

Listening session for the California Compost Strategy for California Agriculture

Sacramento: September 25, 2026

Welcome and housekeeping

Brief agenda

9:00-10:50 Welcome, overview, needs assessment findings, Q&A

10:50-11:05 Break

11:05-12:05 Small group discussion

12:05-12:35 Report out

12:35-12:45 Next steps and meeting close

Chatham House rules for all discussion

Room logistics (Wi-Fi: CDFA Guest)



California Department of Food and Agriculture



Virginia Jameson,
Deputy Director for Climate and
Working Lands

Climate Resilience Strategy for California Agriculture

First ever comprehensive overview of state actions designed to help the agricultural community prepare for, respond to, and thrive under the many conditions imposed by climate change



Highlight climate-related agricultural challenges, policies, and actions across State government.



Lay out areas of opportunity for further action.



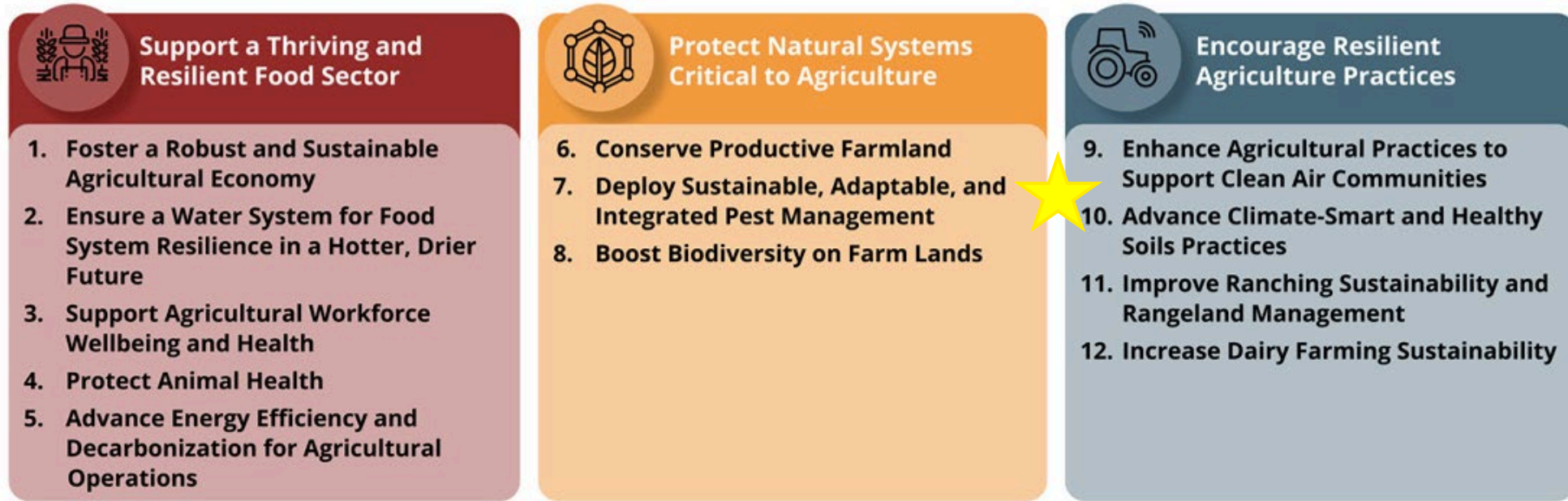
Explore connections with local, statewide, federal, and private-sector initiatives.



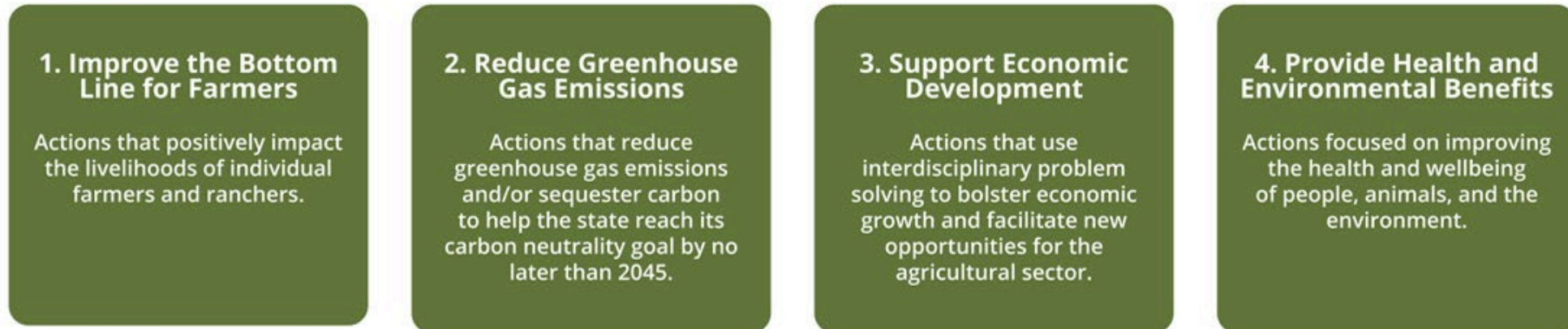
Provide Equity Principles to incorporate equity considerations into projects, programs, policies, and more.



Climate Resilience Strategy Framework



Goals



Equity Principles



10

Advance Climate-Smart and Healthy Soils Practices

Chapter Key Objective: Meet state nature-based solution climate targets and support healthy and resilient soil ecosystems for growing food and fiber.

Big focus in the chapter is on strategies that support resource quality, access, and implementation support

- Ensure the availability of high-quality compost for agricultural operations statewide
 - **Develop a statewide compost strategy**
 - Support local jurisdictions' investment in organics diversion infrastructure including food and green waste processing
 - Provide guidance for best practices in production, selection, and application of safe, fully-finished compost

