May 3, 2021

Santa Barbara County Board of Supervisors
123 E. Anapamu Street
Santa Barbara, California 93101
By email to sbcob@co.santa-barbara.ca.us

RE: Appeal of SFS Farms OpCo 1, LLC Cannabis Cultivation (19LUP-00000-00312) Gainey Vineyard and Melville Winery ("Appellants") (21APL-00000-00012)

Chair Nelson and Honorable Supervisors:

Please accept this supplemental letter to Gainey Vineyard and Melville Winery's the appeal of the Planning Commission's approval of 19LUP-00000-00312, a Land Use Permit for the outdoor cannabis cultivation operation located at 4874 Hapgood Road, Lompoc, CA 93436 (APN 099-150-065) (the "**Project**"). The Project proposed is for 86.8-acres of cannabis cultivation (82.62 acres of outdoor cultivation area and 4.18 acres of cannabis nursery operations), a 200-square-foot office with restrooms, and two 320-square-foot containers for pesticide and equipment storage. These uses will have significant permanent effects on the long-term viability of its vineyard operations and Melville Winery's nearby wine tasting room.

Appellants both farm and operate vineyards located on the two parcels immediately east and downwind of the Project site. The Project is proposed 50 feet from the vineyard parcels along 1,200 feet of the shared property line, and approximately 70 feet from the westernmost vineyard rows. Further, the Melville Winery tasting room is located approximately 1 mile downwind from the Project. For these reasons, Appellant is an aggrieved party to this permit.

The County's approval of the Project is legally flawed for the following reasons:

The Project Is Inconsistent with the Agricultural Element

A project that conflicts with the applicable Comprehensive Plan must be denied. *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 815. The Project is inconsistent with the Agricultural Element of the County's Comprehensive Plan. The Agricultural Element provides as its first goal:

> *GOAL I. Santa Barbara County shall assure and enhance the continuation of agriculture as a major viable production industry in Santa Barbara Country. Agriculture shall be encouraged. Where conditions allow, (taking into account environmental impacts) expansion and intensification shall be supported.*

And further provides as Policy I.E. as follows:

> *Policy I.E. The County shall recognize that the generation of noise, smoke, odor, and dust is a natural consequence of the normal agricultural practices provided that agriculturalists exercise reasonable measures to minimize such effects.*

There is no evidence that the above goal and policy does not apply to the Project, or agricultural conflicts generally. There is substantial evidence that cannabis crops and legacy agricultural operations conflict, both with regard to farming operations, contamination of winegrapes with cannabis terpenes, and the impacts of odors on wine tasting rooms. Evidence of these impacts includes testimony of the Grower-Shipper Association of Santa Barbara-San Luis Obispo Counties, including a documented conflict that occurred between a cannabis cultivator and adjacent agricultural operation (one of the Grower Shipper Association members) regarding pesticide application (discussed further below). Other evidence includes letters from Santa Barbara County Agricultural Advisory Committee ("AAC", asking for delay in Board action pending ordinance revisions and if not, imposition of additional project conditions "to address predictable conflicts that have arisen in many situations in the County" on January 17, 2020), the Santa Barbara Vintners (asking for cannabis odors to be contained on the property on January 17, 2020), and the Santa Barbara County Farm Bureau (asking the County to require indoor cultivation with odor control only to prevent agricultural conflicts on May 29, 2020). See Exhibits 1 through 4.

Based on this evidence, the Project will conflict with Appellants' nearby legacy agricultural operations, including by precluding the operation of Melville Winery's wine tasting room, which is a supportive agricultural use necessary to its agricultural operations. The effect of these conflicts will be to undermine the viability of these agricultural operations and the viability of the wine industry as a production industry in Santa Barbara County. The Project's impacts on adjacent agriculture clearly conflict with the primary goal of the County's Agricultural Element to ensure the viability of agriculture in the County and conflicts with *Policy I.E.* which requires agriculturalists like the Project operator to exercise reasonable measures to minimize the effects of, among other impacts, odors from its operations. There are no odor abatement requirements in the Project Conditions of Approval – the lack of such measures on its face is a failure to include "reasonable measures" to minimize odors. On these grounds, the Board must deny the Project.

Project Approval Does Not Comply with the Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.

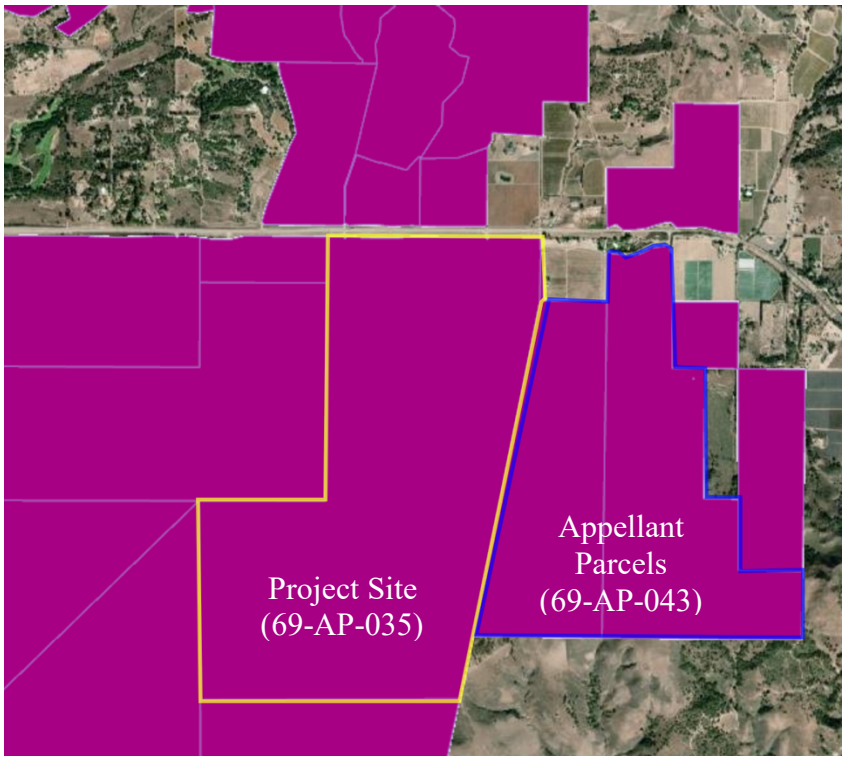
The Department of Conservation assists all levels of government and landowners in the interpretation of the Williamson Act related government code. The Department also researches, publishes, and disseminates information regarding the policies, purposes, procedures, and administration of the Williamson Act according to government code. Participating counties and cities are required to establish their own rules and regulations regarding implementation of the Williamson Act within their jurisdiction. These rules include, inter alia, which uses are deemed agricultural production versus those that are deemed secondary uses.

Santa Barbara County implemented an Agricultural Preserve Program to support the long-term conservation of agricultural and open space lands. The program enrolls land in Agricultural

Preserve contracts whereby the land is restricted to agricultural, open space, or recreational uses in exchange for reduced property tax assessments. The Santa Barbara County Uniform Rules for Agricultural Preserves and Farmland Security Zones (referred to as "Uniform Rules") are the set of rules the County uses to implement the Agricultural Preserve program. The Uniform Rules define eligibility requirements and qualifying uses that each participating landowner must follow in order to receive a reduced property tax assessment under the Williamson Act.

The County's Agricultural Preserve Advisory Committee ("APAC") is responsible for administering the County's Agricultural Preserve Program and the Uniform Rules. Its duties include reviewing applications and making recommendations for creating agricultural preserves, entering new contracts, making revisions to existing preserves or contracts, termination of contracts and disestablishing preserves. In conjunction with these duties, the APAC is responsible for monitoring and enforcement of the Agricultural Preserve Program, including by conducting the foregoing compatibility review for proposed projects where the proposed use is deemed "compatible" under the Uniform Rules.

