
THE ALMOND CONFERENCE
2025
WELCOME!
1
CULTIVATING A HEALTHIER
FUTURE

REGENERATIVE FARMING:

YOU'RE (PROBABLY) ALREADY DOING IT, HOW YOU BENEFIT, AND WAYS TO DO MORE

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Almond Board of California

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Almond Board of California

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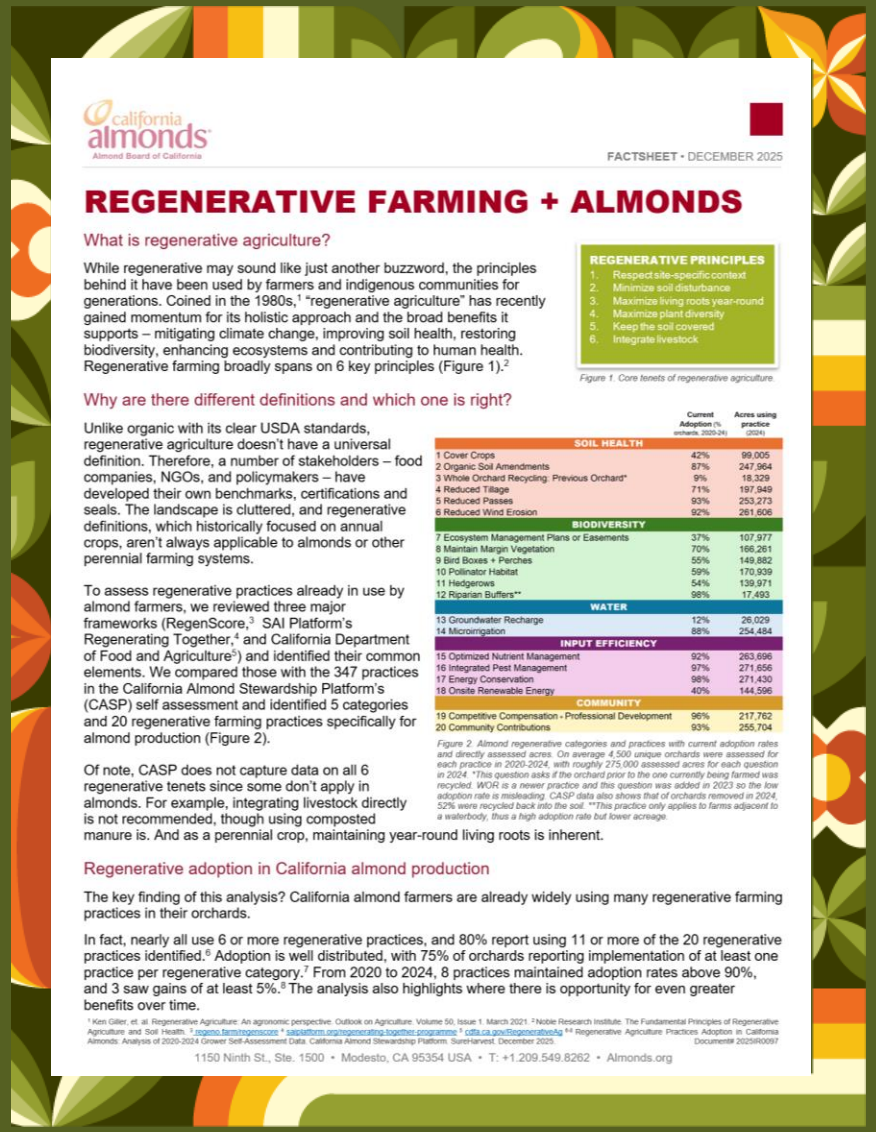
UC Davis

Silas Rossow
California Ag Solutions

ALMOND CONFERENCE 2025



california almonds
Almond Board of California

FACTSHEET • DECEMBER 2025

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).

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.

	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.*

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. Document# 2025R0097

NEW ABC ANALYSIS + RESOURCES

TODAY

FACTSHEET

Almonds.org/StewardshipResources

Handouts in back of room + at ABC booth

SPRING

FULL REPORT

Almonds.org

ALMOND CONFERENCE 2025

Panelists

Gabriele Ludwig
Almond Board of California

Tanya Gemperle-Goncalves
UC Davis

Silas Rossow
California Ag Solutions

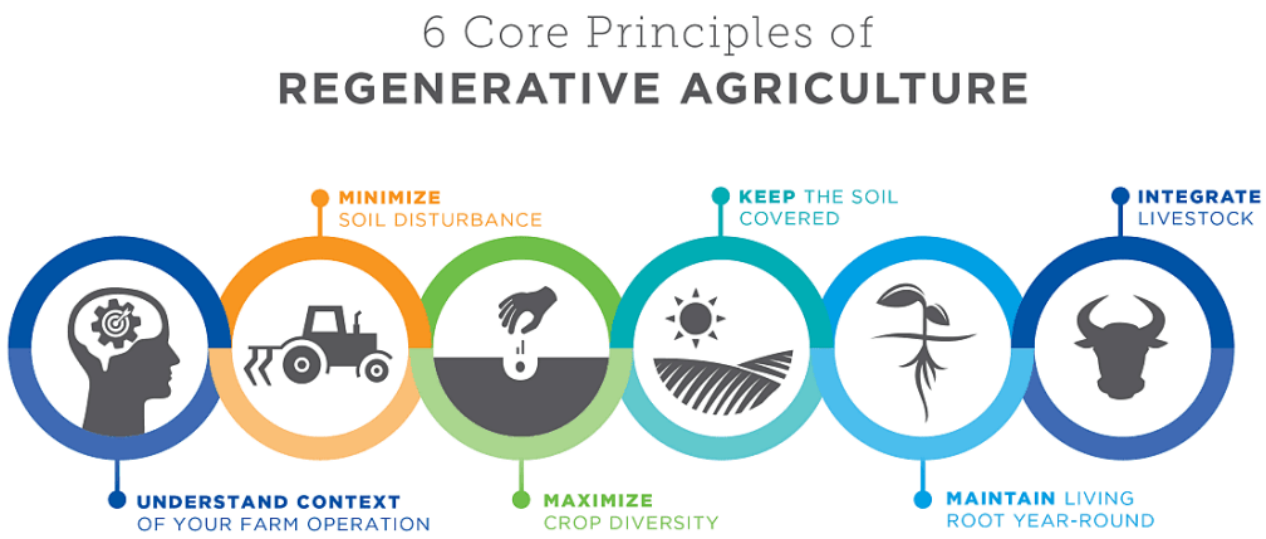
california almonds
Almond Board of California

CASP REGENERATIVE ANALYSIS

GABRIELE LUDWIG

CULTIVATING A HEALTHIER FUTURE

What's What? Sustainable, Regenerative, Organic



USDA ORGANIC

Regulated by the USDA with strict requirements

Only uses approved organic farming methods

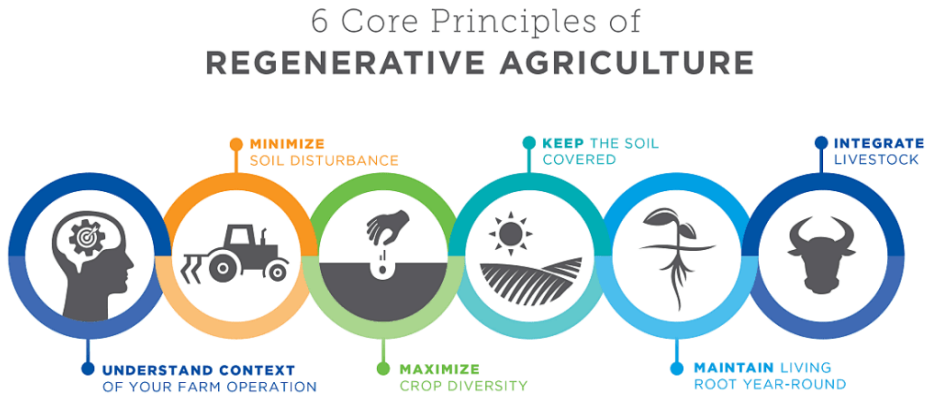
No GMOs, growth hormones, or antibiotics allowed

Livestock must be fed organically and treated humanely

How is regenerative agriculture defined?

- Regen ag is morphing into a version of sustainability
- No longer just focused on soil but extended to nearly all aspects of farming such as water, social equity, etc.
- No universal definition but a number of groups are working on scores/certifications, etc.
- Some are practice-based, some are outcomes-based

DEMETER USA
ETHOS
FIBERSHED
A GREENER WORLD
REAL ORGANIC PROJECT
REGENSCORE
REGENERATIVE ORGANIC ALLIANCE
REGENIFIED



sourcing our #1 ingredient, regeneratively

Our goal is to source 100% of our almonds from farms leveraging regenerative agriculture practices on a mass-balance basis* by 2030.

cracking our toughest nut first

We're proving it's usually the nuts that change the world®.

Almonds are one of our number one ingredients. That's why we're piloting a regenerative agriculture meets technology project for almonds — The

General Mills

Keeping our planet healthy

We're on a journey to advance regenerative agriculture on 1 million acres of farmland by 2030.

Simple Mills

Our Mission

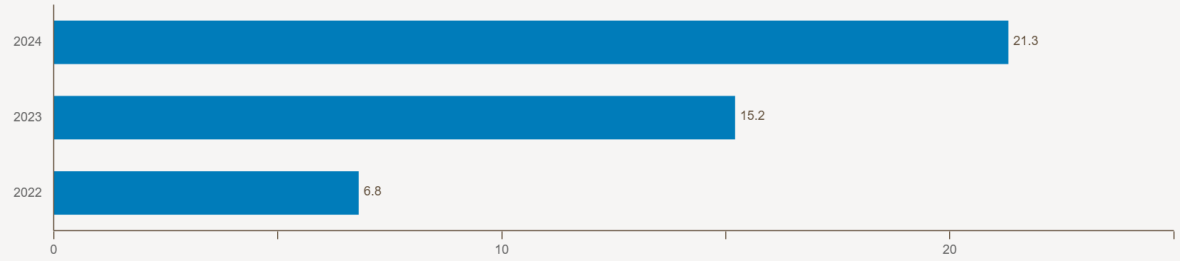
We know food has a big impact on people and our planet. And, as a food company, we're uniquely positioned to leverage food as a vehicle to advance the health of people and the planet.

We are on a journey to revolutionize food design in a manner that advances regenerative agriculture principles, elevates farmers, empowers eaters, and inspires others so that our food system can nourish people and our planet now and for generations to come.

Nestlé Good food, Good life

Key ingredients sourced from farmers adopting regenerative agricultural practices

Percentage



Note: In 2024, the following ingredients are included in the numerator: dairy (fresh milk and dairy derivatives), coffee (excluding blended green coffee and Blue Bottle Coffee), cocoa, cereals and grains, soy and vegetables. The denominator includes all raw materials in scope: coffee (excluding blended green coffee and Blue Bottle Coffee), cocoa, dairy (fresh milk and dairy derivatives), sugar, cereals and grains, meat, poultry and eggs, palm oil, soy, vegetables, fish and seafood (excluding co and byproducts).

