



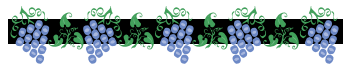
The Grape Communicator

A Newsletter for the Illinois Grape & Wine Industry

Volume 2, Number 2

March/April 2006

Table of Contents



- ***Are You Prepared For The Fungus? (p.1)***
- ***Dr Jeff Granett on Grape Phylloxera (p.3)***
- ***Nitrogen Nutrition in Winemaking (p.5)***
- ***Nitrogen: Estimate of FAN by Formal Tirtration (p.7)***
- ***Illinois Vineyard Region Update***
Southern Update (p.10)
Northern Update (p.14)
- ***Conferences & Workshops Review (p.15)***
- ***Upcoming Workshops (p.23)***
- ***IGGVA Directory (p.25)***

A NEW YEAR, A NEW SEASON **2006**

ARE YOU PREPARED FOR THE FUNGUS?

William H. Shoemaker, University of Illinois

Grape growers face many challenges to their effort to grow abundant crops of high quality fruit. Fungal diseases are among the most threatening and persistent of those challenges. One of the hard lessons growers often learn about disease control is that it is easier to prevent a disease problem than it is to fix one. However, that doesn't make it easy to prevent one either. But it makes a world of difference if a grower prepares properly and puts preventative measures in place in a timely manner.

(continued on p.2)

Are You Prepared For the Fungus?

(continued from page 1)

Most of the fungal diseases that plague grape growers, like black rot, phomopsis, anthracnose and the mildews, get their start at the same time as grapes. As the buds on grapes begin to swell because of temperature conditions, these organisms are often becoming active at the same time. This phenology leads to ideal circumstances for the fungus to begin colonizing the grapes and building populations on fresh green growing tissue. This primarily takes place before the season turns hot and long dry periods occur. The populations build exponentially so if the fungus colonies can be knocked out before they build up, the grower gains an advantage over the situation. Like in show business, with disease control timing is everything.



This opportunism by the fungi represents an ideal time to nip the problem before it gets out of control. The most important fungicidal sprays a grower can make are usually the

early season sprays, prior to fruit sizing and up to fruit set. This is generally true across varieties and across fungal diseases. The early season sprays knock down the disease and keep it down until conditions and the grape plants themselves are less in their favor.

So as the season gets going, be sure to have a plan in place for getting on top and staying on top of fungal diseases. A very good reference that can help is the 2006 Midwest Commercial Small Fruit and Grape Spray Guide. This publication presents the pest problems grape growers face and the options for keeping them under control. Another great publication is the Midwest Small Fruit Pest Management handbook. This handbook gives growers in-depth insight into the organisms, which cause disease and their weaknesses, which growers can exploit. Both are available through local UI Extension offices.

While the grape season is around the corner, so is the disease season. Make a plan and prepare for action.



Dr. Jeff Granett on Grape Phylloxera

Rick Weinzierl, Extension Entomologist, University of Illinois

At the Annual Meeting of the Illinois Grape Growers and Vintners Association a few weeks ago, Dr. Jeff Granett, Professor of Entomology at the University of California at Davis, delivered an interesting presentation on an insect of importance wherever grapes are grown – grape phylloxera. Dr. Granett's key points included:

- Grape phylloxera, a somewhat aphid-like insect that is native to eastern North America, occurs as a pest of grapes on every continent where grapes are grown.
- This insect occurs in two forms or phases: (1) a leaf-infesting phase that induces and then lives inside galls (swellings) on the undersides of leaves; and (2) a root-infesting phase that causes galls on roots.
- Leaf-phase phylloxera induce galls only on newly expanding leaves; leaf infestations rarely occur on European species and varieties but are common on American species and hybrids. Light infestations on a portion of the leaves likely cause no yield loss, but where most leaves show 50 to 100 galls or more, some reduction in photosynthesis occurs and yield losses are likely.
- Leaf infestations can be limited by timely applications of insecticides. [For Illinois growers, the best time for insecticide applications is at bloom and again about 10 days later; a high percentage of the population is vulnerable to sprays at this time. At any given date of application later in the season, a high percentage of the population is protected within galls, and only a few crawlers are exposed and killed. Danitol is among the effective insecticides registered for control of leaf-phase phylloxera.]
- Feeding by root phase phylloxera causes swelling or galling of root tissue. Small galls on feeder roots are common on all grapes in infested areas – American species, European species, and hybrids. These small galls are called nodosities. Larger galls on mature roots are called tuberosities – these commonly are seen on European species and on European-American hybrids, with more galling on hybrids with more European (vinifera) parentage. Heavier clay soils are more conducive to phylloxera damage than light, sandy soils.
- Above-ground yellowing, wilting, and reductions in yield

(continued on p.4)

Dr. Jeff Grannett on Grape Phylloxera

(Continued from page 3)

associated with root-phase phylloxera appear to result from fungal infections and root necrosis at the sites where phylloxera establish their feeding sites on roots.

- To determine whether or not a vineyard is infested (and how seriously), using a shovel to dig up roots is recommended. If plants are declining in an area, pay particular attention not only to the middle of that area, but also the edge of the damaged site. Use a hand lens to examine roots dug from a depth of 1 foot and laterally away from the crown about 1 foot. If 10 to 30 nodosities (small galls on fine roots) are found in a shovelful of roots, that's high. If nodosities are common, be sure to check mature roots for large galls (tuberosities) and necrosis (death and browning) of the cortex (outer tissue).
- There are no rescue treatments for grapes infested with root phase phylloxera. The only "rescue" – if damage is severe enough to warrant it – is to push out infested vines and plant resistant hybrids or resistant rootstocks, preferably NOT on the same site.

For more information, see pages 107-109 of the [Midwest Grape](#)

[Production Guide](#), available from Ohio State University Extension, Media Distribution, 385 Kottman Hall, 2021 Coffey Road, Columbus, OH 43210-1044; phone: 614-292-1607; or on-line at <http://ohioline.osu.edu/b919/0001.html>.

Another source of similar information is pages 160-162 of the 2004 edition of the [Midwest Small Fruit Pest Management Handbook](#), also available from Ohio State University Extension, Media Distribution, 385 Kottman Hall, 2021 Coffey Road, Columbus, OH 43210-1044; phone: 614-292-1607; or on-line at <http://ohioline.osu.edu/b861/index.html>.

