

Staff Report

Agricultural Burning Alternatives Analysis

Report

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Table of Contents

Background	1
Near-Complete Phase-Out of Open Agricultural Burning by January 1, 2025	2
Significant Funding for Alternatives to Agricultural Burning.....	2
Potential Need for Combustion Alternatives in Limited Applications	3
Growing but Limited Availability of Non-Combustion Alternatives for Certain Applications	4
Technology Suitability for Wire-Grown Crops	4
Periodic Reporting	6
Environmental Analysis.....	6
Staff Recommendation.....	7

Background

Agriculture underpins the San Joaquin Valley's (Valley) economy, providing a vast array of products that feed not just California but much of the United States and the world. The Valley's farmers and ranchers are some of the most innovative in the country, often on the cutting edge of new approaches for improving crop yield and quality while also seeking the most sustainable practices.

Although acknowledged as the "fruit basket to the country," the Valley also has some of the worst air quality in the nation. To meet increasingly stringent ozone and fine particulate matter (PM_{2.5}) standards, the San Joaquin Valley Air Pollution Control District (District), in partnership with the California Air Resources Board (CARB) and the United States Environmental Protection Agency (US EPA), has adopted some of the most restrictive air quality regulations in the United States. Since agriculture accounts for a significant fraction of air emissions in the Valley, many of these regulations have focused on reducing emissions from the Valley's agricultural trucks and tractors, as well as agricultural practices such as harvesting and tilling.

Recognizing the impacts of open agricultural burning on air quality in the Valley, the California Legislature passed Senate Bill (SB) 705 (Florez, Chapter 481, Statutes of 2003, codified at California Health and Safety Code 41855.5 *et seq.*) which aimed to phase out open agricultural burning in the Valley between 2005 and 2010. Prior to passage of SB 705, approximately 1 million tons of agricultural biomass, primarily prunings, orchard removals, and vineyard removals, were open burned in the Valley every year. To comply with the open burning phase-out by crop type set forth in SB 705, the District amended their open burning rule, Rule 4103, in 2005, 2007, and 2010, expanding burn prohibitions for a range of crops and materials in the Valley. Through implementation of Rule 4103, and with the collaboration of the agricultural industry, the District succeeded in reducing open agricultural burning by approximately 80 percent by 2011, relative to 2003 levels.

However, as allowed under SB 705, the District could postpone the burn prohibition for some crop categories and materials if the District determined the postponement was necessary based on criteria delineated in SB 705, and CARB concurred. These criteria included the economic feasibility of alternatives, availability of federal or State funding for biomass facilities or other alternatives (e.g., soil incorporation), and implications for attaining federal air quality standards. Since adoption of SB 705 in 2003, the District requested, and CARB provided concurrence on, postponements of the requirements of SB 705, in 2005, 2007, 2010, 2012, and 2015.

Beginning in 2011, the Valley experienced a series of droughts which resulted in growers having to remove many acres of orchards and vineyards. At the same time, a number of biomass facilities in the Valley shut down, significantly limiting the biomass disposal options available to growers. For economic reasons, many agricultural operators 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. Since then, open agricultural burning has decreased as the District tightened its

burning restrictions and launched the Alternatives to Agricultural Open Burning Incentive Program (Incentive Program) in late 2018 to encourage soil incorporation and other more sustainable alternatives.

Near-Complete Phase-Out of Open Agricultural Burning by January 1, 2025

In 2020, the District requested from CARB an additional concurrence on postponement of the requirements of SB 705 but recognized that agricultural open burning would need to be phased out in the Valley. The District's *2020 Staff Report and Recommendations on Agricultural Burning* (2020 Report), which was provided to CARB and publicly released as part of the 2020 concurrence request, provided a roadmap toward a full phase-out with its new agricultural burn prohibitions, while requesting CARB concurrence on proposed postponements of burn prohibitions for certain crop categories and materials for which alternatives are more challenging to implement. In considering the request, CARB recognized that partnerships between the District, CARB, other State and federal agencies, the agricultural industry, and Valley residents and other stakeholders were critical in continuing and accelerating the transformation to cleaner alternatives, and paving a viable path to the near-complete phase-out of agricultural burning in the Valley. Recognizing the need for a transitional period, CARB concurred with the District's burn prohibition postponements as set forth in the 2020 Report through August 31, 2021, and delegated the Executive Officer the authority to provide concurrence for an additional period beyond the first six-month concurrence period, through January 1, 2025, provided the District implemented additional measures in support of the near-complete phase-out of agricultural burning in the Valley, with CARB support.

