Northern Michigan FruitNet 2013
Northwest Michigan Horticultural Research Center

Weekly Update

September 24, 2013

CALENDAR OF EVENTS

2013

11/12	**Making It In Michigan Conference** Lansing Center, Lansing, MI
12/10-13	**Great Lakes Expo** Amway Grand Plaza, Grand Rapids, MI

2014

1/14-15	**NW Michigan Orchard & Vineyard Show** Grand Traverse Resort
2/18-19	**IPM Academy**

GROWING DEGREE DAY ACCUMULATIONS AS OF Sept 23 AT THE NWMHRC

Year	2013	2012	2011	2010	2009	2008	23yr. Avg.
GDD42	3454	4096	3513	3913	3187	3426	3532.9
GDD50	2291	2764	2329	2584	1975	2219	2306.0

Wine Grape Report

Duke Elsner, Grand Traverse County MSUE

Continued cool weather has kept the ripening process going at a slow pace. At the research center vineyard Pinot Noir is now at 18 brix; LaCrescent, an early-ripening hybrid, is being harvested today at 22.8 brix.

In area vineyards, ripening fruit is starting to attract bees, wasps and ants, and bird depredation is picking up. This has been a big year for the native **Drosophila fruit flies**, and in some sites fruit fly larvae have been found infesting injured berries. Treatments may be warranted if harvest is still far enough off to allow for the insecticide pre-harvest interval to pass.

Botrytis rot and/or sour rot are starting to develop on injured clusters in some vineyards.

TOOLS TO HELP MANAGE APPLE HARVEST

Recommendations to assist spreading the harvest window in 2013.

Posted on **September 18, 2013, MSUE News,** by **Phil Schwallier**, and Amy Irish-Brown, Michigan State University Extension

This year, 2013, it may become difficult to harvest all varieties on time due to many reasons. Shortages of labor or condensed ripening of multiple varieties and strains, and variations in blocks and farms may delay timely harvest for some blocks. This is a list compiled by Michigan State University Extension of a few treatments that can help harvest management and the successful maximum capture of prime maturity fruit.

Three harvest management material choices

ReTain, NAA and Harvista are excellent maturity delay and stop drop materials. If the blocks are already treated with any of these materials, rest assured they will keep the fruit in prime condition and on the trees until harvest can be performed. The exception is if NAA is the only pre-harvest material you have on the fruit.

If the block is ripening and it appears harvest will be too late and no harvest materials have been applied, consider the following choices:

1. **NAA** at 10 ppm will provide stop drop for up to 10 days. If harvest is delayed longer than 10 days, apply a second NAA treatment on day seven after the initial application. NAA will hasten ripening and drop after 10 days if no second spray is applied. NAA is good for a short window of stop drop control.

2. **ReTain** at one-quarter rate plus NAA at 10 ppm is a better choice if harvest needs to be delayed more than 10 days. The ReTain will control the ethylene that the NAA promotes and a second treatment will not be necessary. ReTain has a seven-day pre-harvest interval (PHI). Gala, Jonagold and Honeycrisp only should get a one-quarter rate of ReTain. Other varieties could be treated with higher rates such as one-third to one-half rate ReTain which is the best for short to medium stop drop control and maturity delay.

3. **Harvista** would also provide the same stop drop and maturity delay as ReTain plus NAA and is excellent for stop drop and maturity delay.

These late pre-harvest treatments will provide a reprieve from excessive loss of fruit due to the inability to harvest fruit on time. Use NAA for short-term fruit control and ReTain plus NAA, or Harvista for longer control.

This article was published by **Michigan State University Extension**. For more information, visit http://www.msue.msu.edu. To contact an expert in your area, visit http://expert.msue.msu.edu, or call 888-MSUE4MI (888-678-3464).

DRYING HOPS ON A SMALL SCALE

How to measure moisture levels in hops and determine when they have been dried enough to prevent spoilage.

Posted on **September 16, 2013, MSUE News,** by **Diane Brown**, Michigan State University Extension

While growing hops can be a challenge, properly processing them is even more so. If this is your first time harvesting, remember that the processing clock is ticking from the moment your

hops are picked. You need to cut the bines, pick the cones and begin the drying process as soon as possible. Hops are generally dried down to between 8 to 10 percent moisture to prevent spoilage. Avoid over drying (6 percent or less) as over-dried hops shatter and lose quality. Hops that have been insufficiently dried will begin to oxidize, or turn brown, and will become musty smelling and moldy.

