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ENTERPRISE

AG MAGAZINE

AI Tools Making a Difference in Orchard Management

How growers are using AI to boost yields, cut costs and improve sustainability

JCS MARKETING PUBLICATION

Photo courtesy Bloomfield Robotics

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Welcome
TO THE FIRST ISSUE OF ENTERPRISE AG

By **JASON SCOTT** *Publisher & Founder, Enterprise Ag Magazine*

THIS MAGAZINE WAS CREATED FOR ONE SIMPLE REASON: agriculture has become more complex, more capital-intensive, and more consequential than ever before. The decisions made in farm offices today ripple far beyond a single season. They shape families, employees, land stewardship, communities, and the long-term future of our food system.

Enterprise Ag exists to help you think bigger.

Not louder. Not trendier. Bigger.

Big-picture agriculture means looking beyond yields and inputs and into leadership, strategy, risk, technology, labor, finance, policy, and legacy. It means understanding how today's choices affect tomorrow's opportunities. It means treating farming not just as a job, but as an enterprise.

I grew up with a deep respect for agriculture and the people in it. Over the years, that respect has only grown. Farmers, growers, advisors, and ag professionals are some of the best people on the planet. They are resilient, principled, innovative, and willing to shoulder risk most industries never see. They deserve information that matches the level of responsibility they carry.

This magazine is not about headlines. It is about clarity.

You will not find fluff here. You will find perspective. You will find insights designed to help you make smarter decisions, ask better questions, and see around corners. Whether it is markets, technology, management, succession, or the future of California agriculture and beyond, our goal is to help you lead with confidence.

At the core of this publication is something deeply personal to me.

I built my career around content, sales, and events because I believe education and connection change outcomes. I believe bringing people together makes industries stronger. I believe agriculture should be left better than we found it. And I believe leadership starts with service.

My faith has shaped that belief. I try to be a good servant of God by putting others before myself, by helping where I can, and by creating things that genuinely add value. Enterprise Ag is an extension of that commitment.

This magazine is for you. For your business. For your family. For the future you are building.

Thank you for trusting us with your time and attention. I hope this publication becomes a resource you rely on, a perspective you respect, and a conversation you want to be part of.

Welcome to Enterprise Ag.

Sincerely,

Jason


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An aerial view of Central Valley farmland shows large-scale agricultural production alongside a solar installation, reflecting increasing competition for land, capital and long-term investment decisions facing California growers. (Photo courtesy UC Davis College of Engineering)

The Quiet Crisis in American Farming:

Why California Agriculture Must Pay Attention

Rising costs, water scarcity and investor-driven models are driving long-term instability in California's specialty crop sector

By **M. ANNE VISSER PH.D.** *Contributing Writer*

BY ANY TRADITIONAL METRIC, U.S. agriculture remains a powerhouse. Yields are high, innovation is accelerating, and global demand for premium products continues to climb. However, these top-line successes mask a sobering reality: The economic foundation of the American farm is being hollowed out.

For California's specialty crop producers, this is not merely a cyclical downturn; it is a structural transformation. Rising production costs, declining real farm incomes and a compounding regulatory burden are converging just as generational turnover slows and ownership structures shift. In 2026, projections suggest a drop in national net farm income. For commercial-scale growers who define California's agricultural identity, the outlook is also stark.

What we are witnessing is the structural decoupling of production costs from farmgate returns. This is a slow-moving crisis that rarely makes headlines. However, it carries profound implications for the future of the Golden State's economy. Five strategic pressures are currently reshaping the industry:

1. Margin Compression in High-Value Systems

California growers operate under some of the world's most stringent environmental and labor standards. While these standards reflect state values, they have created a "price-taker" paradox: Global retailers demand the "California Standard" but are increasingly unwilling to pay the premium required to sustain it. In 2026, growers are facing this margin compression while also navigating a critical timing gap.

The immediate rise in labor costs, driven by wage floors and overtime shifts, is outpacing the commercial availability and affordability of the innovation intended to offset them. For perennial growers, whose ROI is measured in decades, these thin margins create a liquidity trap that prevents long-term reinvestment.

2. Existential Water Risk and Stranded Assets

Under the Sustainable Groundwater Management Act, water has transitioned from a basic input to a primary driver of mass land fallowing. The Public Policy Institute of California has estimated that 500,000 to 1 million acres in the San Joaquin Valley could be retired by 2040.

This creates stranded assets: multimillion-dollar processing plants, hullers and nurseries that lose their utility when the surrounding

land goes dry. These regions are losing more than just soil; they are losing the industrial infrastructure that supports the entire agricultural middle class.

3. The Energy-Water Nexus and the Insurability Wall

Climate volatility has become a permanent line item on the P&L statement. From smoke-tainted vineyards to extreme heat labor stoppages and insurance premiums, the cost of resilience is outpacing productivity gains. This is compounded by the energy-water nexus: As SGMA mandates high-tech, pressurized irrigation, farms become dependent on an increasingly brittle and expensive energy grid. Many operations now face an insurability wall, where the cost to protect a crop exceeds the potential return. It is no longer a question of better management; for many, the business environment itself has become mathematically impossible to balance.

4. The Hollowing of the Secondary Ecosystem

The average age of the California farmer is now over 60. As succession plans falter due to high capital barriers, the state is losing more than just individual producers; it is losing its secondary ecosystem. This includes the specialized irrigation technicians, equipment dealers and rural credit branches that sustain local economies. When these businesses close, remaining farms face a "distance tax" higher service fee, longer downtimes and a catastrophic loss of localized expertise. A farm cannot survive as an island; it requires a dense local network to maintain operational viability.

5. The Rise of Institutional Capital

Private equity and institutional investment have become inevitable pillars of the agricultural landscape. However, we must ensure this is stewardship-grade capital. The industry cannot survive on ➲

“This is a slow-moving crisis that rarely makes headlines. However, it carries profound implications for the future of the Golden State’s economy.”

five- to seven-year “flip” cycles that prioritize short-term extraction over the multidecade lifecycle of many specialty crops. The goal must be ensuring capital serves as a bridge to resilience rather than a vehicle for depletion.

A Path Toward Resilience

To move from survival to strategy, California must shift its approach in several key areas:

- Synchronized Compliance and Economic Security: California’s current regulatory environment functions in silos. This stacks mandates and moves goalposts without regard for the total cost to the producer. An executive mandate for economic security is needed, which would require agencies to align reporting and prevent administrative stacking. For every new mandate, the state should provide a review of potential compliance offsets such as expedited permitting for resilience infrastructure or tax credits for automation. Interagency cooperation is a tall order in Sacramento, but in 2026, the administrative stacking of siloed mandates has become a threat to state economic security. Policy should act as a floor for resilience and ensure the cumulative weight of mandates does not push growers over the insurability wall.

- Incentivize Patient Capital: Policy should reward investment models that match the multidecadal reality of specialty crop farming. Strategic stewardship incentives, such as tiered tax credits or expedited water banking permits, could be used to reward capital models that commit to long-term land use transparency and utilize local vendor networks. The goal is transforming institutional investment into a stabilizer for rural infrastructure rather than simply extracting value from its soil.

- Business Model Innovation: Organizational innovation is as vital as technological innovations. This includes rethinking varietal choices, spacing and production practices to match water availability. Support must be given to explore bridge models for labor and diversified revenue streams that stabilize cash flow during volatile years. These are not one-size-fits-all solutions but demonstrate the kind of adaptive thinking that is increasingly required in a high-cost environment.

- Agriculture as a Core Economic Driver: California must stop viewing agriculture as a legacy industry and start treating it as a strategic export and technology sector. This means integrating agriculture into the heart of state economic planning, from energy grid reliability to workforce development to rural infrastructure investment, and recognize agriculture as an economic engine in California, not just a land use category.

The Bottom Line

This is a quiet crisis, but it is not an invisible one. The choices made by agricultural, financial and policy leaders today will determine whether California remains a global leader or becomes a cautionary tale of gradual industrial erosion. We have the opportunity to address these pressures with clear-eyed analysis before this shift becomes a permanent decline.