The District adopted the revised 2020 Report on June 17, 2021, and CARB provided concurrence on June 18, 2021, effective through December 31, 2024. Through these District and CARB Board actions, by January 1, 2025, only very limited open burning of agricultural material will be allowed in the Valley.

Significant Funding for Alternatives to Agricultural Burning

In response to the near-complete phase-out of agricultural burning adopted by CARB and the District, the California Legislature appropriated \$180 million in the Budget Act of 2021 (SB 129, Skinner, Chapter 69, Statutes of 2021, codified at California Health and Safety Code 41855.8) to CARB to grant to the District to support incentives for alternatives to agricultural burning in the Valley. This significant funding will be critical to support the rapid transition from open burning to alternative practices for disposal of agricultural biomass. The Budget Act of 2021 specifies that these funds may be expended only for noncombustion incentives including, but not limited to, chipping, mulching, soil reincorporation, and composting, unless CARB makes a finding in a public hearing, based on clear and convincing evidence, that such noncombustion alternatives are not available. The Legislature also directed that no funding may be provided to stationary sources, other than a stationary source that consists of a facility that composts organic solid waste.

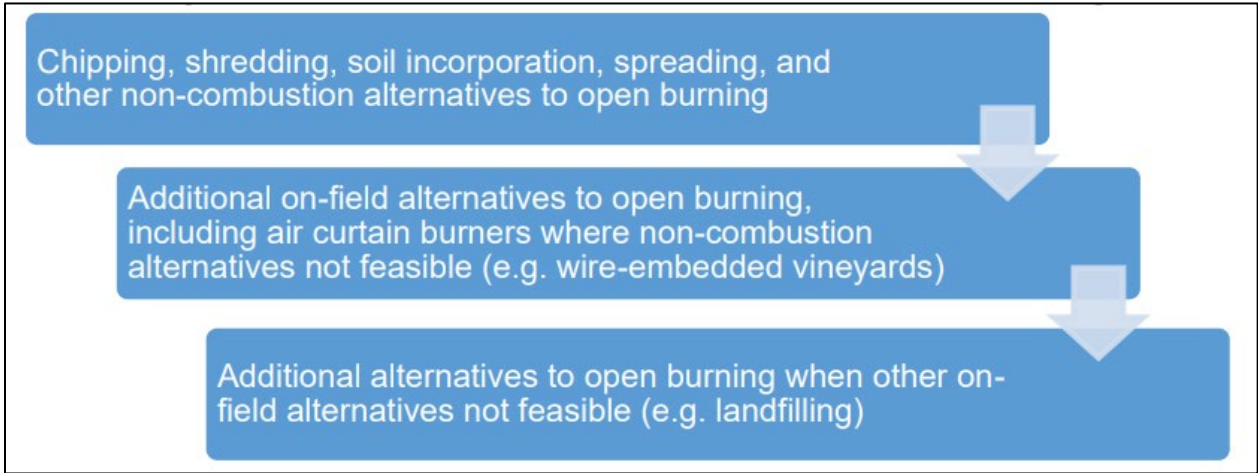
The District Governing Board accepted the funds from CARB at its August 19, 2021, hearing and approved an enhanced version of the Incentive Program to make use of the funds to support the phase-out of open agricultural burning in the Valley by 2025. CARB and the District executed a grant for the funds on September 1, 2021, with the enhanced Incentive Program launching the same day.

Potential Need for Combustion Alternatives in Limited Applications

Since the transition to near-complete phase-out of agricultural burning must happen rapidly, by January 1, 2025, all feasible, non-stationary source agricultural burning alternatives that represent a significant air quality improvement over open burning should be as accessible as possible to Valley growers. The primary focus is on non-combustion solutions in every application where they are available. However, there are some limited cases in which combustion alternatives are needed: that is, there is a compelling need for the limited application of combustion alternatives to help compensate for the insufficient supply of alternative service equipment and the large volume of vineyard material that cannot easily be chipped, as discussed below.

