REGENERATIVE FARMING + ALMONDS

What is regenerative agriculture?

While regenerative may sound like just another buzzword, the principles behind it have been used by farmers and indigenous communities for generations. Coined in the 1980s,[1] "regenerative agriculture" has recently gained momentum for its holistic approach and the broad benefits it supports – mitigating climate change, improving soil health, restoring biodiversity, enhancing ecosystems and contributing to human health. Regenerative farming broadly spans on 6 key principles (Figure 1).[2]

REGENERATIVE PRINCIPLES

1. Respect site-specific context
2. Minimize soil disturbance
3. Maximize living roots year-round
4. Maximize plant diversity
5. Keep the soil covered
6. Integrate livestock

Figure 1. Core tenets of regenerative agriculture.

Why are there different definitions and which one is right?

Unlike organic with its clear USDA standards, regenerative agriculture doesn't have a universal definition. Therefore, a number of stakeholders – food companies, NGOs, and policymakers – have developed their own benchmarks, certifications and seals. The landscape is cluttered, and regenerative definitions, which historically focused on annual crops, aren't always applicable to almonds or other perennial farming systems.

To assess regenerative practices already in use by almond farmers, we reviewed three major frameworks (RegenScore,[3] SAI Platform's Regenerating Together,[4] and California Department of Food and Agriculture[5]) and identified their common elements. We compared those with the 347 practices in the California Almond Stewardship Platform's (CASP) self assessment and identified 5 categories and 20 regenerative farming practices specifically for almond production (Figure 2).

	Current Adoption (% orchards, 2020-24)	Acres using practice (2024)
SOIL HEALTH		
1 Cover Crops	42%	99,005
2 Organic Soil Amendments	87%	247,964
3 Whole Orchard Recycling: Previous Orchard*	9%	18,329
4 Reduced Tillage	71%	197,949
5 Reduced Passes	93%	253,273
6 Reduced Wind Erosion	92%	261,606
BIODIVERSITY		
7 Ecosystem Management Plans or Easements	37%	107,977
8 Maintain Margin Vegetation	70%	166,261
9 Bird Boxes + Perches	55%	149,882
10 Pollinator Habitat	59%	170,939
11 Hedgerows	54%	139,971
12 Riparian Buffers**	98%	17,493
WATER		
13 Groundwater Recharge	12%	26,029
14 Microirrigation	88%	254,484
INPUT EFFICIENCY		
15 Optimized Nutrient Management	92%	263,696
16 Integrated Pest Management	97%	271,656
17 Energy Conservation	98%	271,430
18 Onsite Renewable Energy	40%	144,596
COMMUNITY		
19 Competitive Compensation + Professional Development	96%	217,762
20 Community Contributions	93%	255,704

*Figure 2. Almond regenerative categories and practices with current adoption rates and directly assessed acres. On average 4,500 unique orchards were assessed for each practice in 2020-2024, with roughly 275,000 assessed acres for each question in 2024. *This question asks if the orchard prior to the one currently being farmed was recycled. WOR is a newer practice and this question was added in 2023 so the low adoption rate is misleading. CASP data also shows that of orchards removed in 2024, 52% were recycled back into the soil. **This practice only applies to farms adjacent to a waterbody, thus a high adoption rate but lower acreage.*

Of note, CASP does not capture data on all 6 regenerative tenets since some don't apply in almonds. For example, integrating livestock directly is not recommended, though using composted manure is. And as a perennial crop, maintaining year-round living roots is inherent.

Regenerative adoption in California almond production

The key finding of this analysis? California almond farmers are already widely using many regenerative farming practices in their orchards.

In fact, nearly all use 6 or more regenerative practices, and 80% report using 11 or more of the 20 regenerative practices identified.[6] Adoption is well distributed, with 75% of orchards reporting implementation of at least one practice per regenerative category.[7] From 2020 to 2024, 8 practices maintained adoption rates above 90%, and 3 saw gains of at least 5%.[8] The analysis also highlights where there is opportunity for even greater benefits over time.

[1] Ken Giller, et. al. Regenerative Agriculture: An agronomic perspective. Outlook on Agriculture. Volume 50, Issue 1. March 2021. [2] Noble Research Institute. The Fundamental Principles of Regenerative Agriculture and Soil Health. [3] regeno.farm/regenscore [4] saiplatform.org/regenerating-together-programme [5] cdfa.ca.gov/RegenerativeAg [6-8] Regenerative Agriculture Practices Adoption in California Almonds: Analysis of 2020-2024 Grower Self-Assessment Data. California Almond Stewardship Platform. SureHarvest. December 2025.

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Another interesting finding is that regionality matters – aligning with the regenerative principle of respecting site-specific context. While there are 20 regenerative practices for California almond production, they may not all make sense on every farm. Being good stewards of the land looks different from the northern end of California's Central Valley to the southern end and from east to west.

Snapshots of key practice adoption by category are highlighted in the graphics below.

Want to learn more about almonds and regenerative farming? A full report will be released in Spring 2026 at Almonds.org/StewardshipResources.

