

VITICULTURE & ENOLOGY PROGRAM REVIEW

COLORADO STATE UNIVERSITY

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Review Team:

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Recommendations:

After an intensive two day review process, the Review Team has compiled several recommendations with regards to the Viticulture and Enology Program. During the review, the challenges faced by not only CSU, but also by CWIDB, CAVE and the industry as a whole became apparent. CSU has demonstrated its willingness to 'come to the table' in an effort to better serve the industry by conducting a thorough evaluation of its program. It now faces a critical set of decisions regarding this program. The decisions made by CSU will be influenced by those of the Colorado industry and will have impacts on the Colorado wine and grape industry for many years to come. Great potential for improved cooperation and collaboration between all parties exists, but so does the risk of a decoupling and lack of collaboration between the industry and CSU. It is worth noting that states across the country with growing and successful wine and grape industries have achieved their successes, in part, through close ties and collaboration with their respective land grant institutions.

With this in mind, the Review Team recommends the following:

- Fund both viticulture and enology positions' salaries and benefits with "hard" money.
- Administration should work with industry to understand financial situation at CSU
- Eliminate or reduce academic/teaching responsibilities of viticulture and enology faculty, if retained reconfigure schedule. Utilize distance education.
- Close the commercial winery
- Work with industry to improve communications
- Incorporate in-service training into Extension program and utilize locally placed agents

Preface:

The Review Team was charged with evaluating the Viticulture and Enology Program at Colorado State University and to provide response to following six specific duties/questions:

1. Provide a brief assessment of how effectively the present personnel, financial resources and are aligned with the intent of their funding source and with the three-part activities of the program.
2. Are sufficient resources (workload, operating expenses, equipment, research space, and staff support) provided to meet each of the three program mission components?
3. With present resources, provide options for how personnel and allotment of efforts could be deployed more effectively based on what you perceive as the greatest needs of the industry.
4. What improvements could the program undertake through any reallocations of existing resources?
5. What strategic improvements could the program undertake through targeted infusions of additional resources?
6. The focus of this review is primarily on research, but how effectively are instructional needs being met?

We will initially focus on these questions and then final issues and concerns perceived.

Questions:

1. Provide a brief assessment of how effectively the present personnel, financial resources and are aligned with the intent of their funding source and with the three-part activities of the program.

Viticulture: Given the limited resources, the viticulture program has effectively conducted research to address issues of the Colorado industry. The industry may not always like some of the answers, but the scientific merit of Dr. Caspari's efforts are not in question. It is not possible to meet every portion of the industry's outreach needs every year and also have an effective Research, Extension and Teaching program, particularly given the limited resources and personnel. One person cannot be everywhere all of the time.

Points of emphasis:

- 1) Dr. Caspari has developed and continues to produce valuable research information for the Colorado grape and wine industry.
- 2) Information regarding his research program is being disseminated in traditional ways (workshops, e-mail blasts) to growers in the Grand Valley. However, growers away from that region feel less well served. He cannot visit every vineyard/region every year or maybe even every other year. He is not a consultant. However, it would be beneficial to develop a rotation to various Colorado regions on a 2-3 year cycle. One concern that arose was his absence on annual leave for six weeks at a critical period of time in late spring. We recognize the importance of family and the fiscal constraints of travel costs, but either timing or length of time away needs consideration. In-service training for county agricultural extension agents is needed in all Colorado areas where grapes are commercially produced. This would provide at least a minimum level of local expertise, a physical presence for growers in areas away from the Grand Valley, and serve as a conduit for information exchange between specialists and to both the growers and to the specialist.
- 3) Dr. Caspari has concentrated his efforts in teaching to minimize the amount of cross-Front Range travel to reach the CSU campus. Although it would initially require more time in preparation and learning technology, delivery of the material via distance education should reduce impact of travel time on his other responsibilities. There are also opportunities to partner with other institutions regarding education delivery. Indeed, the entire teaching effort needs reconsideration with regard to industry needs, available professional time for the total mission and CSU's fiscal resources. It appears that the development of the teaching effort was a response to industry request. The same industry now expresses concern about effective use of scientist time. This likely was part of a misunderstanding with regard to the term "education" between the CSU (academic) and the industry (extension).

Enology: Research in enology has been much less effective and the extension program is poorly focused. Driving to and from Fort Collins twice a week to teach is extremely inefficient. With the commercial winery Dr. Menke's time is split four ways. The commercial winery is an unneeded distraction. As faculty members with split appointments or members of industry with multiple commitments, we all tend to put our emphasis into the areas of most interest. The commercial winery seems to have most captured Dr. Menke's time followed by teaching. Instruction on the principles of fermentation can be accomplished on the microscale (5-gallon carboys) as can varietal evaluations and blending. We did not sense buy-in from the industry with regard to the present enology research and extension program.

