



Notes from the 2013 ASEV Eastern Section Conference in Winston-Salem, NC

Note: Abstracts for all of the presentations below can be found on the ASEV-ES website at <http://www.asev-es.org/>. These are loosely edited notes taken during the sessions with some editorial remarks interspersed. I tried to capture speaker remarks as closely as possible.

Student Papers:

Alyssa Beatty (Purdue) - What is the difference between a \$2 and \$200 bottle of wine? Lots of berry descriptors. Pulling out savory characteristics into an aroma wine wheel, including meaty, umami, pickle-spicy-vegetal, caramel-buttery, and rancio. What are the chemical compounds – thiozoles. Eg vegetative descriptors – tree of Lebanon, silver thyme and white spruce. Sensory analysis of aromas by judges at Indy. Baked ham, seared steak, soy sauce, parmesan, molasses. Use GC-O to analyze samples. Is there a difference between the food science definition of “savory” and the descriptive wine term of “savory.”

Lindsay Springer (Cornell – best enology presentation) - Wine quality correlated with tannin levels. Hybrids – sourness, foxy, herbaceous, and low mouthfeel due to low tannins. Why do some wines have no detectable precipitable tannin despite lots of grape tannin. Tested on 6 hybrids and 6 vinifera varieties. Compare what’s in the grape to what ends up in the wine. NO tannin detected in F-A hybrids, lots in Noiret (comparable to CS) but Pinot was same as CS – why? Average west coast wine 544, FLX 300 mg tannin/g berries. Highest tannin in the grape ends up lowest in wine. Why? No relationship between skin tannin and wine tannin. Cell wall binding is strongest in hybrids and weakest in vinifera. Co-fermenting vinifera and hybrids may lead to lower tannins, exogenous tannins added to must may not end up in the wine, enological tannins may not work in certain cultivars. What is binding the tannins?

Catherine Barth (Laval in Quebec) – Vidal Frontenac Seyval are most widely grown. Will cluster thinning enhance quality by improving maturity, tannins. What is best Ravaz for Seyval. Full crop was the average of all vines. Cluster weights rose significantly as crop is lower but berry weight not as dramatic. Ravaz increased. Increase TSS and pH, decrease in TA and increase in esters. Conclusion that thinning does not improve quality.

Barry Gump (VESTA) - doing research with HACC students on paper chromatography, using multiple spotting techniques. Wine analysis doesn’t always have to be extremely accurate. Use multiple spotting and can get accurate to 50 mg/l and maybe down to 30.

Helen Fisher (Guelph in Ontario) – multiply vine materials using green grafting with Italian varieties. V grafts doing better than omega – better cambium.

Adam Howard (NC State) – water dynamics in vineyards. 2007 had a severe drought . Modify an existing irrigation schedule. Soil moisture conditions when stress occurs. Develop a model for water balance using Grenache and Syrah. 2011 try to induce water stress but very wet. Cover vine row with plastic sheets during rain and remove after rain. Measure at 15 and 45 cm, using SWP and stomatal conductance, soil cores. ET drivers are temperature, radiation, humidity and wind speed.

Lindsey Jordan (Cornell – best viticulture presentation) – using cover crops as an alternative to herbicides. Hilling up often discourages the use of under vine cover crops. See if they can devigorate 18 yr old vines on Scott Henry trellis. Annual rye (70#), buckwheat (350#), natural veg and roundup (64 oz/ac). No difference in pre-dawn or mid-day SWPs.

Technical Session:

Stan Howell (Michigan State and VESTA) on rootstocks – 90% of all vinifera vines are on 10 rootstocks (*Rupestris*, *Berlandieri* and *Riparia*). What are the environmental and cultural responses of the scion? Direct or primary response of rootstock on scion – root hormones, nutrition, water status, carbohydrate storage. Secondary effects include vine size (canopy density), impact on induced shoot vigor, shoot density and vine size. How to sort our primary and secondary effects? As a grower – does it do what I want it to do? Purpose of rootstock is to deal with soil problems, not scion. Ask Andy Walker (UC Davis) if you grow grapes under zero limiting conditions (eg water, nutrients, pathogens), will not have any rootstock effect. No. Shaulis research with Ives – when Ives on rootstock or own rooted. The primary impact of root system influence is on the vigor of the scion cultivar under conditions of culture. Complex conditions influenced by ambient environment.