It is critical that the District continue prioritizing non-combustion alternatives wherever feasible. Prioritizing non-combustion alternatives will maximize the air quality benefits of the phase-out. In its *June 2021 Supplemental Report and Recommendations on Agricultural Burning* (Supplemental Report), the District included the following figure to illustrate the order of prioritization of incentive funding used to support alternatives to open burning.

Figure 1. Prioritization of Incentive Funding for Alternatives to Open Burning



This prioritization will be strictly adhered to and documented by the District as it implements its Incentive Program. Combustion alternatives should be considered only once all viable non-combustion solutions such as chipping, shredding, soil incorporation, and spreading have been exhausted. Further, the grant between CARB and the District requires prioritization of non-combustion alternatives, as shown in Figure 1.

Growing but Limited Availability of Non-Combustion Alternatives for Certain Applications

The District has implemented its Incentive Program since November 2018 to incentivize the use of alternatives to burning. Since launching the program, the District Governing Board has allocated \$40.6 million to the Incentive Program, resulting in the deployment of alternative practices at nearly 49,000 acres of orchard and vineyard removals, for over 1,300,000 tons of agricultural materials. This equates to reductions of 2,715 tons of oxides of nitrogen, 4,836 tons of particulate matter, and 3,803 tons of reactive organic gas emissions.

The Incentive Program has greatly improved Valley farmers' access to non-combustion alternatives, like chipping, and has helped accelerate the transition away from open burning; however, even with the Incentive Program's successes, stakeholders testified at CARB and District hearings, and throughout the process of developing the phase-out strategy, that there is an insufficient supply of grinding, chipping, and soil incorporation equipment in the Valley to meet the demand for alternative services. This insufficient supply of equipment means that not all Valley growers who would wish to use alternative services currently have access to them. Stakeholders also testified that the issues of supply shortage and inadequate access to alternative services are exacerbated for smaller agricultural operations since grinding, chipping, and soil incorporation contractors may choose to prioritize larger jobs.

This inadequate access to alternative methods of agricultural material disposal existed even prior to the phase-out of agricultural burning requirement adopted by the District in June 2021. The agricultural burning phase-out requirement will annually reduce the number of acres that can be open burned, with a reduction of over 33,000 acres by 2025, and a corresponding increase in the demand for alternative services to dispose of the agricultural material. This increased demand will further constrain access to those alternatives to agricultural burning services, particularly for smaller agricultural growers.

At its August 2021 Governing Board hearing to accept the new funds from CARB, the District initially allocated \$30 million for new equipment purchases to help expand fleets of grinding, chipping, and soil incorporation equipment in the Valley and increase the capacity of alternative services. Expanding the fleets of equipment needed to provide alternatives to agricultural burning services takes time, since the grinding and chipping equipment cost up to \$1 million each and must be special-ordered, often with long wait times before they can be delivered and put into operation. Even with expanded chipping, grinding, and soil incorporation fleets operating in the Valley, high demand for alternatives to agricultural burning services due to the rapid phase-out of agricultural burning means access to these non-combustion services may still be limited, particularly for smaller agricultural operations.