Recommendations:

- 1) Eliminate research appointment, although refereed scholarly publications are expected from all faculty regardless of appointment split.

- 2) Move Dr. Menke to Fort Collins for academic and extension education purposes.
- 3) Eliminate the commercial winery. Do not move it. It will continue to be a distraction.
- 4) Extension programming needs to be focused. Rather than serving as a one-on-one consultant, shortcourses, webinars, etc. need to be developed to serve the entire industry. Though industry is often reluctant to pay their way into a local extension program, thousands of dollars are often spent to travel to California or other states for information. If developed in conjunction with industry input, this program could become self-sustaining (not salary-wise, but programmatically). He needs to utilize and adapt materials from other states with appropriate acknowledgement and bring in outside speakers to bolster the program. There are no county extension agents to aid with this program. However, the Extension commitment of the Department of Horticulture on the Front Range is relatively large and as noted for the Viticulturist, such positions could potentially become involved with Enology Extension.
- 5) With regard to teaching, if Dr. Menke is not shifted to Fort Collins, he needs to develop alternative methods for delivering his courses to drastically reduce road time. This may involve teaching assistants assigned by the faculty or the assistance of a faculty member on campus to at least over see some activities, and/or the shift of delivery mechanism to distance education as mentioned above. He may also wish to condense his class time to longer sessions similar to that of Dr. Caspari. Again, the commitment to the teaching effort should be reevaluated by CSU as in the case of the Viticulturist.

Industry: We were not specifically asked to address the industry role in the current situation, but it is a portion of the current problems. There is a semantic problem that must be addressed. The use of terms such as extension, outreach, teaching and research have different meaning for individuals and clarification would be useful in avoiding misunderstandings in future discussions. The expressed desire for outreach to mean a personal consultant for individual operations is not within the scope of the Land-Grant mission. Private consultants are the responsibility of private individuals /companies. This needs to be recognized by individual members of industry, the industry as a whole, the Research Board, CAVE and the Colorado Agriculture Commission.

Recommendation:

- 1) Leadership in the Horticulture and Landscape Architecture Department, the College of Agricultural Sciences, the Agricultural Experiment Station, the Cooperative Extension Service, and the CSU Office of the Vice President for Research need to assist Drs. Caspari and Menke in educating the Colorado wine and grape industry regarding the roles of Land Grant Institutions. Importantly, the current fiscal climate and its impact should be shared candidly.
- 2) A representative from the Dean's office, preferably someone from the Colorado Agricultural Experiment Station, needs to serve as a liaison with the grape and wine industry, particularly at the Research Board meetings (not just during the funding decision meeting) and at relevant industry events.

2. Are sufficient resources (workload, operating expenses, equipment, research space, and staff support) provided to meet each of the three program mission components?

No, funding is absolutely insufficient. After salaries and benefits for faculty and staff, operating funds are inadequate to meet the expectations of both Colorado State University and the wine and grape industry of Colorado. Funding of both the Viticulturist and Enologist salaries and benefits should be fully shifted to "hard" monies from CSU as soon as possible. Money is always tight. The options CSU faces are:

- 1) fund both positions with “hard” money,
- 2) fund the Viticulture position with “hard” money and eliminate the Enology position,
- 3) fund the Enology position and eliminate the Viticulture position, or
- 4) eliminate both positions and close the entire program.

These are in the order of our preferred outcome to this review. This is an issue of philosophical commitment to the positions as necessary to help grow the industry, not to the individuals currently holding them.

Continuing the program on “soft” money is not sustainable for several reasons. The uncertainty of the future of the positions compromises the integrity of the program. CSU is already faced by this issue due to the very real loss of funds from not only CAVE, but also potentially from the CWIDB Research Board as it considers a shift to an RFP approach to using the funds coming to CDA. As salaries and inflation increase, funds available for operating programs are so compromised that the faculty and staff salaries are funded, but there are no monies to conduct programs. Eventually, funds for salaries and benefits will also be inadequate. Washington and other states successfully use the Request for Proposals to sustain long-term projects, even though funded on an annual basis, using funds for Technical Staff support and purchasing power for the researchers.

CSU administration must make clear to the Colorado wine industry the current state of funding at CSU. We believe that it is critically important to the long-term health of the industry to continue to support research and extension programs at CSU. Wine and grape industries in other states that thrived have had and still have such support. Of the three missions of a Land Grant University, the academic portion of the program should be the lowest priority, particularly at the present level of development of the industry.