M. Anne Visser, Ph.D., is a professor of community and regional development in the College of Agriculture at UC Davis. Her research examines how economic change, automation and AI are reshaping agricultural work and regional economies. She co-directs UC’s Labor and Automation in California Agriculture Multi-Campus Research Initiative and serves on the USDA’s multistate research program on Sustainable and Resilient Systems: Transformative Response to Disruptions by Agricultural Businesses and Communities.

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A newly planted tree is irrigated and protected with a tree shelter, highlighting the upfront costs and long timelines required before permanent crops generate returns. (Photo by C. Parsons)

Equipment lines a field during field operations in the Central Valley, where growers face rising labor, fuel and input costs while working within increasingly tight margins. (Photo by A. Montazar)

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AI Tools Making a Difference in Orchard Management

How growers are using AI to boost yields, cut costs and improve sustainability

By **KEITH LORIA** *Contributing Writer*

A Bloomfield Robotics vision system scans blueberry crops to measure fruit size, color and canopy health. The AI-powered device collects plant-level data to help growers make real-time decisions. (Photo courtesy Bloomfield Robotics)

> “We are asking these businesses to entirely change the way they collect and consume a data source that is used to run the entire operation.”
>
> **– Hayden Wolf, Bloomfield Robotics**

ARTIFICIAL INTELLIGENCE HAS BEEN A GAME changer in recent years for a wide variety of industries, so it’s no surprise that AI tools are transforming crop management as well.

Farmers are now leveraging advanced technologies such as drone surveillance, predictive analytics and automated irrigation systems to optimize crop health and increase yields. These groundbreaking innovations not only improve efficiency but also reduce water usage and pesticide application, making orchards more sustainable.

That’s why growers are optimistic that embracing AI-driven solutions will help them meet growing demand while protecting the environment, signaling a new era of smart farming in the industry.

Across California’s orchards and vineyards, companies developing vision systems, autonomous vehicles and aerial imaging platforms are racing to prove that their tools can handle the complexity, variability and scrutiny that come with high-value crops. The technology is advancing quickly, but so is the demand for transparency about how well AI performs.

The Road to Reliability

The International Fresh Produce Association has tracked the shift from experimental pilots to commercially deployed AI systems across specialty crops.

“AI is moving from hype to application,” said Sarah Gonzalez, director of communications and public affairs for International Fresh Produce Association. “Farm-level uses range from vision systems and robotics to genomics-assisted breeding and quality assurance.”

Part of that shift is tied to the mainstream adoption of biological inputs, which have gone mainstream in recent years.

“This is an area being shaped heavily by data and automation,” Gonzalez said. “Biological inputs are used by roughly two-thirds of specialty crop growers to boost quality, stabilize yields and meet tightening residue limits.”

IFPA expects 2026 to bring more clarity and more consistency to how AI and biologicals work together. Standardized programs, better spore-trap analytics and the rise of AI scouting are giving growers earlier indicators of potential issues and enabling more precise interventions. ➲

A Bloomfield Robotics camera system captures plant-level images in a California vineyard, providing continuous data on fruit size, color and canopy health to support harvest planning and disease management. (Photo courtesy Bloomfield Robotics)

"Leading growers are redesigning fields for automation and pairing AI scouting with biologicals to enable earlier, lighter interventions," Gonzalez said. "The results are improved quality, reduced inputs and stronger sustainability claims for buyers."

In tree nuts and other orchard systems, autonomous machinery is becoming more common.

"In California's orchards, autonomous systems for shaking, harvesting and in-row navigation are gaining investment," Gonzalez said. "And for berries and soft fruit, robotic harvesters are entering commercial use, often with human crews providing quality checks."

But field-level AI still faces variability across crops, canopy architecture, microclimates and operations, which makes reliability as much a design challenge as a technological one.

Plant-Level AI

The reliability of AI ultimately comes down to what is being measured and how consistently.

That's where Pittsburgh-based Bloomfield Robotics comes in. The company uses AI-powered imaging to deliver continuous, plant-level insights on fruit size, color, disease and canopy health.

"We use AI to measure what we see in an image taken by our devices: how many oranges do we see, what is the color of that blueberry, what is the size of that grape, etc.," said Hayden Wolf, CEO of the company. "Performance can be measured against human counts in the images or against final harvest numbers."

But the human benchmark is not always as solid as growers assume.

"People have a hard time admitting this, but humans aren't even very good at ground truthing," Wolf said. "It's difficult work, it's repetitive, and it's hard to verify if the work was done correctly or done at all."

Bloomfield Robotics' models perform best where the business has focused its engineering resources, currently blueberries, grapes and citrus, which continue to evolve as new datasets accumulate. Even variability in trellis systems is surmountable, Wolf said.

He noted that adjusting to new conditions is often a simple workflow shift, not a major algorithm overhaul.

"A good example of site variability affecting additional calibration would be in grape trellising where you point the cameras up instead of horizontally, so it's a five-minute fix," Wolf said.

The real hurdle is not whether the AI works. It's whether the grower's organization is ready for the transformation that comes with plant-level digitization.

"We have some customers that trial for six weeks and make a commitment to move to 100% coverage inside of the same season, but we also have customers who we have been working with for more than three years," Wolf said. "We are asking these businesses to entirely ➲

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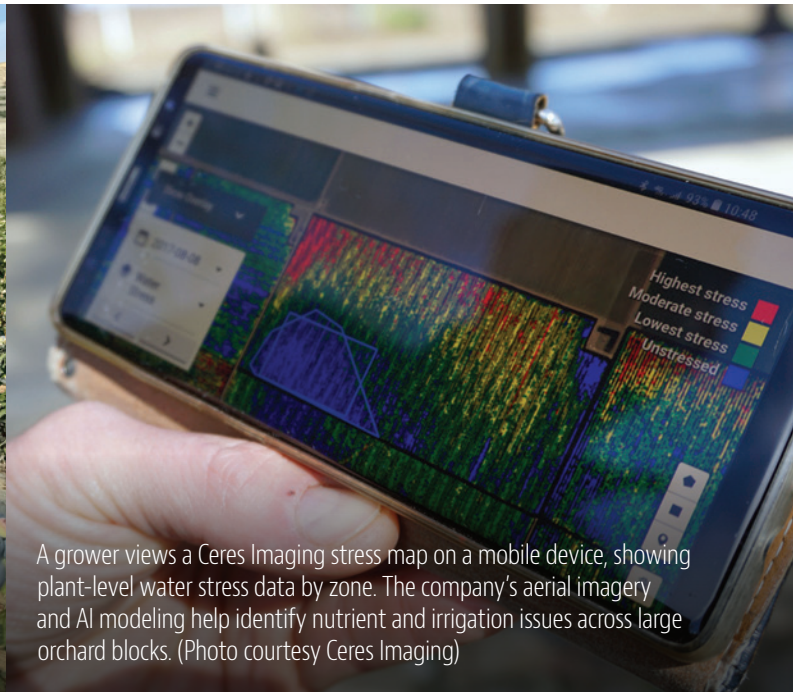
A Bloomfield Robotics camera rig mounted on an ATV captures detailed images of blueberries. The system provides continuous scouting to support harvest planning and disease detection. (Photo courtesy Bloomfield Robotics)



A grower views a Ceres Imaging stress map on a mobile device, showing plant-level water stress data by zone. The company's aerial imagery and AI modeling help identify nutrient and irrigation issues across large orchard blocks. (Photo courtesy Ceres Imaging)

change the way they collect and consume a data source that is used to run the entire operation."

The company's philosophy is that AI's value lies in precise assessment, not predictions that claim too much.

"We've learned that customers are willing to pay for an excellent picture of the present, and so that is what we focus on."

Looking ahead, Wolf sees major progress in assessment and analysis but noted true robotic execution is still developing.

"There is no way to replace the intimate knowledge a grower has of their production, but the key is to figure out how to incorporate that into the AI decision-making process," he said.