Analysis Methodology

- Three frameworks (SAI Platform's Regenerating Together, RegenScore, and CDFA's definition) were chosen as reference points because they were most relevant to perennial systems like almonds and for crops in California.
- The principles, outcomes, and practices from each regenerative agriculture program were reviewed and aligned to generate a framework of regenerative categories and practices.
- This framework was used to identify corresponding practices within the CASP self-assessment.

Category		Practice	Definition Alignment		
			SAI Platform's Regenerating Together	RegenScore	California Department of Food & Agriculture
Biodiversity	2.1	Ecosystem management plans and easements	x		x
	2.2	Maintain margin vegetation	x	x	
	2.3	Bird boxes and perches		x	
	2.4	Pollinator habitat		x	x
	2.5	Hedgerows	x	x	x
	2.6	Riparian buffers 6% of orchards indicated that a water body was onsite.	x	x	x
		Crop Rotation	x	x	
		Intercropping		x	

Regenerating Together Programme BY SAI PLATFORM

RegenScore™

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Adoption Trends and Analysis

- For each regenerative practice, specific CASP questions or groupings of questions were aligned, and responses were used to determine adoption status.
- In most cases, adoption was marked “Yes” if one or more related practices were implemented, with some practices including additional conditions or exclusions based on applicability of the practice.
- In some cases, the alignment was with a single CASP question (e.g., groundwater recharge) and in others with a set of questions (e.g., irrigation improvement continuum).

Example: Organic Soil Amendments

ID	CASP Practice
511	Were the following sources of nitrogen used in this orchard in the past year? --NS-09. compost
7	NS-27. Were organic soil amendments (e.g., compost) used to stabilize soil by increasing moisture retention and reducing compaction?
913	Subset IM-38. Have organic soil amendments periodically been applied or has between-row ground cover (pre-existing or planted) been intentionally grown to improve water penetration and moisture retention?
24	EA-20. Were prunings used productively (e.g., chipped or composted and used on-site, used for energy generation or used on unpaved roads) and not burned?

Calculation Approach: Orchards considered to be using organic soil amendments if they use any of the four practices listed.
1.2. (organic soil amendments), is considered as “Yes” if 511, 7, 913, or 24 are “Yes.”

Practices Identified

- 5 categories and 20 key regenerative practices were identified.
- Italicized practices indicate topics that are commonly associated with regenerative but either not applicable to almonds, not measured, or currently not recommended.
- Some regenerative practices have subtopics under them with breakout stats available – indicated by topics in parenthesis.

Category	Regenerative Practices
Soil Health	Cover crops (resident cover, planted cover) Organic soil amendments (compost, pruning recycling) Whole orchard recycling Reduced tillage Reduced passes Reduced wind erosion *Livestock integration* *Perennial cropping*
Biodiversity	Ecosystem management plans and/or easements Maintain margin vegetation Bird boxes and perches Pollinator habitat Hedgerows Riparian buffers *Intercropping* *Diversified crop rotation*
Water	Groundwater recharge Microirrigation (efficient irrigation management)
Input Efficiency	Optimized nutrient management Integrated pest management (key pest specific IPM) Energy conservation Onsite renewable energy (solar, wind, biogas)
Community	Competitive compensation and professional development Community contributions (charitable giving, volunteering, community activity participation)

Adoption Rates in 2024

- Generally high adoption rates in all categories.
- **75% of orchards** (2,217 out of 2,836) representing 189,000 out of 233,000 acres in 2024 **reported implementing at least one practice in each regenerative category.**
  - Practices 3, 5, 8, 11, 12, and 19 have a 'Not Applicable' option. Adoption rates are shown out of applicable orchards.
- From 2020 to 2024, 8 practices maintained adoption rates above 90%, and 3 saw gains of at least 5%.

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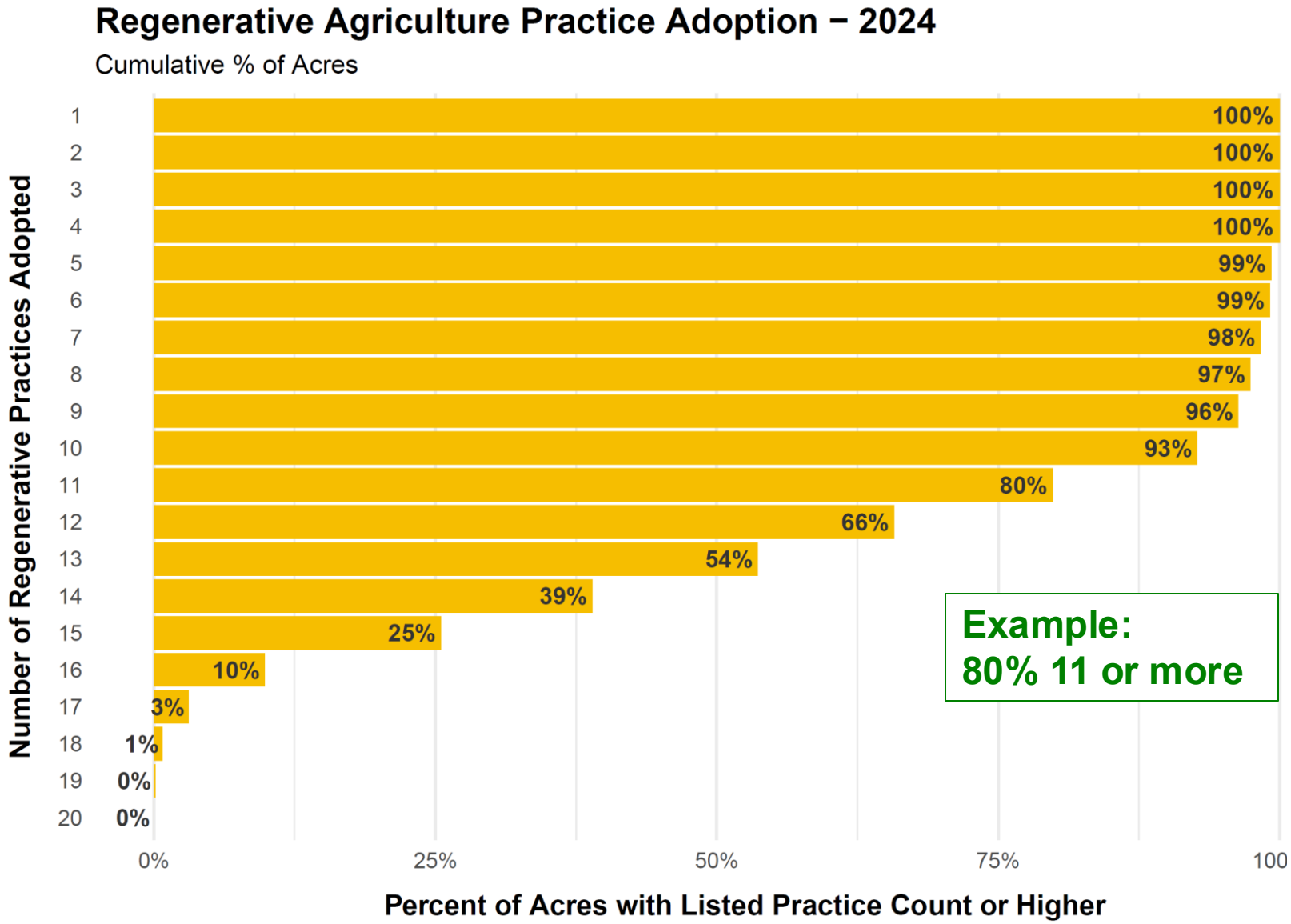
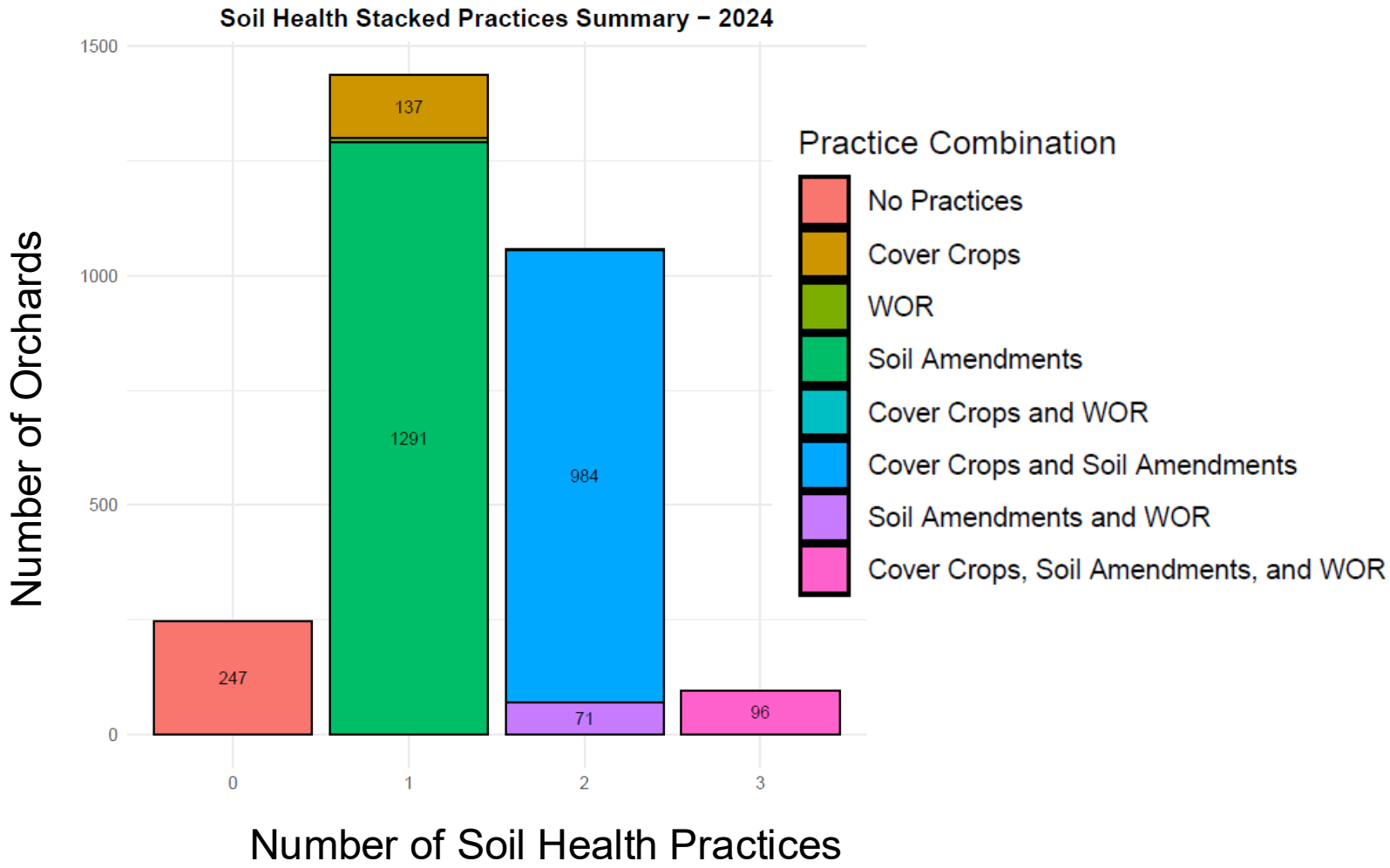
Aggregate Results