3. With present resources, provide options for how personnel and allotment of efforts could be deployed more effectively based on what you perceive as the greatest needs of the industry.

This question ties directly back to questions 1 and 2. For viticulture, research and extension/outreach should be the priorities. For Enology, extension/outreach should be the priority. Enology research *principles* are more translatable across states and regions and the need is for an effective local extension component with to help translate the differences in *practice* application in specific locales where they exist.

During a two day review it is impossible to determine specific priorities for research and extension. It is extremely important to educate the industry with regards to what research is and what it is not, what constitutes a researchable issue, and why long-term research is critical, particularly in viticulture. All interests need to work together and respect each other’s views in order to set priorities for the industry as a whole. The individuals involved in developing priorities should be representative of the industry and capable of setting aside pet interests and projects. This is particularly true for representation on the CWIDB Research Board of CDA. This Board needs a mixture of fresh blood and institutional memory to infuse new ideas, while avoidance of reinventing the wheel.

4. What improvements could the program undertake through any reallocations of existing resources?

Again, we believe that we have addressed this question above. Academic programs should be the lowest priority for both viticulture and enology at this stage of the industry’s development. There may be other

reasons within CSU's Horticulture Department to teach these courses, but one in each area is a more reasonable expectation if the teaching component is continued. Viticulture research and extension need enhancement, while enology research should be minimized and extension enhanced at all levels.

5. What strategic improvements could the program undertake through targeted infusions of additional resources?

- 1) Investment in faculty salaries and benefits. Reduce or eliminate reliance on industry funds for those purposes.
- 2) Infrastructure for distance education opportunities – for academic and extension purposes.
- 3) Potential for graduate student training, assistantships.
- 4) We did not see the Viticulturist's lab or does he share the lab space with the Enologist? The lab space at Grand Junction is pretty draconian. Depending on research priorities, some renovation of that area is a much needed improvement. We did not do an inventory so we do not know what specific scientific equipment is needed, but we would be most surprised if a list of needs could not quickly be provided if the option was presented.

6. The focus of this review is primarily on research, but how effectively are instructional needs being met?

Although we were provided enrollment in course numbers, we have no way to gauge the quality of teaching as we received no feedback in that area. If asked how efficiently instructional needs are being met, we feel that driving multiple times a week over the front range of the Rocky Mountains between Grand Junction and Fort Collins for a couple hours of instruction is very inefficient. There are ways of providing broad based instruction on principles from other programs, such as VESTA (<http://www.vesta-usa.org/>) and the AG*IDEA (<http://www.agidea.org/>) which already have distance education components.

Beyond the Questions:

Communications.

Communications between all of the entities that tie into the Colorado wine industry are poor. On the part of industry, there is a general lack of understanding with regard to the responsibilities of what should be expected of a member of the CSU Faculty. We came away with the feeling that many of the issues are differences in expectations by CSU and the two industry organizations with secondary concerns of effectiveness and personality of individuals. This was illustrated by the big "aha" moment came in the session on Tuesday morning when we discovered that the CWIDB Research Board of CDA had hired private consultants to provide advice to industry prior to the hiring of Dr. Menke. During the transition from the consultant to the extension model for industry mentoring, the opportunity was lost to explain the difference between the two models. As the CSU employees know, extension faculty members are not consultants. They are required to provide information based on fact and not unsupportable opinion for liability reasons. To meet long-term extension/continuing education goals, the industry will be better off with an effective Extension Enology Program than a series of changing hired guns as consultants paid for by state funds.

Though not asked to assess this, we developed the impression that communications between CDA and the industry are generally received in the form of a very long e-mail newsletter. This is not the most effective means of communication. If e-mail addresses are held by CDA and CAVE, important

information releases from Drs. Caspari and Menke should be passed along as prepared rather than imbedded in other material.

Greatest Industry Needs.