CalRecycle



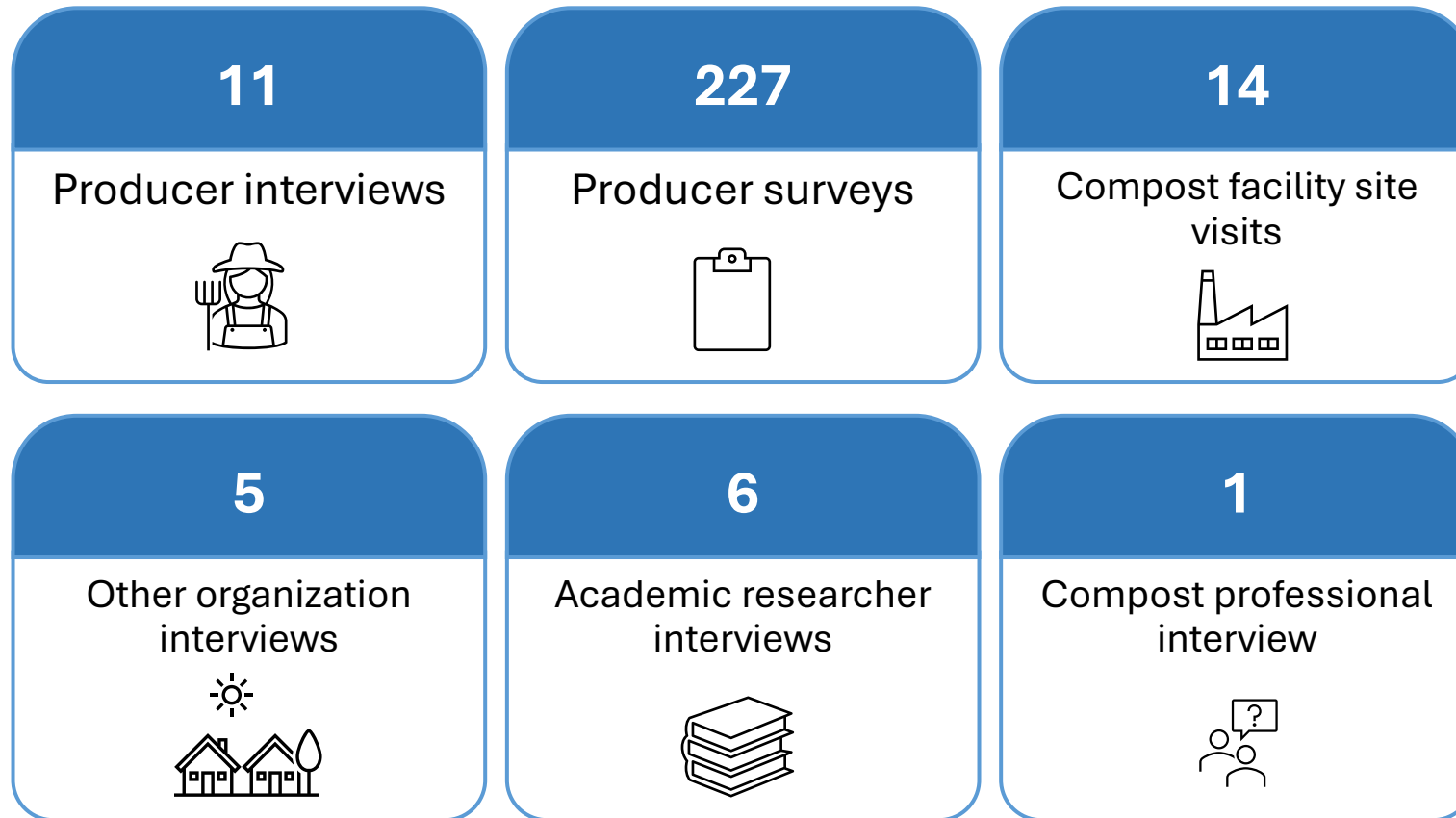
Cara Morgan,
Deputy Director for
Division of Materials Management
and Local Assistance

California Compost Needs Assessment



Overview of engagement methods

We conducted:



