



# CLEARING THE AIR: AG BURNING OUTREACH MEETING

September 12, 2023 • Stockton, CA

Thanks for being here.

Today's goal is to clear up confusion while fostering communication and understanding amongst all parties involved in/affected by increasing ag burning restrictions, so we know how to remove diseased vineyards in the safest and smartest way possible.

## AGENDA

- |                   |  |
|-------------------|--|
| 9 – 9:05am        | WELCOME  |
| 9:05 – 9:30am     | California Air Resources Board (CARB) – Michael Benjamin, DEnv, Division Chief, Air Quality Planning & Science Division  |
| 9:30 – 10:30am    | San Joaquin Valley Air Pollution Control District: Explanation of current regulations & how to comply, burn day outlook, and incentive programs for growers  |
| 10:30 – 10:40am   | BREAK  |
| 10:40 – 10:55am   | Viticulture-specific challenges, including pests & diseases, plus a quick overview of available alternatives – Stephanie Bolton, PhD, Lodi Winegrape Commission with Akif Eskalen, PhD, UCCE and Kamal Bagri, San Joaquin Co. Ag Commissioner  |
| 10:55 – 11:20am   | Carbon sequestration/biochar opportunities – Steve McIntyre, President, Monterey Pacific/Co-Founder, The Sitos Group and Mayo Ryan, CEO & Co-Founder, The Sitos Group  |
| 11:20 – 11:40am   | Q&A Panel with CARB and the Air District, plus Michael Miiller, California Association of Winegrape Growers – moderated by Aaron Lange, LangeTwins   |
| 11:40am – 12:15pm | Interaction time with organizations and contractors at tables around the room  |
| 12:15 – 1pm       | LUNCH sponsored by the Lodi Winegrape Commission, LDGGA and CAWG   |
| 1pm               | Focused topic discussions in classrooms (feel free to move between rooms):<br>CALAVERAS CLASSROOM – Financial Incentives with the Air District<br>MOKELUMNE CLASSROOM – Curtain Burners/Grinders with Contractors<br>DELTA CLASSROOM – Pyrolysis/Biochar with Monterey Pacific & Sitos Group |

3 hrs CCA CEU – crop management available

# SUMMARY OF GOVERNMENT AGENCIES INVOLVED

## US EPA (Environmental Protection Agency)

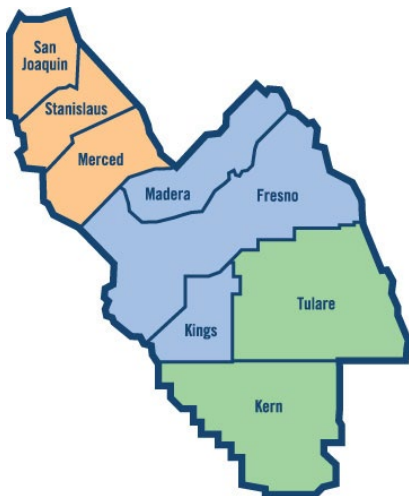
The United States EPA's mission is to protect human health and the environment. California is part of EPA Region 9. The Clean Air Act requires EPA to set national air quality standards for particulate matter (PM), as one of the six criteria pollutants considered harmful to public health and the environment. The law also requires EPA to periodically review the standards to ensure that they provide adequate health and environmental protection, and to update those standards as necessary.

## CalEPA (California Environmental Protection Agency)

CalEPA's mission is to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality. CalEPA consists of CARB, DPR, CalRecycle, Dept of Toxic Substances Control, Office of Environmental Health Hazard Assessment, and the State Water Resources Control Board.

## CARB (California Air Resources Board)

CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy.



## AIR DISTRICT

### (San Joaquin Valley Air Pollution Control District)

The District is made up of 8 counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and a portion of Kern. The District's mission is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality management strategies.

## COUNTY AGRICULTURAL COMMISSIONERS

Each county agricultural commissioner is charged with the protection of California agriculture, the protection of the environment as well as protection of the public's health and safety. Our San Joaquin County Ag Commissioner is Kamal Bagri.

## CDFA (California Department of Food & Agriculture)

The CDFA's mission is to serve the citizens of California by promoting and protecting a safe, healthy food supply, and enhancing local and global agricultural trade, through efficient management, innovation and sound science, with a commitment to environmental stewardship.