Paolo Sabbatini (Michigan State) – methods to evaluate cold hardiness. If >80% damage replace or retrain the vine. If 15% or less no need to adjust bud counts. Cold resistance varied by 12C in the same canopy – variation in periderm, periderm color, cane diameter, internode length, persistence of lateral status all influence cold hardiness. Variation in frost and freeze damage, it's very hard to predict. Can we map it? Color of wood gives strong indication of cold hardiness, e.g. in CS. Optimum bud survival if cane diameter is 6-7mm. Fewer laterals increases bud survival. Remove laterals? Get right vine size, balance – improves acclimation and cold hardiness. Evaluate cropping stress influence on cold hardiness. How many cane characteristics can be used to impact cultural practices to improve hardiness? Darkest periderm, few persistent laterals, moderate cane vigor and internode length and 10-14 mature nodes. Moderate hardiness has 2-5 traits, low hardiness less than 3. Test Riesling and Concord - Ravaz from 16-33 (Concord), 7.3-13 (Riesling). Class 1 is the best cane. Count number of C-1 canes on a vine for indication of hardiness. Color of cane is an indicator of sun exposure so pick out sun canes. Anything you can do to encourage vine balance and early fruit maturity will improve acclimation and hardiness.

Justine Vanden Heuvel (Cornell) – Arandell (95.03101) is a no spray red variety. Bruce Reisch planted it and never sprayed it. It is a mid-season red wine grape with berry aromas and deep color, moderately resistant to BR and Ph, highly resistant to DM and PM. Justine has been growing it for five years, no disease early but 2013 is first year with DM on leaves. Growing in

Ithaca in organic vineyard and has BR for first time. On Long Island it is not performing well due to higher humidity – BR and Ph. It may be possible to maintain as no spray in FLX. Ravaz 14-16. Grafting increases yields by 40-60% and reduced TA by 10-14%. Training has little impact on yield components or fruit composition. Justine recommends that Arandell be grafted. Cluster thinning probably required in some years. Lean to high wire cordon, less expensive to establish and maintain.

Tasting notes with Anna Katharine – the wines have the characteristic soft tannin of red hybrids, but good concentration and texture. Color is outstanding and there is very little, if any, grapey aroma or flavor to the wines. They remind me of some of the first Noiret wines I tasted.

VSP on own roots

High wire cordon, own-roots

VSP on 3309 – best balance and flavors, higher tannin level, lower acid

HWC on 3309

Anna Katharine Mansfield (Cornell) - hybrid red tannins consist of smaller compounds that tend to convey bitterness as opposed to larger chains that promote smoothness. Low tannin is considered a problem in red hybrids. Possible treatments include cold soak, extended maceration, hot-press, tannin additions are methods to improve hybrid tannin. Vinifera 7-13, Corot 3.2, Foch 2.2 on astringency spectrum. Tannin content does not always correlate to extractability, hybrids generally have lower extractability.