To address potential adverse effects of incompatibility between cannabis and adjacent agricultural crops, the PEIR relied on Santa Barbara County Agricultural Preserve Advisory Committee (APAC) review under the Uniform Rules to ensure compatibility with agricultural uses and to ensure that "cannabis activities would not conflict with properties that are subject to Williamson Act contract." Contrary to the fundamental assumption of the PEIR, the Project's proposed cannabis cultivation was not reviewed by APAC for compatibility with the Agricultural Preserve contracts held by adjacent landowners, including Appellants (69-AP-043). See below map – parcels under Agricultural Preserves contracts are in indicated in purple and available here: https://sbcblueprint.databasin.org/maps/new/#datasets=293bb2006edc4c8986d6b564d4502527.



Further, after the APAC's February 7, 2020 hearing where it found the Project is consistent with the Agricultural Preserves and Farmland Security Zones (Uniform Rules), the Project was modified to remove onsite processing and added 21 acres of outdoor cannabis cultivation. The Project's buffers were accordingly reduced. These changes to the Project affect the consistency of the Project with the Uniform Rules. This increase in acreage increases emissions, traffic, employees, and facilities, and brings cultivated cannabis into closer proximity with neighboring properties, substantially increasing land use conflicts including conflicts between agricultural land users and jeopardizing the viability of traditional agriculture including nearby vineyards. The Project should be reviewed by APAC anew with the changes to the Project that occurred after APAC's review and determination of consistency with the Uniform Rules.

If the County has not proceeded in the manner required by law, the order or decision is not supported by the findings, or the findings are not supported by substantial evidence. The County lacks the power to approve uses on Williamson Act contracted lands that are inconsistent with the principles of compatibility. *County of Colusa v. California Wildlife Conservation Bd.* (2006) 145 Cal.App.4th 637, 654; *Cleveland National Forest Foundation*, 37 Cal.App.5th at 1043.

The Board's 2018 decision to classify cannabis cultivation as an agricultural commodity for the County's Agricultural Preserve Program does not mean the County may forgo considering the consistency of cultivated cannabis with the principles of compatibility. The County is not the agency charged with interpreting the Williamson Act and cannot make determinations which do not promote the Williamson Act policies, including compatibility review.

The Uniform Rules compatibility principles include, among other findings, the APAC make the following determination regarding the Project:

> *Use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.*

(Uniform Rules p. 25, § 2-2.1.)

APAC's review of the Project lacked any analysis or finding concerning whether the Project's cultivation is compatible with surrounding agriculture including Appellants' vineyards and Melville Winery's tasting room, which it is not. The absence of APAC's analysis prevents a conclusion whether the Project's cannabis cultivation could be found compatible with surrounding agricultural uses on other nearby and adjacent Williamson Act contracted lands. There is substantial evidence, including testimony of the Grower-Shipper Association of Santa Barbara-San Luis Obispo Counties, regarding conflicts with neighboring agricultural properties under Agricultural Preserve, including a documented conflict that occurred between a cannabis cultivator and an adjacent agricultural operation (one of the Grower Shipper Association members) regarding pesticide application (discussed further below).

Project Approval Fails to Comply with CEQA

In addition to those certain Williamson Act violations described above, the County has failed to comply with the California Environmental Quality Act ("CEQA"). Prior to approval of this Project, the County must comply with CEQA. The County is mandated to conduct new project-level environmental review for the Project because (among other things) the Programmatic Environmental Impact Report ("PEIR") prepared for the Cannabis Ordinance and used to support approval of this Project through use of a "CEQA Checklist" is fatally flawed. In order to approve the Project as being within the scope of the project covered by the PEIR, the County is required to find that pursuant to CEQA Section 15162, no new effects from this Project could occur and no new mitigation measures would be required. Conversely, if the Project would have effects that were not examined in the PEIR, a new Initial Study would need to be prepared specifically for this Project, leading to either an EIR or a Negative Declaration.

Subsequent amendments to the Uniform Rules after PEIR certification classified cannabis cultivation as commercial production of an "agricultural commodity". This amendment has resulted in the County allowing the cultivation of solely cannabis to meet a parcel's Williamson Act eligibility requirements, and in some cases, requiring increased cannabis acreage so that projects meet the minimum production requirements in the Uniform Rules. Substantial evidence of new and substantially increased impacts to agriculture (as discussed above and in Exhibits 1-4) resulting from the post-PEIR certification Uniform Rules amendment has been presented to County decisionmakers.

Further, with this change, the County undercut the compatibility review relied on in the PEIR to prevent conflicts with neighboring agricultural operations, other Williamson Act preserve lands, and to mitigate other significant impacts to agriculture, each of which can lead to the conversion of farmland to non-agricultural use. The PEIR did not anticipate, and thus evaluate in its principal analysis or Alternative 2, the impacts if cannabis would be defined as an "agricultural commodity" and thus included in the minimum production requirements in the Uniform Rules for commercial production of "agricultural commodities." The PEIR could not and did not analyze the impacts of this new classification either to existing agriculture generally or to Williamson Act contracted lands specifically. Lastly, the PEIR could not and did not analyze the effect of the changed definition on the County's ability to mitigate the impacts of individual cannabis cultivation projects.

The PEIR also did not address the negative impacts odors have on both tourism and tasting room visits and sales, specifically how cannabis odors would negatively impact tourism and sales to generated at local wine tasting rooms and the long-term impacts this would have on agricultural viability in the region. If odor impacts deter consumers from visiting Melville Winery's tasting room, Appellant's direct sales will suffer. This was particularly problematic during COVID-19 shutdowns, when wineries must operate their tasting rooms outdoors, and rely even more on direct sales to consumers to sustain their business. This economic impact will jeopardize Melville Winery's ability to sustain its farming operations and grape sales, impacting the long-term agricultural viability of its vineyard and tasting room, and of the wine industry in Santa Barbara County generally. This is a CEQA impact – without the ability to direct market and sell wines to consumers, Melville Winery's revenues will be materially impacted and the viability of its wine

tasting business model is threatened. This change in circumstance alone merits project-specific environmental review under CEQA.

There is substantial evidence that this Project will have one or more impacts that are either new or substantially more severe than those examined in the PEIR, and accordingly, the Board must direct additional environmental review or deny the Project. Despite this, the County has continued to rely on the defective and inadequate "CEQA Checklist" to establish that individual cannabis projects are within the scope of the PEIR and that no additional environmental review is required, despite clear substantial evidence to the contrary.

Amendments to the Right to Farm Laws Make Odor Mitigation Feasible

Amendments to the Right to Farm Act after PEIR certification have made odor mitigation on AG-II zoned parcels now feasible – mitigation would greatly reduce the odor impacts to supportive agricultural uses, like Melville Winery's tasting room. The PEIR's discussion of any potential impact of odors from cannabis on AG-II lands reasons that "Agricultural operations are not typically monitored for their odors and are generally protected from odor related and other complaints under the County's Right to Farm Ordinance" and accordingly that any odor abatement mitigation should not apply in the AG-II areas such as this Project site. See the PEIR pp. 8-9.

Since the PEIR's certification, circumstances have changed with respect to the status of cannabis under the County's Right to Farm Act that render odor abatement mitigation feasible. Specifically, on May 8, 2018, the County Board of Supervisors approved the amendment to the Right to Farm Act to exclude cannabis from its protections. The County's new position that the Right to Farm Act does not protect AG-II cannabis cultivation from County odor regulations constitutes new information that a mitigation measure previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of this Project (and the Project proponents have declined to adopt the mitigation measure). Accordingly, additional environmental review is required pursuant to CEQA Guidelines § 15162 (a)(3)(c) on this issue alone.

There is New Information Regarding the Severity of Crop Conflicts

The PEIR also failed to consider the significant conflicts inherent in farming vineyards and orchards near cannabis. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the PEIR was certified, has become available showing that the Project will have substantially increased impacts to adjacent agriculture as a consequence of pesticide migration. Specifically, the occurrence of migration of pesticide waft that can occur after lawful applications of pesticides, in conjunction with the prohibition on pesticides or insecticides in cannabis, including most commonly used organically-certified pesticides, will likely result in the conversion of farmland to non-agricultural uses when conventional agriculture becomes impossible or uneconomical.