## The Jurisdiction Puzzle

Federal and state laws require emission control measures in areas where air pollution exceeds standards. The San Joaquin Valley is one of these areas. With a variety of state and federal agencies implementing air pollution reduction programs, it can be difficult to understand the mission and jurisdiction of each organization.

The federal government, primarily through the Environmental Protection Agency, sets standards, oversees state and local actions, and implements programs for toxic air pollutants, heavy-duty trucks, locomotives, ships, aircraft, off-road diesel equipment, and some types of industrial equipment.

State government, through the Air Resources Board and Bureau of Automotive Repair, sets more stringent state standards, oversees local actions, and implements programs for motor vehicle emissions, fuels, and smog checks.

Local air pollution control districts, such as the San Joaquin Valley Air Pollution Control District, develop plans and implement control measures in their areas. These controls primarily affect stationary sources such as factories and plants. Local air districts also conduct public education and outreach efforts such as the Valley Air District's Healthy Air Living, Wood Burning, and Smoking Vehicle voluntary programs.

**IMPACTS OF WOOD BURNING**

**WOOD BURNING**  
Burning wood, manufactured logs, wood pellets or any solid fuel

**PARTICULATE MATTER (PM)**  
A complex mixture of extremely small particles made up of a number of components, including smoke, metals, dust, organic chemicals and soot

**How small?**  
HUMAN HAIR = 50-70  $\mu\text{m}$   
( $\mu\text{m}$  = microns in diameter)

- PM2.5 (<2.5 $\mu\text{m}$ )
- PM10 (<10 $\mu\text{m}$ )

**UNHEALTHY LEVELS OF PM**  
The Valley's topography and stagnant, dry winters traps pollution under the inversion layer

**What clears PM pollution?**

WIND + RAIN

**WOOD BURNING IN THE VALLEY**  
is one of the largest sources of PM in the winter

Local cities and counties are responsible for implementing air friendly community planning that promotes pedestrian traffic, commute alternatives and cleaner transit fleets.

While their jurisdiction and specific programs may vary, all of these organizations share a common goal: to work cooperatively in establishing comprehensive air quality control programs to benefit all California residents.

The national annual standard for air quality as it relates to PM (particulate matter) 2.5 pollutants is 12  $\mu\text{g}/\text{m}^3$ . This was set in 2012 by the US EPA and the Valley has not yet attained it. We are still trying to attain the national

annual standard set in 1997 of 15  $\mu\text{g}/\text{m}^3$ .

# New State Mandates Further Ban Open Burning of Ag Materials

Upcoming Requirements for San Joaquin Valley Raisin, Table, and Wine Grape Growers



## GRAPE GROWERS

**Jan 1, 2022**

**Cordon (Spur-Pruned)**  
Prohibit burning at ag operations with >2,000 acres of total vines at all locations

**Cane-Pruned**  
Prohibit burning at ag operations with >500 acres of total vines at all locations

**Jan 1, 2023**

**Cordon**  
Prohibit burning at ag operations with >1,000 acres of total vines at all locations

**Cane-Pruned**  
Prohibit burning at ag operations with >250 acres of total vines at all locations

**Jan 1, 2024**

**Cordon**  
Prohibit burning at ag operations with >250 acres of total vines at all locations

**Cane-Pruned**  
Prohibit burning at ag operations with >100 acres of total vines at all locations

**Raisin Trays**  
Prohibit open burning of raisin trays

**Jan 1, 2025**

All operations prohibited from burning all sizes of removals except in cases of disease and pest concerns

## Examples of Alternatives to Open Burning

- Soil Incorporation
- Chipping/Shredding and land application
- Pyrolysis for Energy/Biochar Production
- Air Curtain Burners (Burn Boxes)

**Incentive Funding is NOW AVAILABLE**

Valley farmers can implement alternatives to open burning with:  
Up to \$600/acre for chipping and soil incorporation  
- OR - Up to \$300/acre for chipping and land application

For more information visit [ww2.valleyair.org/agriculture/agricultural-burning](http://ww2.valleyair.org/agriculture/agricultural-burning) or call (559) 230-6000

Following the near-complete phase-out of open agricultural burning in 2025, consistent with SB 705 and CARB's recommendations, the District will continue to allow burning of limited amounts of rice stubble (which has the potential for risk of disease), diseased crops and materials, weeds affecting ponding and levee banks, and weeds and other maintenance, as defined by Rule 4103.