Grannett and co-authors wrote an extensive review of grape phylloxera life history, population dynamics, viticultural damage, and management for the 2001 Annual Review of Entomology. That review is available on-line at: <http://arjournals.annualreviews.org/doi/full/10.1146/annurev.ento.46.1.387>.

Rick Weinzierl (217-333-6651)
weinzier@uiuc.edu



Nitrogen Nutrition

Barry H. Gump, Ph.D.

*Department of Viticulture & Enology
California State University, Fresno*

The chemical and physical environment of grape juice fermentation, coupled with competition from indigenous yeast and bacteria, can present significant challenges to the growth of *Saccharomyces cerevisiae* and other wine yeast. Individually or collectively, these factors may impact yeast growth and the conversion rate of sugar to alcohol, leading not only to formation of objectionable odor- and flavor-active metabolites but, potentially, to protracted, incomplete or “stuck” fermentations. Sluggish and stuck fermentations can be described as those where the rate of sugar utilization is extremely slow, especially near the end, and/or residual fermentable sugar is left in the wine. Such wines create significant management problems.

Nitrogen compounds in grapes are known to play important roles as nutrients for microorganisms involved in winemaking and wine spoilage and as aroma substances and precursors. Nitrogen is taken up by the vine roots as nitrate. It is reduced by the nitrate reductases system to ammonia, transported and stored as amino acids (1). Compared with fermentable carbon generally present in grapes at >20% (w/v), total nitrogen levels range from 0.006-0.24% of which only 0.0021-0.08% is biologically available to

fermenting yeasts. Thus, nitrogen may become an important growth-limiting constraint for microorganisms.

The nitrogenous components of grapes and juice which are metabolically available to yeasts are present as ammonium salts (NH_4^+) and primary or “free alpha-amino acids” (FAN). Combined, the two groups are referred to as “Yeast Assimilable Nitrogenous Compounds” (YANC) (2). Thus, a complete evaluation of the nutritional status of juice or must requires measurements of both fractions.

In grapes, ammonium ion concentrations range from near 30 to more than 400 mg/L (3, 4), decreasing in wine to levels of less than 50 mg/L (5). Numerous studies have demonstrated the priority of ammonium ion uptake by yeasts relative to amino acids.

All of the 20 commonly occurring amino acids are found in grapes and wine. The total concentration of these amino acids ranges from 400-6,500 mg/L (6). Of these, only the free alpha-amino acid (FAN) fraction is directly assimilable by yeasts. This fraction includes arginine, serine, threonine, alpha-amino butyric, aspartic and glutamic acids. Collectively, this group comprises 35-40% of the total N and 75-85% of the total amino acids. Arginine is typically present at levels ranging from 5-10 times that of the other amino acids and represents

Nitrogen Nutrition

(continued from page 5)

30-50% of the total nitrogen utilization (7).

Proline is present in relatively high concentrations (700-800 mg/L) but is not biologically available to *Saccharomyces* sp. before or during alcoholic fermentation. Proline utilization requires two enzymes, a permease and an oxidase. The permease, initially required for uptake, is inhibited by the levels of ammonium ion present before and during the early stages of fermentation. By the time that permease inhibition is released, redox conditions have dropped and the oxidase needed for ring cleavage is not functional (8).

The NOPA procedure (9) has been used to obtain FAN nitrogen by derivitization of primary amino groups with ortho-phthaldialdehyde. The resulting iso-indole derivatives can be measured spectrophotometrically at 335 nm (in the UV region of the spectrum). As a result of the specificity of this reaction to primary amino acids, the imino acid proline cannot form a derivative and, therefore, does not contribute to the results. Ammonium ion, the second main source of assimilable nitrogen, also is not measured by the NOPA procedure, and requires a second analysis using an enzymatic or an ion selective electrode method.

The Formol titration is a simple and rapid determination of assimilable nitrogen. This method involves the addition of neutralized formaldehyde, to liberate protons that are titrated directly with NaOH to a pH 8.0 end point (10,11). The analysis measures the alpha-amino acids, ammonium ion, and about 17% of the proline present. It therefore provides an approximate, but useful, index of the nutritional status of juice.

A reduced-volume Formol procedure provided below allows one to carry out this analysis with a smaller sample of juice/wine (4 mL) and only uses 2 mL of formaldehyde. Formaldehyde is a chronic irritant and carcinogenic; this method should only be performed with proper ventilation.

As mentioned above, ammonia (ammonium ion) can be determined enzymatically or with an ion selective electrode and pH meter. Arginine, the primary fermentable amino acid can also be determined through the use of enzymes.

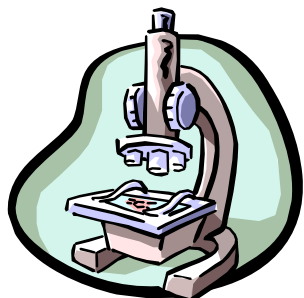
Y-A-N deficiency in fermenting juice/must is often corrected by addition of assimilable nitrogen in the form of diammonium phosphate DAP (25.8% NH₃, 74.2% PO₄ w/w) and/or one of several commercially available nitrogen supplements. Commercial nitrogen supplements typically contain DAP (25-50% w/w) in addition to more complex forms of nitrogen such as yeast extract, vitamins and yeast hulls.

Nitrogen Nutrition

(continued from page 6)

Utilization of nitrogen supplements is regulated. In the United States and among OIV nations, the maximum addition of ammonium salts (DAP) is 960 and 300 mg/L respectively. In Australia, supplementation is linked to phosphate levels in wine. The maximum level of inorganic phosphate (P_i) is 400 mg/L (7).

Traditionally, winemakers employing nitrogen supplementation add the product along with yeast at the start of fermentation. However, incorporation of ammonia and amino acids occurs primarily during the yeast's growth phase with limited uptake thereafter. Thus, the presence of NH_4^+ delays the uptake of amino acids. Given this, a better plan is to supplement at a stage after the yeast has incorporated available forms of amino acids. This may occur as incremental additions starting at 48 hr (for reds) and 72 hr (for whites) post-inoculation or a single addition midcourse during the fermentation



NITROGEN: ESTIMATE OF FAN BY FORMOL TITRATION

Barry H. Gump, Ph.D.

*Department of Viticulture & Enology
California State University, Fresno*

This is a rapid method for estimation of the fermentable nitrogen in juice, wine, or vinegar. The method measures alpha-amino acids and ammonia.