After the PEIR's certification, substantial evidence has come forward showing that commercial, third-party pesticide applicators (used for decades and necessary for much of the County's economically productive avocado, grape and citrus production) have refused to apply materials to either conventional or organic avocado and citrus crops due to incompatibility with nearby

cannabis cultivation operations. Thresholds for cannabis are as little as one microgram per gram, or 0.1 part per million. Other farmers in Santa Barbara County, in at least two instances, have lost crops after switching to other less effective pest management products to reduce potential liability from the legal application of pesticides after threats of legal action by cannabis operators.

As discussed above, the County has received clear testimony of the now-known severity of this impact. See Exhibits 1 through 4. This is clear evidence that conventional farms like Appellants', when located nearby proposed cannabis cultivation sites, are unable to produce economically viable crops due to cannabis cultivators' threats, which has chilled pest control applicators from providing pest control services to sites near cannabis cultivations. The Project will cause these farms including Appellants' and it neighbors to cease production and potentially go out of business, creating blight and facilitating the collapse of the wine industry and food production in the vicinity of the Project and elsewhere in Santa Barbara County, with secondary impacts to hospitality facilities in wine country and Melville Winery's tasting room.

There is New Information Regarding Terpene Taint

In addition to the above, new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the PEIR was certified, has become available showing that the Project will have substantially increased impacts to agriculture from terpene taint. Terpene taint results when concentrated airborne terpenes released by cannabis plants in low wind conditions and during inversions (that are common in the Project vicinity) are transported to and absorbed by nearby grapes on the vine. This taint is conveyed to wine produced from these grapes, creating imperfections and different flavors in wines that are meticulously produced to present the subtle terroir of the soils and land where the grapes are raised.

The threat of taint impugns the reputation of wines, wineries, and entire appellations, including the Appellants' vineyards, where delicate and refined flavor profiles are adversely affected by even subtle changes in flavor. If Appellants' vineyards are impacted by terpene taint, the grapes sourced from its vineyard could be labeled as inferior within the premium wine market due to terpene taint, ultimately impacting Appellants' own wines and grape sales to other wineries.

Accolades for Appellants' vineyards and wines that are produced from their respective vineyards promote the Santa Barbara County wine industry to the world, and the secondary economic inputs that come from the media attention and acclaim is substantial. Terpene taint threatens to undermine or eliminate significant portions of the local economy that are founded on the success of the wine industry in Santa Barbara County. This economic impact has potentially significant impacts on the local wine industry and supportive hospitality industries, from the abandonment and conversion of idled lands, loss of agricultural services and infrastructure making agriculture more expensive, difficult and unprofitable, ultimately causing significant losses of open and productive agricultural lands.

The potential for cannabis terpenes to impact wine grapes was not an identifiable issue at the time the PEIR was certified. Experts including Dr. Anita Oberholster of the Department of Viticulture and Enology at UC Davis, Dr. William Vizuete of Pacific Environmental Analytics, LLC, and

others have testified and presented evidence to the County regarding terpene taint. See Exhibits 5 to 7. Of note, Dr. Oberholster states that existing research regarding the impacts of 1,8-cineole and a-pinene (both terpenes) to winegrapes allowed her to analogize and draw conclusions regarding the potential impacts of cannabis terpenes on winegrapes. Her conclusion is that winegrapes can absorb cannabis terpenes in the atmosphere and, depending on the concentration and frequency of exposure, can potentially pose a threat to the grape and wine industry. Dr. Vizuete's conclusions regarding the time required for four cannabis terpenes to reach set thresholds in winegrapes are concerning in that he concluded the terpene beta-myrcene, one of the most common terpenes found in cannabis, would only take 75 days to reach 381 ppb in winegrapes. It is generally recognized that terpenes at levels as low at 50 ppb can alter characteristics of wines – that could mean that cannabis terpenes can meet a threshold of 50 ppb in approximately 10 days. These fundamental flaws were outlined by Tyler Thomas, the President of Star Lane & Dierberg Vineyards, LLC, a member of the County's Agricultural Advisory Committee, and a member of the Board of Santa Barbara Vintner's Association. See Exhibit 8. Mr. Thomas has Master of Science degrees and has published three peer-reviewed papers related to plant biology.

While research necessary to thoroughly understand this impact is presently underway, there is substantial evidence in the record that wine quality can be affected by exposure to airborne terpenes from cannabis cultivation, including the fact-based expert opinion of Dr. Oberholster and testing results in Santa Barbara County, each of which establish that terpene migration from cannabis is occurring and that terpenes can cause wine taint. This is substantial evidence that the Project may result in terpene taint to nearby wine grapes, leading to a significant incompatibility between these two land uses. Evidence of this impact is far from speculation and is being taken seriously by the County through the Agricultural Commissioner, who is currently investigating funding sources for, and researchers who are qualified to conduct, a study to further address wine grape absorption and taint from cannabis terpenes. The Planning Commission has further stated in numerous hearings that a study to address terpene impacts to wine grapes is necessary. Additionally, the public has submitted chemical testing results as evidence of terpene taint of wine from cannabis terpene migration at a comparable vineyard in Santa Barbara County. See Exhibit 7. These expert and industry opinions constitute substantial evidence supporting a fair argument of a potentially significant impact that necessitates project-specific environmental review.

Summary and Conclusion

Appellants both face what could be a threat to their existence due to the extent and severity of the land use incompatibility of cannabis with adjacent agriculture, including odor impacts to supportive uses such as tasting rooms. The extent of the impacts were not considered in the PEIR or by the Board in adopting the Cannabis Ordinance, and due to these impacts, the Project runs contrary to the policies in the County's Comprehensive Plan and the Williamson Act.

If cannabis nuisance odors deter consumer direct sales in the Melville Winery's tasting room or grape sales to winery buyers, Appellant will see material economic impacts to their business – with reduced tasting room visits, reduced direct sales, reduced wine club memberships, and reduced aggregate sales. This would clearly result in the potential loss of revenues jeopardizing the ability to sustain ongoing farming and winery operations, and the viability of its business would decline leading to its collapse. At scale, the blight from abandoned and idle farms (even just

Appellants' vineyards) would lead to physical impacts on the environment. These are CEQA impacts – without the ability to directly market and sell wines to consumers, revenues will be materially impacted and the viability of the wine industry, including grape growing, is at risk.

Further, changed circumstances with respect to the County's Right to Farm Act now make odor mitigation even more critical (because APAC is no longer reviewing projects for compatibility, including with tasting rooms as onsite agricultural processing) and odor requirements are feasible. Further, Applicant's proposed methods for reducing odors are inadequate and fail to meet the requirements of the LUDC.

As discussed, the PEIR assumed that all cannabis projects would undergo a compatibility review process whereby APAC would assess each project's compatibility with adjacent agricultural operations, including tasting rooms as supportive agricultural uses. This was without regard to whether parcels are within the Williamson Act. Thus, the impacts to legacy agriculture, including the issues identified in this letter, are completely ignored during the County's permitting process. These represent a substantial change in circumstances with potentially significant, irreparable, and longstanding negative impacts to discrete areas of the County. The County must ensure compatibility review as relied on by the PEIR occurs in some form.

Each of the above qualifies as a legitimate CEQA issue standing alone and provides a basis for the Board's denial of the Project on CEQA grounds. When combined, there are numerous grounds for denial of the Project. Approval of this Project would violate CEQA, is inconsistent with Comprehensive Plan policies, and would represent an abdication of the County's responsibility to protect the public health, safety, and welfare. Accordingly, Appellants urge the Board to uphold the appeal and deny the Project.

