Apple: No diseases to report at this time—we have just been too dry to be fighting off fungal pathogens! In the insect world, **spotted tentiform leaf miners** are down, but all other insects are on the rise. We caught an average of 24 **codling moths**/trap, which is un

Other moths are on the rise. We caught an average of 11 feeding moths/trap, which is up from over 14 last week. **Obliquebanded leaf rollers (OBLR)** are also increasing with over 10/trap this week, where we caught none last week. We also caught more **Oriental fruit moths** this week than last, and we caught a total of seven **apple maggots** on two red sticky spheres.

Cherry: A little **cherry leaf spot** is showing up in the tops of tart cherry trees, but the overall amount of disease pressure is low. **OBLR** numbers are also up in cherry with almost 30 moths/trap. All **borer** counts are down from last week, and we are still catching lots of **cherry fruit fly (CFF)** in the entomology block. We caught one more CFF in our managed block than last week—from two to three.

Grapes: Vineyards are now showing some **powdery mildew** and **downy mildew** on more susceptible cultivars. Powdery mildew is still relatively light, probably due to few wetting periods during early shoot growth. **Sun scald** on berries is very common in the area, as are **"pygmy" berries** in clusters. It is not clear if these will fall out of the cluster as fruit development continues. **Japanese beetles** are being found on foliage in areas where this pest is now found. Many people have found **stink bug eggs and nymphs**, but it is not known if these are predatory or plant feeding species. **Grape berry moth larvae** have been found in clusters at a few sites, so be sure to start checking for this pest.

Yikes--San Jose Scale on Sweet Cherry!

Nikki Rothwell, District Horticulturist, MSUE

We have observed large populations of San Jose scale on sweet cherries in the region. Sweet cherries are considered hosts of these introduced pests, but more commonly, we see San Jose scale in apple and peach. Scales are unusual insects that have a very unique life cycle that lends itself to difficulty in controlling them. The adult females live underneath a 'scale' or a turtle-like covering for their whole lives. Males are also round in shape, but they have wings once they come out from under the female's scale. Females give birth to living young rather than lay eggs—these nymphs are the crawler stage of the life cycle. Because the crawler stage does not possess any waxy covering, this is one optimal stage for control.

San Jose scale feed on sap of trees, and a large population is needed to cause injury. Depending on the size of the population, scale can kill a young tree in two to three years. Older trees can also be killed by scale, but they do withstand more feeding damage than young orchards. In addition to bark feeding, San Jose scales can also feed on the fruit and leaves. The feeding on fruit is the most conspicuous where scales cause bright red spots, most commonly seen on apple.

San Jose scale spend the winter as partially grown scales where they adhere themselves tightly to the bark. When the sap begins to run in the spring, the scales grow, and they reach full grown status in late May. At this time of the year, male scales come out from under the scale to mate with females. Females will start to produce young, and she is capable of bearing 150-500 offspring. These crawlers start to suck sap with their needle-like mouthparts. In three weeks, the young crawlers molt and lose their old skins, legs, and antennae to become a flattened sac with waxy caps. They remain attached to the trees with their mouthparts.

Because these insects have two generations per year, we have two optimal timings for control. An oil application during pre-bloom is highly effective. Insecticides applied at early petal fall will control males before they mate. John Wise and his crew have found that a mid-August crawler stage is another timing that is effective. Warrior has the fastest activity (based on a peach trial); Esteem is an excellent scale material, but far more effective when applied pre-bloom in the spring.

San Jose Scale life cycle (based on a 50 degree day base)

125 DD First adult emergence

500 DD First crawler emergence

950 DD First emergence of second generation adults

1,350 DD Peak emergence of second generation adults

1,450 DD First emergence of second generation crawlers

What to do if you have Ethrel damage?!?

Nikki Rothwell, District Horticulturist, MSUE

A lot of Ethrel damage has been showing up in the past few weeks. This injury has come as a result of highly stressed trees, most from drought stress. However, we have seen San Jose scale on some sweet cherries, and these insects have put more stress on trees. This stress is then compounded when we apply Ethrel, especially under hot temperatures. Injured trees have lots of leaf yellowing and leaf drop, and there is excess gummosis in affected trees. The gummosis is often clear, and it can be anywhere on the tree—branches, trunks, and branch angles.

Since the damage has already happened, we need to have a plan on how to keep these trees as healthy as possible. First, growers should avoid pruning until dormancy. We need to make sure these trees have all possible resources heading into winter, and pruning off any branches at this time will reduce the trees' ability to make these resources. Therefore, save pruning efforts until trees are in dormancy. When growers do prune in dormancy, they should be sure to give the trees an extra hard pruning. This method will remove some of next year's fruiting area, and it will place the resources into fewer fruiting points and keep the majority of resources into tree rather than fruit.

