

Everything you get with a handful of

Almonds

Almonds offer many benefits—from health and nutrition to contributing to climate solutions, zero waste and a range of regenerative agriculture practices. Almonds fit into simple, sustainable lifestyles as a responsibly grown food and ingredient.

Getting the most out of every drop

California almond farmers conserve water on their farms by adopting water-efficient technology like microirrigation and putting everything the orchard grows to good use.

33%

reduction in water used to grow each almond between **1990s–2010s**¹

15%

more reduced between **2018–2022**, part of a 20% reduction goal by **2025**²

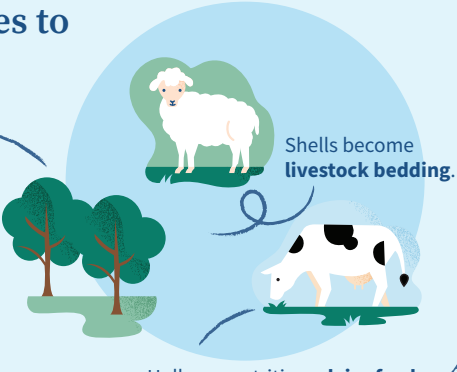
Four crops for every drop

Water used to grow almonds actually grows four products: the kernel you eat, which grows in a shell, protected by a hull, on a tree productive for approximately 25 years.



Nothing goes to waste

Trees store carbon and are **transformed into electricity** or ground up into the soil at the end of their lives.



Reducing the water needed to grow other feed crops

Hulls can replace alfalfa hay pound for pound in up to 20% of dairy feed formulations, reducing the acreage needed to grow it by 386,000 acres and **saving 440 billion gallons of water**.³

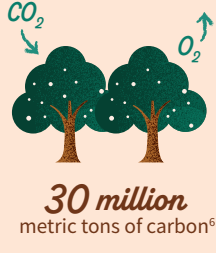


Climate smart farming

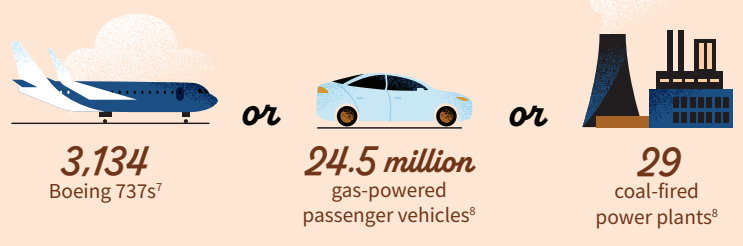
Almond trees capture and store carbon dioxide, a greenhouse gas, in their wood and roots. This storage accumulates as the trees grow, reducing emissions and environmental impact.

Almond trees store a lot of carbon

Compared to other fruit and nut trees grown in California, almonds store one of the **highest amounts of carbon per acre**—18 metric tons annually. When you look at carbon stored in all of California's almond trees (1.63 million acres), this nets out to 30 million metric tons.⁴



Equivalent to the annual emissions of:



Whole orchard recycling

Farms that recycle their orchards capture 2.4 tons of carbon per acre,⁵ each one **equal to living car-free for a year**.¹⁰

25-year lifespan
Almond orchards are a **no-till environment** for their 25-year lifespan.

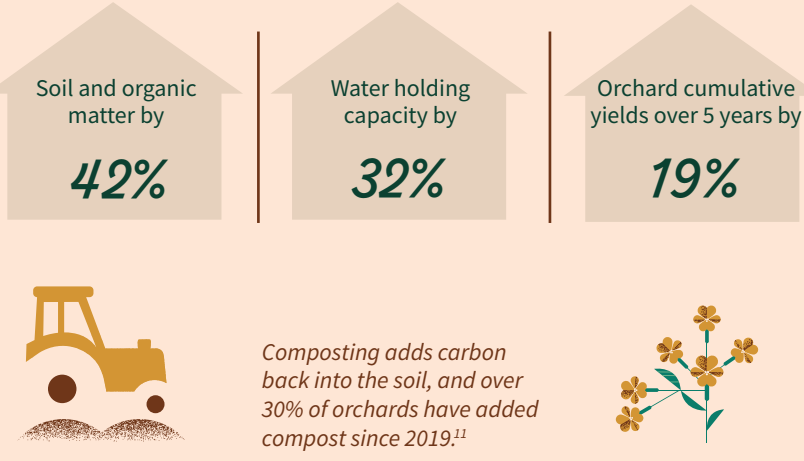


Back to the soil
At the end of their productive lives, whole trees are ground up and incorporated back into the soil, extending their sequestration.