Exhibits

Exhibit 1- Letter from Grower Shipper Association, dated January 16, 2020
Exhibit 2 – Letter from Agricultural Advisory Committee, dated January 17, 2020
Exhibit 3 – Letter from Santa Barbara Vintners Association, dated January 17, 2020
Exhibit 4 – Letter from Santa Barbara County Farm Bureau, dated May 29, 2020
Exhibit 5 – Letter from Dr. Anita Oberholster, dated March 3, 2020
Exhibit 6 – Final Report from Dr. William Vizuete, dated December 6, 2019
Exhibit 7 - Terpene Analysis on Grapevine Tissue near Hoop House Grow, dated August 7, 2019
Exhibit 8 – Letter from Tyler Thomas, dated March 13, 2020

Exhibit 1

Grower Shipper
ASSOCIATION
of Santa Barbara and San Luis Obispo Counties

January 16, 2020

County of Santa Barbara
Planning Commission

Re: January 22, 2020 Santa Barbara County Planning Commission Agenda Item #2—Cannabis Zoning Ordinance Amendments

Dear Chair Bridley and Planning Commissioners:

The Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties represents over 170 growers, shippers, farm labor contractors, and supporting agribusinesses. Our members grow diverse field and nursery crops such as broccoli, strawberries, wine grapes, vegetable transplants, flowers, and tree fruit. We appreciate the opportunity to comment on the Planning Commission's consideration of potential revisions to the Cannabis Zoning Ordinance. Our Board of Directors voted unanimously to submit this comment letter.

The Association advocates for thoughtful policy that anticipates and minimizes predictable land use conflicts. Our members have experienced similar conflicts with both hemp and cannabis (marijuana). Both hemp and cannabis cultivation have been the source of significant conflict with established Central Coast agriculture.

Based on the best information we have available and the extent of conflict that our members and others in the agricultural community have experienced in trying to grow near hemp and cannabis, we do not believe that hemp or cannabis cultivation is compatible with organic or conventional Central Coast agriculture.

Our Board of Directors and members have engaged in extensive, focused discussions since August. These extensive discussions and the experience of our members growing in close proximity to hemp and cannabis through a full production cycle have better informed our current policy position. Our policy position has evolved as we have become better informed on the specifics of hemp and cannabis cultivation, end uses, regulatory context, and experience of nearby agricultural operations. The Association believes in the value of a diverse, vibrant, and robust agricultural economy and communities and we support different types of Central Coast agriculture. We further believe that innovation and adaptation is essential to support agriculture and allow for future generations to continue to be viable in domestic agriculture in the face of increasing challenges related to labor, water, market, and the cumulative effect of regulatory and economic pressures. For these reasons we are open to opportunities that complement and secure a future for agriculture on the Central Coast and are mindful of the potential precedential implications of policy decisions. **However, based on the experience of our members operating in real-world Central Coast conditions, all evidence suggests that cannabis is <u>not</u> similarly situated to agricultural crops and these differences are driving severe conflicts.**

Hemp and cannabis are fundamentally different from other agricultural crops. Unlike any other crop, hemp and cannabis have demonstrated that it is virtually impossible to farm next to even when exercising best management practices in a manner consistent with proper and accepted customs and standards and local, State, and Federal rules and regulations.

Our members have reported conflicts with neighbors growing both hemp and/or cannabis in a variety of crops and locations in Santa Barbara and San Luis Obispo Counties. The conflicts that our members have experienced are not isolated to one particular location, individual, or crop type. Although there are some limited locations that have not generated conflict, the majority of our members operating near hemp and/or cannabis have experienced significant and acrimonious conflict. The types of conflict include disputes over normal cultivation activities, such as land cultivation, application of plant protection materials, application of fertilizers, and threatened litigation; other conflicts have included harvest crews reporting concerns from strong odors sometimes several miles away. Crop types that have been embroiled in conflicts have included broccoli, wine grapes, avocado orchards, and citrus orchards. Local businesses and community members that have been impacted by this conflict include farmers, harvesters, rural residents, shippers, custom machine operators, materials applicators, and farm labor contractors. Given the great extent and diversity of intrinsic conflicts, we restate that these experiences of conflict are not isolated events and should give pause to the future of hemp and cannabis cultivation on the Central Coast.

Although the significance of advocating for regulations weighs heavily on our Association, we cannot remain silent in the face of continued increases in the number of members whose ability to exercise best management practices is crippled by their proximity to hemp or cannabis cultivation.

Until we have evidence to the contrary we urge a conservative approach be exercised to maintain the viability of the established, diverse agriculture and a future for food crops on the Central Coast. Examples of policy and information gaps include broader State and Federal licensing of plant protection materials for hemp or cannabis cultivation and better understanding of odor concerns. We further believe that addressing liability protection for agriculturalists exercising best agricultural practices and their right to farm is a key component for compatibility between hemp or cannabis and other agricultural food crops.

In light of this information we urge you to consider the widespread and significant conflicts that hemp and cannabis cultivation have generated on the Central Coast demonstrating their incompatibility with existing food crops in Santa Barbara County.

Sincerely,

Claire Wineman

Claire Wineman, President

Exhibit 2

COUNTY OF SANTA BARBARA
AGRICULTURAL ADVISORY COMMITTEE

January 17th, 2020

County of Santa Barbara
Planning Commission
123 Anapamu Street
Santa Barbara. CA 93101

RE: January 22 Hearing on Cannabis Zoning Ordinance Amendments

Dear Chair Bridley and Planning Commission Members:

At the Agricultural Advisory Committee (AAC) meeting on January 9, the Committee had continued discussions regarding issues surrounding cannabis cultivation in Santa Barbara County. The discussion reflected the fact that the agricultural community has a variety of viewpoints on the issue, both negative and positive. AAC would like to articulate that there are multiple points of view from the different commodity groups on AAC and that there are differing concerns in regards to the cultivation of cannabis, and that because these issues are complex and therefore don't lend themselves well to short written summaries, we would welcome the opportunity to discuss them with you in person.

Therefore, AAC continues to offer to hold a joint Planning Commission and AAC meeting or workshop to further discuss cannabis cultivation in the County and provide the Planning Commission assistance in any way we can.

Thank you for your thoughtful consideration of these comments and engagement on this complex issue.

Paul Van Leer, Chair

Committee Members	**Representing**
Bradley Miles	1st District Supervisor, Das Williams
Ron Caird	2nd District Supervisor, Gregg Hart
Sharyne Merritt	3rd District Supervisor, Joan Hartmann
AJ Cisney	4th District Supervisor, Peter Adam
Randy Sharer	5th District Supervisor, Steve Lavagnino, Chair
Carrie Jordan	California Women for Agriculture
Claire Wineman	Grower-Shipper Association of SB and SLO Counties
Paul Van Leer, Chair	Santa Barbara County Farm Bureau
June Van Wingerden	Santa Barbara Flower & Nursery Growers' Association
Tyler Thomas	Santa Barbara Vintners
Andy Mills, Vice Chair	Santa Barbara County Cattlemen's Assn.
Chrissy Allen	California Strawberry Commission

Exhibit 3

SANTA BARBARA
Vintners

Planning Commission
County of Santa Barbara
Betteravia Government Center
511 East Lakeside Parkway
Santa Maria, CA 93455

RE: Special Hearing; Agenda Item VII (2): Position Statement on Cannabis and Wine compatibility from Santa Barbara Vintners

Dear Planning Commission,

With the significant growth of cannabis in Santa Barbara County, there have been several unintended consequences creating significant conflicts with the existing wine industry to vineyards and wineries. We need better governing to help mitigate these problems.

The Santa Barbara Vintners represents a large portion of wine grape growers and wine producers who are concerned about the growth and proximity of cannabis. We would like to make it clear that we have many members who support recreational use of cannabis, and who also support the freedom to grow cannabis on a farm; however, all our members also believe that such support should not be construed as relinquishing their rights to farm, protect, and control their wine grape crop's quality and viability.

Our crop's viability and quality – unlike some other agriculture products – is largely predicated on its potential to deliver organoleptic characters (sense of smell, taste and feel) that are inextricably linked to where it is grown. In other words, soil and location matter. Therefore, unlike other ag goods where availability, quantity, price, and cleanliness (free of rot) may be valued above flavor, the grape and wine industry rely heavily on place and taste to establish and sustain its value.

