Northern Michigan FruitNet 2005
Weekly Update
NW Michigan Horticultural Research Station

Jim Nugent, District Horticulturist
Nikki Rothwell, District Fruit IPM Agent
Bill Klein, Farm Mgr, NWMHRS
Duke Elsner, Agricultural & Regional Viticulture Agent
Jim Bardenhagen, Leelanau Extension Director

August 2, 2005

GROWING DEGREE DAY ACCUMULATIONS as of August 1, 2005 at the NWMHRS

Year	2005	2004	2003	2002	2001	15 yr. Avg.
GDD42	2501	1966	2085	2182	2320	2165.0
GDD50	1668	1175	1280	1466	1498	1374.8

WEATHER

NW Michigan finally received some very needed precipitation this past week. Hot weather continues to push this season further ahead of normal. Even with the 1.15" of rain that fell at the NWMHRS this past week, the weekly rainfall did not meet estimated tree moisture demands (figured at 75% of evaporation). More rain will be needed soon or trees will revert to drought stress due to a complete depletion of deep soil moisture reserves.

GROWTH STAGES AT NWMHRS (8/2/05)

Apple: Red Delicious: 56mm fruit; Mac: 56 mm fruit
Pear: 46 mm fruit
Sweet Cherry: Hedelfingen: harvest; Gold: harvest
Tart Cherry: harvest
Apricot: harvest
Plum: 29 mm fruit
Grapes: Chardonnay: green fruit

CROP REPORT

Nikki Rothwell, District Fruit IPM Educator
Duke Elsner, Agricultural Educator, Grand Traverse Co.

Apples: With the rain we have had in the last week, some secondary **apple scab** has been reported in isolated areas in the northwest, but overall scab infection is still low. **Codling moth** (CM) catches remain steady compared with last week: 12.3 moths per trap. Here at the NWMHRS, we are over the 1,250 DD mark for CM egg hatch, so all apple growers in this area should be covered for second generation CM. Again, the northwest areas of Michigan do not have much of a span between the first two CM generations, and our trap catches rarely fall to zero between these generations. Our traps at the NWMHRS

the first two CM generations, and our trap catches rarely fall to zero between these generations. Our traps at the NWMHRS have never dipped below 4.5 moths/trap, and 5 moths/trap was the old rule of thumb before the biofix system. **Spotted tentiform leaf miner** catches are on the low side this week, with an average of 183 insects/trap. **Obliquebanded leaf roller** (OBLR) traps had only 2 moths/trap. **Dogwood borer** counts were at 16 moths/trap while **oriental fruit moth** traps captured an average of 12 moths/trap. We captured our first **apple maggot** at the NWMHRS this week, but reports of apple maggot have come in from Benzie and Antrim counties at the latter part of last week.

Cherry:Cherry leaf spot (CLS) infection is still low, in spite of the rain last week. Post-harvest sprays for CLS are in question this season. Since CLS primary infection was extremely low this year, we have very little secondary infection in the orchards at this time. If an orchard had low CLS inoculum from the 2004 season, and if the orchard has no CLS infections this season, this orchard may not need a post-harvest application. However, orchards with high CLS inoculum from 2004 or any CLS this season should receive a post-harvest spray. Orchards that have exhibited **drought and/or Ethephon induced leaf drop** are going to be highly susceptible to winter injury this year and cannot afford more pre-mature leaf loss, so we suggest taking less risk of premature CLS induced defoliation. Therefore, we recommend with these orchards applying a post-harvest spray in all blocks with Ethephon and/or drought induced leaf drop. If the weather takes a turn and we start seeing moisture levels increase, a later season post-harvest CLS may be warranted. **American plum borer** catches are at an average of 9.6 moths/trap, while **lesser peachtree borer** numbers are still low this week. **Greater peach tree borer** catches remain on the high side, with 17.3 moths/trap. We are still catching approximately 10 **cherry fruit flies** per trap in all blocks at the NWMHRS. **Two-spotted spider mite** numbers remain very high in cherry, even with the rain we received last week. We are also still observing high quantities of firing around the northwest.