I. Equipment

pH meter sensitive to 0.05 pH unit
Electrode (Orion, epoxy body, sure flow, semi-micro or equivalent)
5 μ m syringe filters, or equivalent
2-mL and 10-mL pipets, or equivalent
25-mL volumetric flasks
10-mL buret (\pm 0.05 mL)
30-mL beaker
Mini-stirbars

II. Reagents

Calibration buffers for the pH meter
Sodium hydroxide (NaOH) 1 N
Sodium hydroxide (NaOH) 0.05 N standardized against potassium hydrogen phthalate or equivalent
Formaldehyde, reagent grade 37% (vol/vol or 40% wt/vol), neutralized to pH 8.0 with 1N NaOH

III. Procedure

1. Check pH of formaldehyde and if not at pH 8.0 neutralize with 1N NaOH

NITROGEN: ESTIMATE OF FAN BY FORMOL TITRATION

(Continued from page

2. Clarify the wine sample with a 5µm syringe filter or equivalent.
3. Transfer 10.0 mL of the clarified sample into a 25-mL volumetric flask. Bring to volume with deionized water, and mix well.
4. Transfer a 10.0 mL sample of the clarified and diluted wine into a 30-mL beaker, place calibrated pH/reference electrodes and a stirbar into the solution, mix, and adjust the pH of the sample to 8.0 with 1 N sodium hydroxide.
5. Add 2.0 mL of the previously neutralized formaldehyde (pH 8.0) to the aliquot, mix, and titrate back to pH 8.0 with the 0.05 N NaOH.
6. The concentration of fermentable nitrogen is given as follows:

$$\text{Fermentable Nitrogen (mg N/L)} = (\text{mL of 0.05 NaOH titrated}) \times 0.05\text{N} \times 14 \times (25/10) \times (1000/10)$$

$$= (\text{mL of 0.05 NaOH titrated}) \times 175$$

IV. Supplemental Notes

1. The full equation for calculating assimilable nitrogen is:

$$\text{Mg/L N} = (\text{mL of NaOH}) \times (0.05\text{meq OH}^-/\text{mL}) \times (1\text{mmol N/meq OH}^-) \times 14 \text{ mg/mmol N} \times (25\text{mL}/10\text{mL- dilution factor}) \times 1000/10 \text{ (to convert to liters)}$$

If a different concentration of base is used, the equation requires one to use the correct normality instead of the 0.05N term. The dilution factor in the equation (25 mL/10 mL) is changed if one uses a sample volume other than 10 mL and dilution to 25 mL.

2. Formaldehyde is carcinogenic and a bronchial irritant so handle with proper ventilation.
3. The pH of formaldehyde gradually shifts downward. Its pH should be checked and readjusted to 8.0 prior to each use.
4. The Formol titration only titrates one nitrogen of arginine, it also titrates approximately 14% of the proline present. These two errors are partially offsetting.

If anyone has questions regarding the Formol or any other methods mentioned above, and/or how to use them they can get in touch with me at barryg@csufresno.edu.

**NITROGEN: ESTIMATE OF FAN
BY FORMOL TITRATION**

(continued from page 8)

Selected references

1. Sponholz, W.R. (1991) Nitrogen compounds in grapes, must, and wine in International Symposium on Nitrogen in Grapes and Wine (J. Rantz, ed.) Am. Soc. For Enol. and Vitic., Davis, CA. , pp.67-77.
2. Dukes, B.C., and Butzke, C.E. (1998) Rapid determination of primary amino acids in grape juice using an o-phthalaldehyde/N-acetyl-L-cysteine spectrophotometric assay. Am. J. Enol. Vitic. 49, 125-34.
3. Henick-Kling, T., Edinger, W.D., and Larsson-Kovach, I. -M. (1996) Survey of available nitrogen for yeast growth in New York grape musts. Die Wein-Wissenschaft 51(3), 169-74.
4. Sablayroles, J.M. (1996) Sluggish and stuck fermentations. Effectiveness of ammonium nitrogen and oxygen additions. Die Wein-Wissenschaft 51(3), 147-51.
5. Ough, C.S. (1969) Substances extracted during skin contact with white must. I. General wine composition and quality changes with contact time. Am. J. Enol. Vitic. 20, 93-100.
6. Wurdig, G., and Woller, R. (1989) Chemie des Weines. Handbuch der Lebensmittel-technologie. Stuttgart:Ulmer.
7. Henschke, P.A., and Jiranek, V. (1993) Metabolism of nitrogen compounds in Wine Microbiology (G.H. Fleet, ed.) Harwood Academic Pubs. Australia, pp.27-54.
8. Ough, C.S. (1968) Proline content of grapes and wine. Vitis 7, 321-31.
9. Bely, M., Sablayrolles, J-M., and Barre, P. (1990) Automatic detection of assimilable nitrogen deficiencies during alcoholic fermentation in oenological conditions. J. Fermentation and Bioengineering 70(4), 246-52.
10. Woodward, J.R. and Cirillo, P.V. (1997) Amino acid transport and metabolism in nitrogen-starved cells of *Saccharomyces cerevisiae*. J. Bacteriol. 130, 714-23.
11. Guitart, A., Orte, P.H., and Cacho, J. (1998) Effect of different clarification treatments on the amino acid content of Chardonnay musts and wines. Am. J. Enol. Vitic. 49(4), 389-396.
12. Zoecklein, B.W., Fugelsang, K.C., Gump, B.H., and Nury, F.S. (1995) Wine Analysis and Production. Chapman and Hall Pub. New York, NY.



Illinois Vineyards Region Update



Southern Update

Allan Dillard, Limestone Creek

February - Where to begin? No real winter yet, but March is often a problem, so for those who have relatively tender varieties (Chambourcin, Vidal, Viniferas) you should do your rough pruning on them later rather than sooner. I have seen almost no primary bud damage yet, but we could still see bud kill events for another month.

Feb. 20 - Yep, the coldest day of the winter (so far) was the night of the 18th, with a low here at my place of 9 above. Just went to four different Chambourcin plantings and did 200+ primary bud checks, and 94% of the primaries were still good, even though the sites were at lower elevations, below 650 ft. So far, so good, but remember that pruning vines of any type begins the deacclimation process and that combined with a few unusually warm days/nights can cause trouble.

