



CARBON MARKETS - A ROLE FOR ALMONDS?

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Carbon & Ecosystem Services Markets: A Role for Almonds?

Rooted in Success: The Almond Conference 2021

December 8, 2021

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Topics

- Carbon Market Basics
 - Compliance carbon markets
 - Voluntary carbon markets
 - New programs, New instruments
- Sudden Growth in Carbon Markets: Net Zero
- Carbon Markets in US
- What Almond Producers Need to Know



Carbon Market Basics

- **Genesis of carbon markets**
 - 192 countries signed 1992 United Nations Climate Accord and began setting climate goals
- **Carbon markets**
 - created as mechanism to drive required reductions cost-effectively and from multiple sources
 - Capital-intensive sectors can invest in projects in less capital-intensive sectors for less cost
 - Industrialized countries can invest in less industrialized countries: 'leapfrog' & less cost
- **Carbon Credits**
 - created when a project reduces 1 tonne of GHG emission ("reduction credit") or sequesters 1 tonne of carbon out of the atmosphere ("removal credit")
- **Carbon Offset Credits**
 - credit generated by a project to offsets an emission released elsewhere
 - can cross sectoral boundaries
 - Can cross country borders
- **Carbon Inset Credits**
 - new credit type, generated by a project inside a company's supply chain
 - Absolute emissions reductions: no emission released elsewhere
 - Not tradeable, does not cross sectoral or country borders



How do Carbon Markets Work?



DEMAND: Countries and corporations have voluntary (and in some cases mandatory, like EU, Canada, and within the US, California and RGGI) commitments to reduce annual GHG

- They can reduce emissions through their own inventories, such as using renewable energy, creating industrial and/or manufacturing efficiencies, etc.)
- And, they can purchase lower cost emissions reduction *credits* achieved by other sectors that don't have commitments or that have generated extra reductions.

SUPPLY: 1 C credit = 1 ton of CO₂e from a source that sells that credit to another, who claims it as a reduction in *their* GHG inventory

Carbon Market Basics



Compliance Markets

- Government-regulated markets
 - European Union: EU Emissions Trading Scheme (ETS)
 - China: National Emissions Trading Scheme
 - 11 US States: Regional Greenhouse Gas Initiative
 - California: Cap-&-Trade Program
- Trade carbon offsets only (reductions and removals), not carbon insets
- Carbon offset credits are used by companies to compensate for emissions that occur within their operations, and can be traded and sold between sectors
 - e.g. energy sector can purchase offset credits created in agriculture sector
 - Creates boundary and attribution issues



Carbon Market Basics



Voluntary Markets

- Not government regulated and no government boundary restrictions
- Greatest use is by private corporations with voluntary GHG commitments and targets
- Includes “traditional” carbon offset credits and *new* instrument, carbon inset credits
- Carbon insets are different instruments: differ from offsets in important ways:
 - Carbon insets credits are created from projects that occur within a corporation’s *supply chain*
 - Carbon insets are not tradeable between companies, or across sectors (e.g. energy sector cannot buy inset credits from agriculture sector)



Why the Sudden Growth in C Markets?

And interest in agriculture credits?

- **Increased *and* new** demand for carbon credits from private sector corporations
 - 2015 Paris Accord: Net Zero Commitments
 - Estimated \$100B in demand for carbon offset credits by 2030*
 - Food and beverage corporations GHG inventories of 90% or more from **agricultural supply chains**: has created significant focus on agricultural GHG emissions, and emissions reductions, and market opportunities for agriculture



What is *Net Zero*?

- Net Zero is defined as achieving a *balance* of greenhouse gases (GHG) or carbon going into the atmosphere equal to the carbon or GHG removals coming from the atmosphere
- The intent of net zero is to *stop* global warming and the climate impacts of global warming, such as floods, droughts, wildfires and increased storm intensity
- 2015 Paris Agreement: all countries commit to achieve net zero by 2050
 - Many private corporations have made Net Zero commitments as well
- ***Carbon markets – which generate carbon credits – are one important way that companies can achieve Net Zero***