- Almost all assessed orchards/acres in 2024 reported implementing 6 or more regenerative practices
- **More than three quarters (80%) of orchard acres assessed in 2024 reported 11 or more regenerative practices**
- Example of commonly adopted practices:
  - Energy conservation
  - IPM
  - Reduced passes
  - Optimized nutrient management
  - Community contributions
  - Reduced wind erosion
  - Organic soil amendments
  - Microirrigation



Stacking Analysis – Soil Health

- 37% of orchards (1,057 of 2,836) reported stacking of two or more key soil health practices (cover crops, organic soil amendments, whole orchard recycling).
- Most common combination was to add cover crops to soil amendments



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**, making it the single **most impactful** known approach to **on-farm carbon capture**.*[1]

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

42% of orchards grow **cover crops**

- 23% **resident cover**
- 19% **planted cover**

*California'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

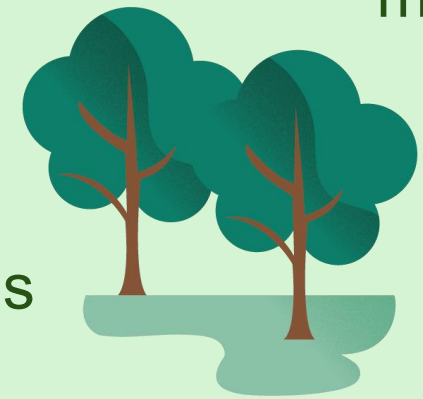
Source: Regenerative Agriculture Practice Adoption in California Almonds: Analysis of 2020-2024 Grower Self-Assessment Data. CASP. 2025. | [1] California Air Resources Board. An Inventory of Ecosystem Carbon in California's Natural & Working Lands. 2020. [2] Emad Jahanzad, et al. Orchard recycling improves climate change adaptation and mitigation potential of almond production systems.PLoS ONE. 2020.

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 Farming-certified farms **are almond farms**.[1]*

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

Source: Regenerative Agriculture Practice Adoption in California Almonds: Analysis of 2020-2024 Grower Self-Assessment Data. CASP. 2025. | [1] Pollinator Partnership. January 2023.

WATER

88% of orchards use **microirrigation** (drip or microsprinklers), **conserving water** as they irrigate their orchards

*That's **well above** the norm: **56% of farms statewide** use microirrigation.[1]*

Conservation is a way of life in California almond orchards.

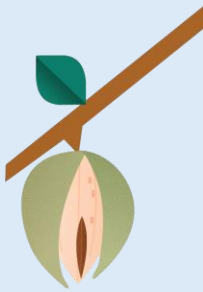
To **save water** and **reduce waste**,

- **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

*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.[2]*



Source: Regenerative Agriculture Practice Adoption in California Almonds: Analysis of 2020-2024 Grower Self-Assessment Data. CASP. 2025. | [1] USDA. Irrigation and Water Management Survey. 2023. [2] UC Davis. Department of Agricultural and Resource Economics. Sample Cost Study– Alfalfa Hay. 2020.

INPUT EFFICIENCY

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

*By comparison, **25% of California farms overall** use solar power.[1]*

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

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

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

- **winter sanitation**
- **mating disruption**

Source: Regenerative Agriculture Practice Adoption in California Almonds: Analysis of 20202024 Grower Self-Assessment Data. CASP. 2025. | [1] USDA. Census of Agriculture.

COMMUNITY

*California's almond industry is made up of **7,600 farms**, **90%** of which are **family farms** and **70% 100 acres or less**. The average **U.S. farm size** is **466 acres**.*[1]

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

93% of orchards are run by farmers who actively **support their communities** by volunteering, charitable giving or participating in community activities

*The California almond industry generates **108,000 jobs**, 100,000 of which are in the **Central Valley**, an area with historically high unemployment.*[2]

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

- **80%** give to charities
- **79%** volunteer in their communities

serving on boards or volunteering with community organizations and programs

Source: Regenerative Agriculture Practice Adoption in California Almonds: Analysis of 2020-2024 Grower Self-Assessment Data. CASP. 2025. | [1] USDA. Census of Agriculture. 2 UC ANR. Contributions of the California Almond Industry to the California Economy. 2020.

RESEARCH INSIGHTS

TANYA GEMPERLE-GONCALVES

CULTIVATING A HEALTHIER FUTURE

Journey Towards Regenerative Almond Production:
What the Research Tells Us

Tanya Gemperle-Goncalves, UC Davis, Gaudin Lab
tgemperle@ucdavis.edu

Highlighting research from V. Wauters, T. Fenster, K. Marshall, A. Gaudin, and other UC and Extension folks

UCDAVIS
AGROECOLOGY | GAUDIN LAB

MY JOURNEY:
FARMER TO RESEARCHER

Family operation:
Rich Gemperle & Victor Goncalves

1800 acres of almonds in
Stanislaus and Merced counties

CALIFORNIA ALMONDS: SOMEWHERE ON THE JOURNEY

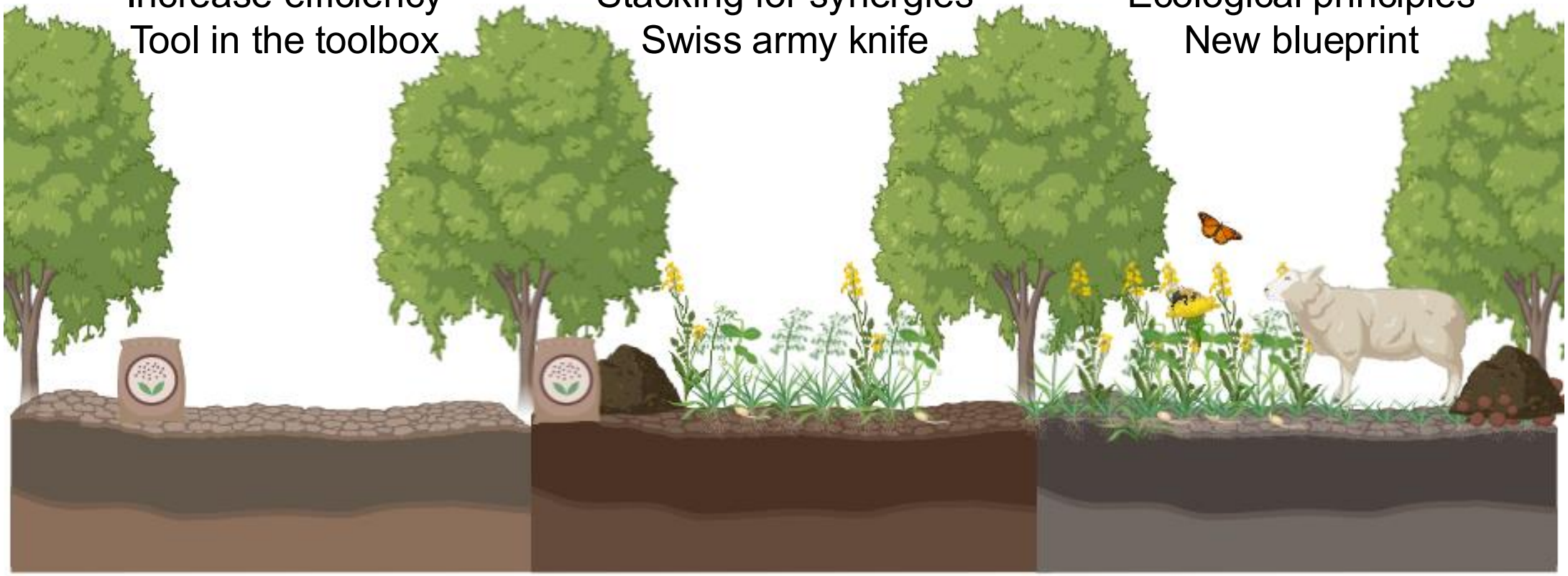
California almond orchards exist across a range of systems