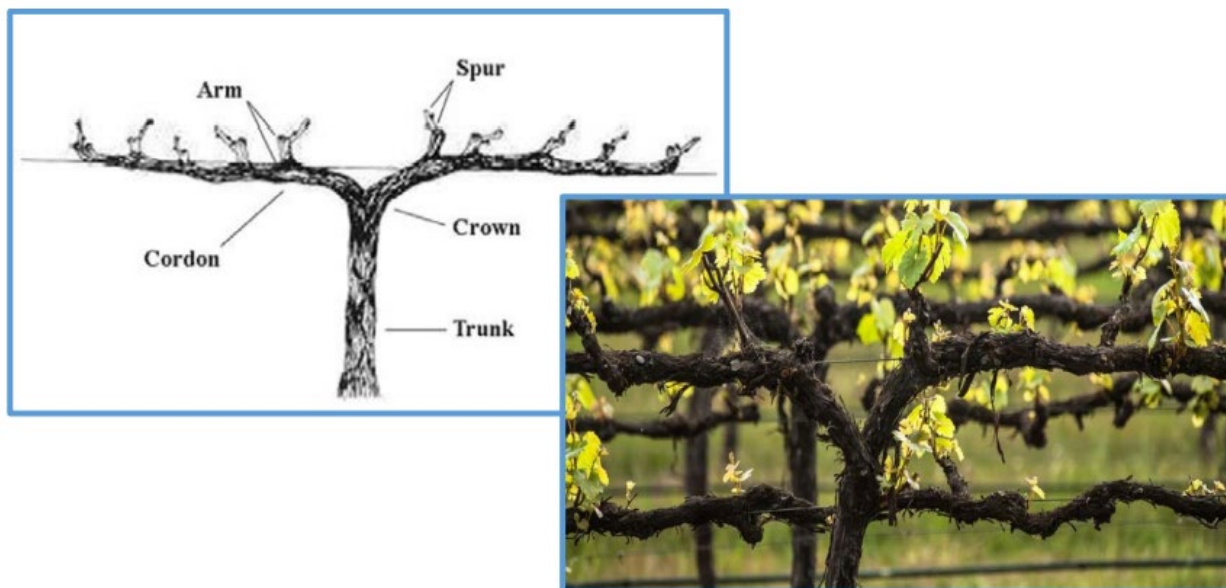
Technology Suitability for Wire-Grown Crops

In addition to the general capacity concerns described above, there are technological feasibility issues specific to vineyard crops and other crops grown using wire trellising. CARB and District staff have done extensive research on options available to process agricultural

biomass both using non-combustion and combustion methods, with a focus on how to handle cordon-style vineyard biomass. This research included internet searches for technologies not widely used in California that could handle the wires embedded in cordon-style vineyard biomass, contacting and meeting with equipment manufacturers, and attending in-field demonstration events in the Valley to observe how chipping and grinding equipment is operated in the field. The District also partnered with the agricultural industry to conduct a pilot project to evaluate the labor needs and costs to prepare agricultural biomass material for processing by non-combustion (e.g., chipping and grinding) and combustion (e.g., air curtain burner) equipment. These efforts helped illuminate not only the technical capability and limitations of non-combustion and combustion equipment in processing agricultural biomass, but also factors such as manufacturing and delivery deadlines for non-combustion and combustion equipment, potential accessibility issues for heavy equipment to fields (e.g., whether access roads can handle the size and weight of the equipment), and the additional machines and personnel needed to load and manage the equipment.

For vineyards and other crops grown using a wire support system (e.g., cordon- or spur-pruned vineyards), it is common for the crop to grow around the supporting wires over time. As a result, older vineyards or orchards grown using wires are often characterized by having embedded wire, as illustrated in the case of grape vines in Figure 2 below from the District’s Supplemental Report. This 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.

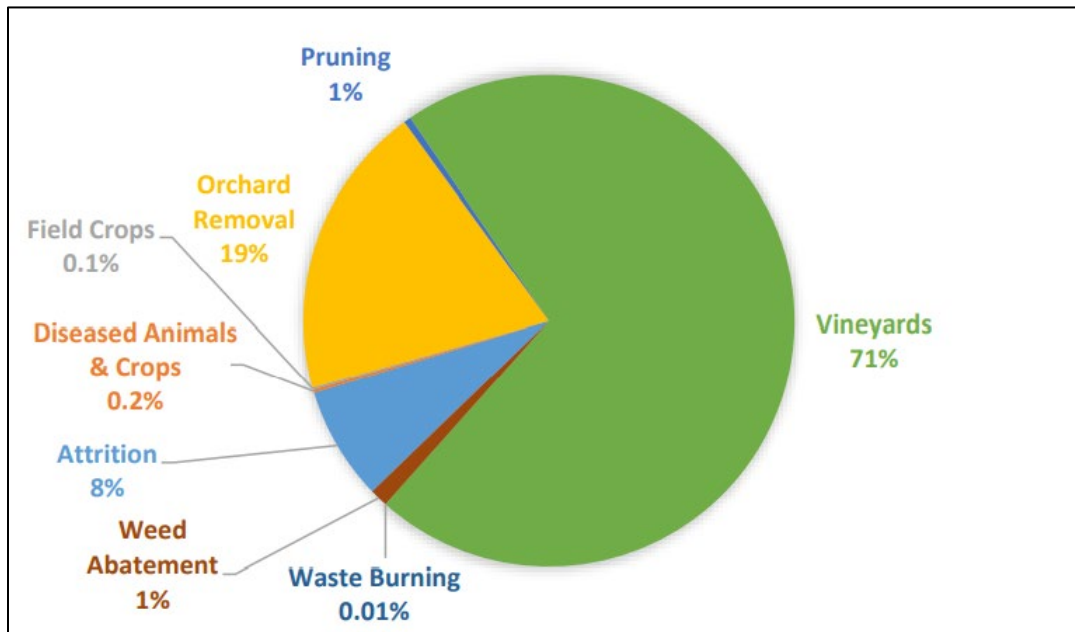
Figure 2. Drawing and Photo of a Spur-Pruned Grape Vine