On-farm adoption

Since this practice was **introduced in 2017**, nearly half of almond farmers replanting orchards have used this approach.¹¹

Whole orchard recycling helps farmers too, increasing:⁹

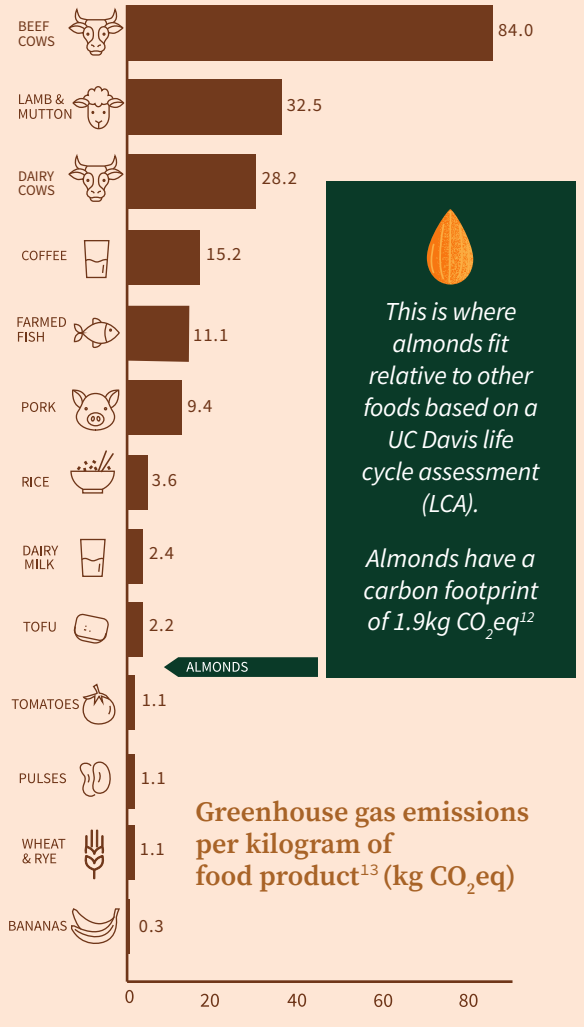


Composting adds carbon back into the soil, and over 30% of orchards have added compost since 2019.¹²



A low carbon footprint

Almonds have a lower carbon footprint than many other foods.



This is where almonds fit relative to other foods based on a UC Davis life cycle assessment (LCA).
Almonds have a carbon footprint of 1.9kg CO₂e/kg¹²

Greenhouse gas emissions per kilogram of food product¹³ (kg CO₂e/kg)

Building biodiversity

Almond farmers are increasingly growing cover crops—important for soil quality, pest management and insect biodiversity.

1 in 3 bites of food depend on pollinators.

Growing more than almonds

42% of California almond orchards (685K acres) **maintain cover crops** between tree rows.¹¹

86% of all U.S. **bee-friendly certified farms** are almond farms.¹⁴

Helping honey bees

Bees get their first food of the year in almond orchards as they collect nutritious pollen¹⁵ and nectar.¹⁶ Beekeepers report their hives **consistently leave stronger** than when they arrived.¹⁷

Environmentally friendly pest management

California almond farmers are on track for a **25% increase** in environmentally friendly pest management practices by 2025.²

Health and nutrition

Ounce for ounce, almonds are the tree nut highest in protein, fiber, calcium, vitamin E, riboflavin and niacin¹⁸ and may be a more efficient way to consume certain nutrients.

