WILL DROUGHT EFFECTS CARRYOVER TO 2000?

Timothy E. Martinson

Most Finger Lakes vineyards came through with average to above average yields and maturity, in spite of the dry weather. Harvest was early enough (and first frost late enough – November 8) to allow an excellent ‘recovery period’ to offset the drought, and most areas and varieties have adequate to good wood maturity and periderm formation.

Despite this, the ’99 drought will probably have carryover effects in some vineyards. Drought symptoms such as leaf scorching, yellowing, premature leaf drop, reduced growth, and delayed ripening, were evident in some blocks. What are the consequences, and how should growers react in planning pruning and fertilization programs for 2000?

Drought stress symptoms were reviewed in a recent article (Vineyard Notes #8, 1999). Likely effects include less storage of starch and mineral reserves, reduced winter hardiness, and incomplete wood ripening. Petiole samples submitted through our office confirm lower uptake of mineral nutrients by vines in 1999. Potassium levels are running about 30% lower (across the entire range) than an average of ‘96-‘98 samples, as are phosphorus, copper and iron. This is likely the effect of reduced uptake early in the season. On the other hand, bud fruitfulness should be near normal to high, as flower differentiation is controlled more by light and temperature and less affected by drought (Remember what happened after 1991). These conditions (small root system, low reserves, high bud fruitfulness) could set some vineyards up for reduced canopy growth, crop capacity, and set problems in '00.

What should growers do to react to potential drought-induced problems?

Identify affected blocks. Most vineyards should not require major adjustments in pruning or fertilization. If you had adequate vine size, healthy foliage, good crop and wood maturity, and adequate post-harvest leaf function, don’t make any radical changes in pruning severity. Pay more attention to areas where you observed stress symptoms, young vineyards, and sites with shallower soils.

Adjust pruning severity. Retain fewer nodes in drought-affected vineyards. In most cases, vine size will be smaller in drought-affected vineyards, so balanced-pruning would dictate retaining fewer buds. Be cautious about removing too many buds too early with cold-sensitive varieties – final adjustments can be made, if necessary, following bud burst.

Spur pruning may be necessary in some cane-pruned vineyards with poor growth and periderm formation.

Assure adequate boron and zinc supply. Ground application of boron this fall or early in the spring will benefit many vineyards. Foliar
applications may be more important than nor-
mal, because a smaller root system will take up
less soil-applied nutrients. Both boron and zinc
are important in assuring proper fruit set.

**Consider split nitrogen applications.** Again,
reduced root capacity might limit uptake of ni-
trogen. Applying the same amount in two appli-
cations should increase uptake and limit losses
due to leaching and volatilization.

**Protect graft unions.** Hilling up to protect the
graft union and trunk renewal area is recom-
ended for cold-sensitive varieties through the
4th year. For mature vines, the importance of
this time-consuming practice varies according to
site and variety. Growers on warmer sites often
get by without it for hardier *vinifera* (e.g. Cbar-
donay and Riesling), while continuing with
more sensitive varieties (e.g. Gewurztraminer
and Merlot). Omitting this practice on cooler
sites is risky. Some growers cover graft unions
with sawdust instead of hillung up, with gener-
ally good results and less effort.

**Assess bud mortality.** Before pruning cold-
sensitive varieties in March, collect bud sam-
pleS, even if the winter is mild. Stressed vines
may have less cold-hardiness than you would
expect.

I want to emphasize that I expect most vineyards
will not see serious carryover effects from the
1999 drought. We were fortunate to have
enough moisture and time for vineyards to re-
cover this fall. Those with special situations,
however, will want to carefully evaluate cropping
levels and fertilization so that the most se-
verely affected sites will recover from drought
induced stress in 2000.

**WHAT’S UP WITH “BLACK GOO”?**

_ Wayne Wilcox_

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There have been several recent articles in the
national press and trade journals about the so-
called “black goo” disease (alternatively termed
“young vine decline” by the folks at UC Davis).

Although most of the attention has been focused
on California, a recent article in U.S. News
claims that the disease also has “struck” in New
York, Virginia, and Rhode Island. So what’s the
deal?

In October, I attended an international workshop
on “Esca and grapevine declines”, where the
current state of knowledge was aired and de-
bated. (Esca is the name given to a serious but
poorly-understood disease in Europe, which has
been called “Black measles” or “Spanish mea-
sles” in California and “apoplexy” in other parts
of the world). Depending on whom you speak
with, black goo/young vine decline (BG/YVD)
is either another manifestation of Esca or some-
thing completely separate. The most current re-
search suggests that “classical” Esca (measles,
apoplexy) is caused by a wood-rotting fungus
that produces air-borne spores and invades large
pruning wounds, eventually causing the decline
or death of older vines. In contrast, it appears
that BG/YVD is caused by several different fungi
that are typically found in the soil, these are
closely related to each other but are com-
pletely unrelated to the wood-rotter.

