Title
California's Ban on Agricultural Burning: A Hot Topic for Vineyards

I want to submit an abstract for:
Conference Presentation

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Keywords
vineyard management, burn restrictions, climate change, air pollution, management costs

Research Question
What economically viable options are available to vineyard managers/owners as the January 1, 2025 ban on agricultural burning looms in California's San Joaquin Valley?

Methods
We compare 2022 Ag Census wine grape acreage in the eight Central Valley counties and calculate the cost of non-combustion options available for compliance and document barriers to adoption

Results
Preliminary results from county Ag Commissioner data indicates that the $180 million in transition payments is insufficient and vineyard owners will pay thousands of dollars per acre for compliance.

Abstract
California’s San Joaquin Valley (SJV) is home to some of the largest vineyards and wineries in the U.S. and world. While the SJV is not known for its high-value AVAs, it produces the vast majority of wine grapes (75%) in the U.S. Eight large counties make up the SJV, the most productive agricultural region in the world; each county produced more than $1 billion of agricultural value as of 2022.

Although acknowledged as the country’s fruit basket the Valley also has some of the worst air quality in the U.S.
California Senate Bill 705 brought the state’s agricultural industry under the auspices of the Clean Air Act in 2004. Air quality control is managed by the state’s 35 local Air Quality Control or Management Districts. To meet increasingly stringent ozone and fine particulate matter (PM2.5) standards, the San Joaquin Valley Air Pollution Control District (District) adopted the nation’s most restrictive air quality regulations. Since agriculture accounts for a significant portion of air emissions in the Valley, many of these regulations have focused on agricultural practices.

Prior to passage of SB 705, approximately 1 million tons of agricultural biomass, primarily prunings, orchard removals, and vineyard removals, were annually open burned in the Valley. To comply with the open burning phase-out by crop type set forth in SB 705, the District amended their open burning rule in several times, expanding burn prohibitions for a range of crops and materials in the Valley. By 2011, the District had reduced open agricultural burning by 80% as compared to 2003.

However, more than a decade of drought beginning in 2011 caused massive removal of distressed vineyards. At the same time, nearly 75% of the Valley’s biomass facilities closed as government subsidies expired, significantly limiting the biomass disposal options available to growers. For economic reasons, many growers chose to dispose of their agricultural biomass through open burning. As a result, open agricultural burning increased to a peak of approximately 900,000 tons of agricultural material in the Valley in 2017.

A 2020 review by the California Air Resources Board prompted regulators to phase out agricultural burning entirely by Jan. 1, 2025. Large growers (over 1,000 acres) were first in line for compliance, with burning prohibitions taking place January 1, 2023, for vineyards with cordon or spur-pruned vines, and over 250 acres for vineyards with cane-pruned vines. By January 1, 2024, mid-sized vineyards of over 250 acres of cordon or 100 acres of cane-pruned vines were not allowed to burn, and by Jan 1, 2025, all remaining operations will be prohibited from burning vineyard material.

Approximately 70 percent of agricultural biomass open burned in the Valley in 2020 was vineyard material, according to the SJV Air Quality Control District. About half of this material contained embedded wire as a result of being grown using a wire support system.

While chipping wood and vines has long been a viable alternative to burning for orchards, for vineyards and other crops grown using a wire support system (e.g., cordon- or spur- pruned vineyards), the vines commonly grow around the supporting wires over time. Older vineyards grown using wires often have embedded wire in the vines. Agricultural material with wires embedded cannot be chipped unless specialty chipping equipment is available, which is also in short supply and not easily accessible to all Valley growers. Using additional labor to remove the wire prior to chipping is both an extremely expensive and dangerous pursuit.

In order to ease the financial burden of compliance, the state funded $180 million in grants to offset the additional costs for chipping and soil incorporation. Vineyard incentives are higher than for orchards overall and are higher still for cordon-pruned vs. cane-pruned vineyards. The state originally did not want to fund combustion options for the biomass but allowed air curtain burners for cordon-pruned vineyards in recognition of the difficulty in removing wire prior to chipping. The incentives range from $800/acre for cane-pruned without soil incorporation up to $1,300/acre for cordon-pruned vineyards in which the biomass is either incorporated into the soil or is recycled beneficially offsite. There is a cap of 500 acres of removal per applicant per calendar year. Small operators (100 acres or less) qualify for an additional $400 per acre incentive as the cost of bringing expensive chipping equipment to a small operation can reduce providers’ willingness to service smaller growers.

While the incentive funds have not yet been exhausted, the industry is concerned that the ongoing cost of vineyard removal will soon become solely the growers’ responsibility after the phase-in period ends next year. We estimate those costs based on low, medium, and high vineyard removal scenarios. The current oversupply of wine grapes in California and desire by some vineyard managers to plant grapes better adapted to the changing climate or to meet consumer preferences may lead to an accelerated rate of removal in the next decade. In addition, as climate concerns become more widespread and creep into other state’s policy agendas, the issue of how to cost-effectively remove agricultural woody biomass with minimal carbon release may become more of a national concern.

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