NOTE from the Air District: The total size of the operation is determined with respect to each crop category. For instance, when determining the phase out date that applies to a particular grower for burning vineyard removals, the overall size of their operation would be determined by totaling all planted acres of vines that they operate within the San Joaquin Valley. They would not need to count any acres of orchards, other field crops, or fallow land that they operate in that total. Although cane-pruned and spur-pruned (cordon) vineyards have different acreage thresholds in the phase-out schedule, they are all counted together when determining the overall size of a growers operation.

Although burning of orchard and vineyard prunings has all but been eliminated in the valley, orchard and vineyard attrition is still allowed to be burned with a valid agricultural burn permit, and is not scheduled to be phased out as of now. It is important that growers understand the difference between prunings and attrition. Prunings are defined in Rule 4103 as: "the vegetative material produced from the regularly scheduled removal of any portion of the agricultural crop for the purpose of achieving a desired size, shape, or to promote plant growth for improved cultivation, harvesting, and the maintenance of crop health." Prunings do not include the incidental cuttings of dead or broken branches, water-sprouts or suckers, and other damaged crops. That material is considered attrition.



*Prepare for the...*

## **Phase Out of Open Agricultural Burning in the San Joaquin Valley**



*Learn more about the ongoing phase out of agricultural open burning in the San Joaquin Valley. Current regulations require a near complete phase out by January 1, 2025. Significant incentive funding is available to assist farmers in making this transition.*

**SCAN QR CODE**



*Scan with cell phone camera for complete details*

### **Incentive Funding is NOW AVAILABLE**

<b>CROP TYPE</b>	<b><i>Chipping <u>with</u> soil incorporation</i></b>	<b><i>Chipping <u>without</u> soil incorporation on-site</i></b>	<b><i>Chipping with off-site beneficial reuse</i></b>
<i>Orchards</i>	<i>Up to \$600 per acre</i>	<i>Up to \$300 per acre</i>	<i>Up to \$600 per acre</i>
<i>Cane-pruned vineyard</i>	<i>Up to \$800 per acre</i>	<i>Up to \$500 per acre</i>	<i>Up to \$800 per acre</i>
<i>Cordon-pruned vineyard</i>	<i>Up to \$1,300 per acre</i>	<i>Up to \$1,000 per acre</i>	<i>Up to \$1,300 per acre</i>

### **ADDITIONAL \$100 PER ACRE FOR SMALL AG OPERATIONS LESS THAN 100 ACRES**

<b>Chipping Equipment</b>	<i>Funding available on a limited basis for existing chipping contractors and agricultural operations interested in expanding their fleets</i>
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# VINEYARD REMOVAL RESOURCES FOR LODI GROWERS

## \*\*IMPORTANT NOTES\*\*

- *BEFORE* vines are pushed over, piled up or otherwise removed from the ground:
  - Contact any financial incentive programs you'll be applying for as they may need to visit the vineyard while it is still intact.
  - Conduct any disease testing as required for the Tree Assistance Program (TAP) or the Ag Commissioner's Office.
  - Decide what you plan to use the land for next, which will help you decide how to dispose of the vines. The way you remove the vines (with or without wire/how they are piled) matters and can differ between disposal methods.
- Financial incentives aren't guaranteed to be available, so apply as soon as you can.
- Open-air ag burning, even when burn permits are granted, is becoming less available and slower. Burn days happen less often and the amount you are allotted to burn in a day is lower (sometimes as small as 2 acres). If you still qualify to burn and are waiting for your burn day, make sure that your contact information is correct in the San Joaquin Valley Air District's Smoke Management System by calling 1.800.665.2876 then pressing 2 to speak to an agent between 6-11am any day (we've had growers experience problems with wrong numbers from old burn permits and getting off the burn day list mistakenly, which delays their burning even longer).
- Many vineyard pests and diseases pose a threat to neighboring vineyards, future vineyards and the Lodi region as a whole, especially vine mealybugs, leafroll virus, powdery mildew, noxious weeds, and trunk disease. Burning has played a key role in vineyard sanitation and land prep, and research is needed to investigate the effectiveness of burning-alternative practices.
- Virus testing for the Tree Assistance Program (TAP) and the ag burning disease exemption letter process is recommended in the fall before the leaves drop/machine harvesting, so you can see the red leaves (in red grape varieties). Make the most of your time and money and work with a lab that knows how to test for TAP so you only need to test each block once.
- The wine and grape markets are oversupplied internationally and there is no sign of increased wine consumption happening anytime soon. Rather, there is a trend towards no alcohol lifestyles and a lot of competition from other craft beverages. Wine tourism is down across California. Consider a fallow period and crop rotation, consulting the TAP-approved replant list if applicable for ideas.
- If/when you do go back in the ground with winegrapes, take your time to best prepare the ground and carefully select robust, healthy plants of desirable varieties for a long, healthy future. The Commission is hosting a year-long vineyard health educational series in 2024 called "A Journey Into Grapevine Health" so we can take this downtime as an opportunity to improve winegrape quality and vineyard longevity moving forward.