We also want to make sure to reduce any potential stress on the trees. We want to keep weeds under control, and we need to have good cherry leaf spot control as we do not want any premature leaf drop this season. Even though we have had had little rain and very low disease pressure, a post-harvest Bravo application is warranted if trees are showing Ethrel damage. Another reason a disease spray should be used is due to a long post-harvest period, as harvest ended so early this year. Also, mite thresholds have dropped in situations where trees are showing Ethrel damage. Trees that have been damaged by Ethrel cannot tolerate high mite populations. The threshold for mites on sweet cherries is usually around 30 mites/leaf in normal years, but sweets suffering from Ethrel damage have had their thresholds decrease to 5-7 mites/leaf. If this threshold is reached, a miticide is needed.

Lastly, a fertilizer application may be warranted in orchards where nutrients are needed. Growers should not be applying any extra nitrogen this fall, except where it is needed. The rates suggested at this time is 100-120 lbs. actual N in spring or a split application in spring and fall of 50-60 lbs. We also need a good dose of potash this fall if potassium levels are low.

Irrigation Needs for Fruit Trees Based on Replacing Water Losses

J.E. Nugent, C.D. Kesner, V.F. Bralts

To calculate irrigation needs based on replacing net water losses, subtract rainfall/week from evaporation/week to determine net water loss/week.

Example: Evaporation/week = 2.2 inches
Rainfall/week = 0.7 inches
Net water loss/week = 1.5 inches

If evaporation exceeds rainfall, generally irrigate to replace 75% of net water loss. If rainfall exceeds evaporation, irrigation is unnecessary. Early in the season (pre-bloom), trees require less than 75% of replacement due to minimal foliage. Some of the more dwarfing rootstocks require more than 75% replacement. Irrigate apples on M-9 to 100-120% and on Mark to 150%.

If using a trickle irrigation system, the amount of irrigation water necessary to replace 75% and 100% of net water loss based on the root zone area of the tree is tabulated in the table below.

Trees Age (Yrs)	Sq. Ft of Root Zone	Gals. water/ tree/week to Replace 1" Net Water Loss/Week		Gals. water/ tree/Day to Replace 1" Net Water Loss/Week	
		<u>100%</u>	<u>75%</u>	<u>100%</u>	<u>75%</u>
1	7 (3' circle)	4.4	3.3	0.63	0.47
2	13 (4' circle)	7.8	5.9	1.10	0.80
3	20 (5' circle)	12.4	9.3	1.80	1.35
4	28 (6' circle)	17.5	13.0	2.50	1.90
5	38 (7' circle)	23.8	17.9	3.40	2.55
6	50 (8' circle)	31.1	23.3	4.40	3.30
7	64 (9' circle)	39.4	29.5	5.70	4.30
8	79 (10' circle)	48.7	36.5	7.00	5.25
9	95 (11' circle)	58.9	44.2	8.40	6.30
10+	113 (12' circle)	70.1	52.3	10.10	7.60

1. To calculate rainfall, measure rainfall in a gauge after each rain and calculate weekly totals.

2. To determine pan evaporation, either use the weekly total from the nearest weather station equipped with a NOAA evaporation pan or use your own evaporation pan. Weekly totals from the NWMHRS will be published in the weekly FruitNet.

3. The chart indicates water needs based on a drip system that delivers water just to the root area. If the system is delivering water to an area larger than the root zone, then adjust your application rate up to offset this difference. This will occur most dramatically when trees are very young and the irrigation system uses multiple emitting points per tree or micro-sprinklers. In these cases, divide the area irrigated by the area of the root zone, then multiply this times the estimated water needed. For example: to determine the irrigation rate/week for 2 year old trees (4'circle root zone = 13 sq. ft.), irrigated with micro-sprinklers covering 6' circle = 28 sq. ft., to be irrigated at 75% of water loss.

Gal/tree/week to replace 1" water loss = sq.ft. irrigated / sq. ft. of root zone x rate from the chart = $28 / 13 \times 5.9 = 12.4$ gal/tree/week to replace 1" water loss/week

If the root zone is equal to, or larger than, the area being wetted with the irrigation system, then ignore this step and use the chart results directly to indicate water rates to replace 1" net water loss/week.

You're invited!

MSU Extension will host an Open House to welcome the new Leelanau County Extension Director, Dr. Robert Serrine on Tuesday, August 14. The event is open to the public. Dr. Serrine succeeds Jim Bardenhagen who retired in February.

Dr. Sirrine is originally from Traverse City. He completed his Bachelor's Degree at the University of Michigan. He attended the University of California Santa Cruz where he earned his Ph.D. in Environmental Studies with a focus in Agroecology. His background includes teaching, fruit production and sustainable agriculture.

The Open House will be held from 2-4 pm at the county's River Office Building, 112 Chandler Street, Leland. We hope you will join us in welcoming Robert to our organization and community.

