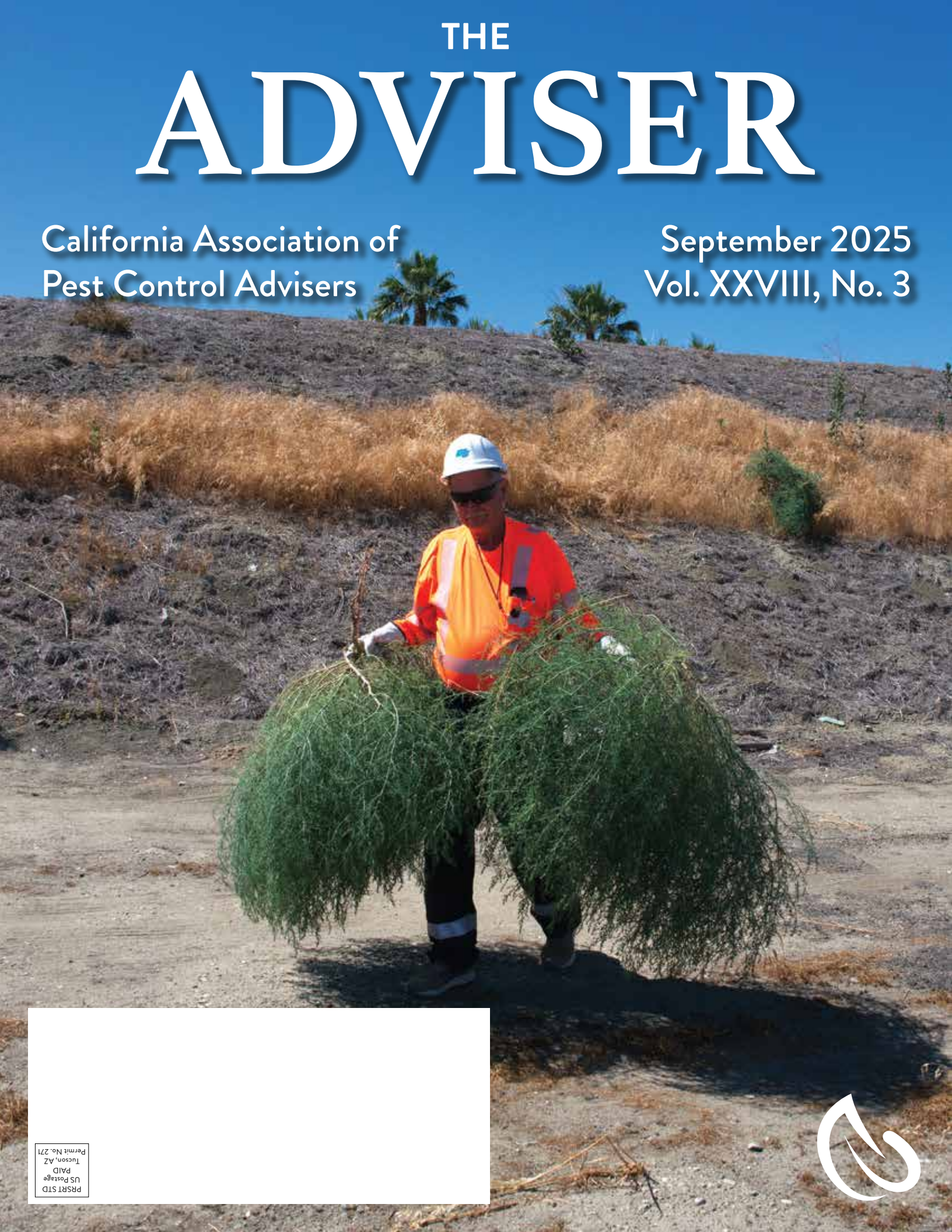
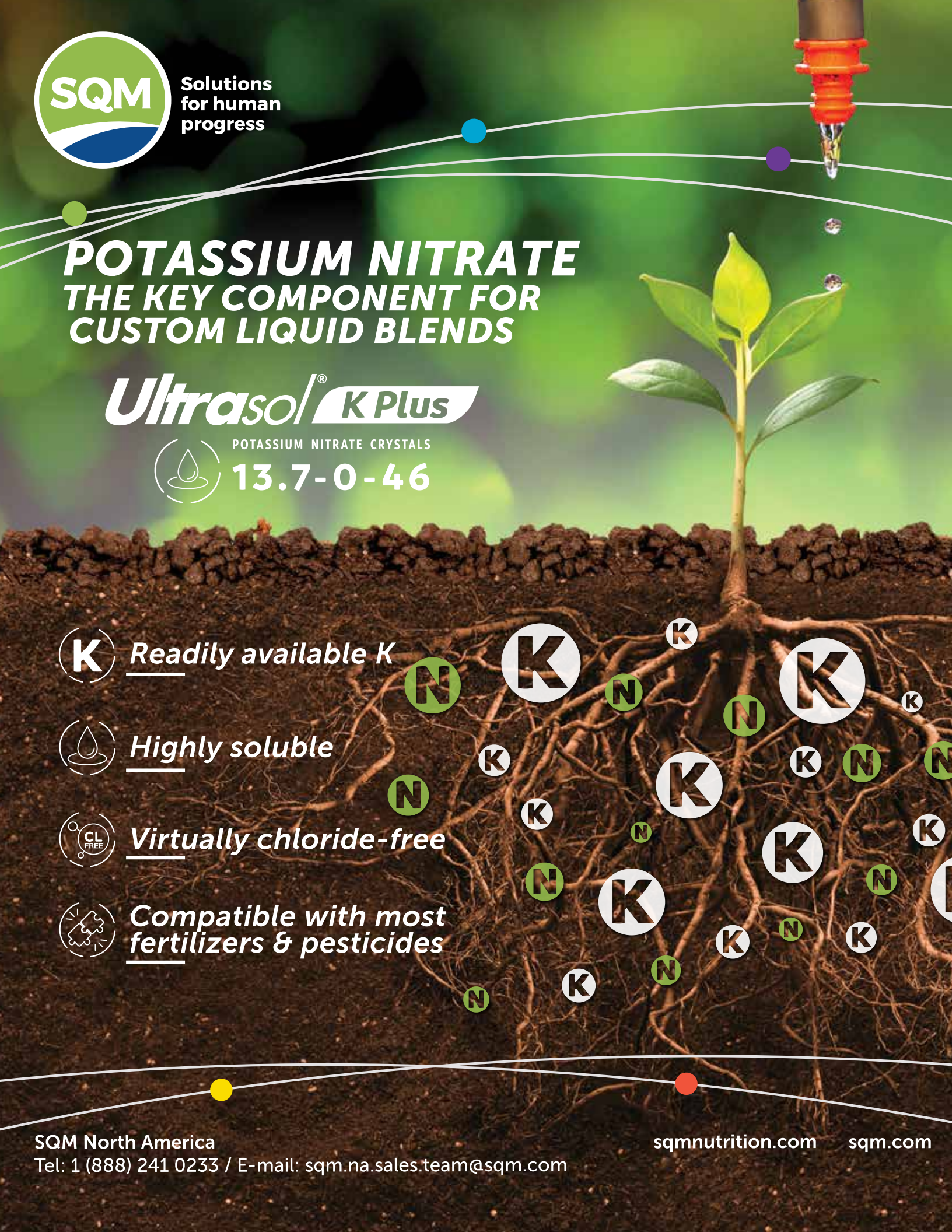
THE ADVISER