Grapes: Hot! Dry! Vine growth and berry development continues at a rapid pace. Even in the unsprayed row at the horticultural station there is little **powdery mildew**. It is still a significant threat in vines with dense canopies. **Potato leafhopper** numbers have been low in recent weeks, and except for a few exceptional sites, the numbers of the **large sphinx moth caterpillars** are much lower than normal. **Two-spotted spider mites** are building up to high populations on ground cover plants in some sites. Watch for these to move into the vine canopy if the ground cover plants start to dry up or go dormant due to the hot weather.

Codling Moth Resistance Detected in Northwest

Codling moth (CM) resistance to Guthion and Imidan has been detected in the northwest region of Michigan. Until now, most documented cases of resistance have come out of the ridge area and southwest Michigan. The two populations of CM tested were found to be 'extremely resistant', where only 29% of CM died with a 500ppm rate of Guthion. With documented cases of resistance in our area, we should be judicious in applying Guthion or Imidan to control CM in apples, especially if there is even slight evidence OP's have recently been ineffective.

Rainfall and Evaporation Seasonal Totals

Date	Evap/week (in.)	75% of Evap/week	Rainfall/wk at NWMHRS (in.)	Rainfall minus 75% of Evaporation
5/2	0.31	0.23	0.01	-0.22
5/9	1.08	0.81	0.07	-0.74
5/16	0.76	0.57	0.53	-0.04
5/23	1.00	0.75	0.87	0.12
5/30	1.32	0.99	0.07	-0.92
6/6	1.60	1.20	0.05	-1.15
6/13	1.90	1.43	0.12	-1.31
6/20	1.15	0.86	0.30	-0.56
6/27	2.02	1.52	0.03	-1.49
7/4	2.15	1.61	0.45	-1.16
7/11	1.82	1.37	0.02	-1.35
7/18	1.62	1.22	0.34	-0.88
7/25	1.57	1.18	0.27	-0.91

8/1	1.70	1.28	1.15	-0.13
Totals	18.30	13.73	4.28	-10.60

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ACTUAL AND PREDICTED DEGREE-DAY
ACCUMULATIONS SINCE MARCH 1, 2005

Please send any comments or suggestions regarding this site to:

Bill Klein, kleinw@msu.edu
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August 9, 2005

GROWING DEGREE DAY ACCUMULATIONS as of August 8, 2005 at the NWMHRS

Year	2005	2004	2003	2002	2001	15 yr. Avg.
GDD42	2736	2142	2283	2364	2582	2351.0
GDD50	1847	1295	1422	1592	1704	1504.6

WEATHER

The weather in NW MI remained unseasonably warm these past two weeks. The temperatures in 2005 are about equal to 1991 temperatures, and these years have been the hottest since 1990. Fortunately, NW MI received some much-needed rains during the period, though precipitation amounts varied significantly by location. Evaporation rates remained exceptionally high over the past two weeks.

GROWTH STAGES AT NWMHRS (8/8/05)

Apple: Red Delicious: 59mm fruit; Mac: 62 mm fruit
Pear: 50 mm fruit
Sweet Cherry: Harvested
Tart Cherry: Harvested
Apricot: Harvested
Plum: 30 mm fruit
Grapes: Chardonnay: green fruit

CROP REPORT

Jim Nugent, District Horticulturist, MSUE
Nikki Rothwell, District Fruit IPM Educator
Duke Elsner, Agricultural Educator, Grand Traverse Co.

Cherries: Sweet cherry harvest is complete, and tart harvest is nearly complete. As of this writing on Tuesday, only a few

Montmorency trees remain to be harvested in the Northport area, as well as a few Balaton in Leelanau County. Tarts are picking out above estimate in NW MI, and slightly above the national estimate. Quality of all cherry varieties was excellent. **Two spotted spider mite** populations are high in many cherry orchards. Thresholds for mites drop considerably when trees are under drought stress. Hence, drought stressed cherry trees combined with high mite levels has resulted in substantial

are under drought stress. Hence, drought stressed cherry trees combined with high mite levels has resulted in substantial use of miticides this year. **Powdery mildew** is common, but too late to justify applying control materials.

Apples: Second generation **codling moth** trap catches have continued on an upward trend for the third week. This year we may find that codling moth produces a small third generation in NW MI in September, due to the hot season. **Spotted tentiform leaf miner** trap catches have increased at the NWMHRS. **Mites** continue to be a challenge this season. **Apple maggot** populations appear generally to be quite low this season.