This may create unique incompatibilities with a crop like cannabis which cannot have any trace of pesticide AND produces a host of volatile chemicals that may impact wine grapes' primary quality parameter: flavor and taste. As mentioned, these are critical to row crop goods and to wine grapes; however, flavor compounds drifting from one parcel to another may threaten grapes even more as it has the potential to influence the core value of wine grapes.

As a result, our members are very concerned about terpene drift from cannabis farms being absorbed by wine grapes in nearby vineyards impacting wine characteristics and quality. This phenomenon has been documented with eucalyptus trees (which produce a terpene common to many strains of cannabis) in peer reviewed literature and anecdotally across the wine industry. Recently, an SBV member demonstrated that terpenes drift by analyzing grapes in 2019 grown near a cannabis grow. The results demonstrated the presence of terpenes known to be

associated with cannabis on the grapes. Additionally, during a recent hearing for a cannabis grow on Baseline in Santa Ynez, another study (which used some of our member's data) corroborated the possibility of terpene drift.

In the summary of that study (attached), the author's note it would take 1,121 days to reach "threshold" concentrations of terpenes and therefore conclude, reasonably based on that timeline, it should not be of concern; however, they do not appear to have used a fine tooth, scientific comb through their data.

1. First, their main conclusion ought to have been: terpene drift is a real possibility.
2. Second, they do not substantiate why the "thresholds" they selected are worth abiding by.
3. Third, they selected 2,000 plants per acre planting density, which is quite low for cannabis.
4. They only examined four of the 120 terpenes that cannabis emits.
5. Additionally, the three other compounds they evaluated but ignore in their executive summary all have fewer days to reach "threshold."
    a. The threshold selected for those compounds all exceed 100 parts per billion (ppb), which would – by anyone in the wine industry- *be considered substantial and likely to have an impact on wine grape flavor.*
        i. To note one example, beta-myrcene, the authors use 330 ppb as threshold and conclude it would take 75.9 days to reach such "threshold" concentration on neighboring vineyards at the planting density selected. Ignoring the fact that planting density may be debatable, any winemaker would be concerned with levels close to 50 ppb or more (and maybe even less). That is only 15% of the concertation used as "threshold." If one selected – less arbitrarily as these authors – 15% of 330 ppb, it would only take 11 days to reach such concentration on the grape tissue. This, unlike 1,121 days, certainly seems plausible.

It seems clear that inadequate research has been performed to determine the environmental impact and incompatibility of cannabis growing nearby vineyards. We know pesticide migration is having real economic impact through the loss of grape crops when the vintner cannot spray, which will certainly have measurable economic impact on the value of wine grapes in Santa Barbara County. Already, some vintners are being asked if their grapes are grown near cannabis which could impact the ability to sell their grapes to third party buyers.

The Cannabis Ordinance was not written with the proper information needed to avoid conflict between agriculture neighbors. For the County to govern the relationship properly, it is clear more research needs to be done and methods to insulate each crop incorporated. (Of note, grapes are harvested once per year and it takes 12-24 months to make wine, depending on the varietal. This will not be a swift process.)

We share the concerns of our farming neighbors regarding pesticide migration and drift, and the unprecedented testing of the cannabis product. Agricultural areas are inherently contaminated with traces of crop protectants and our valley is notoriously foggy and windy. Never has conventional agriculture been confronted by a product and the incompatibility that lies therein; therefore, we request that your commission direct staff to evaluate and propose the following:

1. **All cannabis cultivation shall be sited and operated in a manner that prevents odor from being detected beyond property lines;**
2. **All cannabis cultivation shall be sited and operated in a manner that prevents cannabis terpenes from travelling beyond property lines;**
3. **Large buffers (with potentially dense landscaping requirements) along all property lines adjacent to existing agriculture, with a smaller buffer allowed if there is an indemnity agreement between the parties;**
4. **Reduce the allowable cannabis to a fraction of the total parcel size; and**
5. **Verify affidavits for all applicants that are currently growing or have grown cannabis on the site after January 29, 2016 prior to issuance of any land use permit.**

While not our preference due to visual impacts to the valley, odor control is more important than visual aesthetic. Therefore, we support the idea proffered by some that all grows be moved indoors where filtration and control of terpenes and aromas can more likely occur, and conflicts between adjacent agriculture are less likely to ensue.

Sincerely,

Alison Laslett
CEO, Santa Barbara Vintners

Exhibit 4

Santa Barbara County Farm Bureau

Affiliated with the California Farm Bureau Federation and the American Farm Bureau Federation

May 29, 2020

Santa Barbara County Board of Supervisors
Attn: Honorable Gregg Hart, Chair
105 East Anapamu Street
Santa Barbara, CA 93101

RE: Santa Barbara County Farm Bureau Cannabis Policy

Dear Chairman Hart and Members of the Board:

The Santa Barbara County Farm Bureau (SBCFB) Board of Directors would like to make you aware of its policy regarding the cultivation of cannabis in our county:

Agriculture is the number one industry in Santa Barbara County. Therefore, the encroachment of incompatible uses into agricultural areas should be prevented.

The Santa Barbara County Farm Bureau supports solely, the indoor cultivation of all cannabis within a sealed structure. This practice would eliminate any unintended consequences between conventional agricultural operations growing within the vicinity of cannabis production and processing. These structures must be equipped with an air purifying system capable of retaining all odors emanating from the planting, growing, harvesting, drying, curing, grading, or trimming of cannabis. The Santa Barbara County Farm Bureau opposes the outdoor cultivation of all cannabis.

To accomplish having cannabis grown within sealed structures, the SBCFB Board of Directors respectively ask the Santa Barbara County Board of Supervisors to streamline the permitting process for installing sealed structures on property zoned to grow cannabis.

Thank you for your consideration.

Sincerely,

Teri Bontrager
Executive Director

180 Industrial Way * P.O. Box 1846 * Buellton, California 93427 * Telephone (805) 688-7479 * FAX (805) 688-0428

Exhibit 5

UNIVERSITY OF CALIFORNIA, DAVIS

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COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES
AGRICULTURAL EXPERIMENT STATION
COOPERATIVE EXTENSION
DEPARTMENT OF VITICULTURE AND ENOLOGY
TELEPHONE: (530) 752-0380
FAX: (530) 752-0382

ONE SHIELDS AVENUE
DAVIS, CALIFORNIA 95616-8749

March 3, 2020

RE: Potential impact of terpene and odor neutralizer drift on grape and wine composition

Introduction

I am a faculty member in the Department of Viticulture and Enology at the University of California, Davis California. I have more than 15 years of experience in the field of grape and wine chemistry. My research is multidisciplinary and focusses on factors that impact grape and wine characters so that the winemaking processes could be tailored by individual winemakers to achieve the desired flavor and aroma profiles in the finished wine. Grape and wine-related research has allowed the industry to move beyond mere commercial acceptability to the production of intricately crafted fine wines. My research has a strong emphasis on the sensory evaluation of wines and has contributed to the body of work that has made descriptive analysis of wines a standard procedure for wine evaluation and has had the added benefit of making wines less intimidating for the consumer.

Currently, there are considerable concerns regarding the adverse effect that high concentrations of certain terpenes can have on wine flavor, including terpenes commonly emitted from cannabis plants. Some common cannabis terpenes are associated with other plants that have been demonstrated to adversely affect wine quality. It is and continues to be my opinion that the concentration of proposed and existing cannabis facilities in close proximity to and upwind of winegrape-producing vineyards in the Santa Ynez Valley, have a reasonable potential to alter the terpene composition of grapes grown in adjacent vineyards. These changes in winegrape terpene composition and concentration could potentially change wine characteristics and result in wines considered tainted. If wines are tainted, it will have an adverse effect on the reputation and marketability of these wines and thus the viability of the wine industry in Santa Barbara County.