There are several issues to watch for in the vineyard over the next few weeks, including removing any unpicked/diseased clusters from the vines before bud break, so while pruning and cleaning up the vines for spring, make sure the clusters are all

gone, since they are a big potential source for early disease development. Also, it is a good idea to do a dormant spray (see the Midwest Commercial Small Fruit and Grape Spray Guide) to help lower the population of overwintering disease.

In some of the older vineyards I have visited lately, I have seen vine cordons which were wrapped around the trellis wire two or more times and have begun to grow into/over the wire. This is another problem which can be addressed now. Whenever possible, during rough pruning, you should gently unwrap those cordons, leaving only one section over the wire and support the rest with ag tie material of your choice.

This will obviously be easier if you first remove last summer's canes, leaving only what you need in spurs. In some cases, the older cordon wood is actually grown completely around the wire, in which case you should do a renewal of the cordon and just leave the old wood that cannot be safely removed on the trellis wire! I remember cutting a wire many years ago while trying to get the old piece of cordon off, not good! Just remove all you can and leave the rest.

Southern Update.

(continued from page 10)

Whenever you need to renew a cordon, it is important to only "lay down" about 9 buds or 18 inches of new wood, whichever comes first, depending on node("bud") spacing and only wrap it once over the wire. If you try to extend the cordon too much in one season, you will find the middle section will never develop good sized fruitful canes, meaning you have crowded areas near the head and the end of the cordon and very little if any production in the middle 5 or more nodes! This is probably due to the growth habit of vines, which are "apically dominant", meaning they like to grow at the end(or up). Thus the longer the new cane is left, the more the energy of the vine by - passes the mid section and develops the tip. It also means those areas that are crowded with fruitful nodes, and thus lots of shoots with lots of clusters all bunched up together will be nearly impossible to maintain disease free and evenly ripened.

For those of you who have young, one or two or even three year old vineyards, trunk and root development should be your overriding concern, rather than "getting up on the wire" and into production. It is poor economics to try getting crop from the vines at the expense of their healthy development. I still see many instance of this problem in the vineyards I visit. If you don't allow for slow steady development of the

trunk and cordon system, you are robbing from Peter to pay Paul and your vines will be more susceptible to winter damage and less able to harden off before season's end. You will also be engendering a potential crown gall problem, even in vines that are not usually considered particularly susceptible to it, such as Chambourcin. Wood which develops rapidly is less resistant to winter injury of the tissue and any damage to the trunk from either winter weather or mechanical insult, such as weed eater, mower, etc., will cause a situation which allows for the crown gall bacteria to invade the plant.

So for these vines, if you have a section of trunk less than the thickness of your thumb and it is extended more than about two feet upward, you should cut it back and let it redevelop for another season. Please don't have "trunks" four or more feet long that are no bigger than your little finger! That is not enough trunk(or root either) development to feed the production area of the vine while at the same time trying to develop the trunk itself and continue the development of a strong and extensive root system. As a friend of mine often says about these kinds of situations, "trouble brewing".

This is also the time of year to look at your vineyard floor for erosion problems, weed control issues and overall cleanliness. If your vines had little disease problems last season, it

Southern Update.

(continued from page 11)

is ok to use either a bush hog or flail type mower to chop up the pruned canes and cordon sections and return those nutrients to the soil. However, if you had a real disease problem, it is best to remove the pruned wood, especially two year old or older cordon material from the vineyard and either burn it or get it far away from the vineyard site.

The good thing about our mild winter weather so far is it is really nice working in the vineyard. The bad thing(s) is the survival of disease and pest critters, so as the season progresses, unless we have some pretty severe cold, we could see pest, disease control problems this spring and summer. You should continue to walk your vineyard every day or two watching for potential problems as bud break and critter time approaches and make sure your first spray is done EARLY. Don't wait until you have one or two inch shoots out there, or you will be behind the diseases all season and they don't sleep!

March

Well, so far in March, we have had no severe cold (March 8) and many vineyards are mostly pruned, at least to a rough pruning bud count, leaving an extra bud or two per spur. I have checked many vines in several different vineyards, including vinifera as well as the more tender French hybrid varieties, like Chambourcin, and have found consistently 90 plus

% primary bud survival, even in most sites that are not as favorable for cold air drainage or in lower elevations.

I have seen quite a bit of evidence of winter injury and poor shoot hardening (the canes look more gray than tan or mahogany and are dead after only five or six buds, instead of being healthy to the tip). Generally, this can be attributed to several things, including site problems (elevation, soil profile/drainage, nutrient deficiency or imbalance), but the single most common reason tends to be leaving too much fruit on the vines the previous year.

While the fruit is on the vine, the biggest use of nutrient energy is tied up in ripening the fruit. If you have too much fruit, or if you leave it on the vine until very late in the season (as in late harvest Vignoles or Vidal), you will invariably see poorly hardened canes the following winter/spring. With spur pruning this is not as big a problem in terms of having enough buds for the following year, but it IS an indication that you are adding stress to the vines and making them more susceptible to the whole range of diseases, viral problems, crown gall, etc

I know that some people who have known me for years get tired of hearing this from me, BUT it is still true that overcropping and unevenly

Southern Update.

(continued from page 12)

ripened fruit is too common and a major factor in declining health of vines. Please, for the good of your vines, the wine quality in the state and also for your wallet, remember that a lower cluster number per vine DOES NOT mean less crop. Research has proven on several occasions, including with hybrids like Chambourcin and Vidal, that a balanced crop produces fruit that is not only better in all the chemistry (pH, acid, sugars) and in taste, but that you will get at least as many tons/acre, AND your vines will be healthier!

If you don't already have it, buy a copy of the "Midwest Grape Production Guide" and read it. On page 46 is a table which gives the appropriate number of buds to leave for most varieties of American and French hybrid grapes. If you are wondering whether to leave more than the recommended total or not, don't. Err on the side of less is more. Then read the section beginning on page 47/48 on cluster thinning, etc. If you follow these recommendations, you will have better fruit, better vines and at least as good a crop in weight. The guide is available from any of the three Viticulturalists for Illinois, Bill Shoemaker, Elizabeth Wahle, or myself for \$15. The best \$15 you

can spend on your vineyard!

March 17 -- Happy St. Pat's! Hopefully, you have done most or all of the rough pruning (except for vinifera's). The past few days were great for being out in the vines, but it is still early for us to have very many 70 degree days in a row. The Chambourcins we were pruning yesterday were dripping sap. Looks like the next several days will help slow the vines down, which will be good. If you haven't done a dormant spray yet, you should plan on getting one done soon, before buds start swelling. See the spray guide for dormant spray formulas/recommendations.