## **OPEN-AIR AG BURNING ALTERNATIVE**

### **FINANCIAL INCENTIVES**

#### **San Joaquin Valley Air Pollution Control District's Ag Burn Alternatives Grant Program**

*limited funding available*

Grants and Incentives Department

1990 East Gettysburg Avenue, Fresno CA 93726

559.230.5800 | [grants@valleyair.org](mailto:grants@valleyair.org)

[ww2.valleyair.org/grants/ag-burn-alternatives-grant-program](http://ww2.valleyair.org/grants/ag-burn-alternatives-grant-program)



*scan QR code to access incentive program info, application and full list of contractors*

## **CALIFORNIA AIR RESOURCES BOARD (CARB)**

1001 I St, Sacramento CA 95814

PO Box 2815, Sacramento CA 95812

[helpline@arb.ca.gov](mailto:helpline@arb.ca.gov) | 800.242.4450

[ww2.arb.ca.gov](http://ww2.arb.ca.gov)

## **USDA TAP**

#### **USDA San Joaquin Co. Farm Service Agency Tree Assistance Program (TAP)**

*financial assistance for the removal of red blotch virus + leafroll virus infected vineyards*

7585 S Longe St, Ste 10, Stockton CA 95206

Jenna Swenson | [Jenna.Swenson@usda.gov](mailto:Jenna.Swenson@usda.gov)

209.337.2124 x2 | [fsa.usda.gov](http://fsa.usda.gov)

## **SAN JOAQUIN CO AG COMMISSIONER'S OFFICE**

2101 E Earhart Ave, Suite 100, Stockton CA 95206

Kamal Bagri, Agricultural Commissioner/Sealer

Robert Pelletier, Deputy Agricultural Commissioner

209.953.6000 | [stocktonag2@sjgov.org](mailto:stocktonag2@sjgov.org)

## **CURTAIN BURNING**

### **Fowler Brothers**

*takes wood and metal; 10 acres/day/burner*

121 W F Street, Waterford CA 95386

Zach Fowler | 209.409.4951

[zach@fowlerbrosinc.com](mailto:zach@fowlerbrosinc.com)

Randy Baranek | 209.961.4227

[randy@fowlerbrosinc.com](mailto:randy@fowlerbrosinc.com)

[fowlerbrothersfarming.com](http://fowlerbrothersfarming.com)

📍 [fowler\\_brothers\\_farming](#)

## **GRINDING**

### **Holloway Ag Services**

*full service vineyard removal and soil prep; can haul away ground wood*

2019 Westwind Dr, Suite B, Bakersfield CA

Paul F. Smith | 661.535.5560

[paul.smith@hmholloway.com](mailto:paul.smith@hmholloway.com) | [hmholloway.com](http://hmholloway.com)

### **JFS Enterprises, Inc.**

*full service, including metal removal/prep; horizontal grinders with magnets*

2787 W Bullard Ave, Ste 109B, Fresno CA 93711

John Yergat | 559.664.8863

[info@jfscompany.com](mailto:info@jfscompany.com) | [jfsenterprises.com](http://jfsenterprises.com)

