Burning restrictions and power plant closures are leaving growers in need of solutions for disposing of old trees in an economical and environmentally friendly way.

Whole orchard recycling (WOR) is one solution to this challenge. It involves:
- on-site grinding or chipping of whole trees during orchard removal;
- incorporation of the chips or grindings into the topsoil before replanting.

### On-farm benefits of WOR*

- **Improves soil structure & health**
  WOR increases water holding capacity, soil aggregation and compaction, soil biological activity, and soil carbon, nitrogen, and organic matter.

- **Improves tree growth**
  WOR increases tree nitrogen content and tree water status, and increases trunk diameter after several years of growth.

- **Boosts yields**
  WOR boosts yields after several years of growth, increases water use efficiency, and improves orchard resilience to water stress.

- **Provides environmental benefits**
  WOR increases carbon sequestration in the soil compared to alternative orchard disposal methods, such as burning or surface mulching.

*see orchardrecycling.ucdavis.edu for research details

### Nutrient Use with WOR

Growers who do whole orchard recycling may need to apply fertilizer nitrogen at greater rates than what is normally recommended for trees in their first leaf.

Brent Holtz, UCCE County Director and Farm Advisor recommends:
- apply **6-8 ounces of actual nitrogen per tree** (50-70 lbs N/acre) in the first year of growth. *After the first year you can use typical nitrogen rates*;
- apply nitrogen early in the season;
- spread out nitrogen applications so no more than 1 ounce of actual nitrogen is applied per tree per application.
Costs of WOR*

WOR requires some upfront costs and different practices than other orchard disposal methods. But with burning restrictions and biomass power plants paying less for wood chips, costs of doing WOR are comparing increasingly favorably with hauling chips to a power plant.

WOR may also have long-term yield benefits and water savings compared to other disposal methods.

In one research trial*, trees planted where the previous orchard was recycled showed a 1,000-pound kernel increase per acre. Water savings of 10% or more are also possible in such orchards.

**GET PAID TO DO WOR**

The San Joaquin Valley Air Pollution Control District’s (SJVAD) incentive program will reward growers with funding from $300-600 per acre up to $60,000 per year to implement whole orchard recycling. For more information contact Jacob Whitson (559-230-5800 or Jacob.Whitson@ValleyAir.org)

*see orchardrecycling.ucdavis.edu for more information

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**Other Considerations**

- **There is good reason to believe that most almond diseases will not be transmitted by recycled wood.** But WOR is currently not recommended for orchards infested with Armillaria, Ganoderma, crown gall, or band canker.

- **Few growers have reported problems with wood chips contaminating the first harvest.** How quickly chips break down after WOR depends on chip size, the total amount of chips, whether they were pre-treated to speed decomposition, and their incorporation depth.

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**RESOURCES & MORE INFORMATION**

Learn more about WOR at orchardrecycling.ucdavis.edu

- Grower perspectives on WOR
- FAQs about WOR
- Research summaries about WOR
- California orchard recycling providers list

Produced by the Agricultural Sustainability Institute and Department of Plant Sciences at UC Davis, with input from UC Cooperative Extension, UC Sustainable Agriculture Research & Education Program, and USDA Agricultural Research Service. Funding provided by the Almond Board of California and the U.S. Department of Agriculture’s (USDA) Agricultural Marketing Service through grant AM170100XXXXG011. Contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the USDA.