The Amica Trax autonomous platform by Bonsai Robotics is designed to navigate orchard and vineyard terrain with precision. Equipped with advanced vision technology, the vehicle supports tasks like spraying, mowing and hauling. (Photo courtesy Bonsai Robotics)

Imagery, Autonomy and the Path to Scale

The AI orchard ecosystem is broad, and autonomy companies are pushing reliability forward in a different dimension with consistent, safe execution of physical tasks.

Bonsai Robotics, which specializes in vision-based autonomy for vineyards, is building systems that can navigate dusty rows, changing terrain and fragile crops like table grapes.

"For grape growers, this means reliable automation that enhances efficiency and consistency in day-to-day tasks like hauling, spraying and mowing," said Joanna Normoyle, product and program manager for the Woodland, Calif.-based company. "Grapes require gentle handling and precise navigation to avoid damaging fruit and vines. Our system's advanced perception allows for safe operation in tight vineyard rows and minimizes crop impact."

Autonomy is expensive to deploy, but rapid payback is becoming a selling point. Normoyle noted growers typically recoup costs quickly.

"The efficiencies gained can begin offsetting upfront costs immediately, especially in times of labor shortages," she said.

The company is currently running commercial trials for spraying, weeding, mowing and harvest logistics, all core pressure points in California vineyards.

Aerial AI

Aerial AI adds another layer of reliability by giving growers a top-down understanding of plant stress, nutrient issues and irrigation uniformity at scale.

> "Growers want accurate, timely information, and AI is pushing the industry closer to plant-level, real-time intelligence."
> – Sarah Gonzalez, IFPA

San Francisco-based Ceres Imaging has AI systems to help global farming enterprises protect yield and increase resource-use efficiency.

"Ceres' insights are rooted in over a decade of high-resolution aerial imagery, proprietary sensors and ground-truth data," said Anubhav Sharma, head of marketing for the company. "Our AI models are trained and validated on more than 17 billion plant-level measurements."

Collaborations with UC Davis and major agribusinesses have strengthened those models across millions of acres.

Sharma noted that imagery doesn't replace field measurements, it amplifies them.

"Imagery shows where to look and how widespread the issue is," he said. "Probes, pressure tests and scouting confirm why it's happening and how to fix it."

The company also integrates confidence layers into every map so growers know how much trust to place in a given insight.

"Each map is delivered with metadata that includes signal quality and model confidence," Sharma said. "That transparency can support decisions ranging from irrigation adjustments to risk assessment for insurers and lenders."

Ceres performs most consistently in almonds, pistachios, walnuts and grapes—high-value perennial crops where canopy structure is stable and data volume is deep.

"We serve more than 30% of California tree nut growers," Sharma said, noting that the biggest accuracy challenges occur in newly planted blocks, highly variable canopies or areas with heavy weed pressure.

The Road Ahead

The reliability of AI in orchard management is steadily improving, but according to Gonzalez, the nature of the technology means it succeeds most when paired with human expertise, consistent data flow and clear expectations about what AI can and cannot do.

"Growers want accurate, timely information, and AI is pushing the industry closer to plant-level, real-time intelligence," she said. "But they also want reassurance that the insights they receive are trustworthy, transparent and operationally relevant."

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Treehouse Almonds Backs Biochar Venture to Build Better Soils

Treehouse Almonds and Sitos Group team up to deliver tailored biochar for California specialty crop growers

By **STEVE PASTIS** *Contributing Writer*

A PARTNERSHIP BETWEEN Treehouse California Almonds and biochar producer Sitos Group will soon result in a new production facility in Delano, California. The facility, housed in a 20,000-square-foot metal building on five acres, will include three continuous pyrolysis reactors to turn almond shells into biochar.

Biochar is a form of charcoal created through thermal decomposition and used to improve soil aeration, fertility and pH balance while reducing greenhouse gas emissions. Its use in agriculture dates back more than 1,000 years, when the Kuikuro tribe in the Amazon enriched soil with it to create nutrient-dense "terra preta," or dark earth.

Toward Commercial Launch

If everything stays on schedule, the facility will be operational by July, according to Jessica Bronner, director of business operations at Sitos Group.

More than 70 companies in the U.S. produce biochar, most commonly using gasification or fast pyrolysis. Both methods thermally decompose organic material into energy or biochar, but gasification uses limited oxygen at higher temperatures. Bronner said gasifier-produced biochar is common in Northern California and Oregon.

"The biochar we hope to produce is around 85-plus % carbon, and carbon

A pile of biochar made from almond shells shows the porous structure that helps retain water and support microbial life in soil. Treehouse Almonds and Sitos Group plan to produce up to 26,000 tons of biochar annually using almond shells and other feedstocks. (Photos courtesy Sitos Group)

is nonbiodegradable," Bronner said. "Unlike compost, which you apply year after year because the soil microbes eat it and use it as energy, biochar is inert. It's not going to be eaten by a microbe, but it will provide a 'house or condominium' for microbes to grow and populate."

Growers often make mistakes when using biochar, said Steve McIntyre, Sitos Group co-founder and president of Monterey Pacific.

"The biggest mistake is applying raw biochar to soil without compost," McIntyre said. "Biochar provides a stable structure for microbes, but compost provides the food. Without both, you don't get the full benefit. Raw biochar only supports the life already present in the soil, which is why we recommend 'pre-charging' it with compost to add more life."

The facility will also include a commercial-scale dryer powered by excess energy generated through exothermic equipment.

"They create more energy than they use," Bronner said. "We'll use that to support a microgrid or boiler system, and also to dry feedstock from 40% moisture down to 5% to ensure consistency."

Mayo Ryan, Sitos Group co-founder and CEO, said the system is designed with sustainability in mind.

"Once it reaches operating temperature, it largely sustains itself," he said. "It produces virtually no emissions aside from hot air, which we can reuse to generate renewable energy or steam."

Beyond production, the site will include an educational center. Sitos is partnering with the Butte County Office of Education to build a training program and will offer presentations and facility tours for growers and visitors.

"If someone just wants to know about biochar, we'll lead tours onsite, talk about how it performs in the soil, and do a presentation," Bronner said. ➲

Tractors inject biochar into vineyard rows as part of a long-term trial by Monterey Pacific. The company reported a 35% increase in crop yield after 10 years of biochar-amended soil management.

A rendering shows the future Sitos Group biochar production facility in Delano, California. The site will house three pyrolysis reactors and include an educational center for growers and visitors.

What Growers Need to Know About Biochar

Bronner said she advises growers to ask three key questions when sourcing biochar: What's the carbon content? How is it made? And what is the feedstock?

"The carbon content can vary from 50% to over 90%, and that matters from a grower's perspective," she said. "How it's made, whether it's batch-based, slow pyrolysis or gasification, affects the biochar's electrical charge and ash content, which all impact the soil."

"The carbon in biochar creates a stable home for beneficial microorganisms in the soil," McIntyre added. "Those microbes drive nutrient cycling and ultimately support healthier, more productive plants. The more carbon, the more stability for those microbes to populate and thrive."

Sitos uses slow pyrolysis, which retains the natural pore structure of the feedstock. Bronner said feedstock selection also plays a role in biochar performance.

"Slow pyrolysis exposes pores that are already existent in a feedstock," she said. "Hardwood has fewer pores than softwood or nutshells. Almond shell is naturally really porous. Thinking of a sponge, if you have really compact clay soils and you put a sponge in there, it's going to create a lot more aeration and be able to hold water."

According to Bronner, almond and coconut shells produce the highest quality biochar.

"Coconut shell is probably the highest-grade feedstock you could use. They even use it in lithium batteries because of the carbon quality," she said. "But almond shell is next on the list because of its porosity."

Sitos plans to use all of Treehouse Almonds' annual 15,000-ton almond shell output, sourcing an additional 9,000 to 11,000 tons from a local farmers co-op to meet their yearly production goals.

"We can customize biochar," Bronner said. "We can change pH values, use different feedstocks, change ash content. If somebody needed a lot of alkalinity in their soil, needed a high-ash biochar, we could make that."