In California, BG/YVD was first detected in
1995 in the north coast production region.
Symptoms occur within the first few years after
planting, and include chlorosis and death of leaf
tissues between the veins, premature defoliation,
stunting of the vine, “raisining” of the fruit, and
poor growth/decay of the roots. When trunks of
declining vines are cut crosswise, a black tar-like
substance exudes from the water-conducting
vessels. Thus the name “black goo”, coined by
author and consultant Lucie Morton, who first
started publicizing the problem and has built an
active business around it. Lucie is not a re-
searcher, but has attempted to interact with and
prod the research community on this issue. It is
her belief (based primarily upon observation, but
with little supporting data that I’m aware of) that
the problem is related to growers planting “dis-
eased material from nurseries who are unwit-
tingly selling infected plants”. This is a belief
that is shared by some affected growers, who are
suing the nurseries from which they bought their
vines.
Dr. Doug Gubler, a UC Davis plant pathologist who is investigating the disease, has a different outlook. Doug believes that the fungi that appear to cause BG/YVD are common in grape-vine tissues, but cause disease only when the vines are put under stress (analogous to the crown gall bacterium, which is common within grapevines but causes disease only when they are injured). In controlled experiments, he has shown that inoculated vines remain healthy when well cared for, but develop symptoms within months after stress (e.g., drought) is imposed.

He also notes that the onset of the problem coincided with the boom in planting new vineyards and replanting older vineyards (phylloxera victims) in California. Thus, there was an incentive and opportunity for nurseries to sell anything that they could produce, including weaker (easily-stressed) vines that might have been culled in other circumstances. "It may be that the real problem was in not knowing how to grow the new rootstocks used to combat phylloxera", he wrote, noting that "in almost all cases where young vines had problems", growers had fruiting the vines early or had withheld water in efforts to promote a deeper root system. He believes that the problem has been "blown out of proportion" by the media and "individual consultants". In contrast, the L.A. Times reports that Lucie Morton believes the 1% rate of occurrence estimated at UC Davis is a "gross underestimate".

My take-home message from the workshop is that both Esca and BG/YVD are highly politicized diseases, where the intensity of opinion is not always matched by the range of facts to support it. The media loves a good story about grapes, the tag line (disaster, "black goo") is a natural, and most of the players have professional and/or financial reasons to put their own spin on things. Take it all with a grain of salt until more facts are available.

That being said, BG/YVD has indeed caused serious losses for some California growers, and New York growers are justified in questioning the threat (the disease has only been reported on grafted vinifera varieties). Personally, I have not seen the disease in NY. Ms. Morton claims to have diagnosed it in a Long Island vineyard a couple of years ago, but the owner had removed these few vines by the time I came to see them later in the season. At this point, the best advice for avoiding BG/YVD appears to be common sense: avoid planting weak or sickly vines in the first place (or accept the risk if you do) and take good care of them once they’re in the ground.

**VITICULTURE 2000 UPDATE**

Program planning for *Viticulture 2000*, the joint grape grower convention combining the *Finger Lakes Grape Growers Convention* and the *Lake Erie Regional Grape Growers Convention*, is nearing completion. We are excited about the array of speakers, events, and trade show we have to offer growers. You should be receiving a mailing and registration form for this meeting, to be held February 18 and 19 at the Adam's Mark Hotel in Buffalo from the NY Wine and Grape Foundation shortly after Thanksgiving. Details are also posted at:


**FREDONIA LAB MAY RELOCATE**

NYS Agricultural Experiment Station Director Dr. Jim Hunter announced plans to examine the feasibility of moving the Vineyard Laboratory to a new facility within Chautauqua county. The current location, on east Main St. in Fredonia, is subject to urbanization which is a long-term concern for the viability of the facility. The move is contingent upon securing funding, and would probably be financed in part through sale of the current facility, a converted barn that has housed research and extension programs since the 1960's.
UPCOMING EVENTS

January 16-20, 2000. 5th International Symposium on Cool Climate Viticulture and Enology. Melbourne, Australia. Extensive program on cool climate vineyard and winemaking techniques. Contact: ICMS Pty Ltd. 84 Queensbridge St, Southbank, Victoria 3006 Australia. Tel +61 3 9682 0244 Fax: +61 3 9682 0288. Email: coolclimate@icms.com.au Web: www.icms.com.au/coolclimate


February 18 & 19, 2000. Viticulture 2000. Adam’s Mark Hotel, Buffalo, NY. A two-day meeting combining the Lake Erie Grape Growers’ Convention and the Finger Lakes Grape Growers Convention. This two day conference will bring local, nationally and internationally known industry, research, and extension experts together to focus on the future of the New York and Eastern Grape industry. Sponsored by Cornell Cooperative Extension, Cornell University, and the NY Wine & Grape Foundation. Registration information will be mailed out in November. Contact Finger Lakes Grape Program 315-536-5134

February 23 & 24, 2000. Niagara Peninsula Fruit and Vegetable Growers Association, Brock University, St. Catharines. Covers grapes and tender fruit crops. Contact Ken Slingerland, OMAFRA, 905-562-1639 for more information. Please note: Last month’s notice about the Ontario Horticultural Crops Conference is incorrect – grapes are not involved. This is the corrected listing.