### **Midland Grinding**

*grinding for any vineyard size; wire/metal must be removed before arrival; 10-20 acres per day; can haul away ground wood*

8530 E Keyes Road, Hughson CA 95326

Laura Tosta | [laura@midlandgrinding.com](mailto:laura@midlandgrinding.com)

888.474.4050 | [midlandgrinding.com](http://midlandgrinding.com)

## **UNIVERSITY of CALIFORNIA**

**Akif Eskalen, PhD** | Plant Pathologist

Grapevine Trunk Disease Expert

UC Cooperative Extension Specialist

951.640.8851 | [aeskalen@ucdavis.edu](mailto:aeskalen@ucdavis.edu)

[ucanr.edu/sites/eskalenlab/](http://ucanr.edu/sites/eskalenlab/)

**Justin Tanner, PhD** | Viticulture Farm Advisor

UC Cooperative Extension San Joaquin County

209.953.6119 | [jdtanner@ucanr.edu](mailto:jdtanner@ucanr.edu)

[cesanjoaquin.ucanr.edu](http://cesanjoaquin.ucanr.edu)

## **BIOCHAR**

### **Monterey Pacific**

40410 Arroyo Seco Rd, Soledad CA 93960  
Steve McIntyre | Doug Beck, PhD  
831.678.4845 | [montereypacific.com](http://montereypacific.com)

### **The Sitos Group**

40410 Arroyo Seco Rd, Soledad CA 93960  
Mayo Ryan | [mayor@thesitogroup.com](mailto:mayor@thesitogroup.com)  
[sitos.earth](http://sitos.earth) | @ [sitos.group](https://www.instagram.com/sitos.group)

## **GROWER ASSOCIATIONS**

### **California Association of Winegrape Growers (CAWG)**

1121 L St #304, Sacramento CA 95814  
Natalie Collins, President  
Michael Miiller, Director of Government Relations  
Mindy DeRohan, Communications Manager  
916.379.8995 | [info@cawg.org](mailto:info@cawg.org) | [cawg.org](http://cawg.org)

### **Lodi District Grape Growers Association (LDGGA)**

PO Box 2004, Lodi CA 95241  
Amy Blagg, Executive Director | 209.339.8246  
[info@ldgga.org](mailto:info@ldgga.org) | [ldgga.org](http://ldgga.org)

### **Lodi Winegrape Commission**

2545 W Turner Rd, Lodi CA 95242  
Stuart Spencer, Executive Director  
Stephanie Bolton, PhD, Grower Research & Education  
Director | Gabriella Goode, Administrative Assistant  
209.367.4727 | [info@lodiwine.com](mailto:info@lodiwine.com)  
[lodigrowers.com](http://lodigrowers.com) | [lodiwine.com](http://lodiwine.com)

## **EDUCATIONAL RESOURCES**

### **Book that discusses mealybugs, viruses, and virus testing in grower language:**

*What Every Winegrower Should Know: Viruses.* Lodi Winegrape Commission. 2020.  
(available today as a flash drive PDF and from the Lodi Winegrape Commission while supplies last)

### **Book that discusses biochar and pyrolysis:**

*Burn: Using Fire to Cool the Earth.* By Albert Bates and Kathleen Draper. 2019.

### **Video:**

Biochar in Viticulture Webinar. Dovetail Partners. Features Dr. Doug Beck (timestamp 17:40). YouTube. 2022.

You can always learn more about viruses and their vectors (like mealybugs) at our **CD11 LODI PCA NETWORK BREAKFAST MEETINGS**, held on the first Tuesday morning of every month (with a few exceptions) from 8:00-9:30am at Burgundy Hall, Lodi Grape Festival Grounds, 413 E Lockeford St. Everyone is welcome!  
[lodigrowers.com/growereducation/localopportunities/](http://lodigrowers.com/growereducation/localopportunities/)

## **VIRUS TESTING LABORATORIES**

### **Agri-Analysis LLC**

950 W Chiles Rd, Davis CA 95618 (sample delivery)  
PO Box 285, Davis CA 95616 (mailing address)  
Alan Wei, PhD | [info@agri-analysis.com](mailto:info@agri-analysis.com)  
800.506.9852 | [agri-analysis.com](http://agri-analysis.com)