"Soils are highly variable, so biochar shouldn't be one size fits all," Ryan said. "Our technology allows us to adjust properties like pH, water-holding capacity and cation exchange capacity by controlling temperatures at different stages of the pyrolysis process. These temperature changes create distinct biochar characteristics that can be matched to specific soil needs. Our equipment is also feedstock agnostic."

Bronner added that most producers offer just one type of biochar based on a single feedstock.

"With these other producers, you get what you get and you don't throw a fit," she said. "Our focus is biochar. We can tailor it to soil needs up and down the state, high pH, low pH, high cation exchange capacity, low EC."

Biochar in the Field

Location was no accident. The Delano facility sits just east of Highway 99, nestled between Tulare and Kings counties, two of the top three ag-producing counties in the U.S.

> "Soils are highly variable, so biochar shouldn't be one size fits all."
>
> —Mayo Ryan, Sitos Group

"Shipping is probably just as expensive as the material itself," Bronner said. "That's why we're trying to be closer to agriculture. We're the first biochar producer with a direct tie to ag, using ag byproducts and returning biochar to ag lands. We're the only one we know of doing that to date."

Sitos Group was formed by Ryan, who developed the company's pyrolysis technology, and McIntyre, a longtime grower. McIntyre had been using biochar in vineyards for a decade before teaming up with Ryan. As a subsidiary of Monterey Pacific, Sitos produces biochar that's used in the company's own vineyard operations.

"We're directly tied to ag," Bronner said. "We're a team of growers. We don't just sell biochar, we follow up, help apply it, check soils. That's our approach."

In a 10-year vineyard trial by Monterey Pacific, biochar led to a 35% increase in crop yield. The trial also showed improved soil water-holding capacity and fertilizer retention, reducing leaching during heavy rains.

"One of the biggest benefits the wine industry saw was crop resiliency," Bronner said. "We had a really bad crop year, and the biochar compost-amended plots just kept going like business as usual."

Sitos is now conducting its first in-house orchard trial and expects similar outcomes. While the company hasn't conducted its own citrus or vegetable crop trials, Bronner said that Central Valley citrus and avocado growers have used biochar for more than a decade. She noted that several external studies support its use in those crops.

Comments about this article? We want to hear from you. Feel free to email us at article@jcsmarketinginc.com

A New Kind of Gathering for the Growers Shaping the Future of Agriculture

The Enterprise Ag Summit brings together large-scale growers and agricultural innovators for focused conversations about the future of farming. Through curated meetings, peer discussions and practical education, the event is designed to help enterprise operations navigate the increasing complexity of modern agriculture.

‘The Enterprise Ag Summit brings together the growers and innovators shaping the future of large-scale agriculture.’

ACROSS CALIFORNIA agriculture, something significant is happening.

The farms that feed our communities and power our economy are becoming larger, more sophisticated and more complex than ever before. Enterprise operations now manage thousands of acres, advanced irrigation systems, massive equipment investments, labor teams and constantly shifting regulatory and market conditions.

Running an operation like that requires more than hard work. It requires the right information, the right technology and the right relationships.

Yet many growers will tell you that the places where they are supposed to find those answers are not always designed for real conversations.

Trade shows are valuable, but they can also be overwhelming. Hundreds of booths, thousands of attendees and a race down crowded aisles often make it difficult to sit down and have meaningful discussions about the real challenges facing modern farming.

That is exactly why the Enterprise Ag Summit was created.

The Enterprise Ag Summit is not another trade show. It is a curated gathering designed specifically for enterprise-scale growers and the companies developing solutions for the future of agriculture. Instead of walking a busy expo floor, participants engage in focused conversations, structured meetings and peer discussions that allow real ideas to surface.

It is designed to bring together the people who are shaping the future of farming.

A Different Kind of Ag Event

The concept behind the Enterprise Ag Summit is simple.

Bring the right growers together with the right companies in an environment designed for meaningful conversation. Rather than a massive event focused on volume, the summit focuses on quality. Participation is limited so that every person in the room adds value to the experience.

Enterprise growers attending the summit are leaders managing large-scale agricultural operations across California's specialty crop sector. These are growers constantly looking for better ways to operate, whether that means improving water efficiency, integrating new technologies, optimizing labor or strengthening crop management strategies.

On the other side of the table are agricultural suppliers bringing forward new solutions. These include companies developing precision agriculture platforms, biological inputs, automation technologies, irrigation systems, financial tools and management software designed to support large-scale farms.

When these two groups sit down together in a focused setting, powerful conversations happen.

One-to-One Meetings That Actually Matter

One of the defining features of the Enterprise Ag Summit is the structured meeting format.

Every participating grower sits down with a select group of suppliers during scheduled one-to-one meetings. These are not quick introductions or rushed conversations. Each meeting provides time to explore real operational challenges and discuss solutions in detail.

For growers, this means learning about tools and technologies that could meaningfully improve their operations. For suppliers, it provides the opportunity to speak directly with decision-makers responsible for large farming operations.

The meetings are curated to ensure the conversations are relevant and productive for both sides.

Instead of hoping to find the right connection in a crowded trade show environment, the summit brings the right people together intentionally.

Growers Learning From Growers

Another important part of the summit experience is the time growers spend with each other. ➲

Educational sessions and speaker presentations focused on the issues shaping large-scale agricultural operations will be showcased at the Enterprise Ag Summit (Photo K. Platts.)

Agriculture can be a lonely profession. Many growers face complicated decisions every season about crop strategies, labor management, water resources and long-term business planning.

Those challenges are not always easy to talk about in public industry settings.

The Enterprise Ag Summit creates a space where growers can have honest conversations with peers operating at a similar scale. These discussions often turn out to be some of the most valuable moments of the event. Growers share what is working, what is not working and what changes they are seeing across the industry. When experienced operators exchange ideas in a relaxed environment, new strategies and perspectives often emerge.

It is a reminder that agriculture moves forward not just through technology, but through shared experience.

Education Focused on the Real World

Alongside meetings and networking opportunities, the Enterprise Ag Summit also includes focused educational sessions.

These sessions are designed around the real challenges growers are facing today.

Topics may include areas such as:

- Water management and regulatory navigation
- Labor shortages and automation solutions
- Emerging crop protection technologies
- Precision agriculture and data integration
- Long-term financial strategy for large farms
- Preparing agricultural businesses for the next generation

Speakers are selected not for theory, but for their experience solving real problems in agriculture.

The goal is to ensure every grower attending leaves with insights they can apply immediately to their operations.

A Hosted Experience for Growers

One of the most unique aspects of the Enterprise Ag Summit is that qualified growers attend the event at no cost. The summit is designed to respect the value of a grower's time.

Selected growers receive a fully hosted experience that includes:

- Complimentary access to the entire summit program
- Curated one-to-one meetings with agricultural suppliers
- Educational sessions and industry discussions
- Networking with other enterprise growers

• Hosted meals and evening networking experiences

The goal is simple. Growers should leave the summit with new relationships, new ideas and new strategies that can help strengthen their operations. By removing the cost barrier, the summit makes it easier for growers to participate and focus on what matters most: learning, collaboration and innovation.

Why Suppliers Value the Summit

For agricultural companies, connecting with the right growers can be one of the biggest challenges in the industry. The Enterprise Ag Summit creates an opportunity for suppliers to meet directly with growers responsible for large-scale farming operations.

Instead of trying to capture attention in a crowded trade show environment, suppliers participate in scheduled meetings with growers who are interested in exploring solutions. This allows suppliers to explain their technologies, understand the needs of growers and begin building relationships that can lead to long-term partnerships.

It is a more thoughtful and productive approach to connecting innovation with agriculture.

Built on Relationships and Shared Vision

Agriculture has always been built on trust and relationships, and the Enterprise Ag Summit was designed with that idea in mind. When growers and suppliers spend time together in a focused environment, conversations naturally move beyond product features and marketing pitches. Participants begin discussing long-term strategy, operational challenges and opportunities for collaboration.

These are the types of conversations that drive progress in agriculture.