California Association of Pest Control Advisers

September 2025
Vol. XXVIII, No. 3

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CONTENTS

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FEATURES

DEPARTMENTS

CAPCA

MISSION & PURPOSE: California Association of Pest Control Advisers (CAPCA) is a non-profit voluntary mutual benefit association that represents 75% of the 4,000 California EPA licensed pest control advisers. CAPCA's purpose is to serve as the leader in the evolution of the pest management industry through the communication of reliable information. CAPCA is dedicated to the professional development and enhancement of our members' education and stewardship which includes legislative, regulatory, continuing education and public outreach activities.

PUBLISHING INFORMATION: CAPCA Adviser is published bi-monthly by the California Association of Pest Control Advisers (CAPCA), 555 University Ave., Ste. 260, Sacramento, California 95825. Web: www.capca.com, (916) 928-1625. POSTMASTER: send address change to CAPCA. A portion of CAPCA membership dues is used to provide subscription privileges to the Adviser magazine. Non-member subscriptions are $30/year. Third class bulk postage paid at Tucson, AZ and at additional mailing offices. CAPCA has endeavored to include appropriate and accurate statements, but disclaims any and all warranties and/or responsibility for the statements or articles submitted to CAPCA Adviser that may have additionally been edited for style, content and space prior to publication. Views expressed are those of the authors and do not necessarily represent CAPCA policies, or positions or endorsements. Editorial content of this publication is educational and informational in nature.

Worms, Thrips, Leafminers
IN ONE PASS

Radiant® SC

Jemvelva™ active

INSECTICIDE

Only Radiant® SC insecticide with Jemvelva™ active controls worms, thrips and leafminers. (“3 Bugs. 1 Jug.”) And university trials in Arizona and California show that Radiant outperforms other commonly-used vegetable insecticides on all three of these pests. As a member of the spinosyn class of chemistry (IRAC Group 5), Radiant controls pests like no other class of chemistry used in vegetables. The Re-Entry Interval is only 4 hours, and the Pre-Harvest Interval is 1 day for most crops.

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CAPCA CEO Editorial

CAPCA Moving Forward

CAPCA has over 50 years of history, professionalism, and personal career investment by tens of thousands of PCAs over the decades. **CAPCA isn't a flashy marketing agency or a fly-by-night CE sponsor; we are here to stay as you navigate changing regulations, public pressure, and the evolution of an ever-changing industry.**

As a membership-driven association, CAPCA members have undergone a strategic planning initiative led by San Diego Chapter Director and CAPCA member David Drucker to envision how CAPCA will continue to evolve over the next 10 years. With input from members, the committee built a recommended roadmap to successfully achieve these initiatives on behalf of the membership. ***While many great ideas didn't make the final cut, there is a clear focus on those that survived: elevating the PCA license, advancing your professionalism, and improving your access to quality information.***

As the CAPCA Forward Committee wraps up its strategic planning, it will present this final roadmap recommendation to the CAPCA Board. *Do all members have a vote in the process?* Absolutely. CAPCA will utilize our 2025 Demographic Survey this fall, not only to get a baseline of our members' current needs but also to receive feedback to guide our priorities in implementing roadmap initiatives into 2035. *Look for the survey in your inbox this fall—the future value of your PCA career may depend on it!*

Ruthann Anderson, Editor
ruthann@capca.com

Ruthann Anderson
CAPCA CEO

CAPCA EDITORIAL STAFF

Ruthann Anderson, *CAPCA CEO*
Ashley Hinson, *Managing Editor*
Katrina Silver, *Director of Business Operations*
Carrie Kihlthau, *Technical Project Mgmt Specialist*
Briana Love, *Member & Chapter Support Specialist*
Ryan Dana, *Events Coordinator*
Keri Frank, *Sales Manager*

Printing: Sundance Press, Tucson, AZ
Graphic Design: Rosemary Norris-Southward

Leadership

Volunteering for the Future:
Championing PCAs through CAPCA Engagement

by Matthew Bristow, 2025-2026 CAPCA Chair

For over two decades, my journey as a PCA in the Coachella Valley has deepened my appreciation for the challenges and rewards of our profession. Yet, my volunteer work with CAPCA has connected me to the broader mission of advancing the PCA profession and giving voice to our mutual concerns across California.

The Power of Volunteerism

Volunteers are the backbone of CAPCA. It's the dedication of members who give their time and expertise—often after long days in the field—that keeps our organization responsive, relevant, and robust. I have seen firsthand that meaningful change in our profession doesn't happen from the sidelines. It requires rolling up one's sleeves and getting involved, whether participating in your local Chapter or contributing on a state-level committee. Every hour volunteered strengthens the path toward meaningful solutions for PCAs. The heart of our success lies in the dedication of those who give their time so freely. Every hour they spend, every skill they share, and every effort they contribute creates ripples of impact that reach far beyond any single project. Their commitment strengthens our connections and helps our community. When our members invest their time in service, the entire community benefits.