### **AL & L Crop Solutions**

7769 N Meridian Rd, Vacaville CA 95688  
Anna-Liisa Fabritius, PhD | Lana Dubrovsky, MS  
[info@allcropsolutions.com](mailto:info@allcropsolutions.com)  
530.387.3270 | [allcropsolutions.com](http://allcropsolutions.com)

### **California Seed and Plant (CSP)**

3556 Sankey Rd, Pleasant Grove CA 95668  
Ara Abramians | [ara.abramians@calspl.com](mailto:ara.abramians@calspl.com)  
916.655.1581 | [csplabs.com](http://csplabs.com)

### **Sunburst AgriBiotech Solutions LLC.**

677 E Olive Ave, Turlock CA 95380  
Srini Krishnamoorthy, PhD | [srini@sunburstabs.com](mailto:srini@sunburstabs.com)  
209.667.4442 | 978.930.9225 (cell)  
[sunburstabs.com](http://sunburstabs.com)

### **Wonderful Laboratories**

*ISO Accredited*  
449 N Zerker Rd, Shafter CA 93263  
Tefera Mekuria, PhD | [tefera.mekuria@wonderful.com](mailto:tefera.mekuria@wonderful.com)  
Allie Cushnyr | 661.203.9855  
[wonderfullaboratories.com](http://wonderfullaboratories.com)



# BEST PRACTICES FOR OPEN-AIR BURNING ALTERNATIVE VINEYARD REMOVAL & DISPOSAL

BY PAUL SMITH, THE HOLLOWAY GROUP

Things to consider before beginning the vineyard removal process:

- What type of trellis system is in place?
- Does it have crossarms and what size?
- How many catch wires? Metal or wood stakes/end posts?
- Will the end posts or plant stakes be reused in the new development?
- Is there a frost protection system?
- What will the land be used for once removed?

Once these items have been identified the plan of removal should look something like what is outlined below.

NOTE: Each grower and service contractor has their unique ways of going about this process, so we try to generalize a bit when presenting the following steps which are suited for most modern vineyard removals throughout California.



## Removal of Drip/Irrigation Hose.

This is done using a hydraulically powered hose roller on the back of a small vineyard tractor. The tractor will drive slowly down the row on the same side of the trellis that the drip hose is attached to the drip hose wire. This will minimize stretching and reduce the opportunity for breakage of the hose while pulling. This implement can be purchased from many equipment dealers/manufacturers.

If the field has frost protection the grower will usually cut the PVC riser pipes off level with the ground at this point.

## Removal of Drip Hose Wire.

The grower will send a labor crew through the field and “unclip” the wire from each trellis stake and let it hang for future retrieval. Using the same implement as used for winding the drip hose, the grower will then wind up the “loose” wire for recycling. Normally this is done from the edge of the field since the wire is no longer attached but sometimes if the wire is embedded in the vine trunks the tractor may need to drive along the rows as it did with the drip hose.

### Catch Wire Removal.

Depending on your trellis system there may be as many as 6 or more wires to remove in this step. Labor crews walk through the field and “drop” all wires above the canopy into the row center. Once all wires are dropped, they are cut 1 by 1 off the end post and rolled using the implement previously mentioned, by pulling from the field edge.

### Crossarm or Y-bracket Canopy Support Removal.

Depending on your configuration a labor crew will go through the field and unbolt or lift and remove the canopy support members off the trellis stakes.

These are usually placed into a bin on a trailer behind a tractor driving in the adjacent row. Each crew will remove 2 to 4 rows at one time.

NOTE: In the case of a “Quad” trellis the main crossarm supporting the cordon will not be removed at this stage only the upper crossarm will be.

### Cutting the Cordon Wire.

Ideally this wire will be cut after each vine to minimize wire length running through machinery in the final processing step. An acceptable alternative is to cut the wire after 3 vines. This is still able to be processed through a grinder or chipper without too much risk of becoming entangled in the rotating cutters or conveyor belts.

Due to the cost of this operation most growers will cut the wire after 10 plants.

NOTE: The conventional way has been to cut the wire every 100 feet or 15 vines. This length is problematic for grinding or Air-Curtain Burners as it does not fit in the equipment well and can cause unnecessary damage to the machinery and slow down the final processing.