Many of the relationships formed at events like this continue long after the summit ends. Because the Enterprise Ag Summit focuses on quality interaction rather than large attendance numbers, participation in the event is limited.

Growers are invited based on the scale of their operations and their interest in innovation and strategic growth.

Suppliers are selected based on their ability to provide solutions that can support the future of enterprise farming.

However, the organizers are always interested in hearing from growers and suppliers who believe they would benefit from participating. Enterprise growers who are interested in attending future summits are encouraged to apply for consideration. Qualified growers may be selected to attend as guests and receive the full hosted summit experience. Agricultural suppliers developing technologies or services designed to support large-scale farming operations are also welcome to express interest in participating.

The goal is to continue building a room filled with forward-thinking leaders who care about the future of agriculture.

If you are a grower or supplier who believes you should be part of that conversation, we would love to hear from you.

When the right people come together to share ideas, agriculture moves forward.

‘When the right people come together to share ideas, agriculture moves forward.’

What Makes the Enterprise Ag Summit Different

Instead of a traditional expo environment, the Enterprise Ag Summit is designed around focused conversations and curated connections for large-scale growers.

Summit participants experience:

• Curated one-to-one meetings with agricultural innovators
• Peer discussions with enterprise-scale growers
• Education focused on real operational challenges
• A hosted experience designed to respect growers’ time
• Direct access to technologies shaping the future of agriculture

The goal is simple: create an environment where meaningful conversations lead to better decisions for modern farming operations.

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A COP-R-LOCK device is installed on a rural irrigation pump to deter copper wire theft. The tamper-triggered system sends real-time alerts and activates alarms, giving law enforcement a critical window to respond before thieves can flee.

Ag Theft on the Rise Across California

What can be done to stop this major challenge to farmers?

By **KEITH LORIA** *Contributing Writer*

AGRICULTURAL THEFT HAS become one of the most persistent and costly threats to California farmers, particularly across the Central Valley, and experts say the crisis is taking a heavier toll each year. After all, what used to be considered an unavoidable nuisance has now evolved into a widespread economic menace, straining farmers, insurers and law enforcement agencies alike. The financial fallout reaches far beyond the farm.

Theft losses cause costly downtime, delayed harvests, higher repair bills, labor inefficiencies and elevated insurance premiums. In some counties, the economic impact even threatens long-term operational stability for growers.

"It's not a question of who's been affected," said Ryan Jacobsen, CEO of the Fresno County Farm Bureau and a fourth-generation farmer. "It's who hasn't been affected at this point because it's so widespread and prevalent."

In Tulare County, a region with more than $8 billion in annual agricultural production, Lt. Rady Gunderman, who leads the Sheriff's Ag Crimes Investigations Unit, sees clear seasonal patterns.

"As we go into winter, battery and fuel thefts from wind machines are increasing," Gunderman said. "As we head into the spring, beehives will be targeted. Equipment and vehicle theft is constant and copper wire theft doesn't stop."

The same trends are appearing throughout the Central Valley, including in Fresno, Kings, Kern and Stanislaus counties, which are major hot spots for metal and equipment theft. Gunderman noted the farther

Copper wiring was stripped from this agricultural control box, leaving irrigation and monitoring systems vulnerable to disruption. (Photos courtesy FarmBlox)

farms sit from main roads, the more emboldened criminals become.

Copper Theft Has Become More Destructive

Copper wire theft remains the No. 1 and most damaging crime across the region.

"Criminals are still committing the same types of theft with the same type of tactics," said Bobby Rader, a 16-year law enforcement veteran and one of California's top ag crime experts. "The biggest change is the amount of damage. Over the last 10 years, we've seen them using vehicles to rip the copper out of the ground, which results in massive and very expensive damage to the infrastructure."

Jacobsen has watched the same trend unfold in Fresno County.

"On average, they're going to steal $20,000 to $60,000 worth of copper," he said. "But the damage can cost anywhere from $2,000 to $15,000 to repair because of the complexities of going back and putting the wire back in."

In many cases, the metal itself is worth less than the destruction left behind, which includes broken pumps, mangled wiring systems, disabled irrigation sites and halted operations. Those secondary losses can sometimes exceed the value of the crop itself, especially for high-water-demand commodities like almonds, citrus and grapes.

Organized Crews Target High-Value Equipment

While many thefts are opportunistic crimes, the most profitable operations are run by organized crews who know the equipment they're after.

"The reason ag equipment is targeted can be attributed to a couple of things," Gunderman said. "It's expensive to purchase, continues to increase in value, and it's versatile. Small tractors, construction equipment, they all hold value."

But it's not just your run-of-the-mill bad guy doing the crime. The crews stealing them are usually highly knowledgeable.

"They're employing people who know equipment makes, models and operations," Gunderman said. "They go after newer, low-hour equipment and know where factory-installed GPS units are attached. They remove them on site, move the equipment, let the trail go cold and then load them into unconventional tractor trailers for transport."

These thefts aren't limited to Tulare. Kern, Kings and Stanislaus counties have seen similar incidents, often linked across county lines. That's why Tulare participates in the statewide California Rural Crime Prevention Task Force and a regional partnership with Fresno, Kings and Kern counties.

"With the networking we've created, we have great relationships with agencies across the state and are able to get assistance when needed," Gunderman said.

Why Many Thefts Go Undetected

One of the biggest challenges for deputies in fighting ag theft is timing.

"Often the realization of the theft is days or weeks old by the time it's reported," Gunderman said. "Evidence has disappeared or been damaged, or it simply isn't reported at all. If we don't know, we can't help and it becomes harder to establish patterns."

That delay gives criminals a wide window of opportunity. Rader noted thieves know that remote farms create perfect cover.

"I've interviewed these criminals countless times," he said. "They tell me, 'I'm not worried. Nobody can hear me. I'm surrounded by almonds or grapes or walnuts. The cops won't even get involved for weeks because the farmer won't know until they drive by and see it.'"

Their confidence has only grown in recent years, and that makes things even more worrisome.

The Financial Fallout

The cost of stolen property is only the beginning.

"The financial impacts are massive and difficult to describe," Rader said. "They're so big and so common that we're seeing insurers leave the state. Deductibles are rising to a level where each farmer has to decide at what level they self-insure."

That can be devastating and can ruin a farm for good.

"I know farmers personally who've had $50,000, $80,000, $100,000 thefts that they paid for out of pocket ➲

because they'd probably be dropped as a client once it's paid," Rader said.

For that reason, many growers simply opt out of filing claims altogether, preferring to absorb the loss rather than risk rate hikes or policy cancellations.

Law enforcement budgets are stretched thin as well, so there's not always enough money to fight the problem.

"We spend an enormous amount of resources on manpower, time and equipment trying to combat ag crime and help farmers," Rader said. "There are maybe 15 ag crime units in the state of California."

Farmers Fortify Their Properties

Growers are using every tool available to protect their operations, but it's not always enough. That's why more and more are investing in new ways to deter the thieves.

"Harden your target," Gunderman said. "Locks, fences, lights, cameras, alarms, guard dogs. If your place is a fortress, the criminal may bypass it."

Jacobsen recommended other ways farmers can protect themselves, including installing concrete sleeves and barriers on pumps, switching from copper to aluminum wiring, applying unique paint or owner-applied numbers to metal equipment, using GPS tracking on high-value equipment, or adding camera systems with cellular connectivity.

But even with these precautions, Jacobsen noted theft trends ebb and flow with commodity prices.

"When copper rises, thefts go up," he said. "There's a very high association with drug users when it comes to metal theft. As prices go up, the willingness to steal increases."

After years of feeling one step behind thieves, Rader reached a breaking point.

"Two years ago, 3:30 in the morning, I'm drinking coffee in my kitchen and I'm mad," he said. "Thinking about cases we're working and trying to find a solution."

He sketched an idea on a napkin, a tamper-triggered alert system that would notify farmers and law enforcement the instant a theft attempt began. That concept became COP-R-LOCK, now being piloted by Farmblox and several large growers.