Board Service: Expanding Our Impact

Serving on the CAPCA Executive Board, and now as Chair, has transformed my perspective on advocacy. I've moved from simply voicing issues to collaborating on solutions, encouraging dialogue, building partnerships, and advancing efforts that address the needs of our community. Board service means more than representation; it's about listening, responding, and leading with purpose.

My experience has allowed me to dive into key areas: regulatory advocacy, continuing education, the practical realities PCAs face each day. It's a hands-on commitment that requires both strategic thinking and grassroots engagement.

Driving Advocacy and Local Engagement

My work on the Advocacy Committee has been particularly rewarding. Advocacy isn't about grand gestures but about consistent, steady progress; we gotta play small ball. CAPCA provides ongoing work by meeting with legislators, providing testimony at hearings, and ensuring PCA perspectives influence regulatory decisions. This work, in partnership with our local Chapters, has strengthened our ability to inform, educate, and mobilize members around pressing issues.

Local Chapter involvement is more crucial now than ever. At this level, we can directly hear and address real-world challenges, ensuring that CAPCA's direction remains rooted in the everyday experiences of PCAs across the state. Our local chapters are one of our greatest strengths. They are deeply rooted in the communities they serve, building trust through personal connections and hands on involvement. Unlike many organizations, our presence isn't limited to events or campaigns. We show up consistently, listen to local voices, and take action that reflects the unique needs of our communities. This grassroots approach allows us to make a real lasting impact in ways few others can match.

Strategic Shifts for a Stronger CAPCA

The Executive Committee helps to guide CAPCA through pivotal decisions, including how best to allocate our resources to serve PCAs. This year, the Executive Board made the decision to sunset the CAPCA

podcast. While the podcast provided valuable content, we recognize a more urgent need to expand online continuing education opportunities. By redirecting resources from the podcast, we're able to invest further in accessible, relevant learning that supports professional growth at every stage of a PCAs career.

Listening to Your Experience: Feedback on DPR Renewals

In our ongoing commitment to serve PCAs and the broader community, CAPCA's state office has developed a dedicated form to gather feedback and concerns about DPR Renewals in 2025. We are seeking input from both license holders and continuing education course sponsors, especially regarding your recent experiences with DPR. For licensees, we are particularly interested in hearing about the renewal process this year.

Scan the QR code to access the survey and submit your feedback about recent experiences with DPR (for license holders and CE sponsors).

Building Together

The changes underway at CAPCA reflect our promise to evolve alongside our members. By fostering a spirit of volunteerism and strategically focusing our efforts, we're shaping a resilient and forward-looking future for PCAs.

If you're interested in volunteering, joining a committee, or representing your Chapter, I encourage you to step forward. The future of CAPCA, and of our profession, relies on the engagement, experience, and dedication of our members. Through active participation and strategic direction, we can make sure PCAs are empowered and ready to meet tomorrow's challenges head-on. ■

CAPCA

CAPCA

Your Future: Invest Where It Matters

by Katrina Silver, Director of Business Operations

When you choose CAPCA for membership, education, or event participation, you're supporting the only non-profit association dedicated to advocating for California's license holders, applicator professionals, and the future of integrated pest management.

Your CAPCA staff and dedicated chapter volunteers are hard at work year-round building programs, producing events, advocating with regulators, and creating tools that make your professional life easier. Advocating for the license holder means engaging with a wide range of policymakers, sometimes including those whose broader positions may not align with your personal views. That's the nature of policy work: complex, strategic, and often behind the scenes.

At CAPCA, our focus is clear. We are here to protect your license, provide gold standard education, elevate your profession, and ensure science-based decision-making guides California's regulatory landscape. Building relationships across the aisle isn't about politics; it's about impact. When you register for a CAPCA event or renew your membership, you're fueling that impact.

We know other CE options are out there, some hosted by for-profit companies. But when you attend non-CAPCA-sponsored events, your dollars stop at the door. With CAPCA, your support impacts advocacy, education, and elevating the profession you and your predecessors have built through hard work and dedication.

Your professional investment matters. Make it count with CAPCA.

License Renewal Season: We've Got You Covered

License renewal season is upon us, and CAPCA is here to help you navigate it with confidence. For over 30 years, we have been the trusted source for CE tracking. In response to DPR's 2024 regulation changes, we built a new, modern solution: CE Hours Reported, found at cereported.com. It is a robust tool for sponsors to build and host CE courses with support from the application process through the final DPR reporting. CE Hours Reported is free for all attendees and CE Sponsors to use, with no membership required, and it's quickly becoming the industry standard.

When selecting CE courses to attend, look for the trusted CE Hours Reported mark to ensure your hours are automatically tracked for your license renewal summary. While most sponsors use our new system, a few have chosen not to, so to ensure you're covered, we added the "Self Report CE" tool to your CAPCA dashboard under the CE Tracking and CAPCA Membership area. If you attend a course from a non-participating sponsor, simply enter the details from your Verification of Attendance or Certificate of Completion, and your hours will be included in your renewal summary.

CAPCA is working tirelessly to ensure you have a fully documented CE renewal summary. DPR is currently only publishing the total hours they have received for you, saying to trust them that it's enough, and to send in your renewal form with a note that all hours are tracked. But are you prepared for an audit? What if a key hour was missing – where would you turn? With CAPCA, accurate, trackable documentation protects you in many ways—it supports your license, simplifies future renewals, and gives you peace of mind in case of an audit. ■

Website Update

CAPCA SIMPLIFIED MEMBERSHIP RENEWAL & ENHANCED DASHBOARD

Staying on top of your CAPCA Membership just got a whole lot simpler. We've made some improvements with your professional success in mind, so you can stay supported, informed, and compliant every step of the way.