The California grape and wine industry is a $31.9 billion dollar industry, with 637,000 acres of winegrapes planted. Based on a Stonebridge Research report published in December 2015, the Santa Barbara County wine industry has a $1.7 billion dollar economic impact on the region. Recent legislation adopted by the Santa Barbara County Board of Supervisors established regulations for the cultivation of recreational cannabis within the unincorporated regions of the Santa Barbara County. In part, these regulations permit outdoor cultivation of cannabis, including in regions where the primary agriculture are vineyards.

Santa Barbara County wine industry stakeholders have expressed concern regarding the potential impacts that outdoor cannabis cultivation may have on vineyards, winegrapes, and the resulting wines. Concerns focus on the extent that a concentration of terpenes emitted from outdoor cannabis cultivation and proposed odor abatement systems that utilize odor neutralizing essential oils (namely, the system marketed by Byers Scientific & Manufacturing) will be absorbed by winegrapes and ultimately impact resulting wine style and quality. Despite these changes in local policy regarding cannabis cultivation, the federal government continues to enforce restrictive policies and regulations on research into the impacts of marijuana (cannabis) on both health and public welfare. As a result, research on marijuana (cannabis) generally has been limited in the United States. The effects of cannabis on adjacent crops, including crops with sensitive characteristics like grapes, has also been limited, leaving grape and wine industry stakeholders and policy makers without the evidence they need to make sound decisions regarding the permitting of outdoor cannabis cultivation and odor abatement systems that utilize essential oils near vineyards and in designated American Viticultural Areas.

This lack of evidence-based information on the potential impacts of the cannabis industry on established vineyards creates a very real risk to the future viability of the grape and wine industry in Santa Barbara County and other counties that have or may adopt regulations allowing outdoor cannabis cultivation and/or odor abatement systems that use vaporized essential oils sited near vineyards. Santa Barbara County is currently considering permits for outdoor cannabis cultivation that rely upon vaporized essential oil odor abatement systems which individually and cumulatively could have potential significant impacts if sited near established vineyards. Until further research can be conducted, the wine industry and policymakers must rely on previously conducted research into how winegrapes react to volatile compounds from the atmosphere to draw conclusions about potential impacts of cannabis and essential oil vapors to existing vineyards and resulting wine quality.

Research has conclusively shown that winegrapes have porous skins and can absorb volatile compounds from the atmosphere. Well-known examples are volatile phenols from wildfire smoke (Kennison et al., 2009; Krstic et al., 2015) and Eucalyptol (1,8 cineole) from *Eucalyptus* trees (Capone et al., 2012). New research also indicates Eucalyptol absorption on to grapes from the invasive plant *Artemisia verlotiorum* (Poitou et al., 2017) and α-pinene absorption from nearby Monterey cypress (Capone 2017). Research has further shown that cannabis emits volatile terpenes into the atmosphere (Wang et al., 2019). As such, we may use this existing research to analogize and draw conclusions regarding the potential impacts of cannabis terpenes and essential oils on winegrapes. My conclusion, based on my background and familiarity with how winegrapes react to volatile phenols transmitted in air and what we know of terpenes such as 1,8-cineole and α-pinene, is that terpenes in the atmosphere will absorb on to grapes and, depending on the concentration and frequency of exposure, can potentially pose a threat to the grape and wine industry.

Known Impacts of Smoke Taint

Volatile phenols are naturally synthesized in winegrapes and are also released into wine during barrel aging, as toasting of the oak barrels will release the same compounds. However, when the amount of volatile phenols absorbed by the grape berry as well as vine leaves are excessive, this could result in an undesirable taint in the wine called “smoke taint”. This taint can greatly impact

the salability of the impacted winegrapes and can make the resulting wine unmarketable.

There is already a body of research that studied the impacts that wildfires have on wines produced with grapes that have been affected by wildfires. In the case of wildfires specifically, large amounts of volatile phenols are released into the air during the fires due to the thermal degradation of lignin in wood. When volatile phenols are emitted into the air and absorbed by the grape berry and vine leaves in sufficient quantities, this results in an undesirable effect called "smoke taint" in the wine. Smoke taint is characterized as a wine with excessive smoky aroma and an ashtray-like aftertaste. It is generally accepted as an undesirable characteristic of wines, rendering affected wines unsaleable.

It has been shown that the risk of smoke taint increases with repeated and continual exposure to the volatile phenols released from the thermal degradation of lignin in wood. These compounds are absorbed continually by the exposed grapes with each exposure and are stable within the grapes until harvest and processing when these compounds are released within the fermenting must (crushed grapes undergoing alcoholic fermentation). The grape and wine industry have been significantly impacted by smoke exposure in the last three years.

Based on the foregoing, there is significant evidence that winegrapes absorb volatile phenols emitted into the surrounding atmosphere, and such absorption has resulted in significant impacts to the characteristics of the resulting wines, including making such wines unsaleable.

Known Impacts of Eucalyptus Taint

In addition to the absorption of volatile phenols released during wildfires, winegrapes are known to absorb ambient terpenes. Terpenes are a large and diverse class of volatile organic compounds, produced by a variety of plants, including cannabis. They often have a strong odor and their function in the plant can be to protect the plant against herbivores or attract pollinators. Because these terpene compounds are volatile, at ambient temperature they can be released in the air (can evaporate from the plant oils where they are present) and travel with atmospheric conditions.

The most studied impact of terpene emissions on winegrapes and resulting wines is Eucalyptus taint, which is mainly caused by a terpene called 1,8-cineole or Eucalyptol. Capone and coworkers showed during a three-year vineyard study that the Eucalyptus taint in wine was not only caused by 1,8-cineole but also that this terpene originated from *Eucalyptus* trees nearby vineyards (Capone et al., 2012). Eucalyptus oils consist mostly of 1,8-cineole, although depending on the species this can vary from a 60% to 90% contribution. Eucalyptol in wine is described as a medicinal, camphoraceous, fresh/minty/cool character. In high concentrations this is seen as a "taint" as it overpowers the wines' other inherent characteristics and is not a winegrape varietal characteristic. Another study by Capone (Capone et al., 2011) showed that Eucalyptol can also be present in grape skins and MOG (materials other than grapes such as the stems and leaves) through absorption of the terpene in grapevine tissues. Eucalyptol, or 1,8-cineole, is present at significant concentrations in the emissions from some strains of cannabis. To clarify, this study found Eucalyptol concentrations above odor detection levels in wines which was caused by airborne transmission of terpenes and the absorption of such terpenes by both the winegrape berries and surrounding vine tissues from the air. This is separate from Capone's observations where *Eucalyptus* stems and leaves were present in the grapevine canopy and subsequently harvested

with the winegrapes which resulted in even higher levels of Eucalyptol in the resulting wines. More recently, Poitou et al. (2017) showed that green character observed in French Cabernet Sauvignon and Merlot wines was related to the absorption of 1,8-cineole from an invasive plant (*Artemisia verlotiurum*) present in some vineyards.

Terpenes present in wines have very low aroma detection threshold levels and ETS Laboratories determined that the aroma (odor) detection threshold level for California Merlot is 1.1 µg/L. Herve et al., (2003) reported a recognition threshold of 3.2 µg/L in red wine. Irrespective, these are detection threshold levels in the parts per billion range. In other words, very low levels of terpenes are detectable in wines and thus low levels of terpene absorption can potentially impact wine characteristics and thus wine quality.

The first part of the Capone study focused on making wines from grapes from two different vineyards harvested at set distances from the *Eucalyptus* trees. Their results clearly indicated a large impact due to distance from the terpene source, which in this case are the *Eucalyptus* trees. Above aroma threshold levels of 1,8-cineole were present in the wines made from grapes up to 50 meters from the *Eucalyptus* trees. An important fact to remember is that diffusion of volatile compounds depends on several factors including temperature, air pressure and movement. It will diffuse until the environment is in equilibrium. Thus, the distance of travel will depend on initial concentration as well as the listed environmental conditions which will be unique for each site.