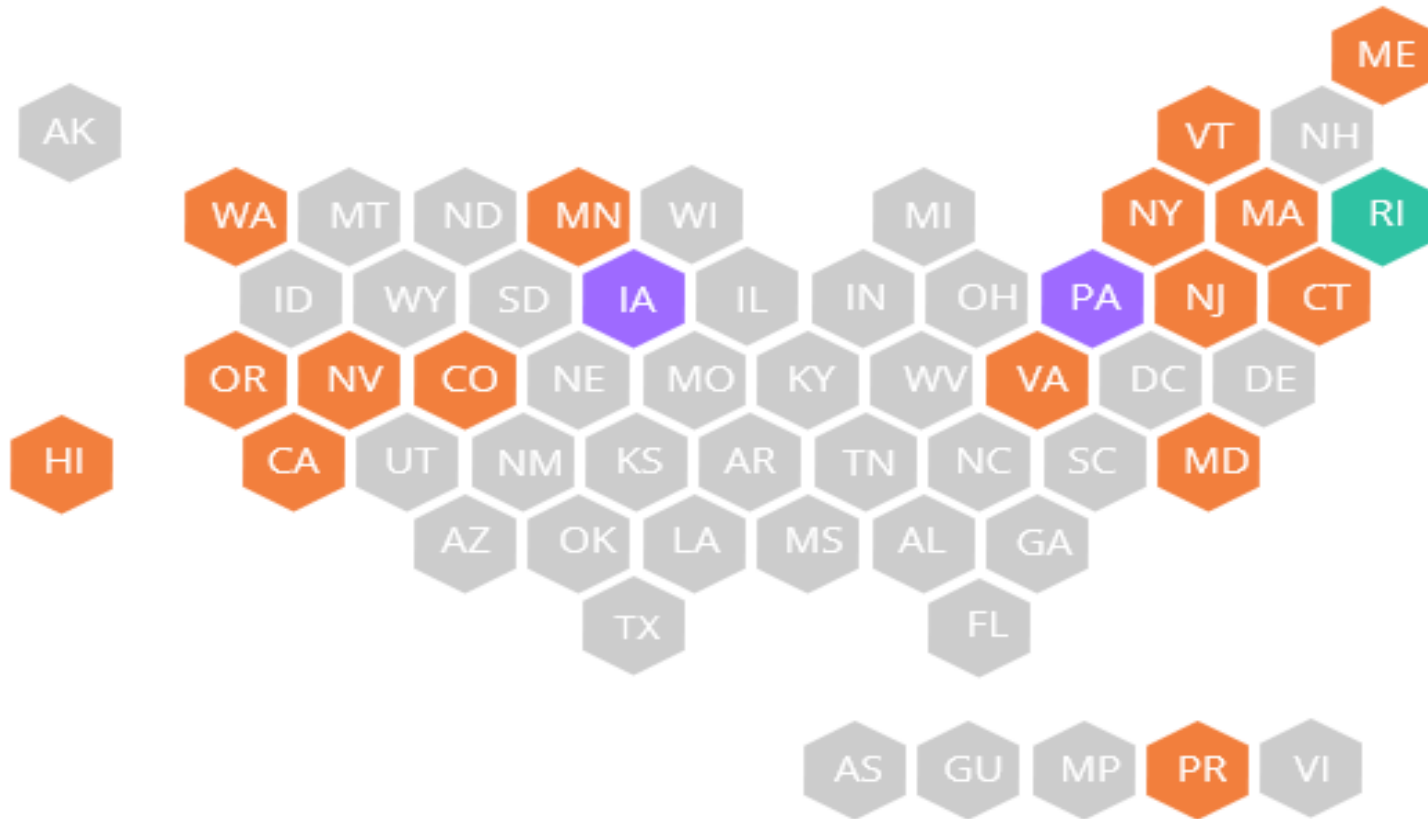
Carbon Markets in the US

- Both compliance and voluntary markets in US
 - Traditional carbon offset markets (compliance and voluntary)
 - Supply chain/value chain inset markets (voluntary)
- Many new market *PROGRAMS* operating in US
 - mostly within traditional voluntary carbon markets
- Some new market programs that are not traditional, and don't meet traditional carbon market standards for either carbon offsets or standards in development for carbon insets have also appeared in the US