Auto-Renewal for CAPCA Members

Members now have the convenience of selecting an "Auto-renewal" option when purchasing their CAPCA Membership. This means you can set your membership to renew automatically every January 1st, ensuring you maintain your benefits without interruption. No more last-minute renewals or membership lapses — just uninterrupted access to everything CAPCA offers. Plus, opt for auto-renewal and enjoy a 5% membership discount.

A Revamped CAPCA Dashboard for Seamless Management

Check out the portal.capca.com new features — a "CE Tracking + CAPCA Membership" widget — a comprehensive hub for managing your credentials. Here's what you'll find:

- A clear overview of your DPR renewal cycle, CE progress, and membership status for each year
- Easy tools to report any missing CE courses
- Instant download or email options for your pre-filled DPR Renewal Summary
- Quick access to manage your membership, including your auto-renewal settings

Don't just work in your field — shape it. Join today!

Have you Renewed Your CAPCA Membership?

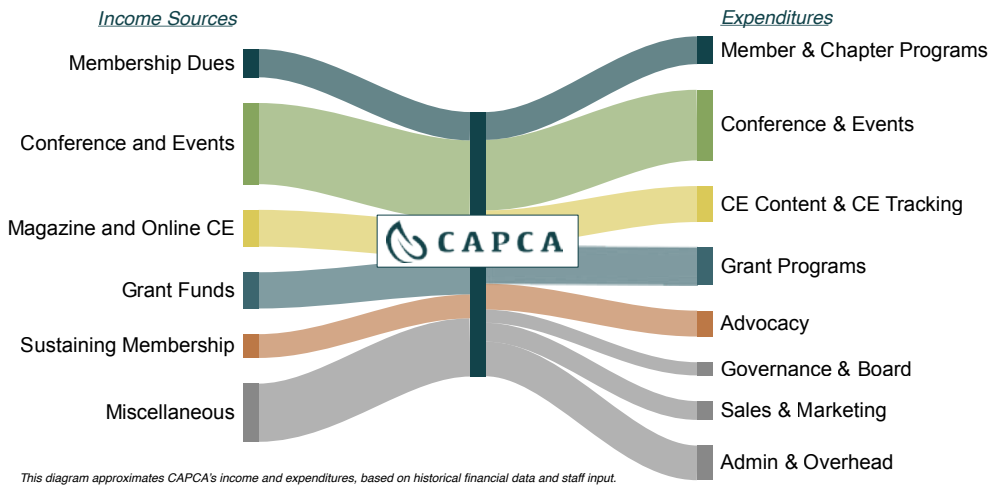
Immediate Member Benefits from Day One

As a member you have access to valuable (and free!) CE opportunities, powerful advocacy, and a network that champions your profession.

With CAPCA Membership, just some of the benefits are:

- 2025 CAPCA Members' CE hours are tracked and reported automatically through CE Hours Reported.
- All Members receive complimentary access to select courses in CAPCA's online CE library.
- Special member pricing for exclusive events, including the Annual Conference and Chapter CE meetings.
- PCA Members receive a free subscription to The Adviser magazine.
- Associate Members can subscribe to The Adviser for only $30 per year.
- An organization that advocates on behalf of your profession

How Your Membership Dues Contribute to CAPCA's Programs



This diagram approximates CAPCA's income and expenditures, based on historical financial data and staff input.

Make CE Compliance Simple

CE Hours and License Renewal Reminders

- The CE Record Renewal Summary (LIC-141, Page 2) is now a required document to be submitted with the DPR license renewal application.

- Since January 2024, CE Sponsors are required to report attendance directly to DPR, *licensees must retain their CE attendance records for three-years from the date of completion.* ***DPR may audit these records at any time.***

- Because of this reporting change, licensees can check their hours "tracked" on the DPR website (which may or may not be accurate).

Why CAPCA Makes It Easy

Tired of the hassle of tracking hours and managing paperwork for license renewals? Instead of keeping paper records for three years, navigating DPR audits on your own, and worrying about whether sponsors report your hours correctly, there's a better way—support CAPCA—the association with over 3 decades of hours tracking experience and the only organization advocating for your professional license.

- As a CAPCA member, your CE course attendance is automatically recorded in your personal CAPCA.com portal, making it easy to access and organize your records.

- If you have a course attendance record (Certificate of Completion or Verification of Attendance), simply Self Report your CE hours right from the portal and watch them populate into the DPR Renewal Summary (LIC-141).