We found it instructive to go through the results of the CAVE Survey. The unfocused nature of “Improve Wine Quality” and “Solve Hardiness Problem” bespeaks the lack of understanding of both the complexity of the two stated concerns and the levels of activity necessary to accomplish a desired result. Thoughts regarding industry needs based on the interactions are expanded below:

Viticulture

1) Issues in grapevine cold hardiness

- a) Variety trials involving both vineyard assessment and micro-vinification. Hardy vines that make poor wine are without merit; great wine producers that produce a crop only occasionally are without merit. **This is under way.**
- b) Definition of cultural methods that allow for maximum expression of a variety’s genes for cold hardiness; **This is underway.**
- c) Definition of nature and timing of freeze episodes commonly causing damage and assessment of approaches to ameliorate either level of cold; **This is underway.**
- d) Recognition that culture of cold tender *V. vinifera* varieties will mean the potential for injury and damage every season; Freezes are not only a stress for vines, also for grower as well. **This is not fully appreciated by growers, but is becoming real to them.**
- e) Development of most efficient way to recover full production after a damaging winter freeze episode; **This is underway.**
- f) Develop methods to protect some canes from damage every year. We are unsure about this. **It is a common practice in other regions where winter freeze damage to buds reduce cropping in most years. This includes current efforts on ‘spare parts’ as defined by Bob Pool in NY and used in most parts of Great Lakes Region.**

2) Best training systems for individual varieties and economics of system and labor requirements (both availability and quality). A consideration for Hardiness issues as well, Height of fruiting zone, speed of full recovery after a vine damaging freeze event. **This is underway.**

3) Optimum water use. **Underway.**

4) Vineyard Floor Management. **Underway.**

Enology.

The Review Team feels that the greatest need is for Outreach/Extension. The expressed priority of “Need to Improve Wine Quality” is very general; it is without focus or the suggestion of understanding of the complex set of components having influence. Opportunities listed below address factors that can influence quality. We are unsure as to activities presently being addressed, but some obvious ones are noted below.

Outreach Education to address quality impacts:

- a) Grape varieties harvested at time of best quality. **Need both viticulture and enology inputs here.**
- b) Sanitation: All containers contacting grapes from harvest to winery, all stemming, crushing transfer hoses, pumps, etc. All tanks. All floors, walls ceiling. **An absolute must!!**
- c) Do a careful analysis of fruit and must for at least %SS, pH, TA,
- d) Determine levels of SO₂ addition based on fruit condition and pH. **Relationship of SO₂ and pH must be known and practiced.**
- e) Follow the best methods for a variety to achieve desired characteristics in finished wine. Fruit sorting? Type of pressing? When to press? Settling? SO₂ addition and amount. Yeast strain choice? Fermentation temperatures? Pre- mid- and post fermentation additions of various additives specific to wine style sought. Ferment in oak?
- f) Malolactic?
- g) Barrel aging? Choices based on wine style decisions.
- h) Wine stabilization and analysis of ethanol, residual sugar, volatile acidity, and many others.
- i) Assess potential for blending. Most wines benefit from blending, all reds do. **This is crucial as interest in new, resistant varieties is considered.**
- j) Finally there is the issue of grape supply and the last several years of much reduced production due to winter damage. This has increased interest in interspecific disease, insect and resistant varieties. These commonly have a poorer reputation for quality than the noble *V. vinifera* varieties. Some of this is deserved. However, the biggest issues are that winemaking has seldom been of premier quality and the lack of recognition that these varieties definitely are improved by blending. Also, new varieties are forthcoming from breeding programs in Minnesota (Dr. Peter Hemstad), New York (Dr. Bruce Reisch), and Germany. Minnesota varieties are very cold hardy and the NY varieties are at similar hardiness levels as common mixed species resistant varieties. The German Efforts at Geilweilerhof (Sebeldingen) under direction of Dr. Rudolf Eibach has produced resistant varieties with excellent characteristics. Wine quality is a primary component of these efforts along with insect, disease and cold resistance. Two of the German varieties (Regent and Phoenix) have been accepted for designation as "quality wine" under the very critical German Wine Law along-side Riesling, Sylvaner, Muller-Thurgau and many others. These efforts are rapidly changing the reality of wine quality among resistant varieties.

A second issue for resistant varieties is the previous lack of recognition by consumers of the variety names. In states where these varieties are successfully marketed, they are commonly sold using proprietary names. Whether name recognition remains a concern is open for debate, but 30 years ago there was little talk of Pinot gris (grigio), P. blanc, or the Spanish varieties Tempranillo or Albarino, or Italian varieties Sangiovese, Nebbiolo, Montepulciano, Vermintino, Verediccio – to name a few that now are commonly found on wine shop shelves. Regardless of the marketing approach, the key for success is full wine tanks annually with steady cash-flow. We are also prejudiced in favor of Colorado wines being made by CO grown grapes.

Assessment of Dialogue between CSU Individuals in industry, CWIDB and CAVE, CDA and CSU Research and Extension.

Between industry organizations – respect, priorities and between each organization and CSU – seems to be lacking. The comment by a winery person at CDA discussion regarding CAVE was, “all they do is run a few festivals”; and, “can we simply adjust to a reality where CAVE is simply a side, off-shoot of the CWIDB/CDA activities”? The latter is not an exact quote, but an accurate inference.