Carbon Markets in US

States with Statutory Greenhouse Gas Reduction and Reporting Requirements

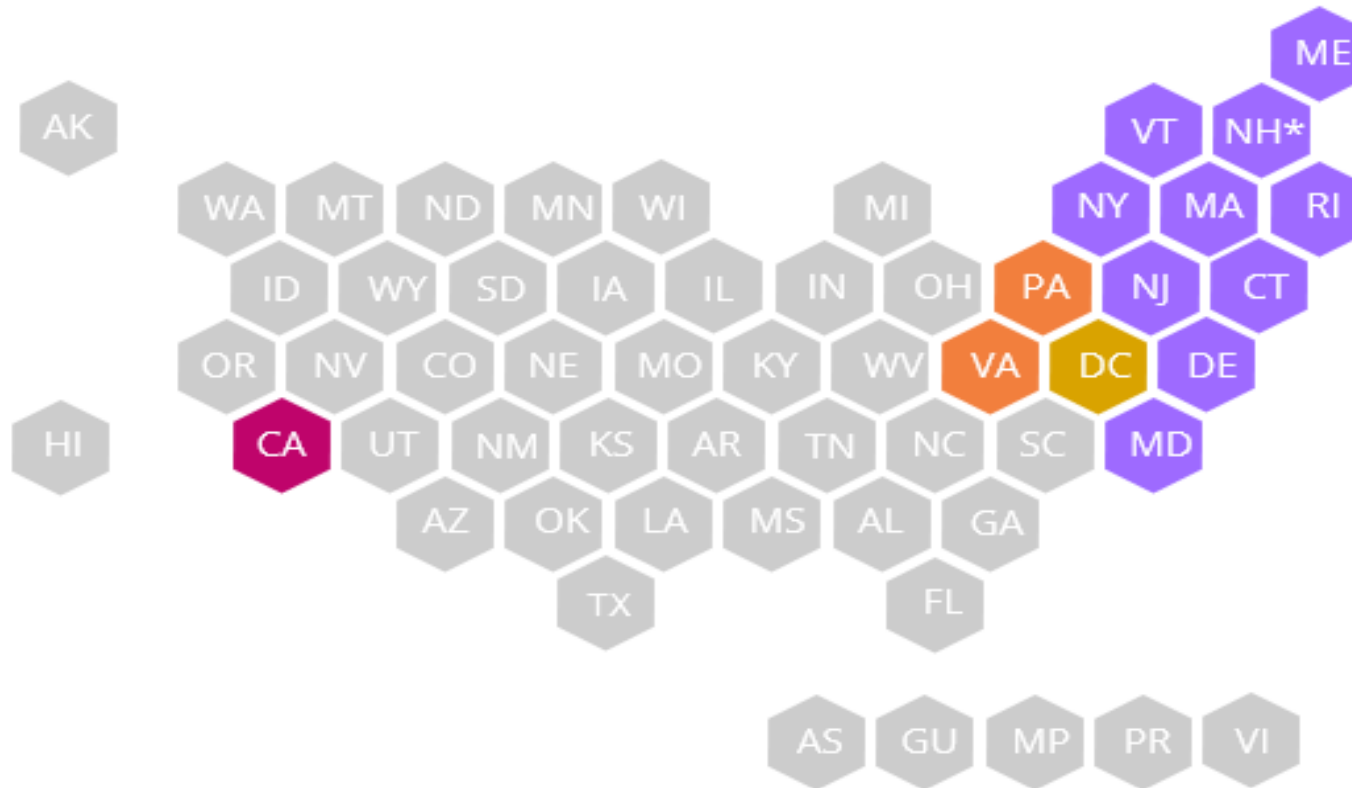


Legend

	Statutory Greenhouse Gas Reduction + Reporting Requirements
	Statutory Greenhouse Gas Reduction Requirements
	Statutory Greenhouse Gas Reporting Requirements
	States with no Reduction/Reporting Requirements

Carbon Markets in US

States with Market-based Policies



Legend

	Participate in TCI only.
	Participate in RGGI and TCI
	Participate in TCI and RGGI Pending
	In-State Cap-and-Trade Program
	States that do not have market-based policies

N=14

TCI: Transportation Climate Initiative (2010)

RGGI: Regional Greenhouse Gas Initiative

Source: National Conference of State Legislatures

What do Almond Growers Need to Know?