Kevin Ker (KCMS Consulting and Brock Univ) – weather patterns and impact on winter hardiness. They've built 5 DTA devices to measure cold hardiness. Cold hardiness is the main limiting factor in Ontario and winter injury is the greatest threat to success of the wine industry. There are now 600 wind machines at \$35,000 per unit in the province. Vine health and cold hardiness is directly influenced by weather patterns of the growing season. Growers are now using machines more for spring frost than winter freeze. Crown gall is the underlying fear. Does the prior season predispose vines to susceptibility? Challenge is how to get the grapes mature and-or picked before the big one hits? The number of days with > 3mm of rain in Sept/Oct: 2011 – 21 days, in 2008 – 11 days. In October there can be rain every other day. Looking at hydration of soil and vine water status from roots to shoot tips, and the need to drain the vine to achieve adequate acclimation. Very few days in October over 20C (68). What is the role of day length and how does it affect acclimation of the vine? September conditions are good but October is difficult for accumulation of GDD. Bud hardiness data is posted on Vine Alert www.covvi.ca/vine-alert system for growers. Buds must be hardy in October. Regardless of year there isn't a lot of variability. Spikes are mid winter thaws. With deacclimation a vine can reacclimate, you don't lose acclimation forever, but once in spring, they deacclimate quickly. Vines are retrain at 50% bud damage. In grapes the principle of early to bed and early to rise applies, but more prone to fast deacclimation, less hardy in spring. Monitor most sensitive varieties in early site. Average or lower precipitation advances maturity and periderm development, Chardonnay seems to develop a consistent level of max hardiness regardless of prior season. Deacclimation begins slowly in late January and rapid in March. Based on 2011-12 winter data vines were very hardy despite warm winter. No two seasons are alike. Trends over

time of acclimation and deacclimation for certain varieties. Eg Baco is first out and first picked, CS is last so optimum hardiness is slow and late.

Karine Pedneault (Quebec-Laval) flavors of hybrid wine making.

Andy Reynolds (Brock Univ, Quebec)

Jim Harbetson (Washington State University) - RDI and extended maceration. Control vegetative vigor and berry size, uniform ripening and increase efficiency of water usage. There's little research on RDI effect on wine quality and composition. Compositional fruit (tannin) changes in fruit do not consistently translate into wine. Assumption: composition effects in the fruit may dominate over winemaking, eg wine is made in the vineyard. Grapes are from the Cold Creek Vineyard. Exp: full irrigation (attract veggio), industry standard 70% ET, late irrigation 25/100% of ET and full deficit at 25% ET, trying to get higher color and tannin. Canopy size gets smaller and light exposure greater. 100% berry at 1.3g, 25 brix. 25% 1 g berry 25.5 brix. RDI increased anthocyanin by reducing berry size but also tannins. Smaller berry size increased tannin. Big berry solution should be first addressed in the vineyard, but if that doesn't work then saignee is probably best option to improve tannin profile in wines, up to 30% (virtually no juice left for fermentation). Slightly emulates smaller berry size.

Molly Kelly (Virginia Tech – Molly is the new extension enologist for Virginia) – her dissertation is on the effect of nitrogen and sulfur on Petit Manseng wines. PM ripens late, loose clusters, low rot, high acid and sugar from Juracon, some aroma precursors are similar to Sauvignon Blanc. How does N affect yield and grapes, and free and bound compounds. Do N and S use in vineyards affect aromas and flavors of PM. PM on 101-14 planted in 2008 on sandy clay loam. Petiole samples at bloom. Juice – ammonia, urea and arginine. Electronic nose used to measure volatiles using 32 conducting polymers that gives a “smell print” Control no apps, 30 kg/ha after bloom, 2 apps of 15 kg/ha prior to veraison, foliar N and S at 15 kg/ha and 5 kg/ha. PM ester based variety with floral, spice, etc.

Diego Barison (NovaVine) talked about clones for warm areas. The goal their program is to try to preserve the genetic variability and characteristics of a clone. U.S has very little clonal selections. There are over 100 Sangiovese clones in Italy. The goal is to make more complex wines and understand interaction between genotype and environment. Evaluate susceptibility to disease, like looser clusters in Muscat, also a list of 20 viruses to avoid by using indicator vines. All clones are micro-vinified and test wines are made and evaluated. Goal is acidity ripening color corop load vigor clean plant material adaptability to blending, adaptability to environment and history of the cultivar and clones. Sangiovese grosso is medium to med-large and piccolo is small to medium, vigorous and upright growth, moderately resistance to DM, sensitive to PM and DM. Biotype Prugnolo – small cluster, lower production than 6, very good wines, long aging and blending. Romagnolo – blending and aromatics. Lamole – less important. Montepulciano – up to 20 ton/a use for blending wine, productive, medium vigor, upright. Not recommended above NC because it is too late ripening. Marche region has deep soils and excess vigor can be a problem. Clones available in US are VCR 10 and 461. Teroldego VCR SMA 133– mountains vigorous semi-upright very high color, very good production, ripen medium or late, needs light well drained soils, rich in color, fruity, planted next to PN, better color. Aglianico – small cluster

