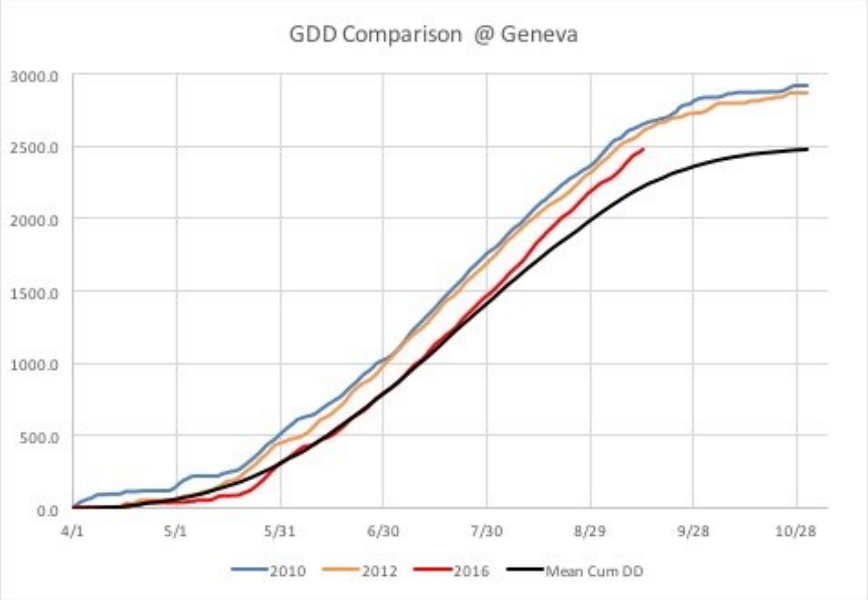
Finger Lakes Vineyard Update

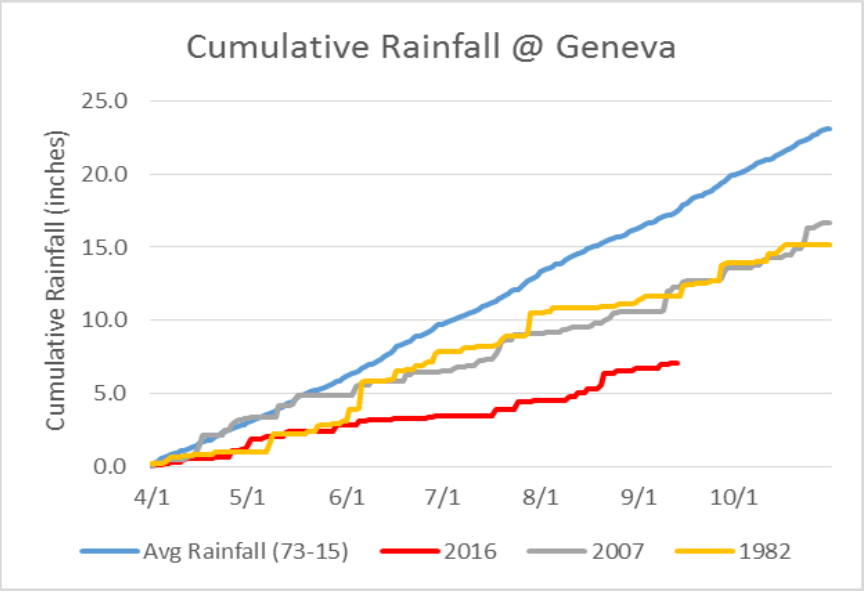
In the Vineyard

Hans Walter-Peterson

As of yesterday, September 13, growing degree day (GDD) accumulation in the Finger Lakes reached the long-term average for the season of 2482 GDD units (April 1 – October 31). A big part of this reason was the fact that the region had the highest GDD accumulation in August this year since we started collecting this data in 1973. The accumulation of 743 GDDs this year was 26% higher than the long-term average of 588 for the month. While this is pretty early to hit this particular "milestone", it's not the earliest ever. The graph below shows that in both 2010 and 2012, we reached the long-term average for heat accumulation about 1 week earlier than we did this year.