### Removing the Plant and Trellis Stakes.

This can be done a variety of ways.

- i. Bulldozer with a vine/tree digging blade.
- ii. Excavator with Bucket and Thumb or tree digging fork.
- iii. Mastication and incorporation into the ground in place if the field has wooden stakes.

NOTE: In the first 2 cases once the plants are dug and laid over a labor crew will come through and remove the trellis stakes by hand and once again pile them onto a trailer behind a tractor in the adjacent row.





### Pushing and Stacking of Plants.

In this step a Wheel Loader or bulldozer equipped with a brush rake will drive over the previous plant rows skimming the soil surface pushing up the vines into a large pile, typically 0.5 acres in each pile.

NOTE: Once the vines are dug 3 to 4 weeks of drying time is needed to properly process the plant material in the next step.

### Grinding, Chipping, Air-Curtain Burning, or Haul-off.

This final step is set from the beginning of the project where the grower chooses their most desirable process based on budget, grant funding opportunities, or future land use requirements.

- i. Grinding or Grinding with reincorporation.
- ii. Chipping or Chipping with reincorporation.
- iii. Air-Curtain Burning.
- iv. Haul-off and disposal.

NOTE: In the first 3 processes, the marginal amount of wire and wire pieces remaining in the final product will need to be collected and disposed of once the process is complete. The Air-Curtain process will produce the largest pieces of wire due to the burning which is the easiest way to recover the metal. Some of the grinding and chipping equipment have magnetic rollers on the discharge conveyors that help collect the metal pieces from the wood material but quantity of metal collected may vary greatly by contractor.

The above outline is what we would consider the Best Practice Solution for vineyard removal and disposal. Before any redevelopment project, Holloway also recommends digging soil pits and doing a complete soil analysis of the vineyard so we can better understand the soils, nutrients and root structure we are working with. This also ensures all parties involved in the redevelopment are on the same page in terms of the soil structure and what type of deep ripping, soil amendments and nutrients are needed latter on in the redevelopment process. It also helps determine the proper equipment needed throughout the process as some soils are more difficult to work with than others.

# OTHER CROPS YOU CAN ROTATE INTO UNDER THE TREE ASSISTANCE PROGRAM (TAP)

The following table provides the list of crop codes and practices to where they can be applied.

**Note:** Beginning in crop year 2017, bananas and plantains will no longer be eligible for TAP.

<b>Crop Code</b>	<b>Crop</b>	<b>Crop Abbreviation</b>	<b>Eligible Practice Codes</b>
0023	Oranges	ORANG	01, 02, 10, 11, 14
0024	Tangelo	TANGL	01, 02, 10, 11, 14
0028	Almonds	ALMND	01, 02, 10, 11, 14
0029	Walnuts	WLNUT	01, 02, 10, 11, 14
0030	Grapefruit	GFRUT	01, 02, 10, 11, 14
0032	Elderberries	ELDER	10, 12, 13, 14
0034	Peaches	PEACH	01, 02, 10, 11, 14
0035	Lemons	LEMON	01, 02, 10, 11, 14
0036	Limes	LIMES	01, 02, 10, 11, 14
0048	Tangerines	TANGR	01, 02, 10, 11, 14
0053	Grapes	GRAPE	03, 04, 10, 14
0054	Apples	APPLE	01, 02, 10, 11, 14
0058	Cranberries	CRNBR	14, 15, 16
0060	Figs	FIGS	01, 02, 10, 11, 14
0086	Prunes	PRUNS	01, 02, 03, 04
0100	Maple	MAPSP	05, 06, 10, 11, 14
0106	Avocado	AVOCD	01, 02, 10, 11, 14
0108	Blueberries	BLUBR	10, 12, 13, 14
0128	Cherries	CHERY	01, 02, 10, 11, 14
0143	Aronia (Photinia Melanocarpa, formerly Aronia Melanocarpa)	ARONIA	10, 12, 13, 14
0144	Pears	PEARS	01, 02, 10, 11, 14
0146	Pecans	PECAN	01, 09, 10
0175	Coconuts	COCON	01, 02, 10, 11, 14
0176	Coffee	COFFE	01, 02, 10, 11, 14
*--0179	Tea	TEA	01, 02, 10, 11, 14--*
0181	Papaya	PAPAY	01, 02, 10, 11, 14, 17, 18
0182	Cacao	CACAO	01, 02, 10, 11, 14
0250	Nectarines	NECTR	01, 02, 10, 11, 14
0254	Plums	PLUMS	01, 02, 10, 11, 14
0326	Apricots	APRCT	01, 02, 10, 11, 14
0370	Mulberries	MULBR	01, 02, 10, 12, 13, 14
0375	Chestnuts	CHENT	01, 02, 10, 11, 14
0376	Hazel Nuts	HAZNT	01, 02, 10, 11, 14
0380	Dragonfruit	DRAGFR	03, 04, 10, 14
0381	Pawpaw Trees	PAWPA	01, 02, 10, 11, 14
0421	Noni	NONI	01, 02, 10, 11, 14
0463	Kiwifruit	KIWIF	03, 04, 10, 14