Tweaking and iterations

One practice:
Increase efficiency
Tool in the toolbox

Multiple practices:
Stacking for synergies
Swiss army knife

System redesign:
Ecological principles
New blueprint



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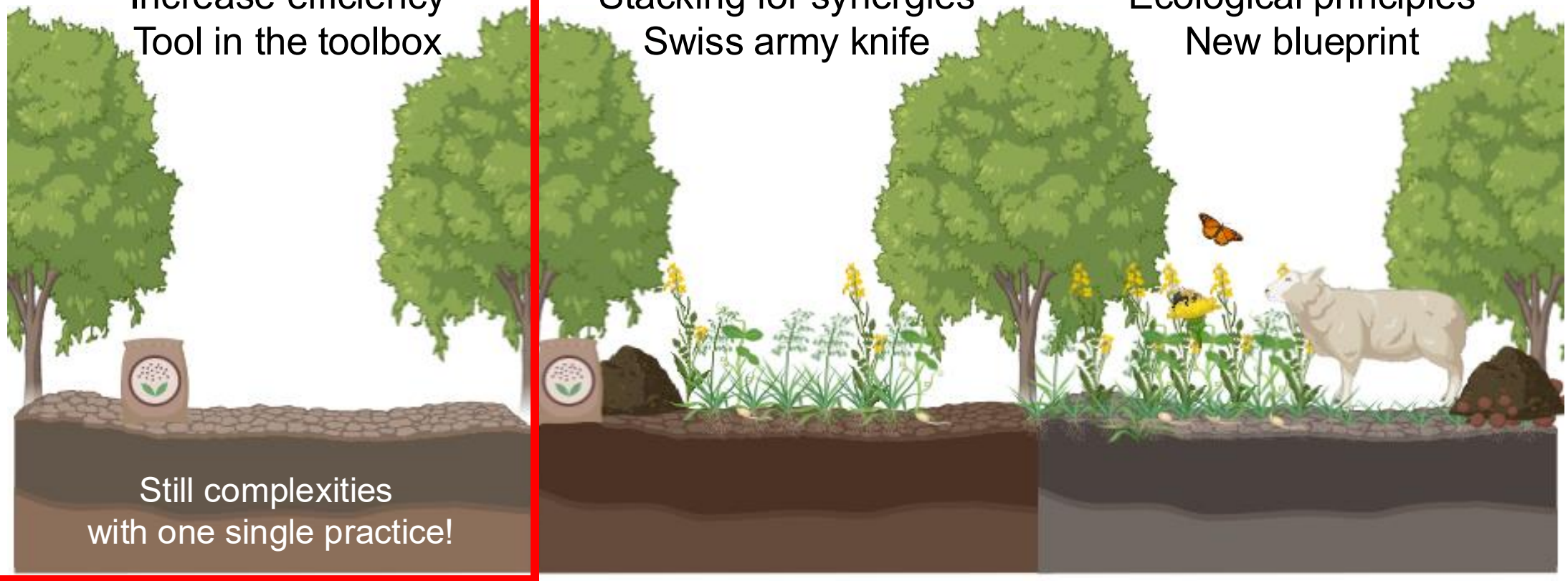
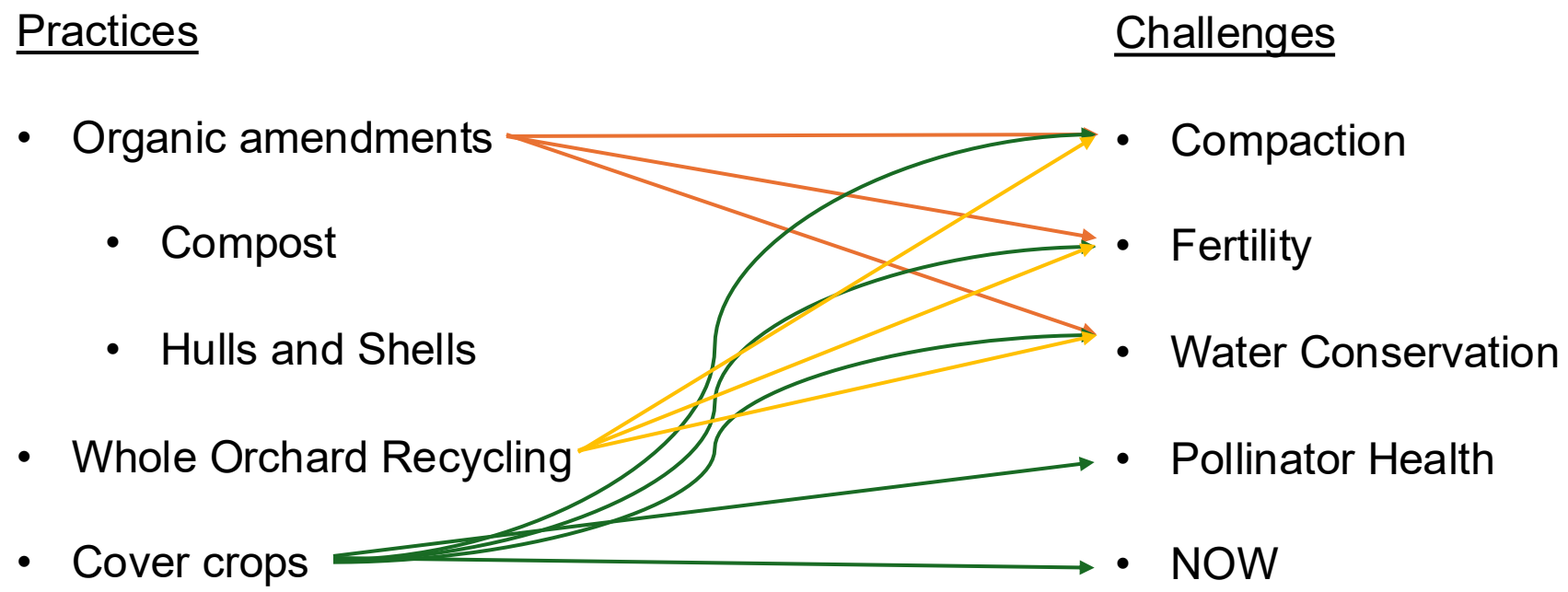


BENEFITS OF SINGLE PRACTICES

Focus on solving a specific challenge



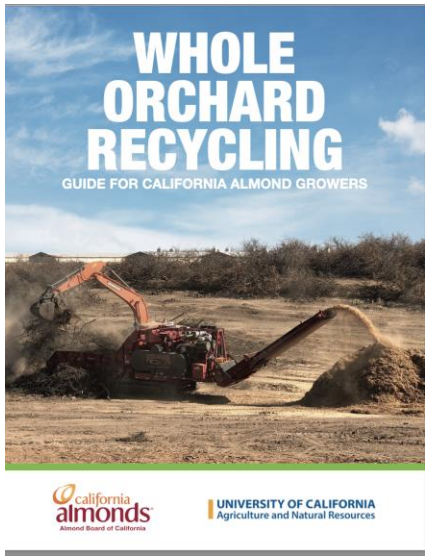
COMPOST & HULLS AND SHELLS

After 2-3 years, compared to unamended:

- Short term soil fertility
  - N/P Nutrient management guidelines
  - Hulls and shells = Potassium (80%)
- Increases in soil organic carbon
  - Associated benefits (CEC, topsoil volumetric water content – stem water potential)
- More biological activity, fungi dominated
- Hulls and Shells mulch effect : lower soil evaporation; higher water infiltration

Leptch et al_2019
Villa et al_2021
Khalsa et al_2021
Andrews et al_2023
Andrews et al_2024

WHOLE ORCHARD RECYCLING



After 9 years, compared to burned:

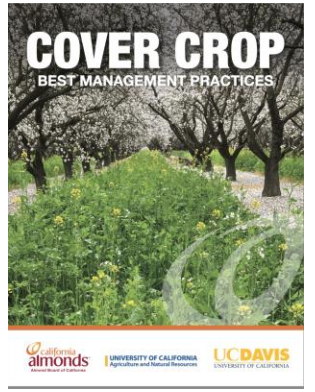
- Greater water holding capacity (+32%)
- Doubled infiltration rate
- Reduced soil compaction (-%14)
- Improved soil aggregation (+%19)
- Lower tree water stress
- + 20% yield benefits under deficit irrigation
- Reduces nitrate leaching potential by 52%
- Increased tree size (+32% after yr 1) and leaf tissue nutrients

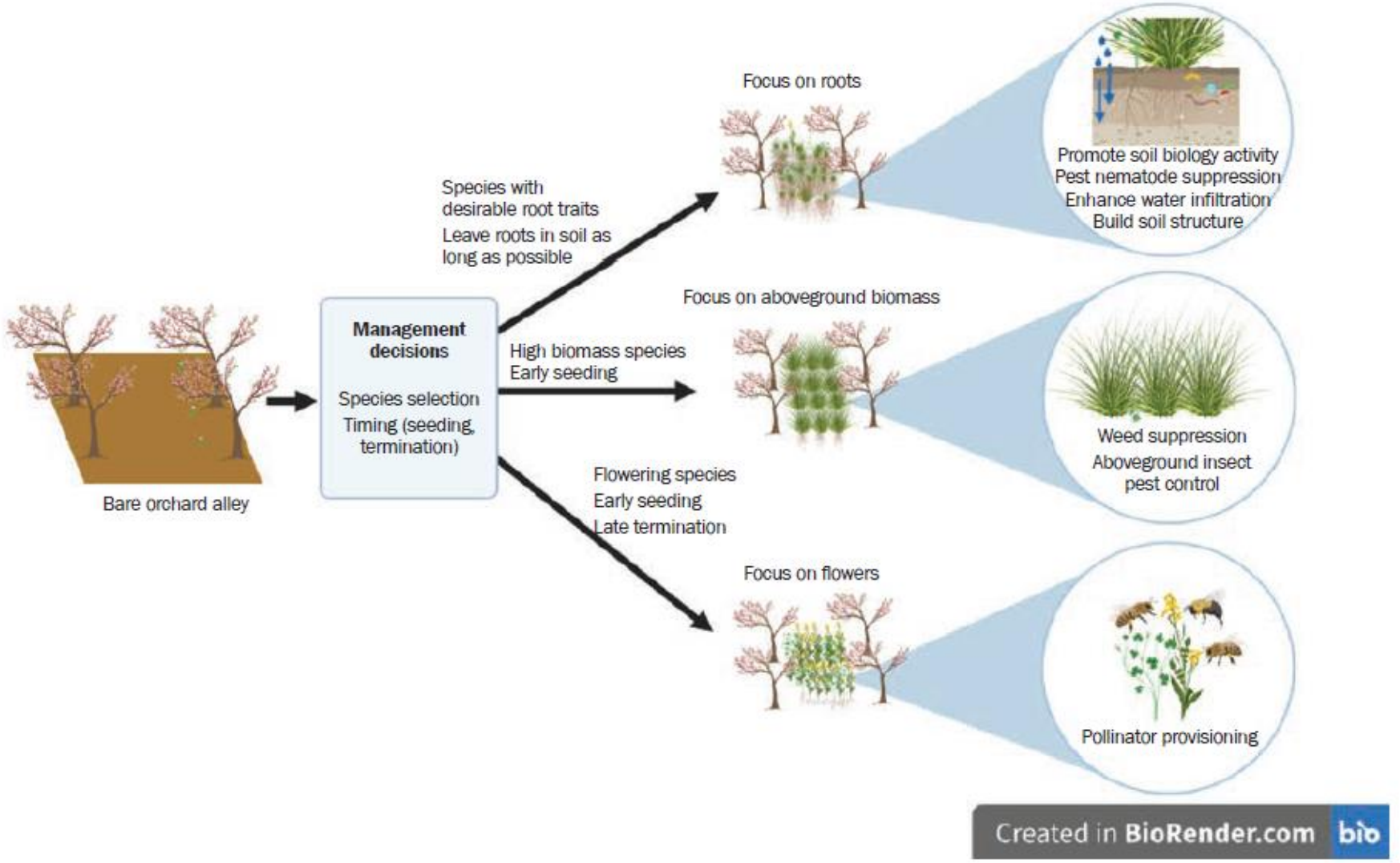
- No yield tradeoffs if you follow fertilization guidelines
- Low pest/disease potential

Jahanzad et al_2020
Jahanzad et al_2022
Holtz et al_2017
Culumber et al_2024

https://orchardrecycling.ucdavis.edu

COVER CROPS: IMPACTS VARY WITH MANAGEMENT





Wauters et al. (2023). Journal of Soil and Water Conservation, 78(1). https://doi.org/10.2489/jswc.2023.1109A

COVER CROPS CAN:
IMPROVE WATER INFILTRATION, ENHANCE SOIL FERTILITY, IMPROVE SOIL STRUCTURE

Living roots and soil cover:

- In-season increases in water infiltration
- Do not necessarily use more water
- Labile C and N pools
- More biological activity , more diverse soil ecosystem
- Aggregation (+22%),
- Compaction (-41%)
- No increases in SOM or SOC

Wauters et al_2023
DeVincentis et al_2020
Wilson et al_2023
Wauters et al_2024
Flynn et al_2024
Haring et al (2022-2024)

COVER CROPS CAN: SUPPORT POLLINATORS AND AID IN PEST CONTROL

Photo: Houston Wilson

After 4 years, compared to bare soil:

- No yield lags
- Forage for pollinators- led to increased colony strength after bloom
- No change in honey bee visitation to almond flowers
- Weed suppression
- Reduce NOW spring emergence and egg deposition
  - Increase decomposition of mummy nuts
  - Microbial community and natural enemy activity

Lundin et al_2017
Wauters et al_2023
DeVincentis et al_2020
Wilson et al_2023
Wauters et al_2024
Flynn et al_2024
Haring et al (2022-2024)
Mayack et al_2025