On the rainfall front, we are obviously still significantly behind, but at this point, the need for rain for the vines is being balanced by the desire to keep fruit dry and avoid cracking and late-season rots. This is the situation where drip irrigation would be a preferred way to provide water to the vines, as opposed to a soaking rain. In spite of the dry weather, however, fruit seems to be pushing through the early ripening phase mostly in line with last year's crop, at least according to the results from last week's Veraison to Harvest sampling.



More information about ripening and harvest progress will be included in this week's Veraison to Harvest newsletter, which will be mailed out on Friday.

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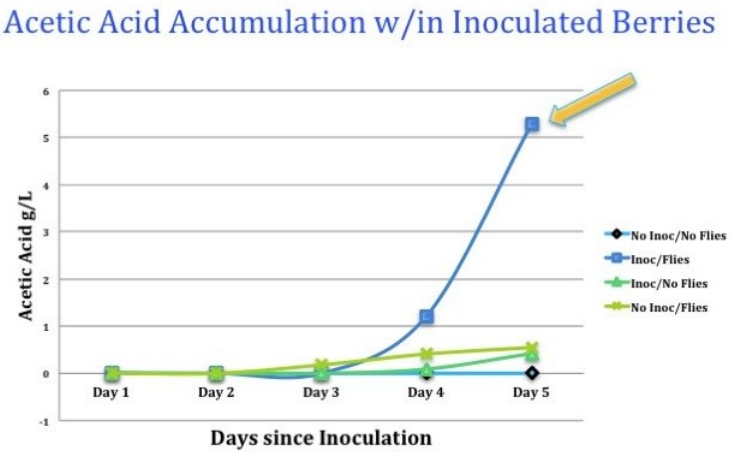
The ripening data from last week's Veraison to Harvest samples in the Finger Lakes showed that just about every variety has reached at least 15° Brix, which means they are at the point in their maturity where they are susceptible to sour rot problems. While the dry weather has helped to keep the problem fairly well contained so far, we are seeing (and smelling) some pockets of it where fruit has been damaged either from splitting or, more often, where birds have pecked holes in berries.

For a long time, the main technique we had to combat sour rot development was keeping an open canopy and hoping that the rains held off until harvest. Recently though, thanks to research done by scientists including Wendy McFadden-Smith in Ontario, and Megan Hall, Greg Loeb and Wayne Wilcox at Cornell, we are starting to get a better understanding of the disease and how to control it. There is a lot of information about this in the 2016 edition of Wayne's annual disease management newsletter/tome, but following are some of the key points that he mentions in there.

1) As I mentioned before, berries need to reach around 15° Brix before they are "worrisomely susceptible" to infection by these organisms, and temperatures between 68 and 77°F are ideal for disease development. The infection spreads more slowly as temperatures decrease, virtually stopping when they get down into the 50s.

2) Fruit flies of any type (spotted wing or just your generic household fruit fly) appear to be a key component in the development and spread of the disease, and not just a secondary "symptom" of it. Megan found that acetic acid (which causes the vinegar aroma associated with the disease) did not form in berries that had the microorganisms present but without the presence of fruit flies.



Acetic acid production in berries inoculated with yeast and bacteria cells and exposed to fruit flies had significantly higher acetic acid levels than those not exposed to fruit flies. *Source: Wilcox, W. 'Grape Disease Control 2016', Finger Lakes Vineyard Notes newsletter, May 2016.*

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3) Good management of the disease, therefore, requires not only good canopy management (which can still have a major impact on the amount of sour rot development) to reduce the development of the pathogens, but also to control the microorganisms and insects that lead to the development and spread of the disease. Which leads us to the question…

4) What materials are available to control the pathogens and the insects in vineyards?