Drying hops is mostly science and partly art. For new growers or growers who are starting to work with equipment for drying hops, it helps to rely more on science to calculate the moisture level of hops. Hops that have just been harvested contain high levels of moisture (around 76 to 84 percent) that need to be lowered to 8 to 10 percent before hops are packaged and stored.

First, you will need to collect a sample of freshly harvested hops, weigh them, and dry them down to 0 percent moisture (bone-dry) to find out the original moisture level. A scale that is capable of measuring weights down to tenths of a gram is helpful. Use a mesh bag like the kind used to package onions and a paper tag to record variety name, row or block and fresh sample weight to help you identify the sample once it has been dried. Record the weight of the bag and tag on the tag so you know how much weight to subtract from the dried sample to determine the weight of the hops alone. Place the sample in the mesh bag, staple the tag to the bag and loosely tie it closed. Be sure to allow enough space in the bag for the sample to remain relatively flat in the bag.

Although an oven or a microwave can be used for drying the samples, a food dehydrator is probably the safest tool to use. Set the food dehydrator between 120 to 140 degrees overnight. Weigh the sample several times during the drying period until the weight doesn't decrease any more. At this point, the moisture level should be 0 percent or bone-dry. Record the dried weight minus the bag and tag. The difference is the weight loss due to moisture.

Using an oven or a microwave requires closer and more careful watching or you risk burning the samples, or in the case of a microwave, causing damage to it. Use an oven thermometer to verify the temperature of the oven. Keep the oven setting low (oven dry the samples at 120 to 140) and check the samples frequently to prevent burning. Michigan State University Extension does not recommend using a microwave oven for drying hop samples due to the small size of the samples. When there is food in the oven, a large fraction of the output of the microwave transmitter is absorbed by it. Using a microwave oven to dry the small sample sizes typically used for calculating bone-dry weights can cause the oven to overheat and damage the magnetron.

Now that you have defined the bone-dry weight of the hops, you need to calculate the weight of the hops when they have reached 8 to 10 percent moisture. Once the targeted weights are known, the information can be used to determine when kiln dried hops are dry enough for packaging and processing. Prepare a sample of hops that can be easily removed from the kiln for weighing – this is the "kiln sample." The weight of the kiln sample will be used to determine when the entire batch of hops has reached the desired moisture content. The sample can be put in a mesh onion bag as in our example before. This sample needs to be weighed before drying starts and it will be weighed throughout the drying process. Be sure to note the weight of the bag and any identification tag and subtract it from the weight so you are measuring only the weight of the hops.

Put the kiln sample in the middle of your drying apparatus rather than on an edge where it may dry more quickly than the rest of the hops. If you don't want to do the math yourself, a hop harvest moisture calculator was developed by the University of Vermont hops program. Use the calculator and lookup table to determine the weight of the kiln sample when it has reached the target moisture level. When your sample has reached that target, drying is finished. If you are curious about how the target range for moisture is calculated, examples are given below.

Examples of percent moisture calculation

For simplicity, we will start with a wet hop sample of 100 grams including the bag and tag. The bag and tag alone weigh 5 grams. After drying, the sample – including bag and tag – weighs 25 grams. We need to subtract the weight of the bag and tag which we determined as 5 grams.

Dried weight (0 percent moisture): 25 grams - 5 grams for bag and tag = 20 grams
1 - [(dried weight/wet weight) x 100] = percent moisture
In our example, 1 – [(20/100) x 100] = 80 percent moisture

Calculation of weight based on target moisture percentage

To get within the targeted range of moisture (8 to 10 percent), we need to calculate the weight needed with desired percent moisture. To do this, take the dry weight/[1-(percent moisture desired/100)] = the targeted weight

In our example, we are targeting 10 percent moisture and use our dried sample weight of 20 grams.
20 g/[1 - (10/100)] = 20 g/(1-.1)= 20 g/0.9 = 22.2 grams is the target weight

In our example for 8 percent moisture, using our dried sample weight of 20 grams:
20 g/[1 – (8 percent/100)] = 20 g/(1 - .08) = 20 g/0.92 = 21.7 grams

So for a dried sample of hops within the range of 8 to 10 percent moisture, our original 100 gram sample should weigh between 21.7-22.2 grams.

The kiln we use to dry the hops from the research plots at the Southwest Michigan Research and Extension Center has a series of removable drawers with wooden frames and metal mesh bottoms that allow airflow. We place a kiln sample bag in the center of each one of the drawers when drying. An information wiki on constructing a similar hop drying oast (kiln) was developed by the University of Vermont hop program.