Compost facility visits

Compost facility visits

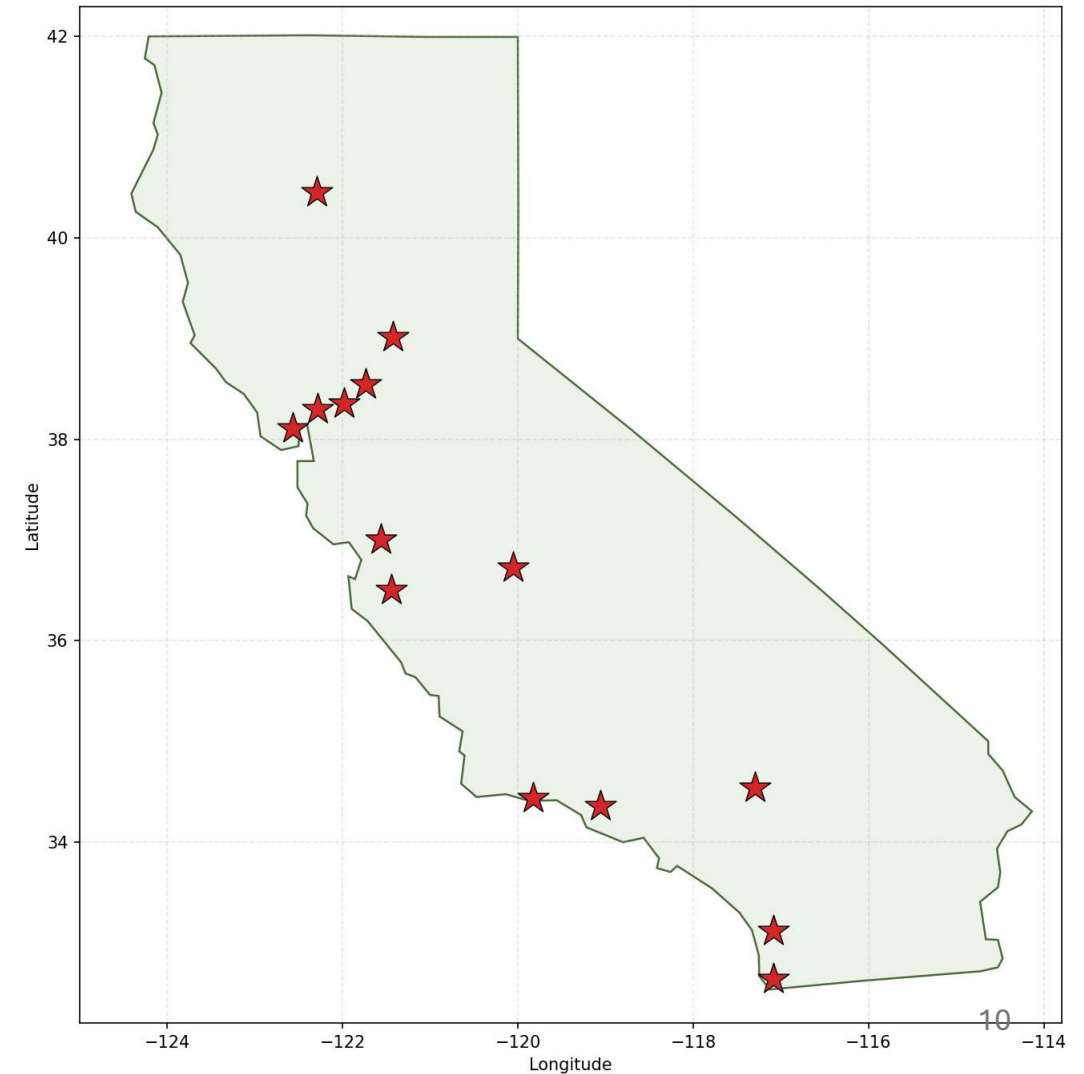


14 Site visits

to commercial compost facilities



Coastal, desert, and valley locations



Agricultural producer interviews

11
interviews
with
agricultural
producers

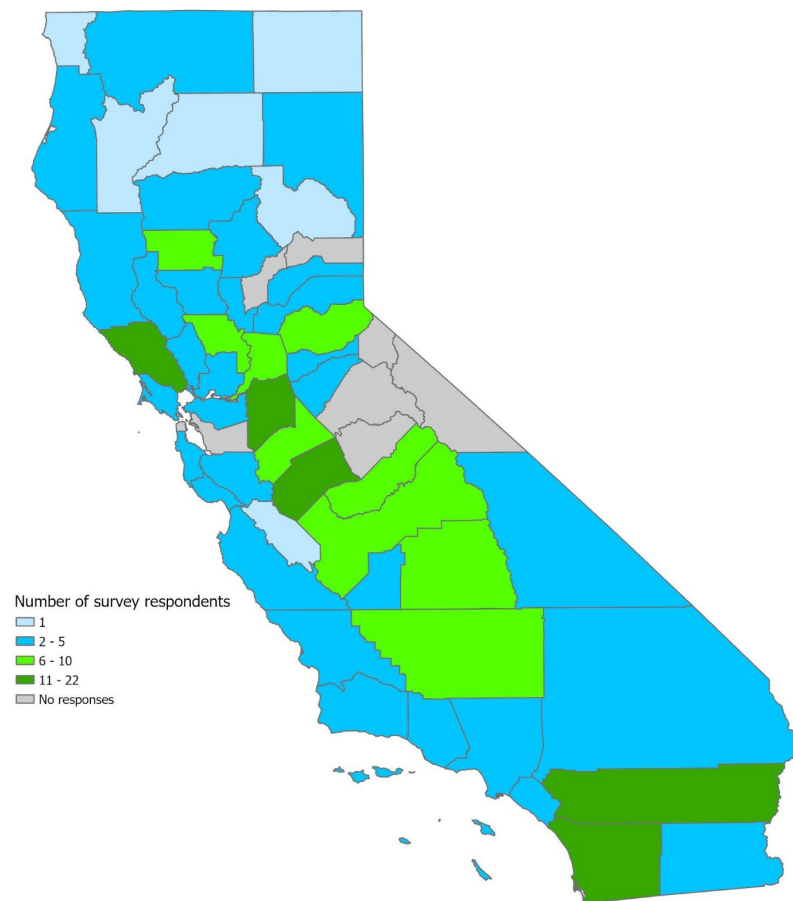
Characteristics of producers interviewed

Region	Production system
- Northern Counties = 2 - Sacramento Valley = 2 - Coastal Counties = 2 - San Joaquin Valley = 4 - Southern California = 1	- Livestock = 4 - Wine grapes = 1 - Specialty crops = 3 - Tomatoes = 1 - Leafy greens = 1 - Orchards = 2
Organic status	Compost use
- All of the operation = 3 - Some of the operation = 4 - None of the operation = 3	- Make compost = 4 - Buy compost = 8 - No use of compost = 1

Agricultural producer survey

- Distributed through organizations and networks across the state
- As of Sept. 22, we have received **227 responses**
- 51 of 58 counties represented

Number of agricultural producer survey responses
by county in which they farm or ranch

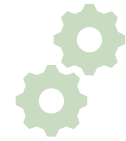


Findings: Compost facilities

Five classifications of findings:



Feedstocks, contaminants,
and certifications



Composting process



Regulations and operational
constraints



Customers and markets



Transportation, logistics, and
application



Compost facility findings: Feedstocks, contamination, and certifications

- Feedstocks:
 - **Residential yard waste: 75 and 95% of feedstocks**
 - Food waste, particularly residential food waste, is small volume
 - Up to 25% commercial food or agricultural waste
- Contamination:
 - **Most challenging contaminant was plastic bags**
 - Glass second most challenging
 - Other contaminants: dog poop, hard plastics, palm fronds, and compost overs
- Certifications:
 - **OMRI (almost all) and STA (majority)**
 - Many were registered for organic agriculture



Compost facility findings: Composting process

- Most facilities use positive pressure aboveground Covered Aerated Static Pile (CASP) systems
- Several used Gore covers, majority used compost overs as cover
- About 1/3 routinely turned compost
- Compost time: 21 to 30 days for Process to Further Reduce Pathogens (PFRP) and up to 12 weeks of curing
- Most facilities make 1- 3 blends
 - One facility - 300 recipes for specific agricultural applications





Compost facility findings: Customers and markets for compost sales

- Largest market: orchards and vineyards
 - Some ground crop producers not interested in compost for food safety reasons, including glass and pathogens
 - Some cities, schools, and golf courses will take compost
- Challenges include:
- Volume – not an ongoing demand
 - Contamination and safety
- Customers are within 30 to 50 miles



Compost facility findings: Transportation, logistics, and application

- Most compost facilities will help organize transportation
- Many local transportation companies available to most compost facilities
- Often transportation cost is higher than compost cost to the end user
- Few facilities offer spreading services and they rely on third parties to do the compost spreading

Compost facilities findings: Summary of needs and opportunities

- **Education** needed at key points in the supply chain
 - Plastic contamination in municipal food waste
 - Conversations with producers to understand
 - Contamination and impact to crops
 - Compost use – reductions in N fertilizer, amount to apply
 - Understand the right fit of compost for producers
- **Partnerships** with local agricultural and ranching organizations could increase potential customers local to compost facilities
- **Transportation** is largest cost of compost delivery
 - Key opportunity: fill waste trucks with compost for return trips
 - Many facilities use brokers to identify customers and arrange transportation and application

Findings: Producers



Compost use



Sourcing & production



Barriers to use



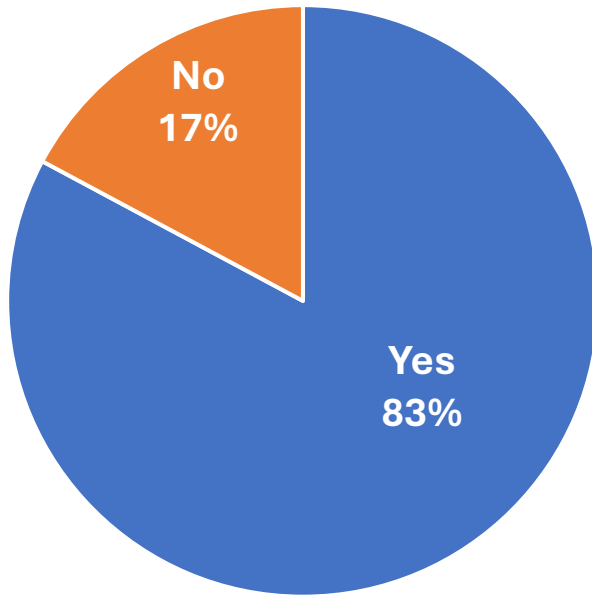
Needs and strategies



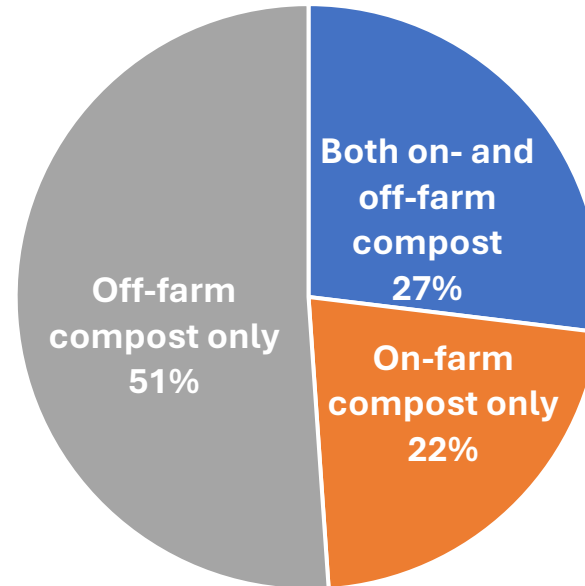
Producer findings:

Compost use across production systems (1 of 2)

Are you currently using compost?