Next month will begin the green season and I will be doing workshops and writing about early season canopy management, shoot positioning/combing, early signs of disease and vineyard floor management issues. Get your sprayer ready and here we go again.



Northern Update

*Denise Cimmarrusti, Vineyard Tech.
U of I, St Charles Research Center*

March

At this time of year, the thing foremost in our minds is the annual pruning ritual. We try to find a happy medium between temperature & weather conditions for our comfort and the dormancy of the vine. In the Northern part of the state, there never seems to be that "Happy Medium" so we brave the elements and just get out there and get the job done.

Pruning at the St. Charles Research Center began in early March. The weather was not very cooperative in the early half of the month. Daytime high temperatures ranged from the 20's to the mid 30's, with windy conditions. Sporadic rain showers were a nuisance, as were some days with minimal snowfall.

Taking advantage of any day without the moisture and cold, driving winds, pruning commenced. The Wine Grape Trellis Comparison Trial was the first vineyard to have its vines pruned. The vines in this study, Frontenac, Marachal Foch, St. Pepin, GR-7, all normally show an adequate amount of annual prunings, however this year, there is an interesting observation to report. The vine stress from last summers drought is visually obvious. Canes, which would

normally be ground length, are barely 2 feet long on some vines. Pruning weight data has been gathered and data shows confirmation that weight of prunings is well below normal. All vines in this trial have been spur pruned to retain 5 buds not counting basal buds. Using this long spur pruning method, we hope to gain some insurance from late season frosts/freez episodes which happen more likely than not. Within the next month or so, this trial will also see major trellis renovation. Work will begin with removing vines from their current trellis configuration while there is a major renovation in the trellis systems. This much needed renovation will include re-installation of posts and stronger bracing systems to provide the current GDC & SHW trellis system to function as intended.

With this being a season of change for a few of our trials, propagation work has also begun in the warmth of the greenhouse. New varieties have been obtained and work has begun to propagate out these dormant cuttings to allow us to introduce newer material into our Cold Hardiness Evaluation Trial as well as into our Advanced Breeding Line & Cultivar Screening Trial.

In the latter part of March, vines in the Breeding Nursery were also pruned. The vines in this trial are now in their third growing season,

Northern Update

(Continued from page 14)

so this was their first real pruning session. Last April, all vines in this trial were pruned to two buds on two trunks and then the two trunks were trained up to a single wire. This year, all vines that reached the single wire last season, were pruned to only retain one spur on each trunk. These two spurs each retained only two buds.



(This method of pruning is being done for research criteria evaluation purposes only and should not be performed in a commercial vineyard where yield is a prime consideration.)

April

As April begins, pruning will commence in the Cold Hardiness Wine and Table Grape Trial. Vines in this trial, which tend to be early in bud break, will be pruned to retain longer spurs of 5 buds, not counting basal buds. All other vines will be pruned to two bud spurs.(not including basal bud counts). Pruning is projected to be finished by mid April.

Conferences, Workshops, & Short Course Reviews

Minnesota 2006 Cold Climate Grape Conference

Bill Shoemaker, University of Illinois

The Minnesota Grape Growers Association held their annual Cold Climate Grape and Wine Conference at the Grand Kahler Hotel in Rochester, Minnesota on Feb 3-4 this year. A large crowd, probably >250, of interested growers from the upper Midwest were present as the organizers presented sessions for growing grapes, making wine and marketing the industry. This year was especially relevant to Illinois as 3 speakers from Illinois were on the program. Dr. Mohammed Babadoost of the University of Illinois presented a talk on the major diseases affecting grapes. Chris Lawlor of Galena Cellars Winery gave a presentation on the art and science of blending wines, as well as participating in a winemakers roundtable. Bill Shoemaker of the University of Illinois gave 3 presentations; managing insect pests in grapes, building a business plan for a commercial vineyard, and the growth of the Illinois grape and wine industry. Illinois' reputation was enhanced by these speakers, particularly after participants were given an opportunity to taste Galena Cellar's Frontenac Port. Other speakers on the program did a great job as well. Mike White of Iowa

Reviews: Minnesota Cold Climate

(continued from p.15)

State gave a keynote presentation on the Iowa grape and wine industry, discussing the factors which have contributed to its rapid development and those which represent its future hurdles and opportunities. Dr. Paul Domoto did a great job giving a presentation on mineral nutrition of grapevines, particularly focusing on tissue testing and its important role in managing fertilization of wine grapes. The Iowa contingent came in threes as well, as Eli Bergmeier gave a thorough presentation on the issues involved in establishment of a new wine grape vineyard.

IGGVA members will remember Doniella Winchell of the Ohio Wine Producers Association and the excellent presentation she gave on promotion of the wine industry. She was as good as ever as she challenged the Minnesota industry to promote the wine experience to the citizens of Minnesota. Also representing Ohio was Todd Steiner of Ohio State, who helped Minnesota winemakers understand the presence and nature of faults in wines. The conference was full of opportunities for attendees to learn and should contribute to healthy growth in the Minnesota industry.

The Minnesota Grape Growers deserve tremendous credit for doing a great job with organization and planning for their event. The facility was excellent and the event ran very smoothly. The hospitality to speakers

was much appreciated. The conference proved to be a pleasant experience and a very educational event for those that attended.

Grape Highlights of the Missouri Conference

Marilyn Odneal, Missouri State

A deadly delegation of diseases was hosted by Mr. Andy Allen, Viticulture Advisor for Missouri, as he moderated the grape sessions of the 21st Annual Mid-America Wine and Grape Conference held at the Tan-Tar-A Resort in Osage Beach, Missouri in February. The first speaker was Dr. George Leavitt from the University of California Cooperative Extension Service who presented "Pruning is a Terrible Thing to Do to a Grapevine: Research and Experiences with Grapevine Canker Disease." Canker diseases can be deceptive. In 1976, researchers found that the canker disease "dead-arm" thought to be caused by a single pathogen, *Phomopsis*, was actually caused by two fungal pathogens that often occurred together: *Eutypa lata* and *Phomopsis viticola*. The term "dead arm" is now obsolete and the two separate diseases are termed *Eutypa Dieback* for the canker (wedge-shaped wood decay symptom) and shoot dieback problem and *Phomopsis Cane and Leaf Spot* for the cane and leaf spotting.