Markets Pay for New Product

- Private voluntary markets pay for new product – hence requirement for systems or practice change
- If no change required on behalf of producer, what is being sold, to whom?
 - What *market standard* does program meet?
 - Offset market standards? Supply chain (“inset”) standards?
- *If it seems too good to be true* – if a program does not require anything from producers – *then it probably is*



What do Almond Growers Need to Know?

Ask Questions!

- **Clarity:** right now, with proliferation of programs, offers, hard to provide advice beyond 'read the contract'
 - No transparent, independent source or means to compare programs
 - There is producer risk involved if not clear what producer are signing up to: what are your rights, program rights?
- ***Before enrolling*** in a program, ***ask:***
 - producer roles, responsibilities, obligations
 - What are eligibility requirements (systems changes, etc.)
 - Reductions or removals? Or both?
 - Program validation, credit verification, certification:
 - Market standards?
 - Approved protocols?
 - Transparent pricing, payments, costs and cost centers, schedules?

What do Almond Growers Need to Know?

Prices, Costs, 'Middlemen'

- **Real Costs** involved in generating credits that meet market standards and buyer needs
- **True Cost Centers**
 - **Protocols**: development, refinements, approvals, updates
 - **Projects**: development and implementation requires multiple actors working together
 - **MRV**: quantification of credits, monitoring, reporting and verification
 - **Ongoing monitoring costs**: removals (e.g. soil carbon credits) require soil sampling, resampling, monitoring
 - Who pays?
 - Who samples, monitors?
 - **Producer enrollment**: roles & responsibilities of enrollment, participation
 - **Producer technical assistance**: maximizing producer experience and potential value depends on producer level of effort, education

Thank You!





ESMC ALMOND PILOT: OPPORTUNITY FOR CENTRAL VALLEY GROWERS

Jack Jeworski (ESMC)
Almond Board Conference
December 8, 2021

ESMC'S MISSION

To incentivize farmers & ranchers to improve soil health and scale beneficial environmental outcomes

How is ESMC Different?

- Non-profit: mission and impact-oriented
 - A public-private partnership
- Innovative protocols to ‘stack’ credits: soil C, net GHG, water quality & water quantity
- Focus on ag supply chain emission reporting
- Ag value chain co-investment in ESMC’s market program to reduce cost and scale impact



ESMC/ESMRC Funders



Founding Circle Members



Legacy Partner Members



What Credit Attributes Are ESMC's Buyers Looking For?