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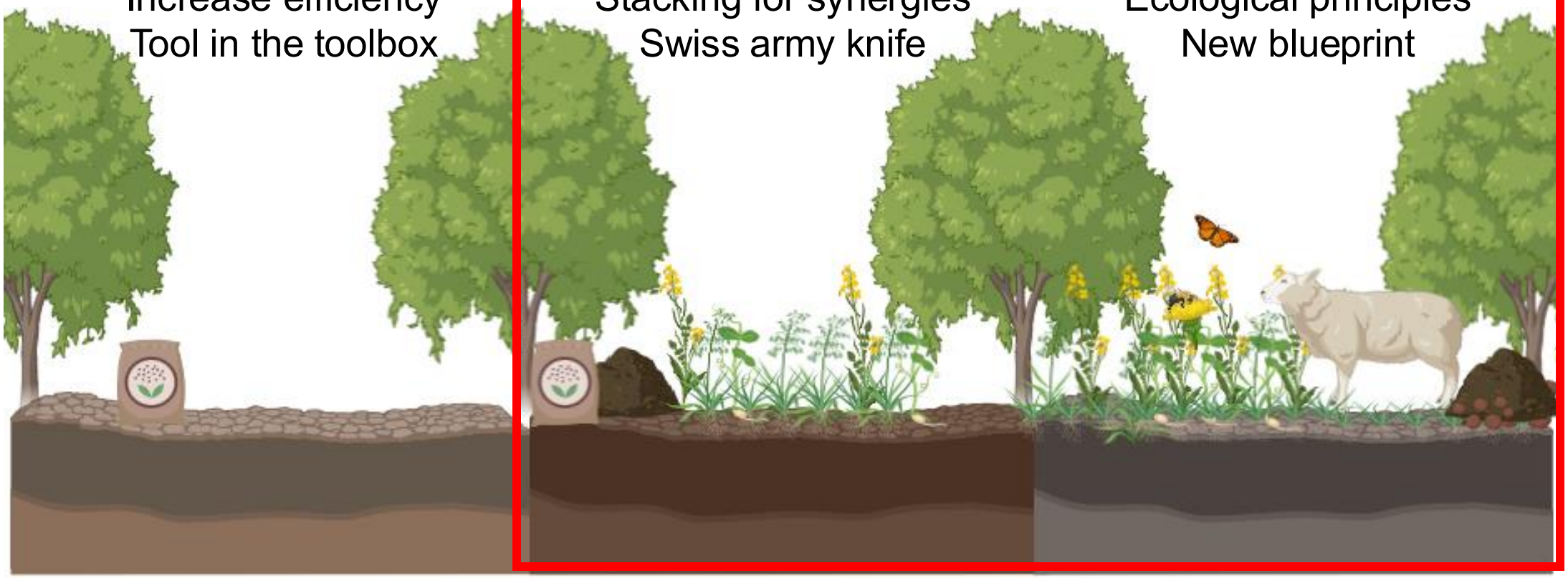
Ecological principles
New blueprint



Moving from cover crops to stacked practices in regenerative systems

- 12 almond orchards- Similar soil type and texture (Yolo silt loam)
- Along a management gradient-
  disturbance, cover (space and time), organic matter inputs, plant and animal diversification
- None, few, or stacked adoption of soil health and diversification practices

Diverse and stacked application is the most effective strategy to enhance soil health

Full stacking with animal integration had the most positive outcomes

- Lowest compaction
- Most total soil carbon
- Highest nutrient cycling and availability

(top 30 cm of soil in the alleys)

Marshall et al_2025_Applied Soil Ecology

REGENERATIVE ALMOND PRODUCTION

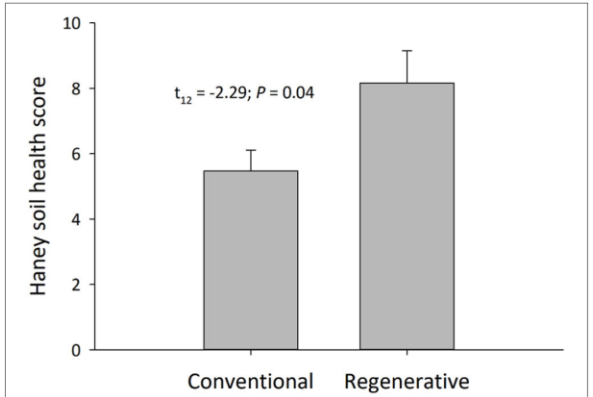


FIGURE 1 | Haney soil health scores in regenerative and conventional almond orchards (mean ± SEM, N = 16 orchards; Welch's two-sample t-test; α = 0.05).

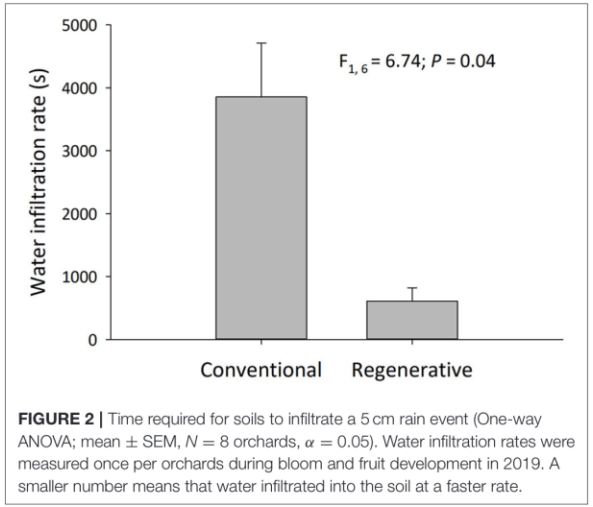


FIGURE 2 | Time required for soils to infiltrate a 5 cm rain event (One-way ANOVA; mean ± SEM, N = 8 orchards, α = 0.05). Water infiltration rates were measured once per orchards during bloom and fruit development in 2019. A smaller number means that water infiltrated into the soil at a faster rate.

When compared with paired conventional orchards, regenerative orchards had:

- Higher soil health scores
- 6x faster infiltration
- Greater microbial biomass
- Greater insect biomass and diversity
- Greater earthworm abundance and biomass

- No one practice responsible

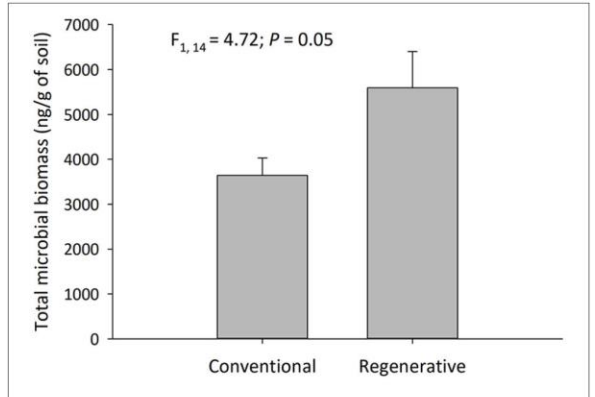


FIGURE 4 | Total microbial biomass collected from the soil in regenerative and conventional almond orchards (mean ± SEM, N = 16 orchards, α = 0.05). This sampling occurred during the fruiting period.

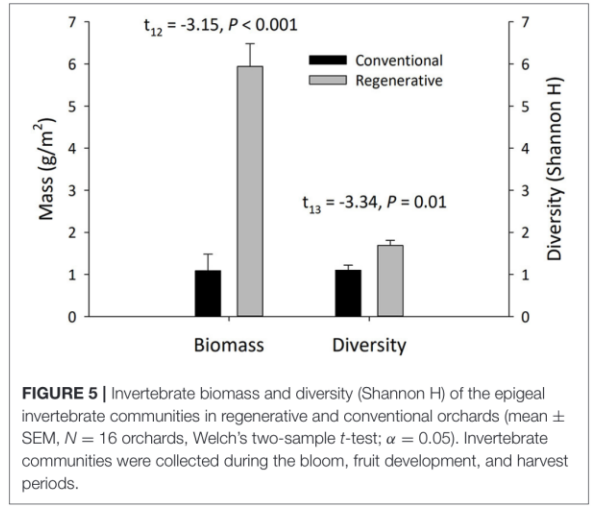


FIGURE 5 | Invertebrate biomass and diversity (Shannon H) of the epigeal invertebrate communities in regenerative and conventional orchards (mean ± SEM, N = 16 orchards, Welch's two-sample t-test; α = 0.05). Invertebrate communities were collected during the bloom, fruit development, and harvest periods.

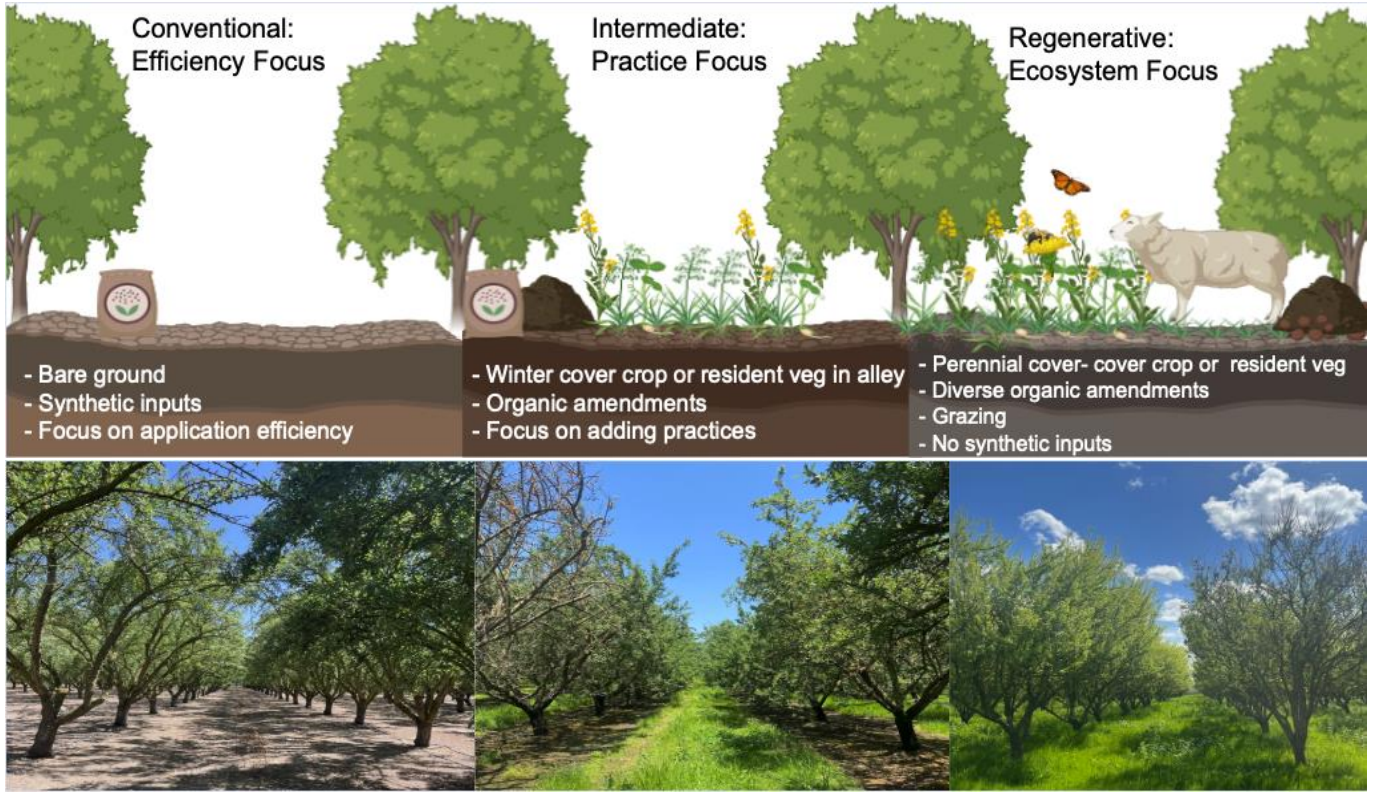
Fenster et al_2021_Frontiers in Sustainable Food Systems