What can you expect for yields of dried hops? As an example, 4.6 pounds of fresh hops harvested at 80 percent moisture (determined on a separate sample) will dry to 1 pound of hops at 8 percent moisture. Hops do not dry evenly and should be allowed to sit for a few hours, conditioned, before packaging to allow the remaining moisture to redistribute and become equalized.

This article was published by **Michigan State University Extension**. For more information, visit http://www.msue.msu.edu. To contact an expert in your area, visit http://expert.msue.msu.edu, or call 888-MSUE4MI (888-678-3464).

Farms and Small Businesses of All Sizes Need to Provide their Employees with Health Care Information by October 1!

Most farms and small businesses are aware of the Affordable Care Act and some of its requirements. By January 1, 2014, all individuals are required to carry health care insurance for themselves and their dependents. In just a few weeks, health care insurance exchanges (also known as the Health Insurance Marketplaces) come online to allow individuals and small businesses to shop for health care insurance. By January of 2015, all employers with 50 or more full-time equivalent (FTE's) employees are to provide their full-time employees with health care insurance or face penalties.

Although employers received a one-year reprieve from providing health care insurance to their full-time employees until 2015, many are unaware that all employers that are subject to the Fair Labor Standards Act (FLSA) must provide their employees with a health care benefits notification. By October 1, 2013, any employer that meets the following criteria are held to meeting the employee notification protocol of the ACA. This provision provides that "employers that employ one or more employees who are engaged in, or produce goods for, interstate commerce. For most firms, a test of not less than $500,000 in annual dollar volume of business applies" (U.S. Dept. of Labor). Healthcare, education, and government agencies may have other or additional requirements. The United States Department of Labor provided a technical release that can be found on their website (http://www.dol.gov/ebsa/newsroom/tr13-02.html) that discusses an employer's notification requirements including:

1. Providing the employee with information about the Marketplace shop (also known as the Exchange), how to contact the Marketplace, the type of services and how to receive assistance.

2. Whether the employer provides insurance and if so will it meet the minimum requirements of the ACA or if the employee will be eligible for a premium tax credit.

3. That an employee who purchases a qualified health plan through the Marketplace, might lose the employer contribution (if any) to any health benefits plan offered by the employer and that all or a portion of such contribution may be excludable from income for Federal income tax purposes.

The U. S. Department of Labor has provided two sample notification templates that can be used by employers, one for employers that *do not* provide health care benefits to their employees (http://www.dol.gov/ebsa/pdf/FLSAwithoutplans.pdf) and a template for

employers that *do* provide health care benefits to their employees (http://www.dol.gov/ebsa/pdf/FLSAwithplans.pdf).

With the complexity of this act, it is always a good idea for all businesses to consult with their respective legal advisors to make sure they are meeting the necessary requirements of the Affordable Health Care Act.

For Further information, please contact Dr. Adam J. Kantrovich at akantrov@msu.edu or view the MSUE Farm Information Resource Management webpage.

This article was published by **MSU Extension.** For more information, visit http://www.msue.msu.edu.

To contact an expert in your area, visit http://expert.msue.msu.edu or call 888-MSUE4MI (888-678-3464).

Author: Dr. Adam J. Kantrovich, Farm Management Educator
Email: akantrov@msu.edu, phone: 616-834-8377

THREE PHASE POWER: THE FIRST CHOICE FOR IRRIGATION ENERGY

Three phase electrical power is most economical source of irrigation power with lower cost for daily energy, maintenance, equipment and controls.

Posted on **September 13, 2013, MSUE News,** by **Lyndon Kelley**, Michigan State University Extension

Electric power is the least expensive source of energy for irrigation, when it is readily available. A comparison of several energy sources discussed in "Comparable Costs of Various Energy Sources for Irrigation Pumping" by Purdue University finds that to match the common electric rate of 10.4 cents per kilowatt hour, you would need to be able to buy diesel fuel for $1.31 per gallon.

Electric power provides many advantages for irrigation. Liquid fuel storages located near wells and surface water pose potential environmental risks that electric use avoids. Electric driven pumping plants are easier to control remotely, a bonus for the tech savvy irrigation manager. The higher initial investment in pumping equipment and higher annual maintenance cost of combustion engine pushes more irrigation toward the use of electric power. The question for most irrigators is how much it will cost to bring electric service to the irrigation system. The

answer to that depends on your location, service provider and what is currently available for electric power.