What are your sources of compost?



Among survey respondents who report that they are currently using compost,

43% have operations that are partially or fully organic or transitioning

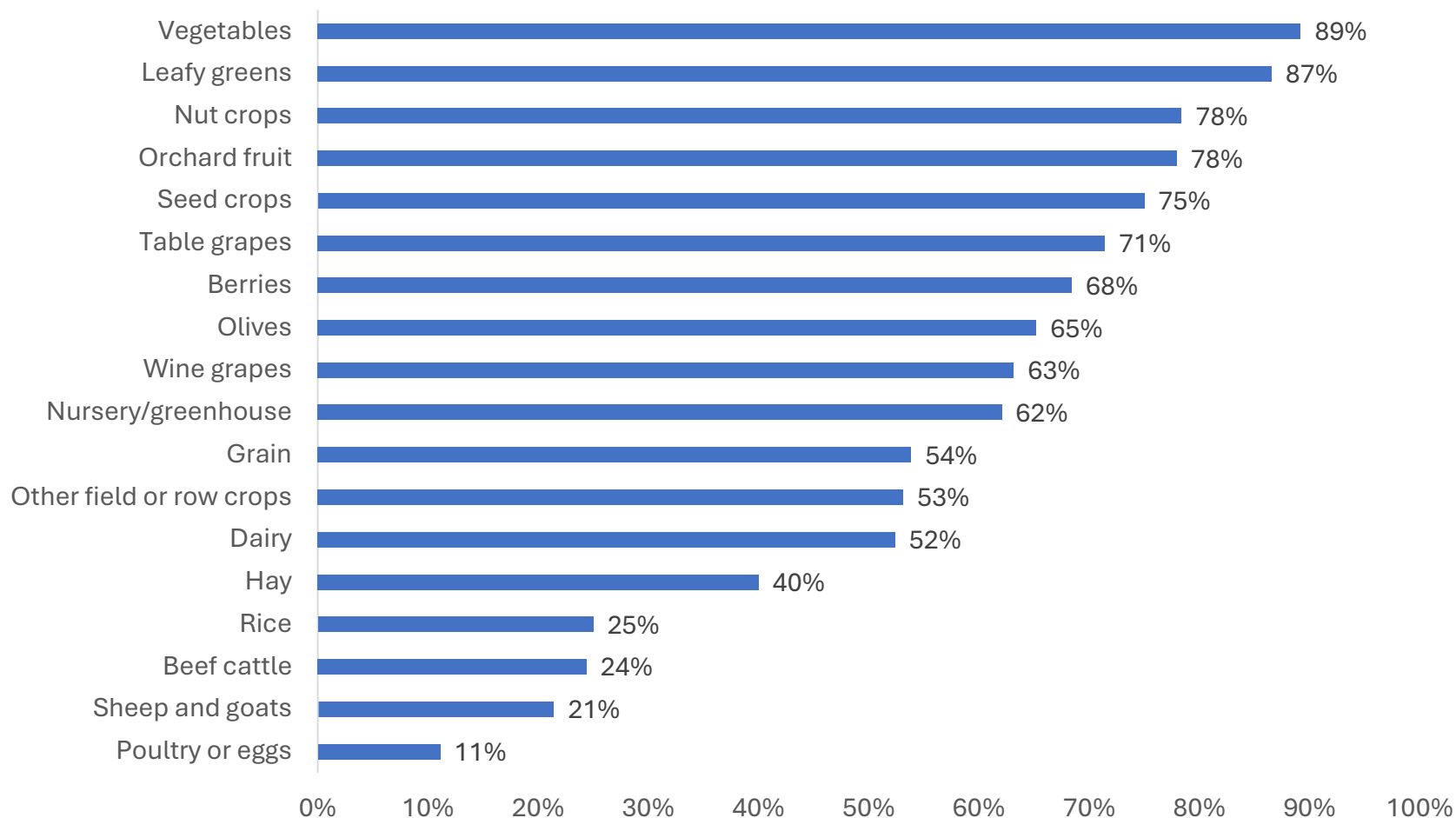
57% have operations with no organic or transitioning acres



Producer findings:

Compost use across production systems (2 of 2)

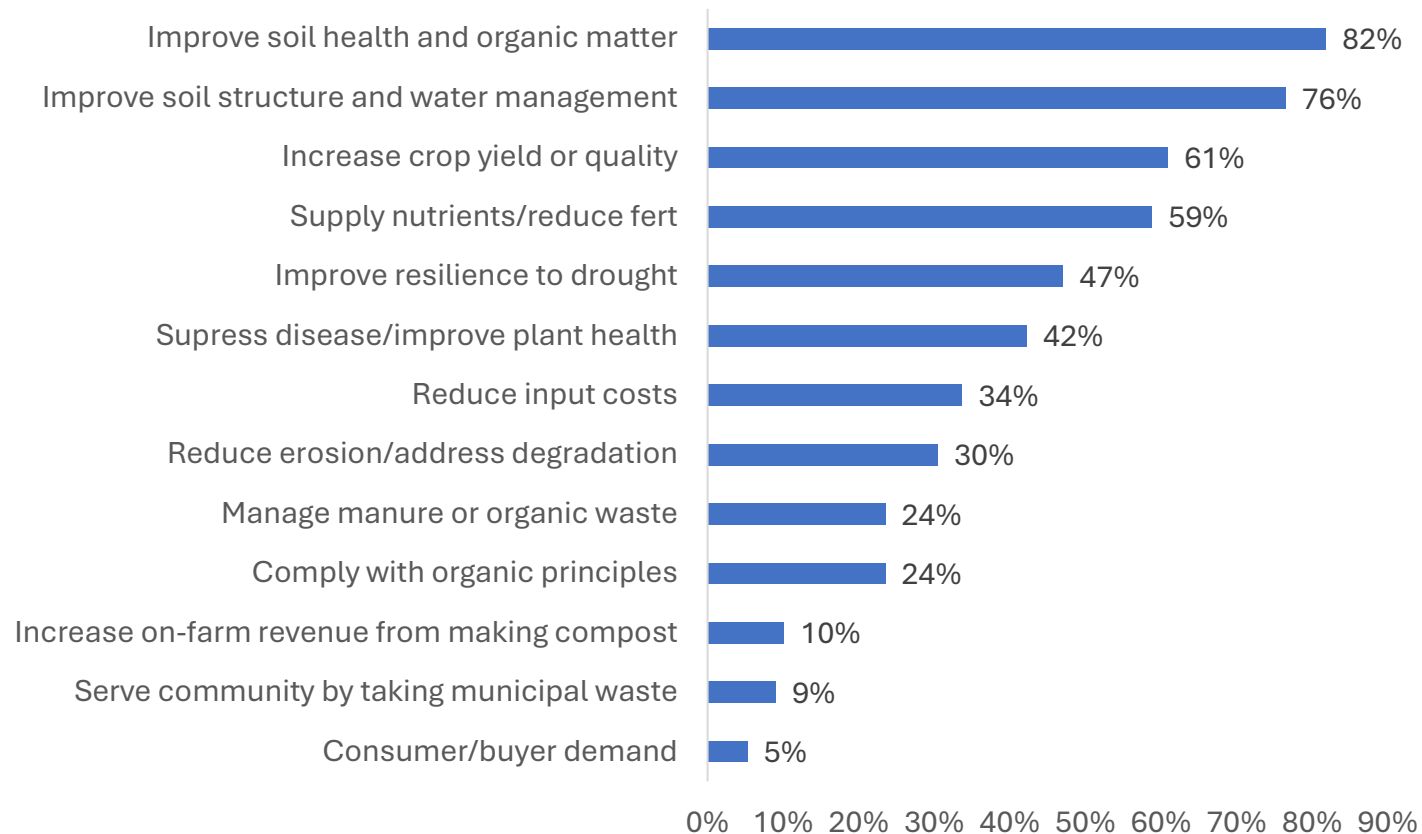
Do you use compost on each product?