Multifunctionality and systems outcomes

Benefits and tradeoffs of regenerative models for Almond production

Commercial orchard survey

Three levels of stacked practices being evaluated in commercial orchards



Demonstration Trial in commercial orchard

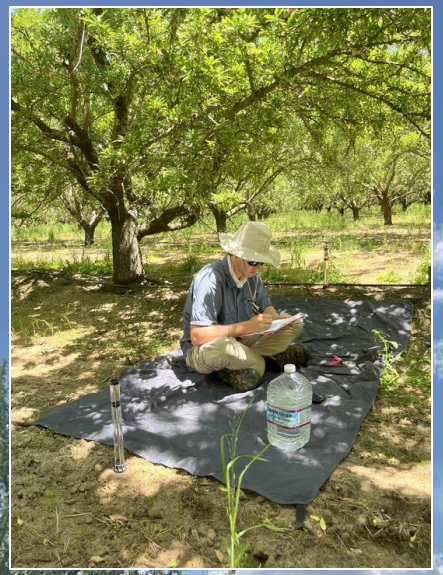
Orchard redevelopment

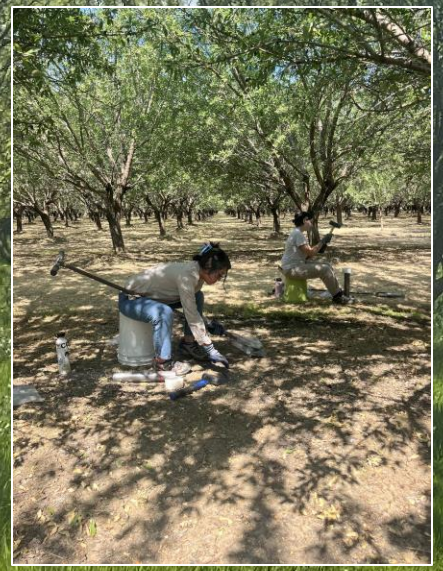
- WOR + biochar treatment plots
- Soil Health treatment plots
  - Compost and cover crops

Ellie Coon | Masters student
Tanya Gemperle | PhD Student
Evelyn Perez-Agredano | PhD student

Sat Darshan Khalsa
Ceres

USDA NIFA
FFAR
california almonds





Benefits / tradeoffs
Management info

$$

Data collection

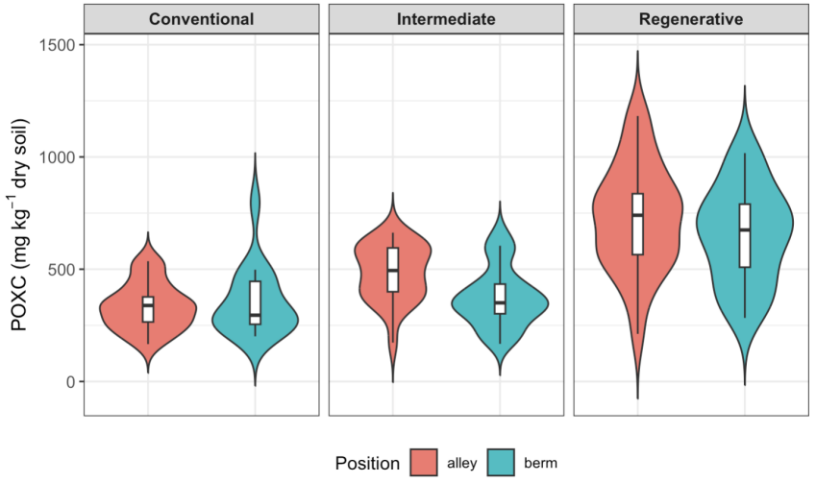
- 2 years of data
- 30 sites
- 10 triads (3 sites)
- Chico to Merced

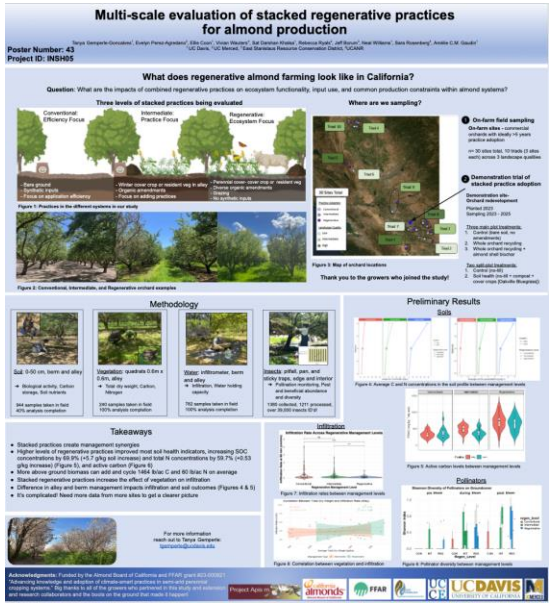
Preliminary Results

Orchards with more stacked practices had…

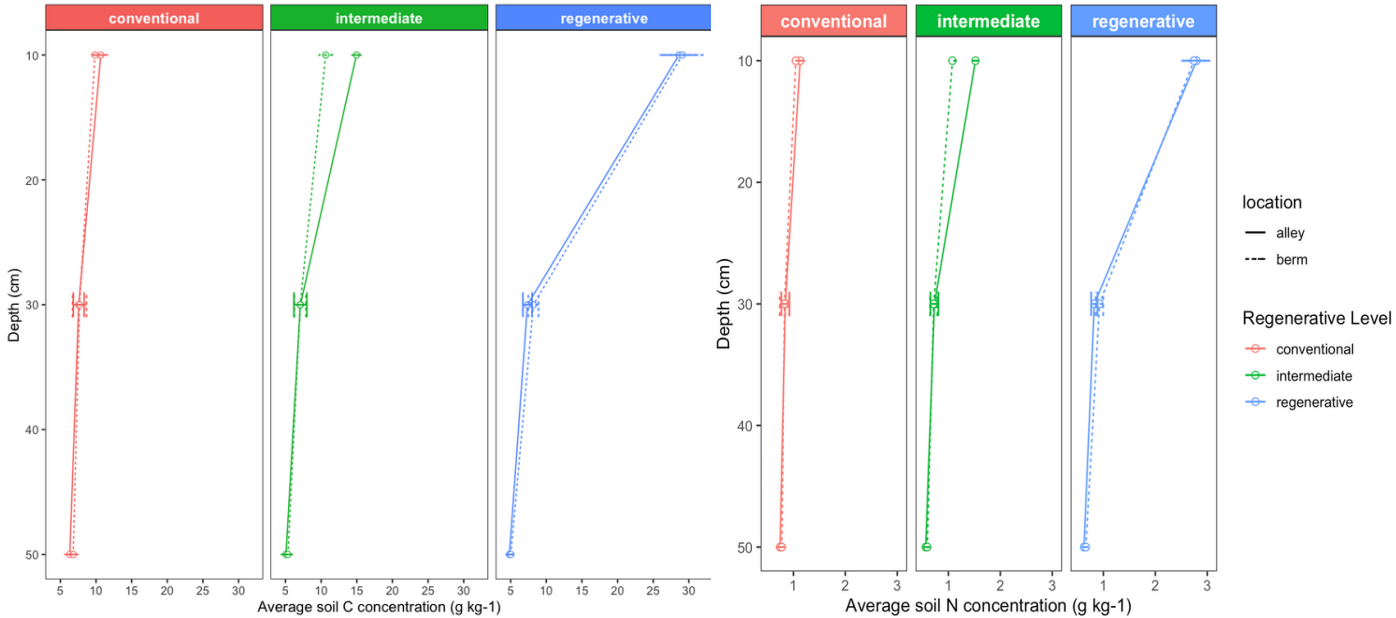
Soils:

- Lower bulk density
- Increased SOC concentrations by 69.9% (5.7 g/kg increase)
- Increased total N concentrations by 59.7% (0.53 g/kg increase)
- Increased active carbon





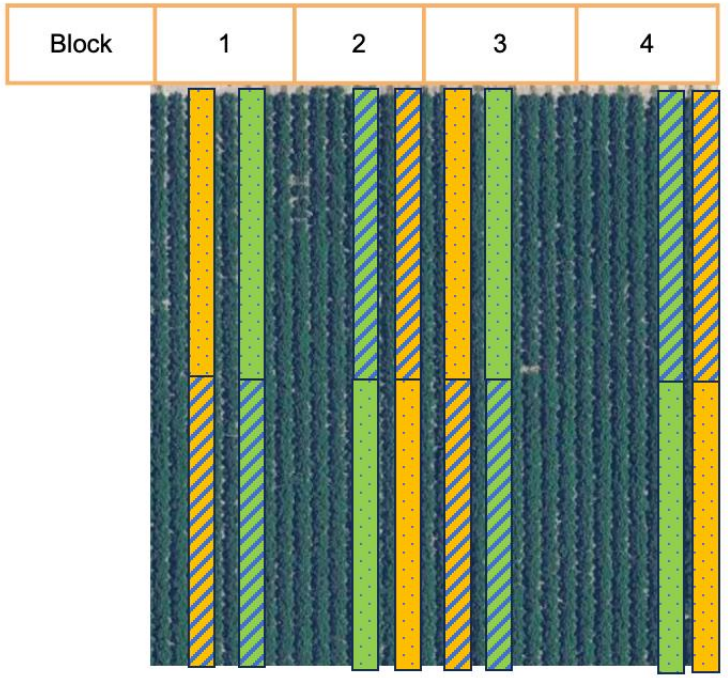
See us at poster #43

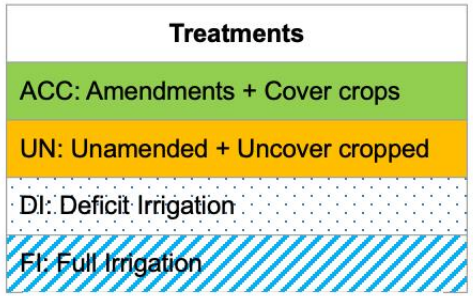


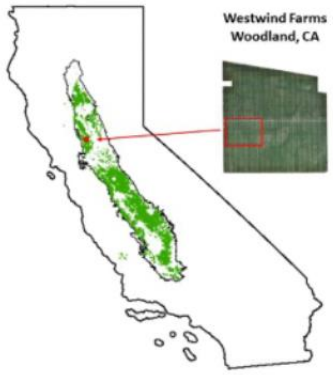
Tanya Gemperle | PhD Student,

Upcoming research:

Can we reduce irrigation without affecting yields in an orchard with a history of regenerative practices







- Regenerative practices treatments- 5 years (Hull and shell amendments and Cover crops)
- Split between Full irrigation and Deficit irrigation treatments
- Will monitor tree water uptake, tree water status, and soil hydraulic properties over 2 irrigation seasons (2026 and 2027)

General Mills

california almonds

ALMOND CONFERENCE 2025

LAST THOUGHTS

KEY ENABLERS

- Off-ground harvesting
- Groundwater Recharge
- Research on commercial farms / trials
- Successful models- innovation and knowledge sharing
- Support in transitioning

ECONOMIC IMPLICATIONS

- Different Sales
- Can high-cost inputs be avoided?