- Pathogens – the organisms that cause sour rot symptoms are a complex group of fungi and bacteria, so most of the standard fungicides that growers use during the year will have very little impact on the pathogens responsible for sour rot. Instead, trials have focused on the use of several antimicrobial materials including copper, hydrogen peroxide (e.g., Oxidate) and potassium metabisulfite (KMS), which are able to affect a wide spectrum of microorganisms. Each of these materials has at least one fairly significant problem:
    - Copper: Copper is toxic to yeast, which may give winemakers pause about seeing it applied to fruit close to harvest.
    - Oxidate: very benign material from a health standpoint, but treatments are expensive ($40+/acre) and provide no protective activity at all. In other words, needs to be sprayed often.
    - KMS: Not labeled for use in vineyards in the U.S., or Canada. Applying it is against the law.
- Insects – Several materials are labeled, or have 2(ee) recommendations, for use on spotted wing drosophila or all fruit flies. At this time of year, be sure to keep the pre-harvest interval (PHI) requirement in mind:

Material	PHI
Delegate	7 days
Entrust	7 days
Danitol	21 days
Triple Crown	30 days
Mustang Maxx	1 day
Malathion (multiple formulations)	3 days

5)In research trials, applying both the antimicrobial and insecticide had a more significant impact on the disease than spraying either of them alone. Also, better results were seen when sprays were started before symptoms could be seen (or smelled), as opposed to waiting to start until they appeared. Spray intervals in Megan and Wayne's trials were every 7 days, but depending on the number of weeks between starting to spray and harvest, that schedule may not be economical.

Remember that these results are based on 1-2 years of field trials, so there is still more work to be done to answer all of the questions surrounding this disease, and we can't say for sure yet that these practices and materials will work in every vineyard, every year and on every variety. However, the results have been encouraging enough to suggest that growers can begin trying these treatments in their own vineyards.

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Wayne offered a good closing summary of this work in his newsletter this spring, and I'll just quote it here:

> What does this all mean for now? Sour rot occurs sporadically and the "state of the art" with respect to understanding and controlling it is still a lot more sketchy than for most of our other important diseases. Individual growers will approach managing it differently depending on their own individual risk as they understand it, based to some extent on previous experience, and their philosophy for addressing this. For now, I'd keep these concepts in mind: Disease can be initiated once rains occur after berries reach approximately 15° Brix; warm temperatures (significant periods of time in the upper 60's and above) are much more problematic than cooler temperatures; good canopy management will keep things from getting worse than they would otherwise; and it's much easier to keep things down to a dull roar if you address a disease outbreak as soon as you see it rather than waiting until things blow up in your face. Just how to do this economically and practically is the $64,000 question (a term originally coined in 1950's currency!).
>
> Knowing what we do at this point, if it was my vineyard and I had a few thousand dollars per acre of crop threatening to go south in a hurry, I'd put something on to help control the fruit flies and responsible microbes. If I wanted to stay both cheap and legal, I might concentrate just on the fruit flies. If the weather was warm and wet and looking to stay that way for a bit, especially if I'd had a problem in that block before, I might start antimicrobials plus insecticide at 15° Brix even before seeing symptoms and back off if the weather turned more favorable (for me) and/or disease didn't get started. Otherwise, I'd probably keep a very close eye on my vineyards and the weather, and be ready to jump in if I saw the disease starting and the weather looked conducive for its spread.

The information in this article is blatantly taken from:

Wilcox, W. *Grape Disease Control, 2016.* Finger Lakes Vineyard Notes newsletter, published May, 2016. Accessed at http://nygpadmin.cce.cornell.edu/pdf/newsletter_notes/pdf72_pdf.pdf.

Upcoming Events

Don't forget to check out the calendar on our website (http://flgp.cce.cornell.edu/events.php) for more information about these and other events relevant to the Finger Lakes grape industry.