Producer findings: Motivations to use compost

Why do you use compost?



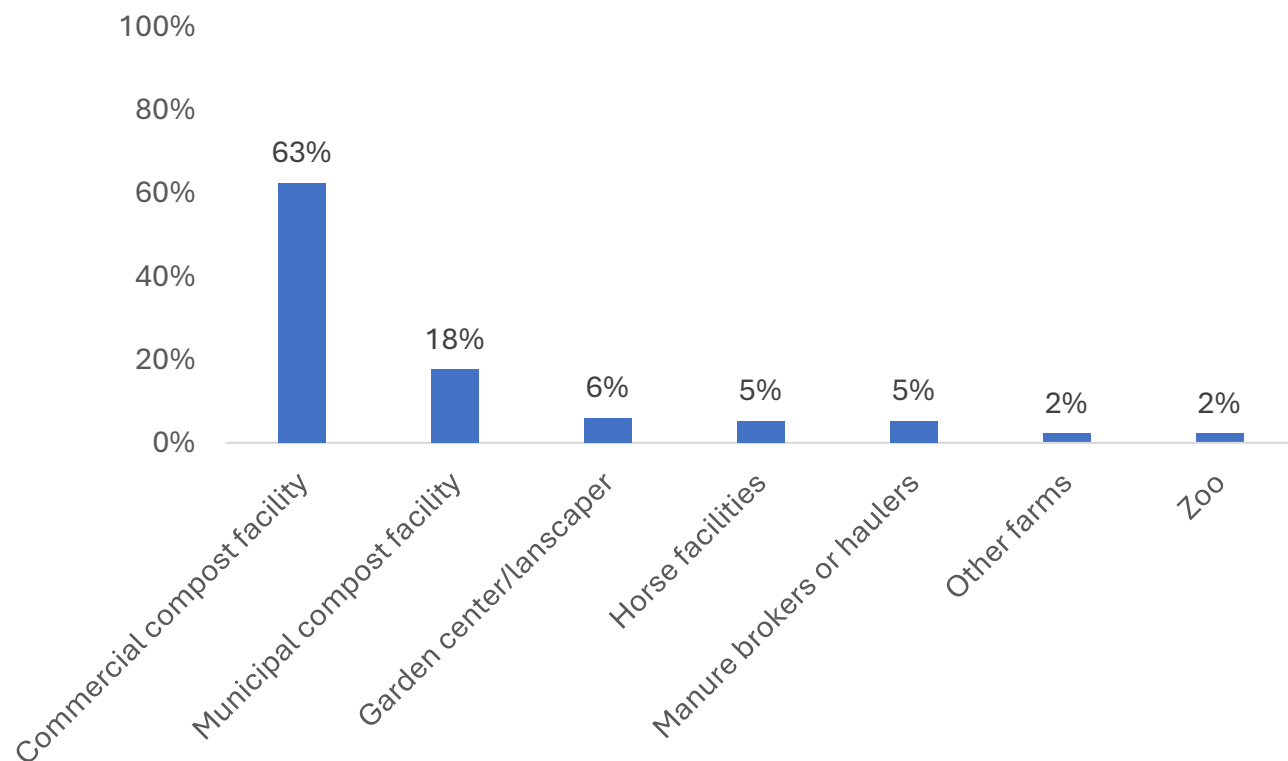
*“We're primarily using the compost to support soil structure and build organic matter. It's not our main source of nutrients. **It's not a big NPK source for us. It's more kind of a structural additive for the soils.**”*

– Wine grape grower, Northern California



Producer findings: Off-farm compost sourcing

Where do you source your compost?



Half of producers said that their source of compost is **more than 25 miles from their operation**

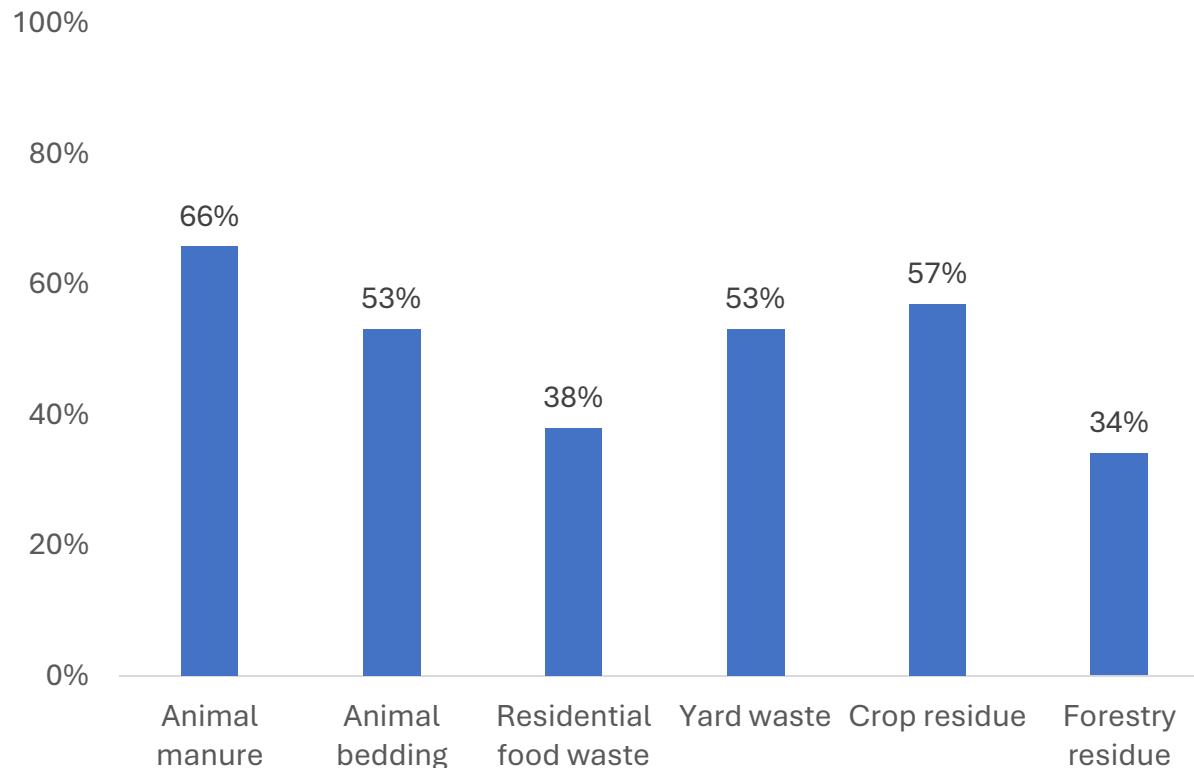
Median price paid is **\$35 per ton** and 37% of producers report paying more than \$50 per ton