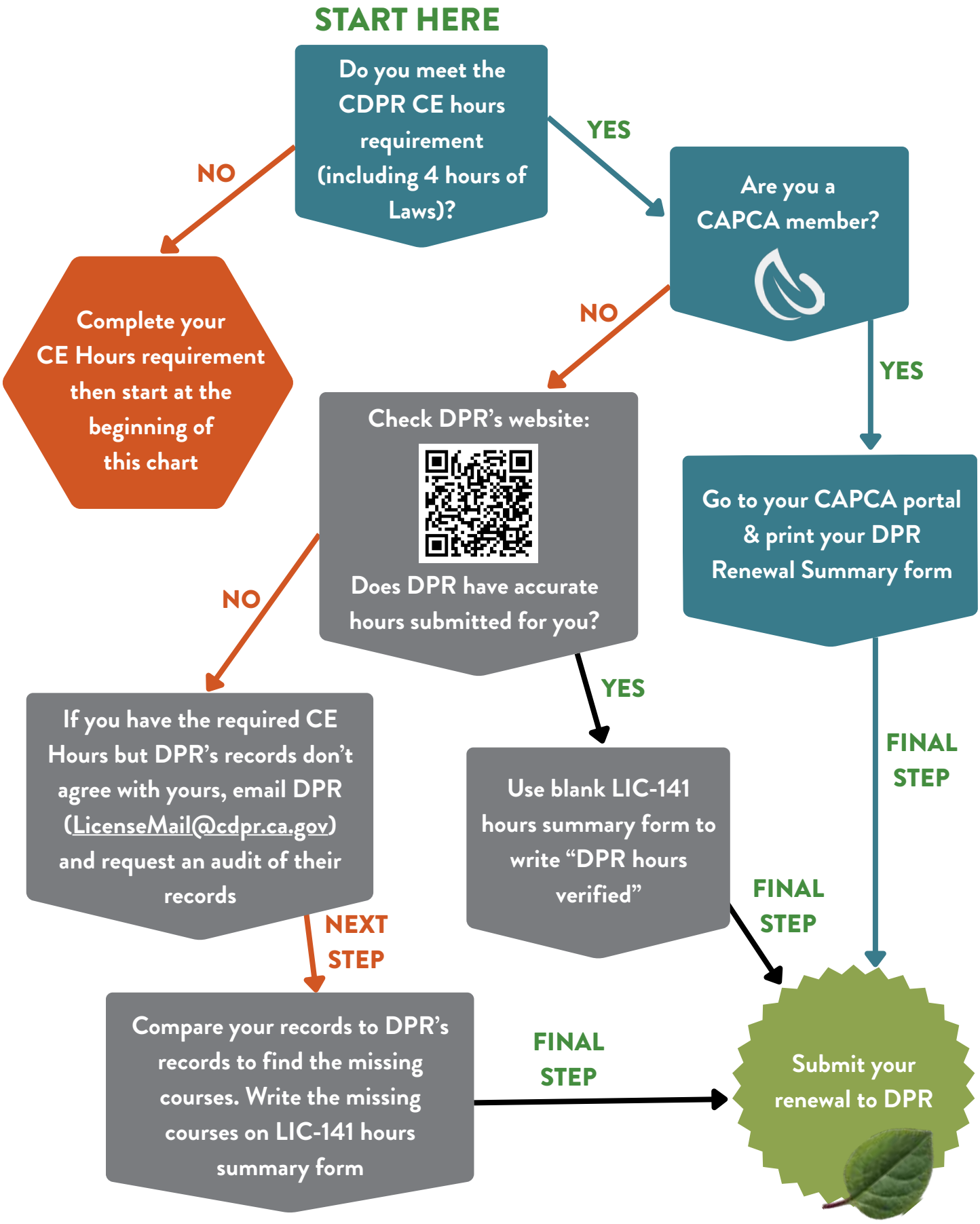
- CAPCA's CE Hours Reported system is fully compliant with DPR's new regulations and allows sponsors to add your course records quickly, accurately, and at no cost to you. *Not all sponsors use this system, but with over 300 sponsors choosing this system to support their reporting, you choose the smoothest, most reliable path to compliance.*

Don't risk the confusion and inconvenience of working directly with DPR or sponsors who don't use CAPCA's trusted system. Join the community that puts your needs first and keeps your records organized, accessible, and audit-ready.

Take control of your continuing education and license renewal—join CAPCA today and experience the easiest, most dependable way to maintain your license! ■

Look for the trust mark!

General Decision Tree for DPR License Renewal



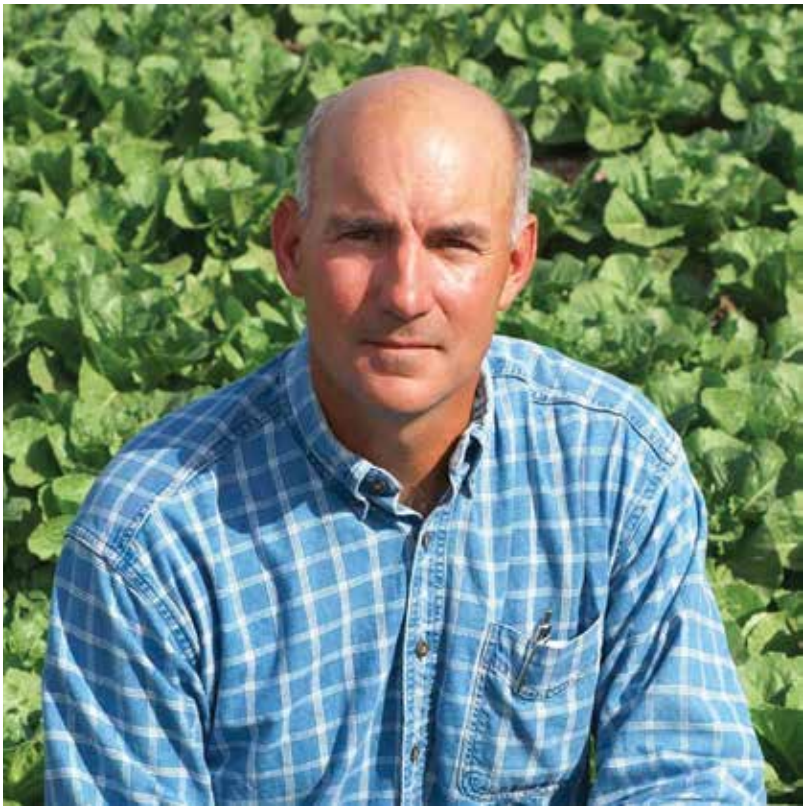
In Memoriam

When In Doubt, Scout!

Honoring the Life and Legacy of Dr. John C. Palumbo (1959-2025)

CAPCA Desert Valleys Chapter

The Desert Valleys Chapter mourns the loss of distinguished Outreach Professor and Extension Entomologist, Dr. John C. Palumbo, who passed away on May 11, 2025, after a long and courageous battle with cancer. His remarkable 35-year career at the University of Arizona created an extraordinary legacy in sustainable agriculture and integrated pest management (IPM), earning him international recognition as a leading entomology expert in vegetable production. His outreach initiatives continue to educate generations of scientists and agricultural professionals throughout the U.S. and beyond.