One portion of almonds provides:

6 grams of protein

50% of daily vitamin E

77 milligrams magnesium

13 grams unsaturated fats

13% of daily fiber

Equivalent to:

4.8x as much protein as much chickpeas

2.3x as much protein as much chickpeas

16.9x as much protein as much cooked asparagus

12.5x as much protein as much raw spinach

3.8x as much protein as much black beans

9x as much protein as much tofu

3.9x as much protein as much avocado

6.3x as much protein as much salmon

5.7x as much protein as much bananas

13.3x as much protein as much pineapple

No food waste here

America throws away nearly 60 million tons of food every year—that's almost **40% of the entire U.S. food supply**.¹⁹ Less than 1% of almonds are thrown out thanks to their **two-year shelf life**.²⁰



Almonds are a shelf-stable food which means they are **shipped around the world by boat**. Cargo ships **per kilometer than travel by plane**.²¹

Why California?

Family farms

There are 7,600 almond farmers in California: **90% are family farms**, and 70% of orchards are 100 acres or less.²²

Ideal climate

California is **1 of only 5 Mediterranean climates** on Earth, essential to growing almonds.



High standards

California's farming environment is one of the **most regulated globally**, with strict laws protecting the environment, worker and food safety.

1. University of California, 2010. Food and Agriculture Organization of the United Nations, 2012. Almond Board of California, 1990-94, 2000-14. 2. California Almond Stewardship Platform. Almond Orchard 2025 Goals MIP/Plan. SustainHarvest. November 2022. 3. UC Davis, Department of Agricultural and Resource Economics. Sample Cost Study: Healthy Way and Organic Almonds. 2020. 4. United States Environmental Protection Agency. How We Use Water. 2022. The average US household uses 100,000 gallons annually. 5. Priority Center for Water Science, 2023. 6. Olympic-size swimming pool holds about 660,000 gallons. 7. California Air Resources Board. An Inventory of Ecosystem Carbon in California's Natural and Working Lands. 2020. 8. Reuters. Boeing jets emissions data highlights industry's green challenge. April 2023. Assesses industry average 25-year operable lifespan. 9. U.S. Environmental Protection Agency. Greenhouse Gas Equivalencies Calculator. July 2023. 10. Emad Jahanzad, et al. Orchard recycling improves climate change adaptation and mitigation potential of almond production systems. Plants ONE. March 2020. 11. Seth Wynes, et al. Climate mitigation gap: education and government recommendations miss the most effective individual actions. Environmental Research Letters. 2017. 12. California Almond Stewardship Platform. November 2023. 13. Alissa Kendall, et al. Lifecycle Based Assessment of Energy and Greenhouse Gas Emissions in Almond Production. Part 1: Analytical Framework and Baseline Results. Journal of Industrial Ecology. 2015. Almond LCA captures emissions through brownish almond processing. 14. Joseph Poon, et al. Reducing food's environmental impacts through producers and consumers. Science. June 2018. Emissions are measured in kilograms of carbon dioxide equivalents (kg CO₂e/kg). Data captures emissions from land use change, farms, animal feed and processing. 15. Pollinator Partnership. January 2023. 16. Raneeh Saghi, Oregon State University, Department of Horticulture. 17. JP Tauber, et al. Colony-level effects of amygdalin on honeybees and their microbes. Insects. 2020. 18. Ellen Toftshofer, et al. Assessment of Pollen Diversity Available to Honey Bees in Major Cropping Systems During Pollination in the Western United States. Journal of Economic Entomology. 2019. 19. United States Department of Agriculture, Agricultural Research Service. USDA National Nutrient Database for Standard Reference. Release 28. 2015. 20. United States Food and Drug Administration. Food Loss and Waste. February 2023. 21. Jean Busby, et al. Food Loss Data Help Inform the Food Waste Discussion. United States Department of Agriculture, Economic Research Service. June 2013. 22. Joseph Poon, et al. Reducing food's environmental impacts through producers and consumers. Science. June 2018. 23. United States Department of Agriculture. Census of Agriculture.