Review: Missouri Conference

(continued from page 16)

The wedge-shaped wood decay discoloration seen in cross section, typical of *Eutypa Dieback*, was observed in some California vineyards in the 1980s. It was found by researchers to be *Botryosphaeria rhodina* instead. Symptoms of both diseases are identical except that the stunted shoots and foliar distortion common to *Eutypa lata* does not occur in *Botryosphaeria* infection. Proper identification of the pathogen is necessary for effective control. *Botryosphaeria* was also identified in grapes in the Northeast U.S. at the New York State Agricultural Experimental Station in Geneva, New York in 1998 and investigations continue.

Both *Botryosphaeria* and *Eutypa* diseases infect the grapevines through the wounds made during dormant pruning, hence Dr. Leavitt's assertion that pruning is a terrible thing and discussed various pruning wound treatments under investigation. He also discussed trunk renewal and keeping multiple trunks of different ages as ways of managing *Botryosphaeria* and *Eutypa* infected vineyards.

Mr. Bryan Hed presented research projects on alternative fungicide and cultural treatments of grape diseases that he and others are conducting at Penn State. Bryan discussed experiments dealing with Serenade (*Bacillus subtilis*) for powdery mildew

control, phosphoric acid products for downy mildew control, and cultural treatments (cluster clipping, leaf removal) and the use of summer or horticultural oils to loosen the tight clusters of 'Vignoles' in order to decrease the incidence of bunch rot in this variety.

Compost application effects on vine health and disease incidence are also being studied at Penn State. The amount of compost applied to test in the experiments was relatively high. Bryan recommended a general compost application for grape growers of around 5 - 10 tons/acre. More information on compost application to vineyards is located at <http://www.ppath.cas.psu.edu/EXTENSION/FRUITPATH/compostguide.pdf>

Bryan also talked about an emerging pathogen in his area, *Colletotrichum*, a fungi that causes fruit rot. The symptoms of *Colletotrichum* probably occurred in vineyards before but were most likely misidentified as Botrytis, sour rot, black rot or Phomopsis fruit rots.

Grapevine viral disease in Missouri was covered by Dr. Wenping Qiu of Missouri State University. Viral pathogens are insidious because they may not be easily detected and their symptoms may not be noticeable. Virus diseases are systemic or inside the plant so when you see the symptoms, you cannot spray a pesticide to eliminate the

Review: Missouri Conference

(continued from page 17)

disease. Viruses are generally slow killers that may exist when the vines are planted. The plants will never be rid of the disease once infected.

Wenping focused on the status of virus incidence in Missouri vineyards and the cultural practices that will help prevent virus diseases. Earlier surveys detected several known viruses on several major cultivars of grapes. Recently symptoms including short internodes and small crinkled leaves with a mosaic pattern appeared in a 'Chardonnay' vineyard. These sick vines bore little or no berries. Cuttings were collected from the affected vines and the symptoms persisted after the cuttings rooted and grew into a new vine, indicating that the problem was not caused by an external factor like herbicide injury. A new virus or virus-like pathogen is suspected, but further investigation is needed to determine its identity.

Ultimately virus diseased vines may have to be removed. Since there is no cure for virus diseases, prevention is paramount. The four preventative practices discussed were to eradicate soil borne nematode vectors from the site; to plant certified clean stock; to survey vineyards frequently so problem vines can be identified and removed; and to maintain weed free vineyards.

The goal of the Grape Importation and Certification Program of the Missouri State Fruit Experiment Station is to produce certified clean stock for nurseries to propagate for sale to growers in order to establish clean vineyards. This program has produced virus-free mother vines of 'Norton/Cynthiana', 'Vignoles', 'Vidal blanc', 'Chambourcin' and 'Chardone' through heat-treatment and shoot-tip tissue culture. 'Seyval blanc', 'St. Vincent' and 'Vivant' are presently going through this process at the experiment station and virus-free vines of 'Traminette' and 'Cayuga White' from California are going to be included in the project. The plan is to establish a foundation vineyard of clean grape cultivars to serve as stock plants for grapevine nurseries. Cuttings should become available in 2009. Hand in hand with this effort, a National Clean Plant Network was initiated in September 2005 in Davis California. Within this network, a national registry of clean grape material and national standards for testing for grape viruses will be established.

The last presenter, Mr. Jim Kamus from the Texas Cooperative Extension Service, warned us of a possible invader from the south. Pierce's Disease is native to the gulf coast states and is not a problem in the Midwest. Recently, however, winter hardy strains of Pierce's Disease have been suspected in northern Texas and in Kentucky.

Review: Missouri Conference

(continued from page 18)

Pierce's Disease is a bacterium transmitted by sharpshooter and spittlebug insects to the plants where it lives in the xylem fluid. Grapes develop water stress symptoms and die from Pierce's Disease, but some native woody and herbaceous plants can be systemically infected without developing noticeable symptoms. The research in Texas focuses on understanding how the disease spreads through the state. This involves studying the behavior of the insect vectors and identifying wild host plant populations throughout Texas.

A common thread in all of the grape presentations was "Know Thy Enemy". Proper identification of the cause of a problem is the key to effective management. Routine scouting of your vineyards is necessary stay ahead of problems. Keep in mind that the cause may not be apparent as in the case of herbicide injury and grape virus infection and that the disease may even be new to your area or yet to be identified.

Future Mid-America Grape and Wine Conferences are scheduled as follows:

2007 - February 3-5

2008 - February 2-4

2009 - February 7-9

Illinois Grape Growers & Vintners Association Conference Review

Denise Cimmarrusti

U of I, St. Charles Research Center

On February 24-26, the Illinois Grape Growers & Vintners Association held its annual conference and attendance was high. With standing room only in some sessions, attendance numbers reached 400. What a lucky 400 participants to have been able to hear the fabulous line up of speakers that had been secured for this years conference. During the two day event, sessions covered viticulture, enology, & marketing.

Trial updates and presentations for the field of research work in viticulture started the day on Saturday. Speakers from Southern Illinois University (S.I.U) as well as from the University of Illinois (U of I). included: Dr. Brad Taylor, Dr. Allan Walters, Bryan Young & Sean Lynch, and Bill Shoemaker.

After the first break on Saturday, sessions came back strong with Dr. Laszlo Kovacs, Associate Research Professor from Missouri State University, M.G. discussing crown gall and its control in grapevines. One of the most important bits of information participants walked away with was the understanding that although the bacterium for crown

IGGVA Conference Review

(continued from page 19)

gall is present throughout soils in the Midwest, with proper site selection and careful cultivar planting choices, crown gall in grapevines can be manageable.