Apricot harvest is underway, and **peach** harvest is beginning with some early varieties.

Grapes: Berries are sizing rapidly, with berry touch occurring now in many varieties. Some **powdery mildew** has been seen on inner, shaded leaves and clusters. It will be important to take quick action to stop these infections from progressing rapidly to more berries and the cluster rachis. **Two-spotted spider mites** have been found in relatively high numbers on older leaves close to the ground (over 15 per leaf on some vines at the Station). These mites appeared suddenly, moving to the grapes after the broadleaved weeds under the trellis started to decline from drought. Be sure to include scouting for spider mites the rest of this season, especially where there were broadleaved weeds under the trellis. We have received one report of a tiny **eriophyiid mite** called the grape erineum mite-- these produce small patches of dense leaf hairs on leaves (it looks like velour!) and sometimes some leaf blade deformity. I do not suspect this mite to be of any great significance.

MISCELLANEOUS

Deformed Apples
Jim Nugent, District Horticulturist, MSUE

Some apples this season have developed mis-shapen fruit, i.e., flatten or even sunken areas on the apples. Cutting into the flesh reveals brown, corky tissue that extends quite deep into the flesh. Sometimes the corky areas have a hollow center. The symptom is caused by severe boron (B) deficiency. Boron is exceptionally deficient this year because it is so strongly affected by the drought. I have seen this symptom once prior to this year (likely during the drought year of 1988), but the extent of damage appers much more extensive this year. From lack of response from colleagues on this week's crop advisory team call, I believe this condition is limited to NW Michigan. This is probably because the sandy soils in this area of the state are naturally the lowest in B of any area of Michigan. Secondly, the drought conditions have been more severe here than in areas further south.

The symptom occurs most commonly in areas of sandy soil and varies by variety. Northern spy is particularly susceptible. I expect this fruit to store poorly.

I doubt that any good would come from a B application at this time. But by knowing the cause, maybe the next time conditions are looking like an early season drought is in the works, we'll know to apply some solubor in an early cover spray.

Moths and Degree Days
Jim Nugent and Nikki Rothwell

You may not have noticed, but some of the summer generations of moths, such as codling moth and grape berry moth, are arriving a little later than we would expect based on degree days (DDs). These are insects for which researchers have developed models that simulate development based on degree-day calculations. For example, we accumulate DDs above 50ºF for codling moth because development basically ceases below that temperature. Actually, insects also have an upper temperature developmental threshold, which in the case of codling moth is 88ºF. So when temperatures get above 88ºF, development again ceases. Upper temperature thresholds are typically ignored because these temperatures occur so rarely in the northern U.S. However, 2005 has had so many really hot days that the degree-day totals are overstating the actual rate of development.

While this is probably more than you ever wanted to know about modeling insect development, you never know when you need some good trivia to impress someone.

To Prune or Not to Prune Drought Stressed Trees?
Jim Nugent

Pruning tart and sweet cherries after harvest has become a common practice in NW Michigan. The question is, "Should trees be pruned that have been under severe drought stress at this time or wait till the dormant season?"

When not to prune – Some cherry orchards this year lost a lot of leaves to the combination of drought stress and ethephon.

These orchards will go into winter with low carbohydrate reserves. It is my opinion that these blocks should not be pruned in late summer to allow for the greatest possible production of reserves for next season. Then it's equally important to make sure that these particularly stressed orchards are pruned next winter (and preferably pruned harder than normal) so that the upper tree canopy is brought into better balance with the over wintering carbohydrate reserves. In short, delay pruning the really stressed blocks from late summer to the dormant season.

When to prune older bearing cherry - Trees that maintained good leaf canopy and did not exhibit the severe drought symptoms are good candidates for summer pruning. As always, I don't recommend pruning nonbearing and young bearing (ages 1 till 8 or 9) trees that still need to fill significant space. This year you might avoid summer pruning of even the 10 to 12 year old trees.

Tart Cherry Crop Report

The CIAB reports that tart harvest through Saturday, August 6, was 124.3 M lbs in NW Michigan and 261.8 M lbs nationally. Harvest is complete except in Utah and NW Michigan. The U.S. pre-harvest estimate was 244 M lbs.