SOCIAL IMPLICATIONS

- Different values systems
- Orchard is more pleasant- nicer to work in
- Succession

ALMOND CONFERENCE 2025

Join the Conversation

What are we missing?
What should we be thinking about?

tgemperle@ucdavis.edu

Come say hi
Poster #43

THE ALMOND CONFERENCE 2025

GROWER INSIGHTS

SILAS ROSSOW

CULTIVATING A HEALTHIER FUTURE

Past - 2005

Dos Palos to Cal Poly

Driving Tractor, Irrigating, Beef Cattle, Whatever my Dad told me, Learned how to Learn

2005-2007

Dairy Farm Manager

Strip Till Corn, Focused Nutrition Applications for Forage Crops, Almonds, Sugar Beets and Tomatoes, 15,000 acres

2008 - Present

CAS - CEO/ Agronomist

Plant and Soil Nutrition, Irrigation Management, Specialized Equipment Design, Farm Profitability Analysis

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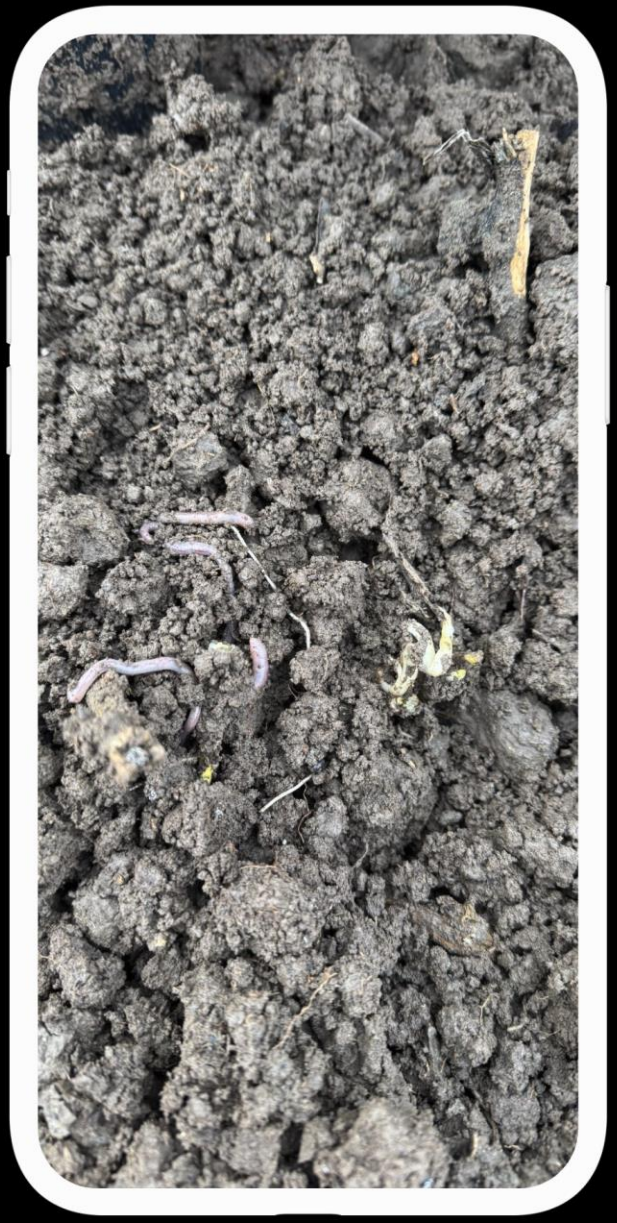
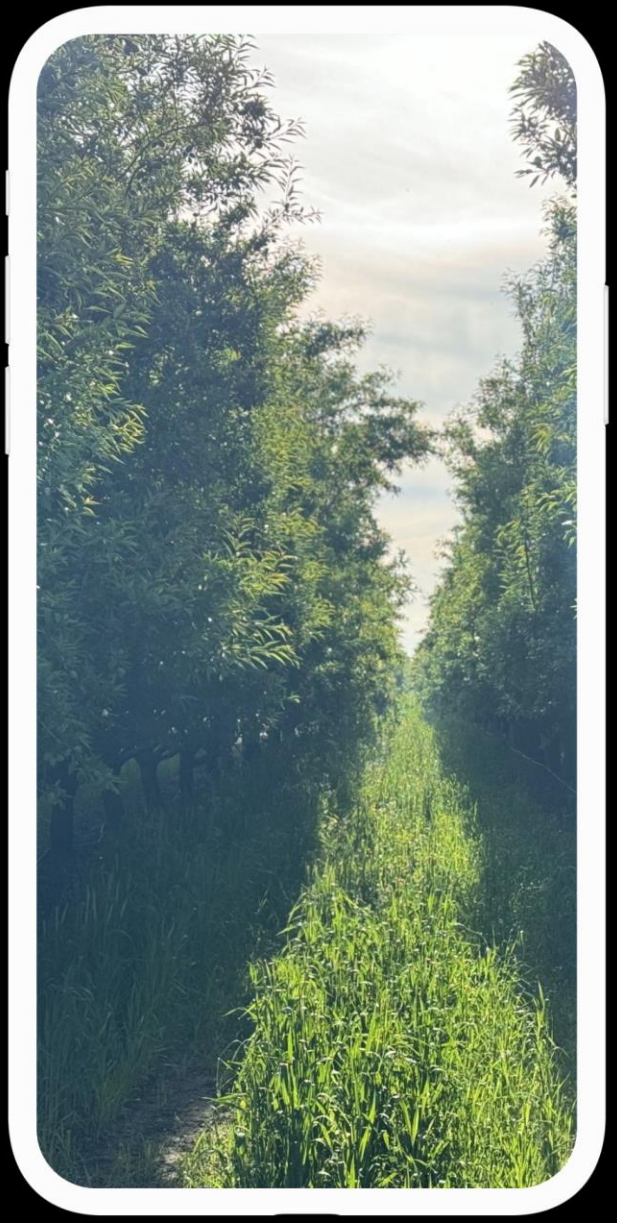


Improvement



Stewardship

Development

Top 3 things I learned From a Decade of Failures and Successes with Regenerative Agriculture

1. Maximize Biodiversity
    a. Multi Species Cover Crops
    b. Compost
    c. Biological Additives
2. Reduce Disturbances
    a. Try less _____ and measure the systems response
    b. Ask why you apply a product – learn what it does
3. Community is Everything
    a. Find other growers with similar mindsets
    b. Learn from each other
    c. Challenge each other

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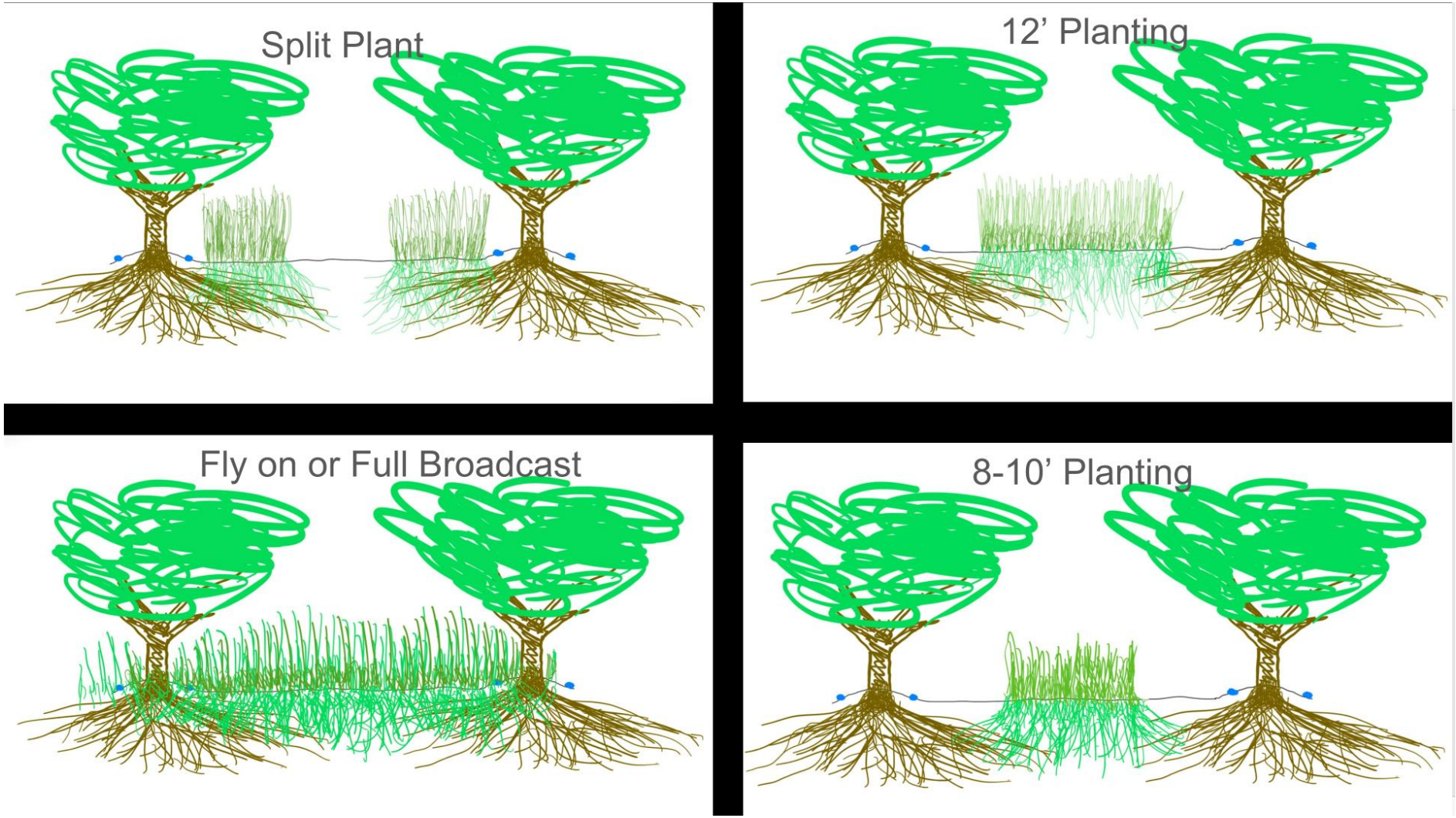
COVER CROP PLANTING STRATEGIES