Almost all farms have single phase electric power available. Electrical motors and controls for field scale irrigation systems are designed for three phase power. Farm supplied electric phase converter or variable frequency drives systems can be used to create three phase electric power from a single phase line, but will often be limited to small motors to reduce brownout problems on the service line. According to Michigan State University Extension, to further reduce brownout problems, electrical service providers may also require farms to buy and maintain soft start pump motors or variable frequency drives systems to reduce the start-up load of the larger horsepower pump motors.

Having three phase electric power provided at the location of the pump by your electric service provider is the simplest and safest energy source. It requires the least amount of farm owned/maintained equipment to run irrigation systems. Electric service providers can often generate a cost estimate for adding three phase electric power service to you location. In some situations estimates may be free with a commitment to use a quantity of power in the future. More likely, a simple line drop from a new set of transformers on an existing three phase line may be $500 to $2,000. If three phase power is not near the location, costs to install the service are estimated to be between $10,000 and $30,000 a mile. These costs are to be paid by the potential irrigator to upgrade service in the area.

Irrigators will often calculate the savings in initial equipment and annual maintenance and energy costs for electric power versus combustion engine over a five- to 10-year period. The 10-year savings on a typical 160 acre irrigated field may be in the $25,000 range or higher, which could be applied to improving the electric power infrastructure in the neighborhood. Some power companies have program to reimburse a portion of the cost for the original investor if other users hook on to the new three phase line in the next few years.

With the fast pace of growth of irrigation and other agricultural related expansions, the demand for three phase electrical power in intensive agricultural areas is high. The Michigan Agricultural Electric Council (MAEC) has a task force looking into issue of expanding electrical power availability. If you have made effort to expand your agricultural related operation and three phase electrical power availability at an affordable price was a limiting factor, contact Jim Byrum of the Michigan Agri-Business Association. Byrum is a member of a task force looking at improving electrical power availability for Michigan agriculture. The address is 1501 North Shore Dr., Suite A, East Lansing, MI 48823, 517-336-0223**,** jim@miagbiz.org .

This article was published by **Michigan State University Extension**. For more information, visit http://www.msue.msu.edu. To contact an expert in your area, visit http://expert.msue.msu.edu, or call 888-MSUE4MI (888-678-3464).

WEBSITES OF INTEREST

Insect and disease predictive information is available at:

http://enviroweather.msu.edu/homeMap.php

This issue and past issues of the weekly FruitNet report are posted on our website

http://agbioresearch.msu.edu/nwmihort/faxnet.htm

60 Hour Forecast

http://www.agweather.geo.msu.edu/agwx/forecasts/fcst.asp?fileid=fous46ktvc

Information on cherries is available at the new cherry website:

http://www.cherries.msu.edu/

Fruit CAT Alert Reports has moved to MSU News http://news.msue.msu.edu

Tart Cherry Raw Product Reports – 2013

http://www.cherryboard.org/Week82013.pdf

farming and food

past, present, and future

Part Two of
Leelanau: Looking Ahead
A Speaker Series Hosted By
The Leelanau Conservancy

Farming in Leelanau, A Local History
3:00 PM

Jim Nugent, Former District Horticulturalist MSU Extension
Tom Nelson, Leelanau Conservancy, Director of Farm Programs

Strengthening our Farming Economy & Growing Local Food Systems
3:30 PM

Rich Pirog, Center for Regional Food Systems at MSU, Senior Associate Director

Panel Discussion with Local Experts
4:15 PM

Abra Barens, Bare Knuckle Farm, Co-owner; Chef
Don Coe, Black Star Farms, Managing Partner; State Agriculture Commissioner
Chip Hoagland, Cherry Capital Foods, Founder
Nikki Rothwell, MSU Horticultural Research Station, Director; Tandem Ciders, Co-owner
Amy Tennis, Oryana Food Co-Op, Board President; New Mission Organics, Co-owner

Kids Harvest Party
3:00-5:00 PM

Children of all ages welcome to visit farm animals, press cider, paint mini pumpkins, and learn about our local farms.

Reception and Informal Discussion
5:00 PM

Refreshments provided by Idyll Farms, Nine Bean Rows, Tandem Ciders, and Bardenhagen Farms.

To Register: www.leelanauconservancy.org

IDYLL FARMS

Northwestern Bank

The Leelanau Conservancy would like to thank our 25th Anniversary sponsors: Idyll Farms and Northwestern Bank

Sat. Oct. 19 | 3 PM | A Free Event
Suttons Bay School Auditorium