"What sets COP-R-LOCK apart is that it's the only one of its kind," Rader said. "If you install it throughout your infrastructure, there's no way they can begin cutting wire or opening panels without the system initiating."

> "It's not a question of who's been affected. It's who hasn't been affected at this point because it's so widespread and prevalent."
>
> **– Ryan Jacobsen, CEO of the Fresno County Farm Bureau and a fourth-generation farmer**

The system triggers loud alarms, sends immediate alerts and creates enough panic to disrupt the crime in progress. After all timing is everything.

"Getting law enforcement involved in the first 90 seconds instead of two weeks is an unbelievable game changer," he said. "It gives us a real shot at finding and stopping these criminals before they keep going."

Rader hopes COP-R-LOCK sparks a broader technological wave.

"My hope is that people recognize what we've done and build new ideas," he said. "There's been a lack of innovation in the ag crime space because nobody considered it a space. People just got used to it."

Jacobsen agrees that growers want to see proven solutions like this and that technology could eventually help reverse crime trends if tools are reliable.

While Gunderman sees promise in a future where farmers have stronger defenses and law enforcement can respond in real time rather than long after the fact, he knows that technology alone isn't going to be the answer.

California's policy choices, particularly bail reforms and sentencing guidelines, have reduced deterrence and emboldened repeat offenders.

"With reduced sentences, zero bail and little to no consequences, the criminal element has all the opportunity," Gunderman said. "Insurance premiums will climb, cost of goods will elevate and the bottom line for the producer will decrease."

A Crisis Too Costly to Ignore

As theft becomes more brazen and more organized, California agriculture is confronting an uncomfortable truth: the economic stakes are rising faster than the solutions.

The impact, from stolen copper to six-figure repairs, from rising insurance premiums to law enforcement strain, ripples across the entire rural economy. For now, growers, law enforcement and innovators are fighting the same battle from different angles, fortifying properties, building technology, coordinating across counties and pushing for policy changes, hoping to create a better world for the farmers.

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Hard Decisions, Fewer Acres

How water uncertainty under SGMA is forcing California growers to plan earlier and operate with less flexibility

By **KRISTIN PLATTS** *Editor*

Irrigation infrastructure lines a prepared field as growers build seasonal strategies around expected water allocations and pumping constraints, a shift UC ANR farm adviser Moneim Mohamed said is reshaping planning decisions. (Photo K. Platts)

JASON GIANNELLI HAS SOME hard decisions to make. Farming in Kern County, where groundwater restrictions are reshaping what's possible, he's weighing which acres stay in production and which he'll fallow. Knowing he still has to pay taxes on idle ground and carry overhead and financial risk, it's not a decision he takes lightly.

These choices are deliberate, planned well ahead of the season and driven first by determining how much water is realistically available and how reliable it is. From there, everything else, like crop mix, acreage and investment, follows.

As California's Sustainable Groundwater Management Act, or SGMA, moves from long-term mandate to everyday reality, growers like Giannelli across the state are being forced to make planning and investment decisions earlier, with less certainty and fewer workable options. From deciding which acres stay in production to determining how much risk a farm can absorb, water has become the primary constraint shaping agricultural decision-making, often before labor, inputs or market conditions enter the equation.

"Nobody wants to leave their ground fallow, because you're still paying taxes on it," Giannelli said. "It's costing you money whether you're making money from it or not."

As he looks to prioritize his land, he said they're mainly looking at what ground is most valuable and leaving ground out that's not as valuable to maximize production with less water. Like many other parts of the state, water planning has had to become strategic, and it's being increasingly dictated by continuing groundwater limits rather than annual variability.

Even in years when rain and snowpack appear strong, allocation realities don't always follow. For Giannelli, the question isn't whether water will arrive but how much, and whether that number will be enough to sustain a season.

"Are we going to have 30% allocation? 40%? We're already at 10%," he said.

The unpredictability adds another layer of stress.

"We're looking at the rain and snow and thinking, this doesn't make sense," he said. "We should be at 70% right now."

That disconnect between visible supply and actual allocation forces growers to plan conservatively, often assuming less water than optimism might suggest.

Of course, water uncertainty doesn't stop at the edge of the field, it also

As growers make long-term decisions about which acres to keep in production under groundwater restrictions, orchard removal is often a tough but necessary choice. (Photo C. Parsons)

> “Nobody wants to leave their ground fallow, because you’re still paying taxes on it. It’s costing you money whether you’re making money from it or not.”
>
> **– Jason Giannelli, Kern County grower**

follows growers to the bank. In basins facing long-term groundwater limits, lenders are increasingly underwriting acreage based not only on yield potential but on the reliability of its water supply.

“You’ve got banks not lending money unless you’ve got enough capital to back yourself up,” Giannelli said. “They’re not going to loan money on marginal ground.”

Efforts to pivot to alternative crops don’t necessarily provide relief either, Giannelli said. Financing for new plantings often requires secured contracts and demonstrated market stability, raising the bar for growers attempting to adapt under tightening water constraints. The result is a compounded risk of constrained water allocations, more conservative lending standards and fewer economically viable alternatives, each reinforcing the next and further narrowing operational flexibility.

A Statewide Shift

Giannelli’s story isn’t unique.

Across California, UC ANR irrigation and soils farm adviser Moneim Mohamed said growers are now putting water at the very front of their planning conversations, often before labor availability, input costs or market conditions.

“Water is the first thought in the grower plan,” Mohamed said. “Growers are asking, ‘How much water do I realistically have, and how reliable is it?’ Once that’s clear, they can decide acreage, crop load strategy and how aggressive they can be with other inputs.”

The shift has pushed many decisions that were once adjusted midseason into the months before planting even begins. Mohamed said growers are increasingly building entire seasonal strategies around expected allocations and pumping constraints instead of hoping to adapt later.

He said a lot of the midseason adjustments are now being decided preseason.

“Growers are asking, ‘What’s my likely allocation? What are my pumping constraints? How much risk am I willing to take?’ Then they build a seasonal strategy around that,” he said.

As water becomes more limited or uncertain, Mohamed said growers are also prioritizing orchards and fields more aggressively than in the past. Decisions are being driven by crop value, orchard age and overall risk, with lower-performing or higher-risk blocks often receiving less water or being considered for removal.

Those collective pressures are also shaping longer-term investment decisions. While growers continue to invest in projects that improve water productivity, Mohamed said many are holding back on expansion or major redevelopment when the water outlook remains unclear.

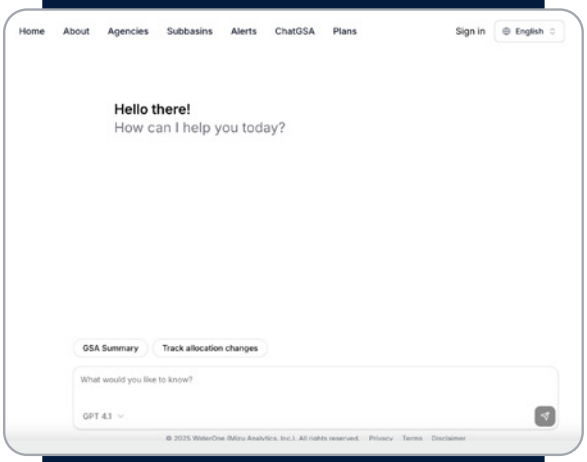
“I’m seeing growers invest in system upgrades, automation and monitoring,” he said. “But they hesitate on expansions or major redevelopment if the water outlook is still unclear.”

The result, Mohamed said, is a growing focus on fewer acres managed more intensively, with the goal of reducing risk rather than maximizing footprint.

“Some growers are reducing the acres they farm at peak intensity and focusing resources on fewer, better blocks to reduce risk,” he said.

Planning Amid Uncertainty

Growers are no longer planning around a number; they’re planning around uncertainty. As planning decisions move earlier and flexibility narrows, access to timely, accurate water information has become its own challenge. For many growers, ➲



The ChatGSA platform from WaterOne.AI provides summaries and searchable records of groundwater sustainability agency meetings to help growers track allocation updates and policy changes. (Photo courtesy of WaterOne.AI)

staying current on groundwater allocations, pricing and policy updates requires time they just don't have during the season.