with med-sm berries, thick skin, bud break medium to late, sensitive to DM, tolerant of rot, good adaptability, ripens late. Negro Amaro – recent introduction, small clusters and very good aromatics, vigorous, upright, medium bud break, deep color full body – open canopy and protect from rots. Nero d’Avola needs to be blended with syrah, Merlot or CS, red cherry, high alcohol, spicy – not favored because of its blending requirement. Taste Aglianico VCR 2 wine.

New varieties resistant to DM and PM. CS x Bianca VC 58-083 and 32-078. 5-6 t/a. Alcohols 12 to 14 percent. Regent x 20-3 VC 36-030. Resistant 2 genes for DM and 1 gene for PM.

Tony Wolf (Virginia Tech) – recent advances in canopy management for red wines. CM is the set of practices which can be used to alter the number, arrangement and development of shoots in space and time and thereby affect the canopy and cluster microclimate. Often but not always aimed at improving the architecture of canopies under supra-optimal growth conditions. In 2012 canopy management has to adapt to higher rainfall. Also account for bud fruitfulness. In the east we often adopt trellis to large vines. Goals are increase fruitfulness, grape composition, wine quality potential, reduce disease incidence and severity and facilitate ease of manipulation and mechanization. Direct modifier methods alter arrangement of leaves and clusters – training system, winter pruning, shoot thinning and positioning and shoot, leaf, lateral and-or cluster removal. Indirect methods control shoot vigor like irrigation management, rootstock site selection (soils with low PAW), cover crop for competition, root containment or root pruning. Rootstocks offer value added when used in lower capacity soils. Concave land forms greatly preferred. Balance point is 0.4 lb/ft of pruning weights. Evaluate 3 training systems – VSP, GDC and Smart-Dyson. Vines are 10x8 spacing, cordon-trained (typical for vineyards in ‘80s). Divided systems yielded more in data from 2000-05. 20 lb on VSP, 28 on divided vines. Benchmark is one square meter of leaves per kilogram of fruit to get the fruit mature. VSP ratio is 1.12, SD combined is 1.18 and GDC is 2.34. Shoots per meter is 13 for VSP, 21 for SD and 11 for GDC. Canopy division increased yields 50-70% without compromising fruit chemistry or wine quality. Tony is not recommending canopy division giving the way industry has moved. There is a disconnect between research and what industry wants to do. Growers want to use VSP, but why not increase yields? SD is adaptable and lends itself to high vigor soils and get most productivity and quality. E.g in new vineyard used VSP because it’s easier to protect from birds. Canopy characteristics for post bloom to veraison on red grape varieties. Canopy gaps up to 20%, 1-1.5 leaf layers –more on the west side, 3-4 shoots per foot, 12-20 fully expanded leaves, 5% or less active shoot tips by veraison (Tony is not sure about this relationship), 50% or more exposed clusters on east side, less on west, (N-S rows) more on high acid varieties (active research looking at CF and PV), be careful because it can be overdone, especially if heat spikes, esp reds, few laterals in the fruit zone – < 10 leaves on basal 7 nodes of each shoot at veraison – minimize laterals because it contributes shade, lateral removal with primary leaves should get fruit ripe. Photo of deeply shaded fruit zone on VSP, very poor for wine quality – diseases, return fruitfulness (bud initiation), Regardless of how vines are grown, shoot hedging is done, usually 1-3x, but more if a wet season. Number of passes is a measure of quality of vintage. Shoot positioning is essential for big vines. Make sure that shoots are positioned out of hedge zone. How to design vineyard to produce a desirable canopy (quality parameters)? Planted a vineyard at AREC in 2006 to achieve this – CS on 3 rootstocks, 2 intra-row floor managements and 2 root management. CS is a big vine, how to control it? Creeping red does well in low