Half of producers (52%) report that they pay for compost out of their standard operating budget, while the other half has grants to cover the cost (30%) or received donated compost (18%)



Producer findings: On-farm compost production

What types of feedstocks do you use for making compost on-farm?



Only 23% of producers who reported that they produce compost on-farm sell compost off the farm

"It's very hard for producers to manage their composting programs really effectively...I think there are opportunities for improvement that are just cost prohibitive because a well-managed composting system is often requires infrastructure that's hard to pay for."

- Wine grape grower, Northern Counties

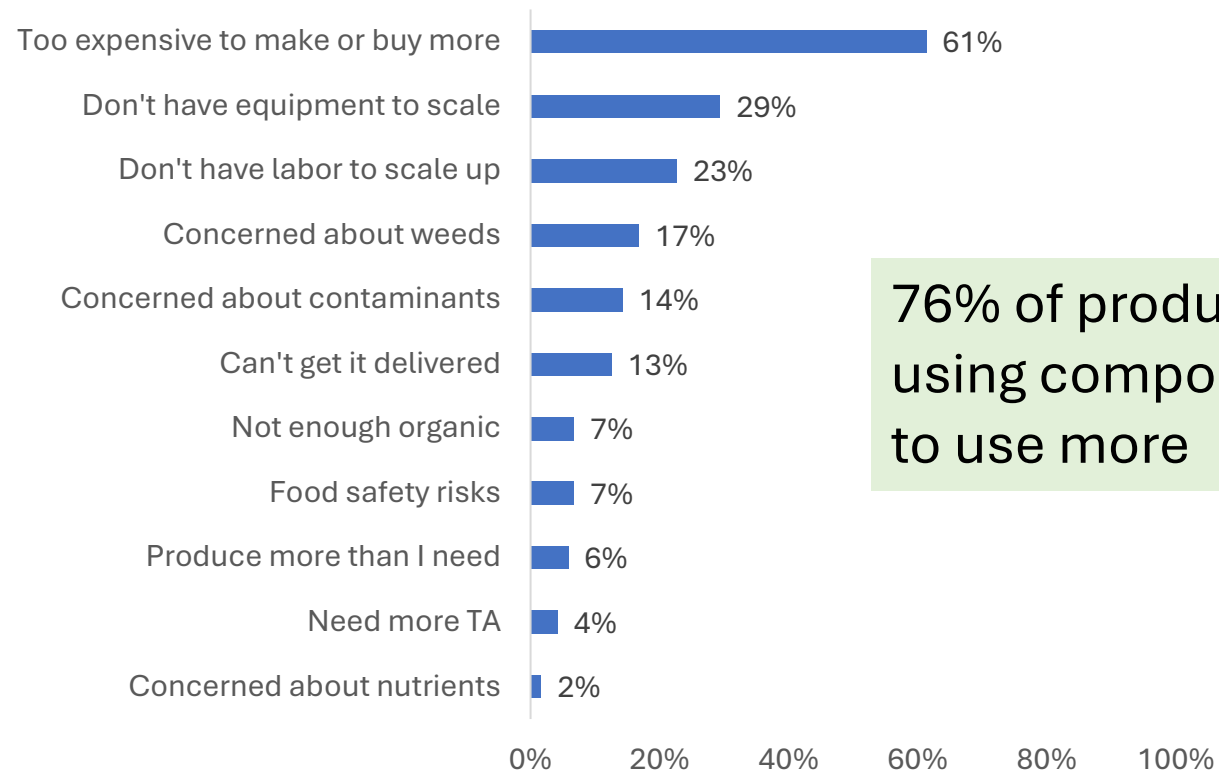


Producer findings: Barriers to (more) compost use

“I don't really know any farmers that wouldn't wanna' get their hands on free or cheap compost.” – Livestock producer, Sacramento Valley

“There's not really any resistance to using it. More bigger picture, the resistance is the bottom line.” – Orchard and livestock producer, San Joaquin Valley

Why are you not using more compost?



76% of producers currently using compost would like to use more



Producer findings: Barriers to (any) compost use

“Just not sure if the investment would have the yield return.” – Livestock producer, Sacramento Valley

“Had fusarium out break after using it.”– Berry producer, Coastal Counties

Why aren't you interested in using compost?



54% of producers not currently using compost would like to use it



Producer findings: Barriers to compost use

Costs and consistency are two top barriers identified by producers related to compost use

*“When you go to your local plant nutrient supplier, you say, “I want 32 units of nitrogen in this liquid.” And they give you 32 units. **It's a consistent, reliable, predictable product. Compost is not. And I think that's really what a barrier to entry of using compost is.**”*– Dairy producer, San Joaquin Valley

*“I think that for very small growers...**You're not gonna own the equipment generally, and also it's gonna be really hard to find a contractor that wants to come onto your orchard for five or 10 or even 20 acres, and then not charge a massive move-in fee, and all of a sudden now it's cost prohibitive to do on a per acre basis.**”*– Livestock producer, San Joaquin Valley



Producer findings: Focus on contaminants

Contaminants are a concern among many producers but not a full barrier to using compost

*“That's where **the scary part is**, I think, for a lot of people, is that when you have these required diversion programs. And it's literally people's household waste. That's where we get a lot of, like, plastics, and I think just, you know, concerns about what else is in there, you don't know.”* – Livestock producer, Northern Counties

*“Right now, the reality is, there's a lot of people making composts. **They're not checking for plastics. They're not really testing it, and there's no real mechanisms to hold any of those folks accountable for the quality of the product.**”* – Specialty crop producer, Sacramento Valley



Producer findings: Possible strategies (1 of 2)

**Improved
testing and
verification
approaches and
communication
with producers
about how to
use results**

“I think one of the arguments against compost is that there's not a huge verification system.

So, vetting that composters are hitting those proper control points, or testing the actual compost outputs, if you will. I think that might be pretty interesting if the state can assist in verification.

Helping verify so the growers can have a lot more trust in the product rather than them having to take on the testing responsibilities or verification themselves.”