Approximately 70 percent of agricultural biomass open burned in the Valley in 2020 was vineyard material, as shown in the District’s Supplemental Report and below in Figure 3.

About half of this material contained embedded wire as a result of being grown using a wire support system.

Figure 3. Percentage Burned in 2020 by Crop Type



Due to the technological feasibility issues specific to crops such as vineyards grown using a wire support system, only proposed projects with these types of concerns should be eligible to receive State funding for combustion alternatives through the District’s Incentive Program.

Periodic Reporting

CARB staff will report periodically to the Board on progress implementing the District’s Incentive Program. This includes reporting on: 1) the amount of State funding that has been used to incentivize different alternatives, specifying whether the alternatives are non-combustion or combustion; 2) whether the funds were spent near environmental justice communities; and 3) where open agricultural burning continues to take place. CARB staff intend to provide this update as part of the annual update to the Board on implementing the Valley fine particulate matter or PM2.5 State Implementation Plan.

Environmental Analysis

CARB’s regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State’s ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA; Cal. Code Regs., tit. 14, § 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing

environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, may prepare a substitute environmental document (referred to as an “Environmental Analysis” or “EA”) as part of the Staff Report prepared for a proposed action if necessary to comply with CEQA (Cal. Code Regs., tit. 17, §§ 60000-60008).

CARB has determined that the proposed finding that, by clear and convincing evidence, non-combustion alternatives are not available to prevent open burning in limited circumstances is exempt from CEQA under the general rule or “common sense” exemption (Cal. Code Regs., tit. 14, § 15061(b)(3)). CEQA Guidelines state “[t]he activity is covered by the common sense exemption that CEQA applies only to projects, which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.” The proposal is also categorically exempt from CEQA under the “Class 8” exemption (Cal. Code Regs., tit. 14, § 15308) because it is an action taken by a regulatory agency for the protection of the environment. The proposed finding determines, by clear and convincing evidence, that non-combustion alternatives to open burning of agricultural biomass are not available and so the funds granted by CARB may be used for combustion alternatives—though non-combustion alternatives must still be prioritized. Such funds would be used to reimburse farmers for contracting for the use of air curtain burn boxes. Air curtain burn boxes release notably less air pollutants than open burning and thus represent a cleaner combustion alternative to open burning.

Thus, based on CARB’s review, the proposed action is designed to protect the environment, and CARB found no substantial evidence indicating the proposal could adversely affect air quality or any other environmental resource area, or that any of the exceptions to the exemption applies (Cal. Code Regs., tit. 14, § 15300.2). Further, it can be seen with certainty that there is no possibility that the proposed finding may result in a significant adverse impact on the environment. Therefore, this activity is exempt from CEQA.

Staff Recommendation

Staff recommends that the Board find that there is clear and convincing evidence that non-combustion alternatives are not available in the numbers needed to meet increasing demand as the practice of agricultural burning phases out rapidly over the next three and a half years, and that targeted combustion alternatives would help meet that demand for crops grown with a wire support system, such as cordon-style vineyard, as laid out in this Staff Report. Staff also recommends that the Board find that the District can use the funds granted via the Budget Act of 2021 for non-stationary combustion alternatives to agricultural burning as a method of eliminating biomass from crops grown with a wire support system, as a second-priority option after consideration of the non-combustion alternatives, and only when non-combustion alternatives have been eliminated as a viable option and documented accordingly. Staff will report to the Board annually on the use of State incentive funds for alternatives to agricultural burning, including the breakdown of funds used for non-combustion and combustion alternatives.