This week's complete CIAB Weekly Product Report can be found at: http://www.cherryboard.org/Week62005.pdf

Seasonal Evaporation & Precipitation				
Beginning May 1, 2005, at NWMHRS				
Date	Evap/week (in.)	75% of Evap/week	Rainfall/wk at NWMHRS (in.)	Rainfall minus 75% of Evaporation
5/2	0.31	0.23	0.01	-0.22
5/9	1.08	0.81	0.07	-0.74
5/16	0.76	0.57	0.53	-0.04
5/23	1.00	0.75	0.87	0.12
5/30	1.32	0.99	0.07	-0.92
6/6	1.60	1.20	0.05	-1.15
6/13	1.90	1.43	0.12	-1.31
6/20	1.15	0.86	0.30	-0.56
6/27	2.02	1.52	0.03	-1.49
7/4	2.15	1.61	0.45	-1.16
7/11	1.82	1.37	0.02	-1.35
7/18	1.62	1.22	0.34	-0.88
7/25	1.57	1.18	0.27	-0.91
8/1	1.70	1.28	1.15	-0.13
8/8	2.01	1.51	0.36	-1.15
Totals	22.01	16.51	4.64	-11.87

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Bill Klein, kleinw@msu.edu
Last Revised: 8-9-05

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August 23, 2005

GROWING DEGREE DAY ACCUMULATIONS as of August 22, 2005 at the NWMHRS

Year	2005	2004	2003	2002	2001	15 yr. Avg.
GDD42	3120	2415	2716	2760	2954	2712.1
GDD50	2120	1457	1742	1876	1964	1753.8

GROWTH STAGES AT NWMHRS (8/23/05)

Apple: Red Delicious: 63mm fruit; **Mac:** 70 mm fruit
Pear: 51 mm fruit
Sweet Cherry: Harvested
Tart Cherry: Harvested
Apricot: Harvested
Plum: 33 mm fruit
Grapes: Chardonnay: green fruit

CROP REPORT
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Nikki Rothwell, District Fruit IPM Educator
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Apples: Codling moth trap (CM) catches were an average of 10 moths/trap. **Obliquebanded leafroller** moth catches are at 13.6 moths/trap. Here at the NWMHRS, we still have not captured **apple maggot (AM)** on yellow boards or sticky red spheres, but there are reports of isolated captures of AM in the area. We are surprised at the lack of flies this season.

Cherry: We have seen very little **cherry leaf spot** in any cherry blocks in the area. **American plum borers** are down to 4.6 moths/trap at the NWMHRS. No **lesser or greater peachtree borers** were reported this week. **Two-spotted spider mite (TSSM)** counts are still high in many orchards, but populations are declining despite low predator mite populations. The likely reason for the TSSM population decline at this time is that these mites are "ballooning" off the trees as the food value in cherry leaves is decreasing. This habit is particular to TSSM, which survive on a wide range of host plants. By contrast, other mite species, such as **European red mites and plum nursery mites,** survive on a much more limited range of hosts. We are still catching **cherry fruit flies** here at the NWMHRS, and the average is 12 flies/trap.

Peach harvest is underway, and **Bartlett pear** harvest will begin later this week.

Grapes: Crop development proceeded rapidly over the last week, and many varieties have reached verasion. This will bring on the season of fruit rots, so be scouting for **botrytis and sour rot infections.** Foliage condition looks very good in most vineyards. If you have a site with any history of **grape berry moth,** you should be monitoring for adult flight now. It is time to get out bird netting or deploy other **bird damage** control tactics.

NWMHRS Open House Reminder

The NWMHRS Annual Open House and Equipment Show takes place Thursday afternoon, August 25th, beginning at 1:00 p.m., with the social hour and dinner from 5:15 on. Please join us!

This week's complete CIAB Weekly Product Report can be found at:
http://www.cherryboard.org/Week82005.pdf

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7/25	1.57	1.18	0.27	-0.91
8/1	1.70	1.28	1.15	-0.13
8/8	2.01	1.51	0.36	-1.15
8/15	1.29	0.97	0.34	-0.63
8/22	1.28	0.96	1.74	0.78
Totals	24.58	18.44	6.72	-11.72

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Bill Klein, kleinw@msu.edu
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