– Leafy greens producer, Coastal region



Producer findings: Possible strategies (2 of 2)

Coordination of the movement of nutrients

*“I've worked in dairy, now I work in wine, and every crop system, it's like **the problem with the waste is just you're getting a huge volume of one particular kind of waste that you have to deal with in a small area. And so high-quality professional compost benefits from having diverse inputs and then also being processed in a very professional, sophisticated setting.***

And I guess I'm curious to what extent the state could build out infrastructure for us...bring in maybe wood chips from a nearby timber producer or manure from a livestock producer and have better infrastructure so that we could potentially produce something more valuable ...

***Another benefit potentially of having some degree of centralization is you can have tighter logistics,** so you're avoiding, the worst case in my point of view is trucking some sort of waste stream like 30 miles just to send the truck back empty over and over again.”*

– Wine grape grower, Northern Counties

Producer findings:

Summary of needs and opportunities (1 of 2)

Needs

- Cost and quality are the top challenges identified by producers related to *off-farm* compost sourcing
- Cost and logistics are the top challenges identified by producers related to *on-farm* composting

*“That's our main barrier is where is the compost coming from? And **do you have a yard that is relatively good, clean, plastic-free compost? Somewhere in the neighborhood so that I'm not spending five bucks for the compost and \$40 a ton just to get it to the ranch?**” – Livestock producer, San Joaquin Valley*

Producer findings:

Summary of needs and opportunities (2 of 2)

Needs

- Cost and quality are the top challenges identified by producers related to *off-farm* compost sourcing
- Cost and logistics are the top challenges identified by producers related to *on-farm* composting

Opportunities

- Local and regional **supply chain management**
 - **Coordination** of feedstocks/nutrient flows
 - **Connecting** compost, equipment and expertise to producers
- Ongoing **grants and financial support** for use and production of compost

*“So as a farmer, we can't just bring on green waste. I mean, we're not a recycled facility, so there's limitations to what we can bring on. **And by default, then we have an abundance of a piece of the puzzle, but a shortage of the other piece of the puzzle. And that is we have high nitrogen and we have low carbon.**” – Dairy producer, San Joaquin Valley*

Findings: Other organizations



Environmental health perspectives



Barriers to production & use



Concerns



Needs & strategies



Other organization findings: Environmental health perspectives

Environmental health and regulation

- Compost is not a singular product
- Environmental impacts are not black and white
- Enforcement of permitting and environmental quality standards is inconsistent
- Compost as potential replacement for imported, fossil fuel-based inputs

*“We have a great agricultural base here in California. We're the number one ag state. **We produce 400 crops, and to do that, we use nutrients that we do not produce in California...we use fossil fuel energy and create greenhouse gases... to [mine and create] fertilizer, and then transport that to California so that we can grow crops here. Meanwhile, we've got a surplus of N, P and K in manure that could be used here.**”*



Other organization findings: Barriers to compost production and use

On-farm production

- Permitting is cumbersome
- Cost of labor and equipment required outweighs potential benefit
 - Management of compost operation is significant (full-time job)
- High cost of transport

"The market is not clear, or transparent."

Compost use

- High variability in nutrient content, quality, particle size
- Food safety concerns driven by buyer contracts
- Contamination concerns
- Quality assurance falls on farmers and ranchers

"There's a big difference in spreading capability. I think that folks just think a spreader is a spreader, is a spreader, is a spreader, but it's not."



Other organization findings: Concerns

- **Overemphasis** on municipal and industrial compost production at expense of agricultural and community-scale production
- Potential long-term impacts from application of **contaminated compost**

"The risks are very high, not just temporarily from things like a microbial outbreak, but also, frankly, permanently, if there turn out to be chemical residues."

- **Lack of technical knowledge** among producers → improper nutrient budgeting
- Potential impacts to **air quality**

"If [the strategy] sets up for industrial composting just to compost more, those sites are gonna be located in rural areas. Those communities are the ones that will be experiencing the fugitive dust."



Other organization findings: Summary of needs and strategies (1 of 3)

Resources & funding

- Support for existing programs
- Allow large municipalities to coordinate funding allowed through SB 1383 with needs in smaller communities
- Funding for compost spreading equipment
- Incentives for on-farm compost production and sale

Technical assistance

- TA providers (e.g. RCDs) as connectors between suppliers and end-users
- Nutrient budgeting and reporting for compost
- Administrative support for grant funding/programs
- Enhanced testing and certification of compost

“Provide some funding so that nonprofit organizations, academic institutions who are already doing this work can amplify it. And in so doing...be able to...mitigate some of the environmental injustice.”



Other organization findings: Summary of needs and strategies (2 of 3)

Education and outreach

- Different approaches for compost types
 - Encourage separation of municipal and agricultural compost for different uses
- Promote compost as climate solution
- Ensure policymakers understand on-the-ground realities

“Maybe we don't wanna put [municipal compost] where our food is, but that's not prohibitive to putting it elsewhere.”

“Using the existing ag waste or byproducts that we have...there's a big opportunity here to think about that differently to address declining soil health, soil loss, addressing increased fertilizer prices, fertilizer security, and helping address all the state goals around climate, organic production, water, biodiversity.”



Other organization findings: Summary of needs and strategies (3 of 3)

Coordination

- Partnerships with on-the-ground organizations
- Network to connect nutrient demand with existing supply
- Alignment across regulatory agencies
- Streamlined right-sized permitting

"Finding what is that catalyst that would make people wanna work together enough. What is the carrot that will bring folks together?"

*I'm hopeful that...waste haulers, that they do partner with Tribes because a lot of Tribes do have solid waste issues, that they are too far from a landfill, they're too far to get commercial haulers to come out and do curbside pickup. They don't know how to manage or build a transfer station... **there's still a lot that that partnership can do to make it easier for tribes to manage all of their waste.***

Findings: Academic researchers



Climate and soil perspectives



Opportunities and priorities



Concerns about compost use



Barriers to compost use



Research and resource needs



Academic findings: Climate and soil perspectives

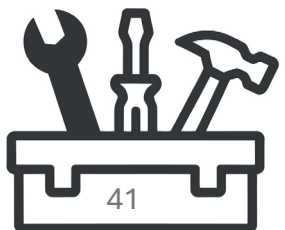
Climate

- *"Avoiding the landfill emissions is the biggest bang for their buck"*
- Can replace synthetic fertilizer and still maintain yields
- Evidence for carbon sequestration but with nuance and caveats

Soil

- Important for building soil health, improves soil functioning
- Easier to implement than other soil health practices (e.g., cover crops)
- Resilient agroecosystems

*"It's one very important tool, but it should be thought about as a toolbox."
"Even though I think it's an important strategy, it shouldn't be the **only** strategy."*





Academic findings: Priority areas

- Organic producers (component of certification)
- Rangelands (large land area)
 - But some hesitancy on ROI and transportation
- Horticulture/urban farms
- Non-fresh produce (e.g., processing tomatoes)
- Seed cover for fire scars
- Large monoculture farms
- Smaller producers who don't have capacity to make compost

"I wouldn't say we should de-prioritize anywhere..."