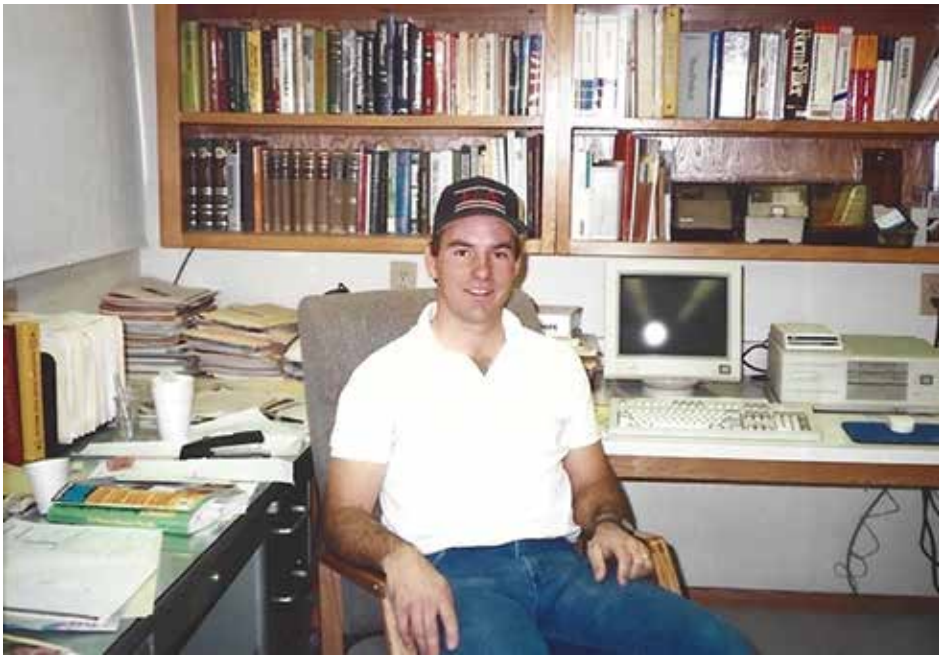
"Scouting is about making informed IPM decisions. Effective and economic insect control is dependent on understanding pest activity occurring in the field. The only way to do that is by scouting."

-Dr. John Palumbo

John was born on February 8, 1959, and raised in Palo Verde, AZ – a rural community just west of Phoenix. The surrounding fields and farms forged a deep connection to agriculture, which would greatly influence his future academic career and lifelong dedication to research and extension. John began his undergraduate studies at Arizona Western College in Yuma, before heading to the University of Idaho and the University of Arizona, where he would ultimately obtain his Bachelor's and Master's degrees. In 1989, he completed his Ph.D. in Entomology at Oklahoma State University under the direction of Dr. Larry Crowder, where his dissertation research focused on management strategies for squash bug.

In 1990, Dr. Palumbo joined the faculty at the University of Arizona as an Assistant Professor and Extension Specialist in Entomology and IPM, based at the Yuma Agricultural Center. The timing was serendipitous, as Southern California and Arizona were about to experience whitefly swarms of biblical

proportions, causing significant economic losses across several commodities. John wasted no time, and his extensive work on whitefly resistance management led to voluntary stewardship agreements that remain effective today. Throughout his career, he continued to tackle new and emerging challenges like Bagrada bug and Diamondback moth, always leading with his boots on the ground. Through his field research, he developed numerous science-based educational programs that utilized new information and technologies for insect pest management. While instrumental in helping develop countless new insecticide technologies, Dr. Palumbo consistently emphasized the fundamental importance of field scouting as a key tenet of holistic pest management. The *"When in Doubt, Scout!"* philosophy he championed has become a cornerstone of modern IPM principles, serving as a critical reminder that effective pest management begins proactively, with your boots on the ground and eyes on the crop.



Throughout his career, Dr. Palumbo became a leading voice in the field of entomology, which resulted in several book chapters, hundreds of extension/outreach publications, and dozens of academic journal articles. In addition, he received numerous accolades, including the Entomological Society of America's highest honors for both Extension and Integrated Pest Management – a rare and remarkable distinction. He was also the first faculty member at the Yuma Agricultural Center to be honored with a stakeholder-funded Endowed Chair in Integrated Pest Management. This recognition stands as a testament to his profound impact on the agricultural community he served so devotedly.

Dr. Palumbo's legacy far transcends his scholarly contributions. His dedication to bridging the gap between research and practical application transformed agricultural practices across the desert valleys and beyond. As we bid farewell to this remarkable scientist, mentor, and friend, we celebrate a career that exemplified the highest ideals of our profession. The Desert Valleys Chapter extends our deepest sympathies to Dr. Palumbo's family and colleagues. While we grieve this incredible loss, we know that his lasting contributions to entomology and agriculture will continue to guide and inspire future generations of researchers and practitioners.

Dr. Palumbo, on behalf of our industry, thank you for your service and a job well done. ■

Photo courtesy of Todd Fitchette, Editor, Western Farm Press

Annual CAPCA Conference & Agri-Expo

OCTOBER 19-21, 2025

GRAND SIERRA RESORT, RENO, NV

Register here:

Experience Something New at CAPCA's 51st Annual Conference — Where the Future of Pest Management Takes Root

We're excited to welcome you to the 51st CAPCA Annual Conference — the time-honored gathering where the future of pest management takes root. This year's event in Reno, NV, is set to deliver everything you've come to expect from CAPCA — timely continuing education (CE) opportunities, an expansive exhibit hall, and invaluable networking, with a few new features designed to make your experience even more memorable.

New This Year: Family Hour in the Exhibit Hall

We understand that many of our attendees travel with family or companions, and this year we're opening the doors a little wider. For the first time, CAPCA is introducing Family Hour in the Exhibit Hall — a special opportunity to share the conference experience with the ones who support you behind the scenes.

Join us Monday, October 20th, from 9:00 AM to 10:00 AM to bring your companion(s) into the Exhibit Hall for an exclusive look at the innovations, connections, and fun that define the CAPCA Conference. This family hour is being offered for free, but does require check-in prior to entry in the Exhibit Hall.

Extend the Fun: Family Reception Tickets Now Available

Want to enjoy more of the CAPCA Conference experience with your loved ones? We're thrilled to offer Family Reception Tickets for the first time! Your guests can join you at either the Sunday evening Reception on the pool deck or the Monday evening Bowling reception — lively events filled with food, drinks, and fun. It's the perfect way to include your family.

FAMILY RECEPTION TICKETS	SUNDAY NIGHT	MONDAY NIGHT
Adults	$75	$75
Under 14	$35	$50

Important: Family reception tickets must be purchased in advance at the CE/Information Desk onsite. Tickets will not be sold at the door, so please plan ahead to secure your guests' spots.