That's a gap Tomo Kumahira set out to address when he co-founded WaterOne.AI. The company attends GSA and water board meetings on behalf of its users and distills hours of discussion into short summaries, podcasts and a searchable database growers can reference when questions arise.

"They can get accurate information without having to sit through three hours of meetings," Kumahira said.

One of the platform's tools, called ChatGSA, allows users to ask specific questions drawn from verified meeting records, such as deadlines, eligibility requirements or policy updates. Some growers, including Giannelli, are already using the tool to track how groundwater agencies across the region are approaching their plans.

"It just helps me see what is going on in other GSAs, how they are handling their plans and whether the decisions are going in the right direction," Giannelli said.

Kumahira said the goal isn't to replace direct engagement with GSAs but to help growers filter information quickly and decide when follow-up conversations are necessary.

"Sometimes you just want to ask a very simple question, like when is the deadline," he said. "Instead of trying to chase someone for days, you can start there."

He and his co-founder, Ryo Takanashi, personally review meeting transcripts to ensure accuracy before summaries are released, but Kumahira is careful to emphasize that WaterOne.AI is designed as a decision-support tool and isn't a substitute for human judgment.

"Our stance is not that AI is universally useful, it has its own limitations," Kumahira said. "That's why we spend time reviewing the transcripts and double checking anything that doesn't sound right."

He also stressed the importance of maintaining a constructive relationship with GSAs, noting that most agencies are actively trying to engage growers and work through challenges collaboratively.

"Our goal is not to attack GSAs or agencies," he said. "Most of the time, they're working really hard to reach out to growers, and it's a win for everyone when those conversations happen sooner rather than later."

For growers already planning around uncertainty rather than fixed numbers, Kumahira said tools that streamline information can help reduce delays and support more confident decision-making, especially when water availability ultimately determines how much risk a farm can afford to take.

Taken together, these perspectives show a structural shift in California agriculture. Farming fewer acres, deploying capital more cautiously and making decisions earlier aren't temporary adjustments anymore but part of a new operating model shaped by groundwater limits.

"We've been planning for it for a while," Giannelli said. "It's not reactive. It's just how can we keep things running while dealing with SGMA."

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Jason Giannelli and his children, Millie and Oliver, stand in front of a tractor on the family farm. (Photo courtesy of Jason Giannelli)

Co-Founder and CEO of WaterOne AI Tomo Kumahira at World Ag Expo in Tulare, where the company promoted its "Four Hour GSA Meeting in 6 Minutes" podcast, a tool aimed at helping growers stay current on groundwater sustainability updates. (Photo by J. Visser)

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Seven Lessons Top PCAs Taught Me About Building a Profitable Ag Business

What elite crop advisers have to teach about decision-making, risk management and building resilient agricultural businesses that perform year after year

By **JASON SCOTT** *Publisher*

IN CALIFORNIA AGRICULTURE, there's a unique kind of professional who quietly shapes the success of thousands of acres without ever asking for attention. The top pest control advisers, better known as PCAs, operate at the intersection of science, economics and trust. They're equal parts agronomist, risk manager, strategist and relationship builder.

Over the years, working alongside growers, retailers and consultants across the state, I've noticed something powerful. The very principles that help elite PCAs grow exceptional crops are the same principles that build resilient, profitable agricultural businesses.

Here are seven lessons the best PCAs have taught me about growing crops and building long-term enterprise value.

> Growing a crop and growing an ag business are remarkably similar endeavors.

1 You Don't Guess, You Scout

The best PCAs don't operate on assumptions. They walk fields, pull leaves and dig roots. They study trap counts and degree days. They look at data before prescribing solutions.

Guessing costs money, but scouting creates clarity.

The same principles apply to business. Too many companies make marketing, hiring or expansion decisions based on opinion instead of measurable signals. The strongest agricultural enterprises operate like strong consultants. They review performance dashboards, analyze campaign metrics, and track lead flow and customer retention.

In crops, scouting protects yield. In business, measurement protects margin. The discipline of gathering information before acting separates professionals from amateurs.

2 Timing Beats Perfection

Agriculture punishes hesitation. Miss a spray window, delay irrigation adjustments or react late to pest pressure and the costs can compound fast. The best PCAs understand that a well-timed decision often outperforms a theoretically perfect one made too late.

In business, that lesson is equally critical. Whether it's launching a new service, locking in sponsorships, expanding acreage or entering a new market, delayed action often becomes the most expensive line item.

Perfection is often just procrastination dressed up as caution.

High-performing PCAs understand growth stages and thresholds and environmental conditions, and know when to move. Successful ag leaders adopt that same posture by acting decisively when indicators line up, even if the plan isn't flawless.

Momentum compounds just like pest pressure does.

3 Inputs Don't Fix Broken Systems

You cannot fertilize your way out of poor soil structure. You cannot spray your way out of poor sanitation. You cannot irrigate your way out of poor drainage.

Top PCAs understand systems thinking. They look at orchard design, irrigation uniformity, pruning strategy, soil biology and historical pressure patterns. They understand that products are tools, not solutions in isolation.

The same holds true in enterprise agriculture. Throwing more money at advertising won't fix a weak sales process. Adding more staff won't solve unclear leadership. And buying new software won't fix poor accountability.

Systems create outcomes, and inputs amplify systems.

The strongest ag businesses invest in foundational infrastructure: clear strategy, defined roles, reliable data and consistent execution. When those systems are strong, marketing dollars, labor and capital investments produce exponential returns.

When they're weak, inputs simply become expensive experiments.

4 Every Acre Is Different

No two blocks behave exactly the same. Soil variability, historical pressure, microclimates, irrigation uniformity and varietal differences all create unique management needs. The best PCAs never apply a blanket recommendation without considering block-specific realities. They customize programs, adjust rates and modify timing.

The same holds true in business development. No two customers respond identically, just as no two markets behave the same. What works for one region, commodity or grower segment might not translate elsewhere. High-growth enterprises avoid copy and paste strategies. Instead, they segment their audience, tailor messaging and design solutions specific to customer profiles.

Customization signals expertise and builds trust.

When a PCA shows up with a recommendation specific to your ranch, it communicates care and competence. When a business presents a solution designed specifically for your operation, it carries weight.

Precision builds authority.

5 Risk Is Managed, Not Avoided

Agriculture is inherently risky. Weather shifts. Markets fluctuate. Pests adapt. Regulations evolve.

The top PCAs don't pretend that risk disappears. They design programs that manage it and diversify modes of action. They rotate chemistries, plan for resistance and prepare for worst-case scenarios before they happen.

Avoiding risk entirely is impossible, but managing it intelligently is the mark of leadership.

In enterprise agriculture, the same principle applies. Companies that cut all marketing during down cycles often disappear from the conversation entirely. Operations that refuse to invest in technology fall behind competitors who embrace efficiency.

Risk management doesn't mean reckless expansion; it means informed positioning.

The most respected ag businesses build diversified revenue streams and invest in data. They cultivate multiple customer relationships. They protect downside while positioning for upside.

That mindset mirrors the best integrated pest management programs in the field.

6 Relationships Matter as Much as Results

The top PCAs I know aren't just technical experts, they're trusted advisers. Growers call them before making major decisions and retailers rely on them for insight because their word carries weight.

Why? Because trust compounds season after season.

A single good recommendation doesn't create loyalty; consistent reliability does. ➲

A grower measures plant spacing in a vegetable field, reinforcing the principle that disciplined scouting and data-driven decisions protect both yield and profitability (Photo courtesy Joseph Heckman Rutgers University.)

In business, especially in agriculture, relationships are currency. Deals are often made between people who have walked orchards together, shared coffee at sunrise meetings or sat side by side at industry conferences. Authority is built through demonstrated competence, and loyalty is built through consistent integrity.

The strongest enterprises understand this. They show up year after year to support the industry when margins are tight. They communicate clearly, and they follow through.