Photos: California Rangeland Conservation Coalition (top), Calfruitandveg.com (bottom)

? Academic findings: Areas of concern

- Avoid serpentine soils, native plants, endangered species
- Nitrogen and water quality
 - Accounting for N in compost application
 - Compost nutrient leaching and runoff
- Interaction with other policies (especially nitrogen, CVSALT)
- Transportation of compost and breakeven for environmental benefits

"Farmers have to account for this [compost] in their nitrogen budget"

"When we are thinking about increasing C sequestration on agricultural lands, they always focus on adding organic matter. But carbon and N are intimately coupled. But when you are adding compost- you are adding nitrogen as well."



Academic findings: Perceived barriers for compost use

- **Transportation costs** (especially for small producers)
- **Logistics and infrastructure**, especially equipment
- **Compost quality**
 - Plastics
 - Weeds/diseases/pathogens
 - C:N ratio
 - Maturity
 - Too much organic material
- **Food Safety**
 - buyer hesitancy, facility size and community compost
- **Accessing N sources** (animal sourcing)
- **Labor/skills**

"Compost quality has to be one of the biggest things I've been thinking about."

"At the very large scale we just have so much organic material flowing in the state... This size to get things in and out as quickly possible means the compost quality might look different. But because of the air quality requirements, that throughput is a challenge."



Academic Findings: Resource and research needs

- **Costs and logistics**
 - Expanded equipment shares (RCD program successful)
 - Certified organic feedstocks locator with CalRecycle
 - ROI and yield impacts for producers
- **Food safety**
 - Facility size and temperature and pathogens*
 - Buyer education
- **Compost process and variability**
 - Compost quality , plant-based composts, use in different cropping systems
 - Persistence of microplastics, contaminants, different feedstock sourcing
- **Nitrogen and nutrient management**
 - Timing of N release with different composts/application rates, N transport, impacts on water quality, producer education
- **Engineering and testing**
 - Contaminant reduction in municipal compost
 - Testing for emerging contaminants, feedstocks and finished composts
 - Low-cost compost turners/spreaders for small facilities/producers

"Some of those producers (leafy greens, Salinas Valley) are not using compost because their buyers don't want them to use compost."

*Nie et al. 2026. *Journal of Food Protection*

Needs and
opportunities
across the
compost supply
chain



Needs: Address costs, benefits, and logistics to support adoption

Producers need:

- Compost that can be delivered for a reasonable cost
- Access to 'right fit' compost for their systems
- Organic-appropriate compost
- Awareness and understanding about the co-benefits of compost

Compost facilities need:

- Connections to other parts of the system (spreaders, haulers, producers) to increase efficiency
- Engagement with producers on agriculture-specific compost needs

Needs: Align sourcing and scale of compost production with producer needs

Producers need:

- The right nutrients in the right places
 - Producers seek reliable C:N ratios for nutrients
 - Too much nitrogen in San Joaquin, Central Valleys, not enough in other regions

Compost facilities need:

- The feedstocks in the right places
 - Compost facilities mostly handle yard waste, results in carbon-rich compost

Community composters and organizations need:

- Support and financing for small-scale production to maximize benefits and minimize challenges (e.g., food safety)

Needs: Support to navigate and understand regulatory complexity

Producers need:

- Education on compost qualities and regulatory compliance from compost facility perspective
- Support with permitting and reporting requirements for transport, sale of on-farm compost
- Testing and regulatory oversight

Compost facilities need:

- Decreased pressure to move materials quickly
- Support with citing, permitting and reporting requirements for transport, sale of on-farm compost

Community composters and organizations need:

- Consistent enforcement and testing for compost quality
- In citing new facilities, consideration of environmental impacts and communities

Needs: Focus on contaminants, quality and food safety

Producers need:

- Information and testing focused on plastics, C:N weeds/pathogens/diseases

Compost facilities need:

- Systems to address macro-contaminants like plastic bags and glass

Academics and community organizations need:

- More evidence on the impacts of the micro- and emerging contaminants in the long-term

CPGs need:

- Information and education about food safety

Opportunities: Five areas for action (1 of 5)

Coordination

- Facility siting closer to agriculture
- Expansion of compost facilities in areas without air quality concerns
- Testing and verification of compost quality
- Partnerships across the compost supply chain

Opportunities: Five areas for action (2 of 5)

Coordination

- Facility siting closer to agriculture
- Expansion of compost facilities in areas without air quality concerns
- Testing and verification of compost quality
- Partnerships across the compost supply chain

Matching Needs and Demand

- More brokers to connect producers to compost
- Agriculture-specific compost blends
- Organic compost database
- 'Right fit' compost for nutrients and food safety

Opportunities: Five areas for action (3 of 5)

Coordination

- Facility siting closer to agriculture
- Expansion of compost facilities in areas without air quality concerns
- Testing and verification of compost quality
- Partnerships across the compost supply chain

Matching Needs and Demand

- More brokers to connect producers to compost
- Agriculture-specific compost blends
- Organic compost database
- 'Right fit' compost for nutrients and food safety

Research and Development

- Engineering for efficient production and small scale spreading
- Testing/ impacts of emerging contaminants
- Feedstock variability and its impact on compost quality
- Nitrogen and other nutrients

Opportunities: Five areas for action (4 of 5)

Coordination

- Facility siting closer to agriculture
- Expansion of compost facilities in areas without air quality concerns
- Testing and verification of compost quality
- Partnerships across the compost supply chain

Matching Needs and Demand

- More brokers to connect producers to compost
- Agriculture-specific compost blends
- Organic compost database
- 'Right fit' compost for nutrients and food safety

Research and Development

- Engineering for efficient production and small scale spreading
- Testing/ impacts of emerging contaminants
- Feedstock variability and its impact on compost quality
- Nitrogen and other nutrients

Financing

- Purchasing and transporting compost
- Equipment sharing
- On-farm compost infrastructure
- Cost of moving feedstocks
- Funding community-based organizations and composters

Opportunities: Five areas for action (5 of 5)

Coordination

- Facility siting closer to agriculture
- Expansion of compost facilities in areas without air quality concerns
- Testing and verification of compost quality
- Partnerships across the compost supply chain

Matching Needs and Demand

- More brokers to connect producers to compost
- Agriculture-specific compost blends
- Organic compost database
- 'Right fit' compost for nutrients and food safety

Research and Development

- Engineering for efficient production and small scale spreading
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- Feedstock variability and its impact on compost quality
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Financing

- Purchasing and transporting compost
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- On-farm compost infrastructure
- Cost of moving feedstocks
- Funding community-based organizations and composters

Education

- For consumers about green bins
- For CPGs on food safety
- For producers about co-benefits of compost
- For policymakers about on-the-ground challenges

Questions and discussion

- Questions from in-person and virtual participants

We would like to thank the producers, academics, community-based organizations and compost facilities for their time and willingness to participate in interviews and site visits. We are grateful for their contributions to help develop an effective needs assessment to build California's agricultural compost strategy.

Listening Session Agenda

Brief agenda

9:00-10:50 Welcome, overview, needs assessment findings, Q&A

10:50-11:05 Break

11:05-12:05 Small group discussion

12:05-12:35 Report out

12:35-12:45 Next steps and meeting close

Chatham House rules for all discussion

Room logistics



Breakout session tables

Chatham House rules for all discussion