Dr. Laszlo Kovacs presenting to a captive audience.

Dr. Jeff Granett, Professor of Entomology from the University of California, Davis delivered his presentation on phylloxera, a critical issue that is presently affecting some Illinois vineyards. Please see page 3 of this issue for the article, "Dr. Jeff Granett on Grape Phylloxera" in which Rick Weinzierl, Extension Entomologist (U of I) nicely summarizes the critical points from Dr. Granett's talk.

For new grape growers, Allan Walters, Elizabeth Wahle and Bill Shoemaker held a session directly focused on the economics of establishing a vineyard, in which over 60 participants attended.

For the enology sessions, many great topics were presented from many knowledgeable people in the industry.

Jeff McCord from Sta Vin presented a very thorough and informative lecture on the chemistry of Oak and how its use in the winemaking process affects a wine's body, flavor and aroma. He also talked about the use of macro-aeration during fermentation, and how micro-oxygenation is utilized after the fermentation and pressing processes. With the depth of knowledge from Jeff McCord's presentation, participants walked away with new ideas for enhancing their wine fermentations.

Also speaking in the field of enology was Marco Bertaccini of American Tartaric. In his presentation, "Tannins & Enzymes in Winemaking" participants gained insight into the roles tannins & enzymes play in the winemaking process.



(Marco Bertaccini discussing tannins & enzymes)

IGGVA Conference Review:

(continued from page 20)

One of the important points during this presentation was the stressing of the role tannins play during fermentation. Marco Bertaccino made it clear that for maximum color extraction, it is best to introduce tannins during the first five days of fermentation and to divide the tannin dosage into small additions to promote a greater stability of color in a finished wine.

Rounding out the afternoon of enology sessions was Doug Popp, Owner of Media Separations. Doug Popp did a fantastic job giving participants in-depth knowledge about filtration media and bubble point testing.

Concurrently held with the viticulture sessions and the enology sessions were numerous marketing sessions. Speaker Rhonda Merrill discussed label criteria and forms that wineries need to be sure to complete.

Also presenting in marketing sessions were Bill Donaghue, Ted Penesis, & Dusanka Marijan from the Illinois Liquor Control Commission. New winery owners received very useful information regarding licensing, fees and forms as well as a wealth of other information.

The afternoon of marketing sessions covered Agri-Tourism - Ross Ament, Bob McElwee – Rockome Garden, Marketing Tools – Richard Naylor, Wine Trails – Patti Held, Signage & Hospitality – Cindi Fleischli.

Saturday evening, attendees were able to enjoy a wine tasting followed by a fabulous five course banquet paired with some of Illinois finest wines. Awards were presented and an auction concluded the evening.

**FROM THE EDITOR:**

If you feel there is a topic, which you feel is important and would like to see covered, please send your ideas to cimmarru@uiuc.edu

Your ideas are appreciated and always valued.

Illinois Wine Sensory Workshop

Wava Riley, Starved Rock

The I.G.G.V.A. and Vintage Illinois in partnership with Starved Rock Lodge and Conference Center sponsored a two day Wine Sensory Workshop. The workshop was held on March 21st and 22nd. Mark Wenzel of August Hill Winery coordinated the project.



Dr. Ann C. Noble

Keynote speaker and teacher was Dr. Ann C. Noble, Emeritus Professor of Enology at the University of California, Davis. She is internationally known as an expert in wine sensory analysis. Best known for her development of the "Wine Sensory Wheel", Dr. Noble's research and methods of sensory evaluation of wine flavor are widely used throughout the wine and beverage industry.

Forty-six attendees representing three states, two meaderies, and twelve wineries and wine shops, studied a variety of topics including descriptive analysis of wines,

spotting defects in wines, basic sensory evaluation of wines, developing judges, and how to establish a wine sensory program.



Workshop Participants with Dr. Noble

The event was educational, informative and fun as participants followed Dr. Noble in her very informative power point presentations and then went on to evaluate the aromas of the premixed standards, then concluding with aroma and taste evaluations of the wine samples. Through the senses of smell and taste, participants were able to experience the aromas of everything from green bean (herbaceous aroma) to Cassis (fruit aroma). Also included was a valuable component of wine faults allowing participants to experience first hand, the aromas no winemaker wants to find in his/her wines.

In small groupings, participants then went on to sensory evaluate some Midwestern grown varietals such as Chambourcin, Traminette, Marachal Foch & others.

If you missed this workshop, you missed a great opportunity.

Upcoming Workshops & Events

Central Region: Grape Planting Workshop at Rolling Hills Vineyard

Saturday, April 15, 2006 at 9:00 am

This workshop, sponsored by the Illinois Department of Agriculture, the Illinois Grape Growers & Vintners Association and the University of Illinois Extension, is designed to give participants hand on experience with various planting techniques associated with installation of a new t Vineyard. Don't forget to dress for the weather, since most of the workshop time will be spent in the vineyard. This is a hands on workshop, and participants are encouraged to bring their personal gear, including gloves and work boots. Refreshments will be made available, but lunch will be on your own, so a sack lunch is suggested.

Grape publications will also be available for sale at the workshop, including the 2006 Small Fruit & Grape Spray Guide for \$9.00 and The Midwest Grape Production Guide for \$15.00.

Workshop participants will meet at Rolling Hills Vineyard, located at the corner of Douglas Street and Bennett Street, in New Salem, Illinois, starting at 9:00am. New Salem is located approximately 3 miles north of I-72 on CR-3

For further information and in order to plan space for the meeting, please contact Elizabeth Wahle at (618) 692-9434 or by email at wahle@uiuc.edu

Southern Region:

Allan Dillard will be doing several workshops in the southern region this year. The proposed dates are: May 13 and 18 for shoot positioning/thinning and suckering; June 17 and July 8 for Summer canopy management and Crop assessment.

If you are interested in attending any of these sessions, please contact him via e-mail at: limestonecreek@msn.com or call him at (618) 534-9049, cell, or (618) 833-4683.

Northern Region:

With support from the State of Illinois, the University of Illinois and the IGGVA, several workshops are being planned for northern Illinois grape growers this year.

Because of the high number of contacts by folks interested in starting a vineyard enterprise in northern Illinois, two workshops are being planned focusing on establishing a grape-growing business.