7 Long-Term Thinking Outperforms Shortcuts

Perhaps the most important lesson I've observed from elite PCAs is their commitment to long-term health over short-term optics.

Skipping a pheromone program might save money this season, but the compounding pressure can create far greater costs next year. Delaying sanitation might look efficient in the short term, but it often leads to more severe infestations later.

Shortcuts almost always create deferred consequences.

The same principles govern enterprise growth. Cutting brand visibility during downturns might protect quarterly numbers but can erode market position. Underinvesting in leadership development might save payroll in the moment but weaken the organization
over time.

The most successful ag businesses operate with multiyear horizons. They plant orchards knowing full well the returns aren't immediate and build brands knowing that credibility compounds slowly.

In both crops and commerce, sustainability always wins.

The Enterprise Parallel

When I reflect on the best PCAs across California, I see a pattern. They're disciplined, data-driven, relationship-focused, strategic, decisive and long-term thinkers.

These aren't just crop management traits, they're enterprise leadership traits.

Growing a crop and growing an ag business are remarkably similar endeavors. Both require patience and urgency at the same time, technical expertise and emotional intelligence, punish complacency and reward disciplined consistency.

The leaders who thrive in California agriculture understand that fields and financial statements respond to the same core principles:

- Measure before acting.
- Move when the window opens.
- Strengthen systems before adding inputs.
- Customize with precision.
- Manage risk proactively.
- Build trust intentionally.
- Think beyond the current season.

Top PCAs rarely seek the spotlight, yet their mindset offers a blueprint for every ag enterprise that wants to grow stronger, more profitable and more resilient. In the end, whether you're managing 2,000 acres of almonds or leading a multimillion-dollar ag company, the question is the same: Are you operating reactively, or are you building a system designed to win year after year?

The field always reveals the answer.

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YOU'VE BUILT WEALTH THE HARD WAY.

YOUR FINANCIAL STRATEGY SHOULD RESPECT THAT.

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Workers load harvested product into mechanical processing equipment, reflecting the hybrid labor and automation systems increasingly shaping California specialty crop operations. (Photo by K. Platts)

Shipping containers move through a California port facility, reflecting the global export networks that shape specialty crop market leverage and exposure. (Photo courtesy Port of Oakland)

Three Forces Reshaping California Specialty Crops

Why 2026 Is a Strategic Inflection Point for Enterprise Growers

By **JASON SCOTT** *Publisher*

CALIFORNIA SPECIALTY CROP agriculture operates at global scale. The state produces nearly half of the fruits and more than three-quarters of the vegetables in the United States. In 2024, California agriculture generated $61.2 billion in cash receipts and $23.8 billion in exports.

That scale creates influence, but it also creates exposure.

In 2026, three structural forces are reshaping how serious operators think about labor, global markets and enterprise discipline. The growers who recognize these shifts early will not just adjust. They will strengthen their long-term position.

1. Workforce Evolution Is Accelerating Operational Modernization

Specialty crops remain labor-intensive. Harvesting, pruning, thinning and packing require skilled workers, and labor costs

represent a significant share of operating expenses for many fruit, vegetable and nut producers.

The H-2A guest worker program has continued to expand nationally in recent years, reflecting increasing reliance on structured labor pathways across U.S. agriculture. At the same time, federal funding for specialty crop mechanization and automation research has grown, signaling recognition at the policy level that labor innovation is critical to long-term competitiveness.

This is more than a workforce challenge. It is a modernization catalyst.

The growers who build hybrid labor systems now, combining structured guest worker programs, strong retention strategies and targeted automation investments, are building predictability into their operations. Labor planning is becoming a year-round enterprise discussion rather than a seasonal reaction.

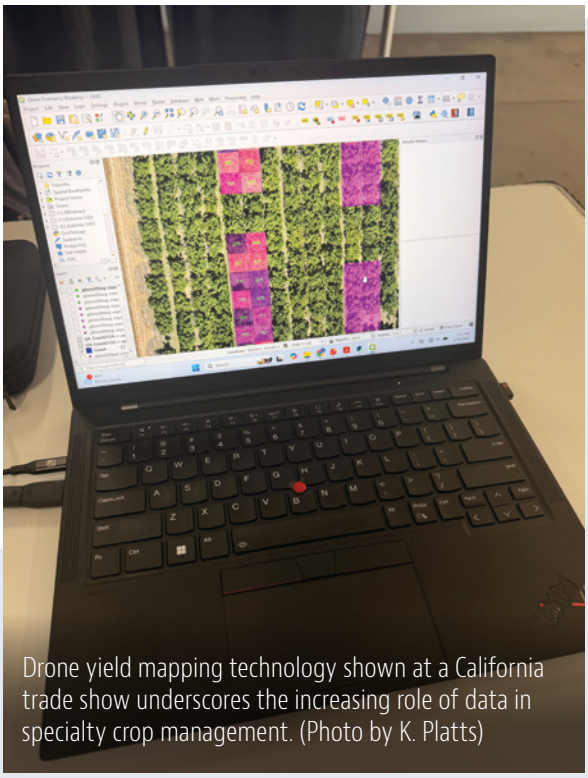
Volatility is forcing innovation. And innovation favors operators who invest early and think long term.

2. Global Trade Realignment Is Shifting Market Leverage

California remains one of the largest agricultural exporters in the world, shipping $23.8 billion in agricultural goods in 2024. That export footprint makes specialty crop growers highly connected to global economic conditions.

In recent years, tariff adjustments and trade shifts involving Canada, Mexico, China and the European Union have reshaped export flows. While these changes have created short-term disruption in some markets, they have also accelerated diversification.

Almonds provide a strong example. California produces roughly 80% of the world's almond supply, making it one of the most globally exposed specialty crops. Trade tensions in prior years, including retaliatory tariffs from China, forced exporters to expand into alternative markets.



Drone yield mapping technology shown at a California trade show underscores the increasing role of data in specialty crop management. (Photo by K. Platts)

Mexico has strengthened as a trading partner across multiple commodity categories. Southeast Asian markets continue to grow in importance. Buyers are increasingly spreading sourcing risk across regions.

The broader takeaway is clear. Trade volatility redistributes demand. It does not eliminate it.

Growers who cultivate diversified export relationships gain leverage. They reduce concentration risk and ➲

An irrigation outflow system equipped with monitoring technology illustrates the infrastructure investments required to manage water and energy risk in California specialty crop production. (Photo by K. Platts)

strengthen negotiating power with buyers. Global awareness is no longer a secondary function. It is a core enterprise capability.

3. Enterprise Discipline Is Becoming the Competitive Divider

Specialty crops account for more than one-third of U.S. crop sales and exceed $75 billion in annual farm-gate value. With that economic weight comes complexity.

Rising input costs across almonds, berries, lettuce, apples and other specialty crops have compressed margins in recent years. Fertilizer, fuel, compliance, insurance and labor costs have all contributed to tighter operating environments.

Leading growers are responding with structure.

Enterprise operators are implementing quarterly export and pricing reviews, labor forecasting aligned with harvest windows, capital allocation models that account for volatility and formal risk dashboards reviewed at the ownership or board level.

This level of governance is no longer reserved for publicly traded companies. Large private operations are institutionalizing these practices to improve financial clarity and long-term resilience.

Discipline increases lender confidence. It strengthens succession planning. It improves enterprise valuation.

In a more volatile environment, structure compounds.

The Strategic Reality for 2026

California specialty crop growers sit at the intersection of workforce evolution, global trade realignment and rising enterprise complexity. These are not temporary disruptions. They are structural shifts.

The growers who thrive in 2026 and beyond will treat labor as a strategic system, diversify export exposure before volatility forces urgency and formalize governance before complexity erodes margins.

California agriculture has always led through innovation. The difference today is the speed of change and the level of global integration.

The three forces reshaping California specialty crops are not signals to retreat.

They are signals to lead.

> ‘The growers who recognize these shifts early will not just adjust. They will strengthen their long-term position.’

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