traffic, moderate sun conditions and competes for water and nitrogen. Soil has 1-1.5% organic matter (low). Cane pruning weights were reduced by under trellis cover crop (47% reduction in vine size), Riparia rootstock by 25% and > 50% for root restriction. Ideal range is .3 to .6 lb of pruning weight. Under trellis vs. herbicide strip and compare 101-14, 420A and Riparia (in descending order of pruning weights). Root bag restricts amount of soil volume roots can explore. Cover cropping with RG put into the ideal range. Root restriction went too far. Vine size is maintained over seven years, trial will continue for five years. Rootstock may give up some influence. 101-14 and 420A are essentially equal in size effect. Smaller vines give smaller yields (no surprise). Cover crop always reduces yields. Rootstock is less predictable. Smallest berries are achieved on root restriction (1.22g) but cover crop is 1.27g. Riparia has highest yield per vine. Seasonal effect can influence all fruit chemistry results. Cover crop improved brix. Labor times correlate to vine size, smaller vines take less time to manage. Cluster exposure should vary according to local conditions – heat and light intensity. Warmer sites should pull less, cooler more, start on east side and move to west and remove additional if needed up to veraison, also lateral removal and hedging. Leaf area measurements are taken in mid-summer, 2 weeks before veraison with fully developed canopy.

Please supplement these notes with the speaker abstracts that are available on the ASEV-ES website at <http://www.asev-es.org/>

The American Society for Enology and Viticulture Eastern Section has existed since 1977 and contains all of the states except California, Oregon, Washington, Idaho, Nevada and Arizona. Its primary function is to support students in their pursuit of viticulture and enology education. This year the society awarded seven scholarships to graduate students from Cornell (2), Iowa State (2), Virginia Tech (2), and the University of Arkansas. The students who presented at the meeting demonstrated amazing scientific capacity and polished presentations skills – awards were given for the best viticulture and enology talks. Most significantly, they represent the future of the wine industry, whether research or production, they will be the ones to shape the wine future in America, and they certainly deserve every measure of support we can offer to them. Thanks to Anna Katharine Mansfield (Cornell), Katie Cook (UMN), Fritz Westover (Vineyard Team), and Hans Walter-Peterson (Cornell), the student Oenolympics was begun in 2009. This year's event featured four teams competing in four events – the destemming of grape clusters without the use of hands, the grapevine charades event, the ever popular champagne cork shooting competition, and finally, the blind tasting event. Despite the fact that very cheap sparkling wine was used with plastic corks that were almost impossible to remove, all the events generated great enthusiasm and competition - truly our students are now prepared to enter the real world of science and industry.

The society consists of about 100 members but it needs to continue to grow its membership. ASEV-ES annual dues, currently set at \$55, is one of the best bargains any professional will ever find. I urge growers and wine makers alike to join. It would be hard to find a meeting that is as entertaining and educational as this one. The quality and amount of networking opportunities is extremely high, especially for the research and extension communities. We would all like to have more growers and wine makers attend this conference.

Maybe if we understood the effect of conditions in the vineyard and cellar, and the very nature of the vine and wine, we could make consistently better wines together, and create a successful and sustainable wine industry. The neat thing about the society is that it is 100% about the wine - no marketing, no entertainment, it's completely about understanding and making what's in the vineyard and cellar better.

Next year a joint meeting of national ASEV and Eastern Section will convene in Austin, Texas, the first time in history that the two have met together. There will be a winery tour of the Texas Hill Country and Austin is an amazing university town. Seeing 1.5M bats fly out from under the Congress Avenue Bridge alone is well worth the trip. You'll find a Gutenberg Bible at the Harry Ransom Center at UT or listen to great live music. Dr. Ed Hellman at Texas Tech will be our host. I really hope that everyone who has a professional stake in the wine industry will attend this meeting and show your support for the society and its students. The date of the national ASEV meeting is usually the third week of June. See you in Austin.

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July, 2013