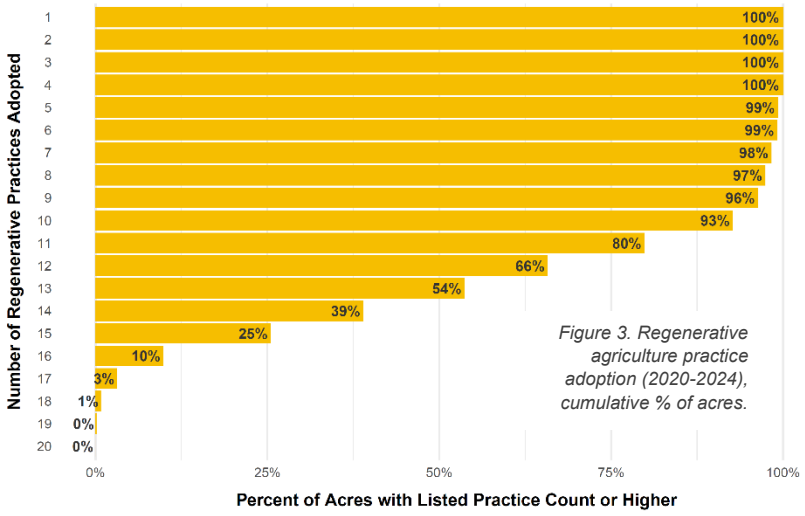

Figure 3. Regenerative agriculture practice adoption (2020-2024), cumulative % of acres.

SOIL HEALTH

52% of orchards removed in **2024** were **recycled** back into the soil

Whole orchard recycling captures **2.4 metric tons of CO_2 per acre**, the single **most impactful** known approach to **on-farm carbon capture**.[1]

42% of orchards grow **cover crops**
- 23% **resident cover**
- 19% **planted cover**

As a **perennial crop**, **100%** of almond orchards maintain **living roots** year-round

CA's almond orchards collectively store **30 million metric tons of CO_2** in their wood.[2]

84% of orchards **recycle prunings** and **55%** of orchards **use compost** ⟩ adding **organic material** to the soil

BIODIVERSITY

59% of orchards provide **pollinator habitat**

Pollinator habitat is a key component of the Pollinator Partnership's **Bee Friendly Farming certification**, 86% of all U.S. Bee Friendly-certified farms are almond farms.[3]

98% of orchards with **adjacent waterways** maintain **riparian buffers**

55% of orchards utilize **bird boxes and perches** for raptors and owls

54% of orchards have **hedgerows** and **70%** maintain **margin vegetation** ⟩ supporting biodiversity with non-almond trees, and other shrubs and plants

WATER

88% of orchards use **microirrigation** (drip or microsprinklers)

That's **well above** the norm: **56% of farms statewide** use microirrigation.[4]

Almond hulls, a **nutritious feed source**, can constitute **up to 20%** of dairy cow's daily ration. **100%** of the California's almond hulls are used for this purpose – **reducing the water** used to grow other feed crops.[5]

Conservation is a way of life in CA almond orchards.
To **save water** and **reduce waste:**
- **76%** monitor soil moisture levels
- **92%** measure plant water status

Despite infrastructure and policy challenges, **12%** of orchards practice **groundwater recharge** ⟩ flooding dormant orchards with excess winter flood flows, a practice that replenishes underground aquifers

INPUT EFFICIENCY

38% of almond orchards **generate on-site solar** power

By comparison, **25% of California farms** overall use **solar power**.[6]

92% of almond orchards use optimized **nutrient management** ⟩ reducing offsite movement and increasing crop productivity

To control **navel orangeworm**, almonds' **primary pest**, **93%** of orchards use one or both of these IPM practices:
- winter sanitation
- mating disruption

97% of almond orchards use **integrated pest management** techniques ⟩ reducing the need to treat insects, diseases and weeds

COMMUNITY

93% of orchards are run by farmers who actively **support their communities**
- **80%** give to charities
- **79%** volunteer in their communities

⟩ serving on boards or volunteering with community organizations and programs

*California's almond industry is made up of 8,100 farms, nearly **90%** of which are **family farms and 65%** are **100 acres or less**. The average **U.S. farm size** is **466 acres**.[6]*

*The California almond industry generates **108,000 jobs**, 100,000 of which are in the **Central Valley**, an area with historically high unemployment.[7]*

*California regulations are among the **most stringent in the world**, with strict laws and enforcement protecting **worker, environmental, and food safety**.*

96% of orchards are run by farmers who offer their employees **competitive compensation** packages and **professional development** opportunities

[1] California Air Resources Board. An Inventory of Ecosystem Carbon in California's Natural & Working Lands. 2020. [2] Emad Jahanzad, et al. Orchard recycling improves climate change adaptation and mitigation potential of almond production systems. PLoS ONE. 2020. [3] Pollinator Partnership. January 2023. [4] USDA. Irrigation and Water Management Survey. 2023. [5] UC Davis. Department of Agricultural and Resource Economics. Sample Cost Study - Alfalfa Hay. 2020. [6] USDA. Census of Agriculture. [7] UC ANR. Contributions of the California Almond Industry to the California Economy. 2020.

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