Sunday Day Pass will be available for purchase again onsite*!

Whether you only have time to join us on Sunday or you want your companion to join you all day – from CE Sessions to Exhibit Hall networking, snacks, drinks and the Welcome reception on Sunday night – *the Sunday Day Pass has you covered for every program opportunity occurring on Sunday!*

*Sunday Day Pass purchases are available onsite only on Saturday, October 18th and Sunday, October 19th.

CAPCA's Annual Conference continues to evolve while honoring our deep-rooted traditions, and this year promises to be one of our most engaging yet. Whether you're a longtime attendee or joining us for the first time, there's something new for everyone.

Be part of the future of pest management — with your whole family in tow!

SCHEDULE

CE PROGRAM FOCUSED ON INNOVATION, CURRENT ISSUES AND BEST PRACTICES

Sunday is a great day to bring your grower with you to hear about new innovation and practices from our session sponsors the Almond Board of California and Western Growers Innovation Center. Our full program and key speaker highlights can be found below.

SATURDAY, OCTOBER 18, 2025	
8:00 am - 5:00 pm	Exhibitor Set up - Exhibit Hall
11:00 am - 4:30 pm	Registration Open

SUNDAY, OCTOBER 19, 2025	
8:00 am - 10:30 am	ABC+ Session (Grand Ballroom)
8:00 am - 8:30 am	Lauren Fann, PhD, Manager of the Pest Management Research Portfolio, Almond Board of California | *Biological Practices Used in the Almond Industry*
8:30 am - 9:00 am	Brent A. Holtz, PhD, Orchard Systems Advisor, UC ANR | *Best Management Practices for Controlling Almond Bloom and Foliar Diseases*
9:00 am - 9:30 am	Franz Niederholzer, PhD, Orchards Advisor in Colusa, Sutter, & Yuba Counties, UC ANR | *Delivering Effective IPM in Almonds*
9:30 am - 10:00 am	Mel Machado, Chief Agricultural Officer, Blue Diamond Growers | *Sustainable Pest Management Practices to Control Navel Orangeworm*
10:00 am - 10:30 am	Felipe Garziera, Global Director of Market Development, SQM North America | *The Role of Potassium on Plant Health and Biotic Stress*
9:00 am - 6:00 pm	Exhibit Hall Open (Exhibit Hall)
9:00 am - 4:30 pm	Exhibitor Presentations (Exhibit Hall)
10:30 am - 11:00 am	Break
11:00 am - 12:00 pm	General Session (Exhibit Hall CE Stage)
11:00 am - 11:30 am	Oleg Daugovish, PhD, Strawberry and Vegetable Crop Advisor, UCCE-Ventura | *Weed and Pathogen Management in Coastal Strawberry and Vegetable Crops*
11:30 am - 12:00 pm	Joshua Kress, Branch Chief, Pest Exclusion, CDFA Plant Health and Pest Prevention Services Division | *Invasive Pests & Plant Diseases*
11:30 am - 12:30 pm	CAPCA Snacks in Exhibit Hall
12:00 pm - 12:30 pm	Break
12:30 pm - 3:00 pm	Western Growers Association+ Session (Grand Ballroom)

12:30 pm - 1:00 pm	Dennis Donohue, Director, Center for Innovation & Techonology, Western Growers Association | *Biologicals 101 and Innovation*
1:00 pm - 1:30 pm	Mohammad Amir Aghaee, PhD, Entomology Program Leader, Cal Poly Strawberry Center | *Biopesticides: The Good, The Bad, and The Needs More Research*
1:30 pm - 1:50 pm	Sean Whipple, PhD, GreenLight | *RNAi Technology Introduction and Case Study*
1:50 pm - 2:10 pm	Cassandra Rieser, Certified Professional Soil Scientist and PCA, UPL North America | *Biological Pesticides and Their Role in Diamondback Moth Control*
2:10 pm - 2:30 pm	Zephyr Papin-Tillery, M.Ag, Regulatory Affairs Manager, Lallemand Plant Care | *Incorporating Microbial Pesticides into an IPM Program*
2:30 pm - 3:00 pm	Dr. Kevi Mace, Senior Environmental Scientist Supervisor, CDFA OPCA | *Reading and Understanding Pesticide Regulations*
3:00 pm - 3:30 pm	**Break**
3:30 pm - 4:30 pm	**General Session (Exhibit Hall CE Stage)**
3:30 pm - 4:00 pm	Taylor Triffo, Governmental Advocate, Kahn, Soares and Conway LLP | *Advocacy and Policy Update*
4:00 pm - 4:30 pm	Michael Blankinship, Senior Principal, Blankinship: A Bowman Company | *Keep Your Head on a Swivel: Future Challenges & Opportunities for PCAs*
4:30 pm - 6:00 pm	**Happy Hour in Exhibit Hall**
6:00 pm - 7:00 pm	**Welcome Reception**

MONDAY, OCTOBER 20, 2025	
6:15 am - 5:00 pm	**Registration Open**
6:00 am - 7:15 am	**Breakfast (Silver State Ballroom)**
7:00 am - 5:30 pm	**CE Desk Open (Grand Salon)**
7:30 am - 11:45 am	**General Session (Grand Ballroom)**
7:30 am - 7:40 am	CAPCA Executive Board | *CAPCA Annual Meeting (no CE)*
7:40 am - 8:00 am	TBD | *Welcome, Licensing, and Hours Housekeeping*
8:00 am - 8:30 am	Dr. Karen Morrison, Director, CA Dept. of Pesticide Regulation | *A Look Ahead at Sustainable Pest Management and Pesticide Regulation in California*
8:30 am - 9:15 am	Josh Huntsinger, Agricultural Commissioner/Sealer of Weights and Measures, Placer County | *Pesticide Regulatory Update*
9:15 am - 9:30 am	Break