Upcoming Workshops & Events

(continued from page 23)

Northern Region

These workshops will be called, "Getting Started in Grapes" and will take a business plan approach to the enterprise. One is being planned for Mid-May and will take place at Lavender Crest Winery in Rock Island, IL. The other is tentatively planned for sometime in June in McHenry, IL at McHenry County College. Information on these workshops will be released soon.

A canopy management workshop is being planned for the month of June in cooperation with the Northern Illinois Wine Growers in Jo Davies county. This workshop will go over the principles and practices involved in canopy management in a hands-on setting. Growers will be encouraged to find the balance between productivity, quality and plant health in their grape-growing practices.

Another event in June will be the summer meeting of the northern region IGGVA at the St Charles Horticulture Research Center. This meeting coincides with a tour of the grape research at the Research Center. Growers will see the research in progress at a time of the year when results are beginning to

emerge. For those who've not seen grape research in progress, this is a great opportunity to see how it's done. This meeting is scheduled for June 3, 2006 and will begin at 9:30 am.

A topical workshop for existing growers is also being planned for early to mid-July on mineral nutrition of grape vines. The management of soil fertility and grapevine nutrition is critical to plant health and productivity, as well as crop quality. Nationally known speakers will be brought in to help growers develop their management skills in fertility management.

Another topical workshop planned for 2006 is going to take place in late September or early October. This workshop will focus on sustainability in grape production. While this is an elusive topic, the speakers planned for this workshop will help growers understand current perspectives and practices in sustainable grape production.

More information on these workshops will be released through news media and the IGGVA soon. It will also be posted on the IGGVA website in the calendar section. Contact: Bill Shoemaker at shoemak@inil.com or 630/584-7254



NEWS FROM THE
ILLINOIS GRAPE GROWERS
&
VINTNERS ASSOCIATION

2006 IGGVA BOARD OF DIRECTORS, REGION CHAIRS, & STAFF

<u>NAME</u>	<u>ADDRESS</u>	<u>PHONE/FAX/E-MAIL/CELL</u>
<u>DIRECTORS</u>		
Dick Faltz President	3663 Wolf Crossing Rd. Oswego, IL 60543	Ph: (630) 554-8921 E-mail: rafaltz@aol.com
Paul Renzaglia 1st Vice Pres.	PO Box 51, Hwy 127 Alto Pass, IL 62905	Ph: (618) 893-4898 E-mail: altovin@midwest.net
Paul Hahn 2 nd Vice Pres.	33633 Rte. 9 Mackinaw, IL 61755	Ph: (309) 359-9463 E-mail: hahnwine@dtmspeed.net
Brenda Logan Sec./Treas.	2010 E. Parley St. P.O. Box 342 Nauvoo, IL 62354	Ph: (217) 453-2528 Fax: (217) 453-6600 E-mail: baxters@nauvoo.net
Jim Nickell Past President	RR #1 Box 72 Nebo, IL 62355	Ph: (217) 734-9307 E-mail: nickell@adams.net
Fred Koehler Director – North	115 S. Roselle Rd. Roselle, IL 60172	Ph: (630) 529-9463 wineinfo@lynfredwinery.com
Robert Hall Director – North	7458 W. Mount Hope Rd. Galena, IL 61036	Ph: (815) 777-1505 E-mail: bchall@galenalink.net
Mark Lounsberry Director – Central	RR #1 Box 55A Oakford, IL 62673	Ph: (217) 635-9900 E-mail: ml5674@yahoo.com
Jody Fisher Director – Central	7135 E. Firehouse Rd Decatur, IL 62521	Ph: (217) 864-3844 E-mail: jodyfisher7000@sbcglobal.net
Larry Hanold Director- S. Central	RR #4 Box 98 Mt. Sterling, IL 62353	Ph: (217) 289-3366 E-mail: megabuck@adams.net



2006 IGGVA BOARD OF DIRECTORS, REGION CHAIRS, STAFF, RESOURCE PEOPLE, LEGISLATIVE COMMITTEE & SPECIALISTS (continued from page 24)

Gene Meyer RR #3 Box 3097 Ph: (217) 285-4141
 Director – S. Central Pittsfield, IL 62363 E-mail: gkmeyer1@verizon.net

Brad Genung 1550 Cobden School Rd. Ph: (314) 413-5339
 Director – South Cobden, IL 62920 E-mail: genungb@verizon.net

Ted Wichmann 2655 Water Valley Road Ph: (618) 893 4417
 Director – South Cobden, IL 62920 E-mail: stgh@shawneelink.net

REGION CHAIRS

Martha Rittmueller 5401 US Hwy 6 Ph: (309) 949-2565
 North Colona, IL 61241 E-mail: info@lavendercrest.com

Paul Hahn 33633 Rt. 9 Ph: (309) 359-9463
 Central Mackinaw, IL 61755 E-mail: hahnwine@dtnspeed.net

Andy Collver RR #3 Ph: (217) 285-9849
 South Central Pittsfield, IL 62363 E-mail: acdc@pikenet.net

Bruce Morganstern 14931 State Hwy 37 Ph: (618) 629-2302
 South Whittington, IL 62897 E-mail: daddybruce55@hotmail.com

IGGVA STAFF

Bill McCartney 1110 N. Jackson Ph: (217) 285-6305
 Ex. Director Pittsfield, IL 62363 Cell: (217) 473-6845
 Fax: (217) 285-4485 E-mail: pbm2@verizon.net

Sherry Campbell P.O. Box 8199 Ph: (217) 782-6515
 Dir Ext Relations Springfield, IL 62791 E-mail: campbells@extension.uiuc.edu

This newsletter welcomes new contributors. If you would like to make a newsletter contribution, please contact Denise Cimmarrusti at cimmarru@uiuc.edu or Bill Shoemaker at wshoemak@inil.com .

If you do not have access to an electronic copy of this newsletter and would like to receive one, please send your name and address to the address below.



The Grape Communicator is an electronic newsletter, free of charge, for those interested in the Illinois Grape and Wine Industry.

For further information contact:

*Bill Shoemaker, Publisher
Denise Cimmarrusti, Newsletter Editor
University of Illinois
St Charles Horticulture Research Center
535 Randall Road,
St. Charles, Il. 60554
(630) 584-7254
Newsletter web site link: www.illinoiswine.com*

*We hope you have enjoyed reading this edition
As always, we welcome your feedback*