# OTHER CROPS YOU CAN ROTATE INTO UNDER THE TREE ASSISTANCE PROGRAM (TAP) – continued

## C Practice Code Applicability (Continued)

Crop Code	Crop	Crop Abbreviation	Eligible Practice Codes
*--0464	Mango	MANGO	01, 02, 10, 11, 14--*
0465	Persimmons	PERSI	01, 02, 10, 11, 14
0466	Plumcotes	PLUMC	01, 02, 10, 11, 14
0467	Pomegranates	POMEG	01, 02, 10, 11, 14
0468	Quinces	QUINC	01, 02, 10, 11, 14
0469	Macadamia	MACAD	01, 02, 10, 11, 14
0470	Pistachios	PISTA	01, 02, 10, 11, 14
0496	Dates	DATES	01, 02, 10, 11, 14
0498	Guavas	GUAVA	01, 02, 10, 11, 14
0500	Loquats	LOQUA	01, 02, 10, 11, 14
0501	Olives	OLIVE	01, 02, 10, 11, 14
0502	Passion Fruit	PASFT	03, 04, 10, 14
0622	Huckleberries	HUKBR	10, 12, 13, 14
*--7164	Rambutan	RMBTN	01, 02, 10, 11, 14--*
*--9904	Mayhew berries	MAYHW	01, 02, 10, 11, 14--*
0906	Pummelo	PUMLO	01, 02, 10, 11, 14
0997	Atemoya	ATMYA	01, 02, 10, 11, 14
0998	Sapote	SAPBK	01, 02, 10, 11, 14
0999	Carambola/Star Fruit	CRMBA	01, 02, 10, 11, 14
1010	Nursery – Container	NRSRY	07, 08, 10
1010	Nursery – Field	NRSRY	07, 08, 10, 11, 14
1166	Caimito (star apple)	CAMTO	01, 02, 10, 11, 14
1167	Guamabana/Soursop	GUANA	01, 02, 10, 11, 14
1290	Breadfruit	BREAD	01, 02, 10, 11, 14
1291	Cashew	CASHE	01, 02, 10, 11, 14
1292	Genip	GENIP	01, 02, 10, 11, 14
1295	Vanilla	VANIL	03, 04, 10, 14
1297	Honeyberries	HONEYB	10, 12, 13, 14
1302	Tangors	TANGS	01, 02, 10, 11, 14
2018	JuJube	JUJU	01, 02, 10, 11, 14
2019	Ume	UME	01, 02, 10, 11, 14
5000	Bay Leaf	BAY	01, 11, 12, 13, 14
6000	Caneberries	CANBR	03, 04, 10, 14
7037	Jack Fruit	JCKFR	01, 02, 10, 11, 14
7208	Mangosteen	MNGST	01, 02, 10, 11, 14
7302	Wax Jambu	WXJM	01, 02, 10, 11, 14
7321	Christmas Trees	CHRUT	10, 12, 13, 14
8004	Longan	LONGN	01, 02, 10, 11, 14
8005	Lychee	LYCHE	01, 02, 10, 11, 14
8008	Sapodilla	SPDLA	01, 02, 10, 11, 14
8045	Cherimoya	CHRMY	01, 02, 10, 11, 14
9995	Citron	CTRON	01, 02, 10, 11, 14

**Note:** Eligible producers who did not plant or own trees will not be eligible for TAP payments for replanting practices.

# NOTES