Seasonal Evaporation & Precipitation				
Beginning May 1, 2007, at NWMHRS				
<u>Date</u>	<u>Evap/week (in.)</u>	<u>75% of Evap/week</u>	<u>Rainfall/wk at NWMHRS (in.)</u>	<u>Rainfall minus 75% of Evaporation</u>
5/2	0.89	0.67	0.92	0.25
5/9	1.52	1.14	0.02	-1.12
5/16	1.5	1.13	1.14	0.01
5/23	1.21	0.91	0.12	-0.79
6/6	1.35	1.01	0.49	-0.52
6/13	2.00	1.50	0.03	-1.47
6/19	2.01	1.51	0.78	-0.73
6/27	1.72	1.29	0.24	-1.05

7/4	1.86	1.40	0.15	-1.25
7/10	1.82	1.37	1.05	-0.32
7/18	1.51	1.13	0.27	-0.86
7/24	1.55	1.16	0.10	-1.06
7/31	1.65	1.24	0.04	-1.20
8/7	1.74	1.31	0.03	-1.28
Totals	22.65	16.99	5.38	-11.61

CIAB WEEKLY RAW PRODUCT REPORT

For the weekly CIAB "Weekly Raw Product Report" go to the following website:
<http://www.cherryboard.org/Week62007.pdf>

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

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, 2007

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

Last Revised: 8-07-07



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ABOUT

NEWS & STORIES

AFFILIATED PROGRAMS

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Home

Background
& Projects

Calendar

Directions

InfoVideos

Links

Extension
Expert Search

Publications

Staff

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Agricultural & Regional Viticulture Agent

Leelanau Extension Director

August 21, 2007

GROWING DEGREE DAY ACCUMULATIONS THROUGH AUGUST 20th AT THE NWMHRS:

Year	2007	2006	2005	2004	2003	2002	17yr. Avg.
GDD42	3021	3030	3077	2379	2652	2714	2707.1
GDD50	2018	2010	2093	1436	1694	1846	1758.1

Growth Stages at NWMHRS (8/20/07—8:00am)

Apple: 65 mm fruit

Pear: Bartlett: 53 mm fruit

Plum: 35 mm fruit

Grapes: Chardonnay: Green fruit

Weather

The northwest finally had a bit of rain on Monday, August 20th. The amounts were variable across the region: the NWMHRS received 0.33 inches while East Leland had over a half inch and Benzie County had between 0.3 and 1.0 inches. Temperatures have been cool, in the 60's to low 70's F.

Crop Report

Growers have reported trouble sizing peaches. Apples are also small in non-irrigated plots, especially where they were not thinned well. Cherries are finished for the season, and the northwest reported a total of 135 million pounds, much lower than the USDA estimate of 160 million pounds. Plums are looking good here at the NWMHRS.

Apple: Insect numbers are down in apples this week. We have captured only a few **codling moth**, a few **obliquebanded leaf rollers**, no **oriental fruit moth**, and **spotted tentiform leaf miners** are in the low 100's. We are still catching **apple maggot** at the NWMHRS. Apples look great in terms of disease.

Cherry: We are beginning to see some **cherry leaf spot** in the tops of trees, most likely from the rain two weeks ago. Insect numbers are also low in cherry, except for one block where we caught almost 40 **obliquebanded leaf rollers**.

Grapes: Fruit veraison is underway, and in general fruit condition is good. Some **powdery mildew** and **downy mildew** have been found in scattered vineyards. Some **grape berry moth** infestations have been found in clusters, even though adults were not caught in pheromone traps at these vineyards.

Multicolored Asian lady beetle populations appear to be rather low in northwest Michigan, so we do not expect this pest to be a significant problem during harvest this year. Unfortunately, **paper wasp** and **yellow jacket** populations are fairly high, and likely to be troublesome. **Black rot** and **phomopsis** have been seen in northwest Michigan vineyards.

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Beginning May 1, 2007, at NWMHRS	

Date	Evap/week (in.)	75% of Evap/week	Rainfall/wk at NWMHRS (in.)	Rainfall minus 75% of Evaporation
5/2	0.89	0.67	0.92	0.25
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5/23	1.21	0.91	0.12	-0.79
6/6	1.35	1.01	0.49	-0.52
6/13	2.00	1.50	0.03	-1.47
6/19	2.01	1.51	0.78	-0.73
6/27	1.72	1.29	0.24	-1.05
7/4	1.86	1.40	0.15	-1.25
7/10	1.82	1.37	1.05	-0.32
7/18	1.51	1.13	0.27	-0.86
7/24	1.55	1.16	0.10	-1.06
7/31	1.65	1.24	0.04	-1.20
8/7	1.74	1.31	0.03	-1.28
8/15	1.81	1.36	1.31	-0.05
8/21	1.10	0.83	0.37	-0.46
Totals	25.56	19.17	7.06	-12.11

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[ACTUAL AND PREDICTED DEGREE-DAY ACCUMULATIONS SINCE MARCH 1, 2007](#)

Please send any comments or suggestions regarding this site to:

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Last Revised: 8-21-07

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