Positives

Projects showcasing innovative practices & real results

Value for money

Supply chain impact

Project photos, case studies, quotes that show impacts

Negatives

Lack of certainty that credits back claims

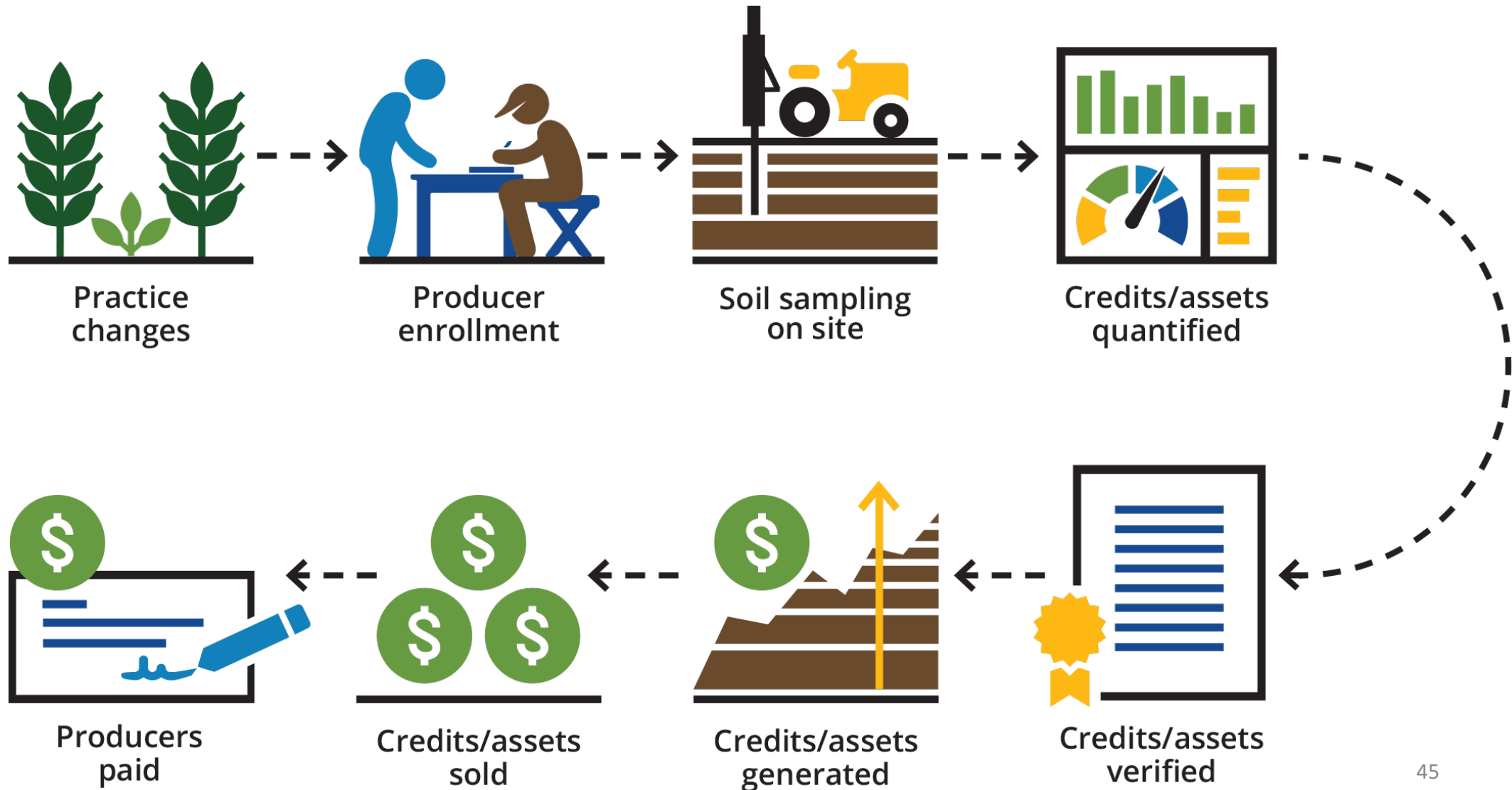
Accusations of greenwashing

Too few credits generated for high project costs

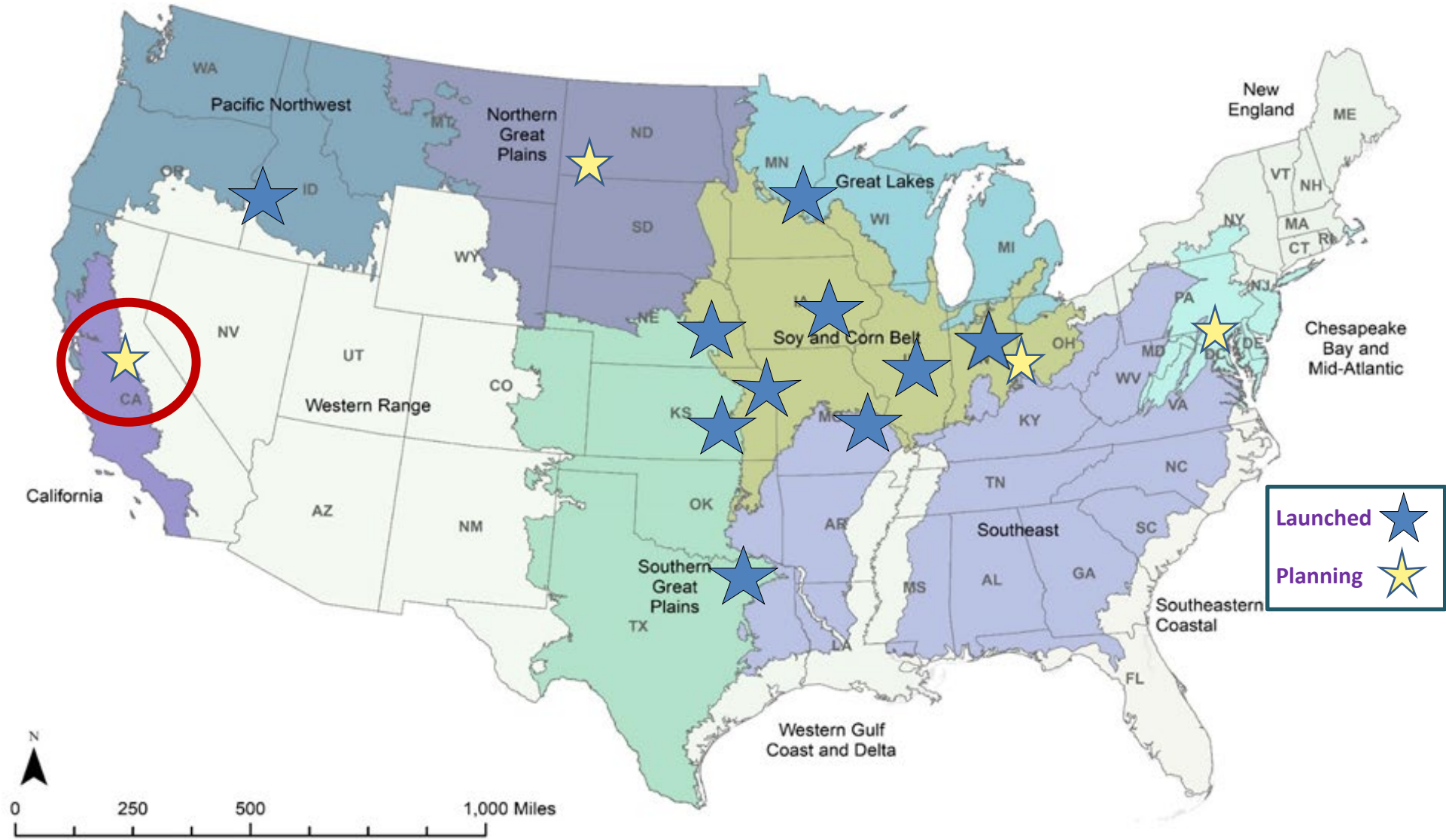
Lack of results and impacts on the ground

ESMC Market Program Overview:

How Growers are Paid Annually for Multiple Ecosystem Services Impacts & Outcomes



ESMC Pilot Project Locations: November 2021



Central Valley Almond Pilot

- ① **A valuable partnership:** ESMC and the Almond Board of California (ABC) have been working together to develop an ecosystem services Pilot Project specifically designed to benefit almond producers.
- ① **The vision:** The project will sequester soil carbon, reduce greenhouse gas emissions, improve water quality and water conservation in almond production systems in CA's Central Valley.
- ① **The ground floor:** ESMC's Market Program is currently in a pilot phase so early participants in this pilot project will have a unique opportunity to test new innovations and provide input to ESMC to guide program development.
- ① **A low-risk opportunity:** The pilot phase will also provide more flexibility and less risk for producers, who will have an opportunity to roll into the full market program when it is launched at the end of 2022.

Who is Eligible?

Almond producers in the Central Valley who adopt or carry out one or more of the below management practices* in their almond production system in or beyond Fall 2021 (for a 2022 Pilot Project) will be eligible:

- ① Planting cover crops
- ① Applying compost
- ① Whole orchard recycling

** Future opportunities will include practices around Water Conservation and Biodiversity and Pollinator management.*



Additional Requirements

Producers will need to:

- ① implement new practices or improvements on their land that exceed minimum standards set by law.
- ① provide proof of land ownership and right to sell credits or an agreement with landowner to the same.
- ① not enroll the same lands during the same time in another ecosystem service or other market program.



Pilot Specifics

- ① A low hurdle to enroll and opportunities to grow into the program.
- ① Producers do not have to pay to participate or to purchase new inputs or subscriptions to participate.
- ① Producers own their data and credits in ESMC's program.
- ① There are no minimum or maximum acreage limits or numbers of fields required at any time.
- ① Producers can phase in more acres and/or practices over time as they see fit.
- ① Producers have autonomy to decide which practice changes are best suited to their operation.



Link for Interested Producers

- <https://ecosystemservicesmarket.org/enrollment>

and if interested reach out to Gabriele Ludwig: gludwig@almondboard.com





Thank You

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