The level of contributions and commitment by CSU needs to be communicated to the Colorado industry. It is apparent to the review committee that the Colorado industry lacks unifying leadership and a clear vision for its future and is not yet ready to ‘sit at the table’ as a partner in a constructive manner. CSU recognizes the challenges and is willing to come to the table. We recommend that CSU fully fund the Viticulture Position from experiment station funds. We recognize the historical relationship and contributions of CSU Viticulture & Enology program to the industry. Understanding of the difference between ‘education’ and ‘recommendations’ by CSU employees and “hands-on consulting, telling the client what to do” are huge distinctions and troubling. As it relates to info from CSU personnel hands-on consulting has liability concerns.

Funding The industry is the process of reevaluating the funding directions for the research and outreach program funded through the CDA. The withdrawal of funding by the industry is a statement of ‘no-confidence’ and will require reconsideration by CSU as to the disposition of their current investment in the program. Industry must be made aware of the current CSU budget difficulties and that non-support from an industry should lead to an assessment of the utility of continued CSU investment in that industry in a time of declining state resources.

THE RFP model being proposed by the CWIDB/CDA and CAVE is based on examples not analogous to the CO situation. To be effective, RFP approaches should meet important criteria:

a) that there is an existing faculty infrastructure whose salaries and benefits are currently funded by “hard” monies.

b) that persons, organizations, or institutions already exist that have the knowledge and experience necessary to be relevant to the specific local needs articulated by an RFP.

c) that there are leaders in local grape and wine industries who can lead to a setting of focused priorities articulated by industry funding agencies. This does not presently exist.

Such expertise noted in a) and b) above in other viticulturally and enologically important states is commonly supported by Land Grant Universities which are already dedicated to agriculture as a part of their mission. Further, even though other expertise does exist among industry persons in large grape and wine production areas such as CA, WA, OR, NY, VA, OH, PA, TX, MI, and others, these also maintain a strong grape and wine science base at the Land Grant University of that state.

Faculty Expectations and Performance

Issues related to activities by the individuals hired to work toward meeting industry needs should be addressed at 2-levels:

1) at the position levels of the viticulturist and of the enologist; and

2) at the level of the individuals currently entrusted with those positions of responsibility.

We recognize that there are concerns and issues with present personnel in the positions as expressed by those interviewed in the review process from both the industry and CSU points of view and we

encourage that these issues be addressed jointly by appropriate CSU and Industry persons in a constructive way so that the result is favorable for future growth in the size and reputation for quality wine produced in Colorado from grapes grown in Colorado.

Some of the concerns were identified. One is inadequate organization on the part of Dr. Menke. This may in part be due to the breadth of expectations and divergence of opinion on the part of industry and with CSU regarding the expectations of the person in the position. Clarification of responsibilities, communication and lines of job performance is needed. IMPORTANTLY, annual reviews of each individual should be systematically carried out with a goal of providing administrative guidance, a focus on plans for upcoming year and a report of previous year's efforts; including successes, failures, and, importantly, focused information on impact of efforts beneficial to industry as well as contributions to scholarship.

CDA Board

Again, we recommend that the CWIDB Board have defined and consistent positions with defined roles. CSU needs to have a liaison at each meeting of the Board to provide input and advice. We recommend that the Horticulture Department identify an individual from the industry to serve on the department's advisory board – if such a board exists.

We recommend that both CWIDB/CDA and CAVE contact individuals from other states that have research advisory committees and industry directed funding to determine how they have handled funding issues, setting priorities, interactions with the corresponding institutions regarding priorities, and performance of researchers/extension/teaching programs receiving funding. The concerns facing the Colorado industry are not unique experiences and learning the approaches that have been used elsewhere to achieve resolution and progress is strongly urged. Such organizations could include Washington Association of Winegrape Growers (Dr. Wade Wolf), Washington Wine Technical Group (Kay Simon), current chair of the Washington Wine Advisory Committee, Michigan Grape and Wine Industry Council (Dr. David Miller), and Mario Mazza of PA & NY experience.

FINAL REMARKS

We are concerned that if the Colorado Grape and Wine Industry votes "No confidence" by suddenly removing all support from the CSU Viticulture and Enology Program, this program will cease to exist not only in the short-term, but also in the long-term. There is a very real possibility that it would never exist again in this day and age where state funds are extremely limited and very competitive. Should this happen, the greatest loss will be felt by industry and not CSU. Surely, there are improvements to be made on all sides. This is done by working with and not against each other.