Training on Changes to Worker-Protection Standards Regulations

Wednesday, October 5
Dickman Farms
13 Archie Street, Auburn NY

A number of significant changes to the federal Worker Protection Standard for Agricultural Pesticides (WPS) will go into effect on January 2, 2017. These changes will affect farms, greenhouses, nurseries, forests, and other establishments (including organic establishments) on which pesticides are used in the production of agricultural crops.

If you use, supervise the use, or are responsible for the use of pesticides on such establishments, the Department of Environmental Conservation (NYSDEC) invites you to attend a WPS Mock Inspection on the morning of October 5th at Dickman Farms, 13 Archie Street, Auburn, NY. NYSDEC staff will be on hand to explain the rule changes and how to comply with them.

Check-in is from 9:30 to 10:00, with training to follow from 10:00 to noon. Attendees who are certified to apply pesticides in Categories 1A, 1D, 10, 21, 22, 23, 24, or 25 will earn 2 recertification credits. (Remember to bring your NYS pesticide certification photo ID card.)

To register, please send an e-mail to PesticideCompliance@dec.ny.gov. If currently certified in New York as a pesticide applicator or commercial technician, include your Certification ID Number.

You can find additional information about changes to the WPS on EPA's website at: https://www.epa.gov/pesticide-worker-safety/revisions-worker-protection-standard.

2016 Growing Degree Days and Rainfall

FLX Teaching & Demonstration Vineyard – Dresden, NY					
Date	**Hi Temp (F)**	**Lo Temp (F)**	**Rain (inches)**	**Daily GDDs**	**Total GDDs**
9/7/16	91.7	65.4	0.00	28.6	2575.4
9/8/16	89.9	71.6	0.62	30.8	2606.1
9/9/16	83.0	72.5	0.00	27.8	2633.9
9/10/16	90.3	67.8	0.00	29.1	2662.9
9/11/16	80.0	56.8	0.11	18.4	2681.3
9/12/16	79.5	52.7	0.00	16.1	2697.4
9/13/16	86.3	57.1	0.00	21.7	2719.1
Weekly Total			**0.73”**	**172.3**	
Season Total			**10.07”**	**2719.1**	

GDDs as of September 13, 2015: 2566.4

Rainfall as of September 13, 2015: 20.11”

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Seasonal Comparisons (at Geneva)

Growing Degree Days

	2016 GDD [1]	Long-term Avg GDD [2]	Cumulative days ahead (+)/behind (-) [3]
April	36.1	65.2	-9
May	270.1	252.3	0
June	489.1	480.6	0
July	695.9	639.8	+3
August	742.9	588.2	+15
September	248.9	351.0	N/A
October		105.2	
TOTAL	2482.9	2481.8	

1 Accumulated GDD's for the Month

2 The long-term average (1973-2015) GDD accumulation for that month.

3 Numbers at the end of each month represent where this year's GDD accumulation stands relative to the long-term average. The most recent number represents the current status.

Precipitation

	2016 Rain [4]	Long-term Avg Rain [5]	Monthly deviation from avg [6]
April	1.17"	2.89"	-1.72"
May	1.66"	3.11"	-1.45"
June	0.65"	3.68"	-3.03"
July	1.01"	3.42"	-2.41"
August	2.22"	3.15"	-0.93"
September	0.41"	3.64	
October		3.22	
TOTAL	7.12"	23.12"	

4 Monthly rainfall totals up to current date

5 Long-term average rainfall for the month (total)

6 Monthly deviation from average (calculated at the end of the month)

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Additional Information

Become a fan of the Finger Lakes Grape Program on Facebook, or follow us on Twitter (@cceflgp) as well as YouTube. Also check out our website at http://flgp.cce.cornell.edu.

Got some grapes to sell? Looking to buy some equipment or bulk wine? List your ad on the NY Grape & Wine Classifieds website today!

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