In the Capone study, only two sites were utilized, which resulted in different levels of 1,8-cineole in the wines (9.5 – 15.5 µg/L). The study confirmed the airborne transfer of volatile organic compounds as found by other studies (Kennison et al., 2009). The study also showed that even higher concentrations of 1,8-cineole were present in winegrape stems and leaves, potentially due to their larger surface area or difference in exposure to the atmosphere or epidermis (outer layer of tissue in a plant). Thus MOG (material other than grapes, including winegrape stems and leaves that were exposed to and absorbed airborne terpenes) can also be a source of 1,8-cineole. This is particularly concerning due to labor costs and shortage which often necessitates the use of mechanical harvesters where more MOG are included.

Capone also found that *Eucalyptus* leaves and bark can lodge in the grapevines and be included during harvest which made a significant contribution to the 1,8-cineole composition of the wine when included in the must. However, even wines made from hand-picked grapes with no MOG or *Eucalyptus* leaves and/or bark, produced wines with above aroma threshold levels of 1,8- cineole if made from winegrapes grown within the first 50 meters from *Eucalyptus* trees. Including grape stems and some grape leaves (which, as described above, also were shown to absorb airborne terpenes), as will be normal during most fermentations, will result in even higher levels of 1,8-cineole.

This study confirmed that terpenes can become airborne and absorb on to other plant surfaces such as grape berries, leaves and stems, and that such absorption has resulted in significant impacts to the composition, quality, and flavor profiles of the resulting wines. Terpenes could potentially similar to smoke taint development, continually absorb on to grapes with continued exposure to terpenes. However, this needs to be investigated. New research by Capone (2017) showed that α-

pinene can also absorb on to grapes in close proximity to Monterey cypress trees and alter the sensory profiles of the wines.

Based on scientific evidence, it is reasonable to conclude that other terpenes present in cannabis will also absorb on to grapes. Absorption of external terpenes onto winegrapes can impact the character of the resulting wines.

Terpene Drift and Potential Impact

Cannabis plants are known for their strong smell due to high concentrations of a range of different terpenes. The chemotype, growing time, and canopy area effects the concentration of terpenes emitted into the air (mostly monoterpenes, C_{10} compounds, and sesquiterpenes, C_{15} compounds). Terpene concentrations in *Cannabis* plants are in the range of g/kg quantities, whereas the threshold levels of these compounds are in the µg/kg range (Aizpurua-Olaizola et al., 2016). This is a 10^6 order difference between the cannabis terpene concentration and terpene odor detection levels. Research has shown terpene emission rates of up to 8.7 $\mu gC\ g^{-1}\ hr^{-1}$ depending on the strain of *Cannabis spp* (Wang et al., 2019). Additionally, β-myrcene, eucalyptol and d-limonene were the most dominant terpenes in the emissions for the four strains evaluated. Other important terpenes in cannabis plants are α-pinene, β-pinene, linalool, α-terpineol, β-caryophyllene, hashishene, α-humulene and more. New terpenes are continually being identified in cannabis plants. A more recent report by Vizuete (2019) confirmed detectable emissions of terpene biogenic volatile organic compounds and that such emissions are dependent upon the strain of *Cannabis spp*.

Terpenes native to winegrapes are biosynthesized in winegrapes and can play an important role in the varietal character of a winegrape variety. Additionally, during the winemaking process, yeast and bacteria can also synthesize small amounts of terpenes (Carrau et al., 2016). The specific combination of terpenes present in winegrapes depends on the variety, but the total terpene levels will be in the order of µg/kg and µg/L amounts in winegrapes and wines respectively (Waterhouse et al., 2017). As evidenced by the studies of 1,8-cineole referenced above, it is clear that changing the level, relative ratio, and combination of terpenes within winegrapes and thus the resulting wines, could change the character of the wine significantly. Such changes could be a result of proximity to plants emitting 1,8-cineole, or other terpenes, including those emitted by *Cannabis* plants.

Furthermore, research into the effects of nearby *Eucalyptus* trees on winegrapes showed absorption by winegrapes at 1 µg/kg to 5 µg/kg levels of Eucalyptol, whereas initial preliminary data on winegrapes show increases of 200 µg/kg to 500 µg/kg of key cannabis terpenes in winegrapes grown close to *Cannabis* plants. This could indicate a much larger impact of cannabis then those determined for *Eucalyptus* trees. The Vizuete report (2019) erroneously used this preliminary data as threshold values, determining that with the calculated cannabis terpene emission levels, these thresholds will not be reached in grapes. Odor detection threshold values should be determined according to the ASTM (Designation E679 – 19) standard. The best estimate threshold value is the lowest level at which a consumer can consistently identify a sample spiked with the compound of interest as being different from another.

If one terpene or a combination of terpenes overpowers the wine (due to the introduction of foreign

terpenes), making it one-dimensional or imparting unpleasant characters to the wine, the wine may be considered tainted. Furthermore, absorption of terpenes on to the winegrapes may occur over the full growth period of the winegrapes, which is several months from pea size to maturity. However, it is currently not known whether terpenes, like volatile phenols, will have a build-up effect and should be investigated. With continued exposure, this means that there may be no specific high terpene period needed for potential impact on the winegrape's natural terpene composition.

Further research is needed to quantify cannabis-specific terpene emissions rates from *Cannabis* cultivation, as well as distance of diffusion and absorption on to winegrapes under different environmental conditions. In addition, kinetics and mechanism of absorption on to grapes need to be investigated as well as the impact thereof on the resulting wine character.

Potential Impact of Vaporized Essential Oils

The above is similarly concerning in light of the proposed odor neutralizing essential oils proposed by many of the *Cannabis* cultivation projects, namely the system installed by Byers Scientific & Manufacturing. Such systems emit vaporized essential oils into the air via piping that surrounds the perimeter of *Cannabis* cultivation sites. According to the manufacturer's materials, the efficacy of such systems is predicated on the vapors traveling in the air and making contact in the airstream with the odor compounds emitted from *Cannabis*. Upon contact, the odor molecules are "neutralized". In order for such vapors to make contact with odor compounds, the vapors are pushed through small holes in the perimeter piping away from the *Cannabis* cultivation areas and toward areas that may be negatively affected by malodors, namely neighboring properties.

Essential oils mainly contain terpenes and in reality 'neutralization' is masking of unpleasant smelling terpenes by releasing more pleasant-smelling terpenes. Thus, in effect even more terpenes will be present in the atmosphere surrounding grapes which can potentially absorb and alter the character of the grapes and thus the resulting wines.

Complexity of a Proposed Study

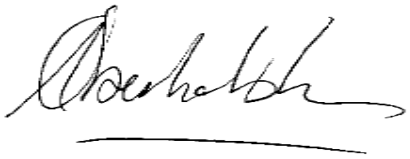
Investigations into the potential impact of *Cannabis* emitted terpenes on winegrapes are complex due to the significant impact of the environment on diffusion of volatile organic compounds. Distance of diffusion will depend on the concentration at the source, as well as environmental conditions. Approximately 80 different terpenes have been identified in different cannabis strains while there are approximately 50 different terpenes in winegrapes. First the presence of atmospheric terpenes at set distances from *Cannabis* cultivation needs to be shown as well as their absorption on to different grape tissues. The impact thereof will be evaluated by producing wines using standard experimental procedures, made from grapes harvested at set distances from *Cannabis* cultivation. These wines will be analyzed both sensorially and chemically to determine their terpene profiles and its relation to sensory characteristics of the wine. Additionally, best estimate thresholds of the identified cannabis terpenes should be determined. However, as compound expression is impacted by the matrix (wine) including other terpenes present, this can become very complex. Marker compounds with their detection threshold levels and their consumer rejection levels should be determined to establish risk analysis. However, due to potential synergistic impacts, this is a very complex process.