No Rain for 45 days

March 2022

A more normalish year of rain

March 2021

Same Seed Mix

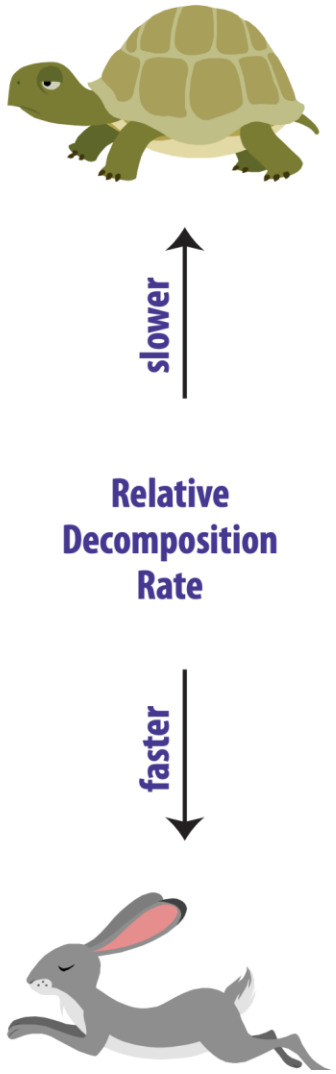
TERMINATION PLAN

Chemical, Tillage, Grazing, Mowing

BEGIN WITH THE END IN MIND

Soil Microbes Eat First

Material	C:N Ratio
rye straw	82:1
wheat straw	80:1
oat straw	70:1
corn stover	57:1
rye cover crop (anthesis)	37:1
pea straw	29:1
rye cover crop (vegetative)	26:1
mature alfalfa hay	25:1
Ideal Microbial Diet	**24:1**
rotted barnyard manure	20:1
legume hay	17:1
beef manure	17:1
young alfalfa hay	13:1
hairy vetch cover crop	11:1
soil microbes (average)	8:1



https://soilhealth.ucdavis.edu/application/files/6715/4222/0656/USDA_C_to_N_ratios.pdf

REDUCE DISTURBANCES

Every pass and every aggressive chemistry decision is a disturbance:

- Too much fertilizer (N, P, K, Zn)
- Too many passes (mower, disk, sprayers)
- Too many …..

If you are going to reduce something you have to **measure** the success or failure

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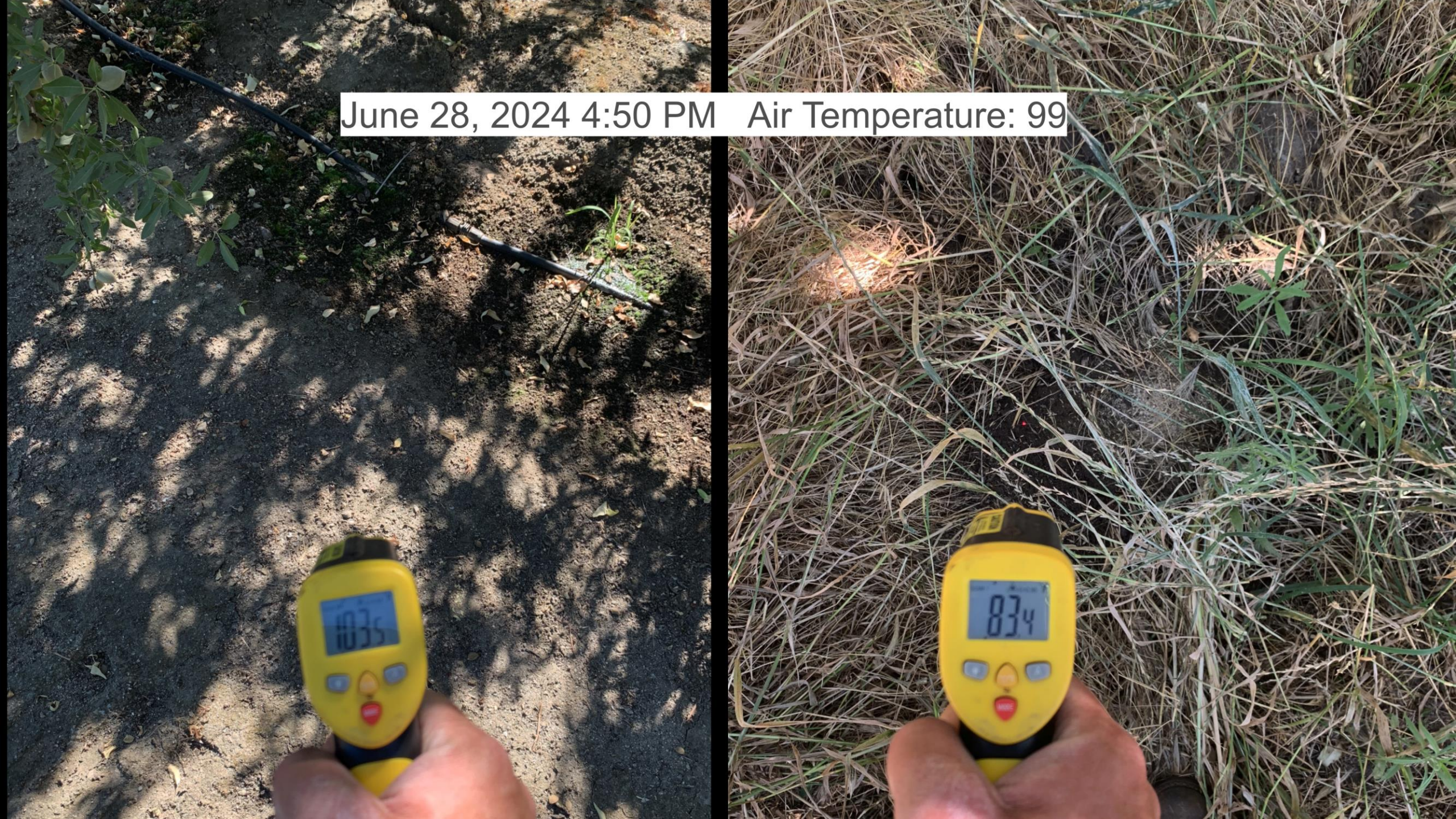

June 28, 2024 4:50 PM Air Temperature: 99
103.5
83.4

Find or Create Community

Farmer Ag Network

https://farmeragnetwork.org/

Regenerative Tree Nut Field Day

https://burroughsfamilyfarms.com/pages/regenerative-almond-field-day

California Ag Solutions – Field Days

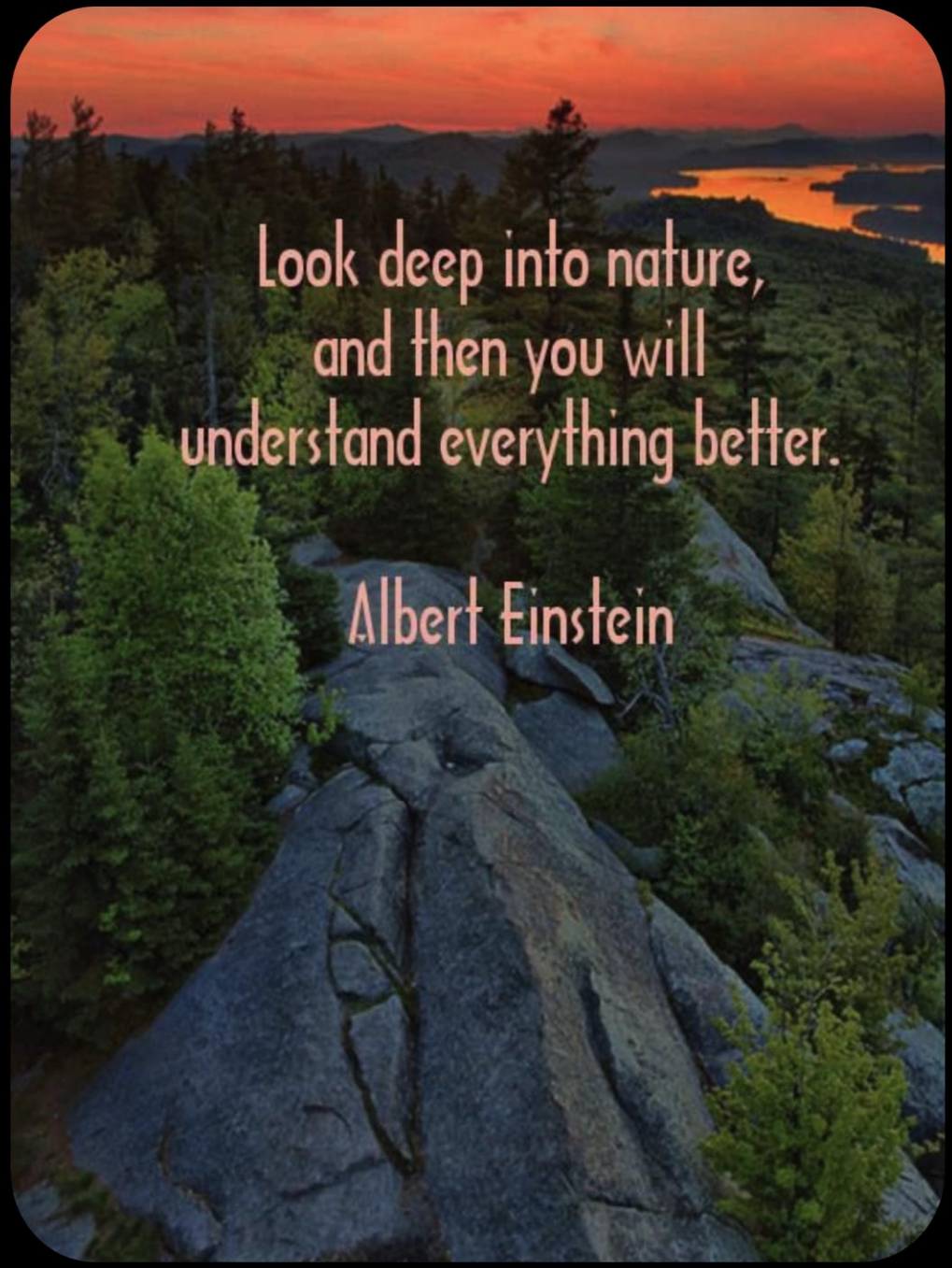
https://www.calagsolutions.com/events

Plan

Do

Check

Act



Thank You

silas@calagsolutions.com

CULTIVATING A HEALTHIER FUTURE

THANK YOU!

2025 THE ALMOND CONFERENCE

CULTIVATING A HEALTHIER FUTURE