Conclusion

Based on the foregoing analysis using the research available to date on the impacts of airborne volatile compounds on winegrapes, outdoor *Cannabis* cultivation could have a potentially significant impact on the terpene composition of winegrapes grown near such *Cannabis* cultivation sites. This impact is even more likely when *Cannabis* is grown on large scale (either as a single project or multiple projects clustered together) with a large canopy area that is collectively emitting *Cannabis* terpenes into the air in regions where vineyards are in close proximity. The impact will be further exacerbated if the proposed Byers systems are used and proactively emit odor neutralizing essential oils into the air, directed toward such vineyards.

Changes to the terpene composition of winegrapes has been shown to impact resulting wine quality in prior studies of 1,8-cineole and now α-pinene. In light of the cultural significance and economic impact of the wine industry in California, it is important that care be taken to avoid adverse impacts while research seeks to provide objective metrics for allowable concentrations of high volatile organic compound releasing plants cultivated close to high quality wine grapes.

Submitted by,



Anita Oberholster, PhD
Associate Cooperative Extension Specialist
Enology Department of Viticulture and Enology
University of California, Davis California, 95616

Reference list:

Aizpurua-Olaizola et al., 2016. Evolution of the Cannabinoid and Terpene Content during the Growth of Cannabis sativa Plants from Different Chemotypes. J. Nat. Prod. 79, 324-331.

Capone, et.al., 2011. Evolution and occurrence of 1,8-cineole (eucalyptol) in Australian wine. J. Agric. Food Chem. 59, 953−959.

Capone et al., 2012. Vineyard and Fermentation Studies To Elucidate the Origin of 1,8-Cineole in Australian Red Wine. J. Agric. Food Chem. 60, 2281-2287.

Capone 2017. Trees and vines: can different types of local vegetation contribute to wine flavour? Technical Review 229, 7-10. https://www.awri.com.au/wp-content/uploads/2011/07/Technical_Review_Issue_229_Capone.pdf

Carrau et al., 2008. Terpenoids in grapes and wines: Origin and micrometabolism during the vinification process. Nat. Prod. Comm. 3 (4), 577-592.

Kennison et al., 2009. Effect of timing and duration of grapevine exposure to smoke on the composition and sensory properties of wine. Aust. J. Grape Wine Res. 15, 228-237.

Krstic et al., 2015. Review of smoke taint in wine: smoke-derived volatile phenols and their glycosidic metabolites in grapes and vines as biomarkers for smoke exposure and their role in the sensory perception of smoke taint. Aust. J. Grape Wine Res. 21, 537-553.

Poitou et al., 2017. 1,8-Cineole in French Red Wines: Evidence for a Contribution Related to Its Various Origins. J. Agric. Food Chem. 65, 383-393.

Stonebridge Research Group™ LLC. December 2015. The Economic Impact of Santa Barbara's County's Wine and Grapes, 2013.

Vizuete, December 6, 2019. Final Report. Estimated emissions, concentrations, and deposition of monoterpenes from an outdoor Cannabis farm.

Wang et al., 2019. Leaf enclosure measurements for determining volatile organic compound emission capacity from Cannabis spp. Atmos. Environ. 199, 80-87.

Waterhouse et al., 2016. Understanding Wine Chemistry. West Sussex, UK: Wiley.

EXHIBIT 6

Round 1, Terpene Analysis on Grapevine Tissue near Hoop House Grow

8/7/2019

Date	Sample name	beta-Caryophyllene	alpha-Humulene	beta-Myrcene	alpha-Terpinene	Terpinolene	Values in PPM
6/8/2019	Site 1 SB	12.4066	12.9406	0.3801	0.1931	0.5632	mg/kg
6/8/2019	SL SB Control	7.5387	14.0317	0	0	0	mg/kg
				Found in Cannabis			
	Lliterature Defined Terp Armoa Thresholds	3-250+	3-10	0-0.009	0.006-0.035	0.4-0.5	

NOTES: higher value in one VOC does not necessarily signify it is more likely to be perecieved.

EXHIBIT 8

DIERBERG

March 13, 2020

Santa Barbara County Board of Supervisors
RE: Busy Bee Cannabis Cultivation Permit

Dear Chair and Supervisors of the Board

I am President of Star Lane & Dierberg Vineyards, LLC, a member of the AAC, and a member of the Board of Santa Barbara Vintner's Association. I represent several interested parties: both wine growers and winemakers. We have several concerns with the upcoming appeals of cannabis projects because, along with other agriculture entities, we believe large scale cannabis grows are not compatible with conventional & legacy agriculture under the current ordinance.

We urge the following actions:

1. Please continue these appeals until the Planning Commission has time to make recommendations to the cannabis ordinance. The PC is pursuing amendments per your direction, are making reasonable progress, and will likely recommend amendments that could impact Santa Rita Valley Ag's operation. Its stands to reason they should be able to complete that work prior to precedent setting grows are permitted.
2. If #1 is not possible, please consider the following conditions to the projects:
    a. Limit terms of LUP to 2 years.
    b. Contain odors within the commercial cannabis activity. It is our opinion this can best be accomplished by:
        i. Capping outdoor grows in Ag II to 10 acres or less (this would be substantially higher allowance than all other county's).
            1. I drive the Highway 246 frequently and can attest that the 9 acres of cannabis cultivation that Busy Bee farms does smell up to 0.4 miles east of the property at peak flowering. Keeping their grow at this scale will limit the frequency and time with which that odor occurs. If the grow is allowed to expand per their request, odor control will become a nuisance.
        ii. Increase vegetative screening along eastern border.
        iii. Adding 3,000 foot setbacks
        iv. Prohibit onsite drying.
    c. Require a release of liability for legally applied crop management materials, tools, and practices.

A few facts that drive our decisions:

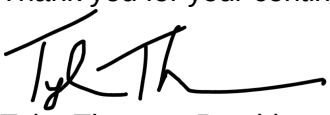
- In at least two cases SB Vintner members lost tens of thousands of dollars of crop to powdery mildew because they changed legal spray practices due to threatened litigation from a neighboring cannabis grower.
- We've discovered that total wine sales account for ~$165,000,000 in taxable revenue, and only 13% of wineries account for 55% ($90+ million) of that total. The majority (85%) of these top 35 wineries are in rural Ag II areas and their business would be significantly impacted by cannabis odors.
    - We would expect to see a desire from the County to increase its revenues. We share that desire. However we would hope that revenue generation would be new, not at the expense of existing business such as rural wineries.

2121 Alisos Rd, Santa Ynez, CA 93460
Tel (805) 693-0744 ✵ Fax (805) 688-0595
www.dierbergvineyard.com

    - Our product is principally valued on its aromas (70%) and taste (30%). Persistent and even semi-frequent cannabis odors will have an impact on our customer's ability to assess the value of our product.
- A cannabis grower's (Hacienda project) own study verified the potential for terpene drift to taint grapes. A fine-tooth comb through said study suggest less than 2 weeks' time is needed for drift of beta-Myrcene (the principal terpene released from most cannabis strains – see attached paper) to occur.
    - Their model suggested it took 75 days to reach 330 parts per billion (ppb) of beta-Myrcene. Our winemakers agree that anything in near 50 ppb would generate concern. I have since purchased pure beta-myrcene and spiked wine at various ppb levels (50, 100, and 200). A series of triangle tests (3 glasses: 2 are the same and 1 is different and subjects are asked to pick the one that is different) revealed that subjects could detect a difference in the wine's aroma at 50 ppb. This was at a p-value<0.005 which is a statistical significance. P-value<0.005 is like saying there is a 0.5% chance the data occurred randomly. In other words: it causes a difference at 50 ppb.
    - If 50 ppb is a concern, and 50 of 330 is 15%, then the 75 days it took for beta-myrcene to get to 330 ppb could mean it would only take 11 days to reach 50 ppb. This is well within the range of odor emissions that cannabis growers suggest will occur.

When the Board of Spervisors made their overriding considerations for the unmitigated impacts contained in the PEIR, we do not believe this evidence was taken into consideration. Please let your Planning Commission finish their work and continue these appeals until we all can revise the ordinance.

Thank you for your continued efforts to guide our county,



Tyler Thomas, President, Star Lane and Dierberg Vineyards.