SCHEDULE

SCHEDULE

9:30 am - 10:00 am	Jessica Vollmer, Senior Environmental Scientist, CA Dept. of Fish and Wildlife - Nutria Eradication Program | *Status of Invasive Nutria and Response in California*
10:00 am - 11:00 am	Roger Baldwin, PhD, Professor of Cooperative Extension, UC Davis | *The Development of an Integrated Approach for Managing Ground Squirrels and Roof Rats*
11:00 am - 11:45 am	Dillon Gabbert, Director of State Regulatory Affairs, CropLife America | *Endangered Species Act: Workflow for compliance*
8:00 am - 3:00 pm	Exhibit Hall Open (Exhibit Hall)
9:00 am - 10:00 am	Family Hour in the Exhibit Hall
9:15 am - 9:30 am	Coffee Break (Grand Salon)
11:45 am - 1:00 pm	Monday Luncheon (Silver State)
11:30 am - 3:00 pm	Exhibitor Presentations (Exhibit Hall)
1:30 pm - 2:30 pm	General Session (Exhibit Hall CE Stage)
1:30 pm - 2:30 pm	Kendall Barton, Alyssa Lindberg, Bryan Aguilar, Nicholas Mello, Yadira Lucatero | *SPM Insights*
2:50 pm - 3:00 pm	Coffee Break (Grand Salon)
3:00 pm - 5:15 pm	General Session (Grand Ballroom)
3:00 pm - 3:45 pm	Conrad L. Kiernan, Senior Environmental Scientist, CalTrans | *Controlling Non-Native, Invasive Ignition Source Plant Material on the Right Shoulder*
3:45 pm - 4:15 pm	Dawn Fluarty, Landscape Sales Specialist, Target Specialty Products | *Managing Borers and Invasive Pests without the Use of Neonics*
4:15 pm - 4:45 pm	Matt Reardon, Senior Atmospheric Scientist, Nutrien Ag Solutions, Inc. | *Leveraging California's Microclimate for Better Decisions*
4:45 pm - 5:15 pm	Robert Brenton, Owner, Brenton VMS | *"What is a Pest Control Recommendation"... and why is it important*
3:00 pm - 11:59 pm	Exhibitor Breakdown
5:30 pm - 6:30 pm	Monday Night Bowling Reception (Bowling Alley)

TUESDAY, OCTOBER 21, 2025	
7:00 am - 9:30 am	Registration & CE Mini-Desk Open (Adjacent to Silver State for Label Update Check In at Breakfast)
7:00 am - 8:15 am	Breakfast (Silver State Ballroom)

7:15 am - 8:35 am	Label Update (Silver State Ballroom)	✓
8:35 am - 8:45 am	Coffee Break/Transition to Grand Ballroom	
8:45 am - 12:00 pm	CE Desk Open (Grand Salon)	
8:45 am - 12:00 pm	General Session & Closing Ceremony (Grand Ballroom)	✓
8:45 am - 9:30 am	Sarah Light, Agronomy Farm Advisor, UCCE | *Considerations for Cover Crops and Weed & Pest Management*	
9:30 am - 10:00 am	Dr. Kevi Mace, Senior Environmental Scientist Supervisor, CDFA OPCA | *What is the Office of Pesticide Consultation and Analysis*	
10:00 am - 11:00 am	Dr. Shaku Nair, Extension Entomologist, University of Arizona | *Flies - Biology and Management*	
11:00 am - 11:30 am	Emily Symmes, PhD, PCA, Senior Manager of Technical Field Services, Suterra | *Dispensing with Dispensers: The Future of Pheromones Is Up in the Air*	
11:30 am - 12:00 pm	Dr. Randy Norton, Resident Director of the Safford Agricultural Center, Associate Regional Extension Specialist, University of Arizona | *Efficient Management of Soilborne Pathogens in Desert Agriculture*	
12:00 pm - 12:05 pm	Summary and Closing	

SPEAKER HIGHLIGHTS

Roger Baldwin, PhD, Professor of Cooperative Extension, UC Davis |
The Development of an Integrated Approach for Managing Ground Squirrels and Roof Rats

This talk will outline how to identify and address issues associated with ground squirrels and roof rats and explain why it's important to have a plan that uses different methods to address these pests. You'll learn about practical solutions and see real-life examples that show how combining tactics can be more effective for control.

Mohammad Amir Aghaee, PhD, Entomology Program Leader, Cal Poly Strawberry Center |
Biopesticides: The Good, The Bad, and The Needs More Research

This presentation will give you a clear and simple overview of biopesticides—what they are, how they work, and why people are showing more interest in them. You'll learn about the benefits and challenges of using biopesticides, what makes them different from traditional pest control products, and what drives companies and regulators to choose them. The talk will also touch on the future of biopesticides, including some obstacles and the types of research still needed for wider use. Whether you're new to the topic or just curious, you'll walk away with a solid understanding of where biopesticides fit into modern agriculture.

Franz Niederholzer, PhD, Orchards Advisor in Colusa, Sutter, & Yuba Counties, UC ANR |
Delivering Effective IPM in Almonds

This presentation will break down the basics of managing pests in almond orchards using integrated pest management (IPM) strategies. You'll learn about the main pests that affect almonds, how to spot them, and how their life cycles work. The talk will explain how to monitor for problems, decide when action is really needed, and choose solutions that work well with beneficial insects. It also covers practical tips for applying treatments the right way so that your efforts are effective and safe for your orchard.

Kevi Mace, PhD, Senior Environmental Scientist Supervisor, CDFA OPCA |
Reading and Understanding Pesticide Regulations

This seminar will break down how pesticide regulations are reviewed and updated in California. You'll learn why certain chemicals, like neonicotinoids and paraquat, come under closer scrutiny, how the review process works, and what changes might result. The speaker will guide you through where to find official updates, how to interpret new rules, and provide real-world examples to help you understand how these regulations can affect what's allowed in the field.

Dillon Gabbert, Director of State Regulatory Affairs, CropLife America |
Endangered Species Act: Workflow for compliance

This presentation will explain the basics of staying compliant with the Endangered Species Act (ESA) when using pesticides. It will show you how to read product labels for important warnings, walk you through how to get the latest official safety information for specific products, and discuss practical ways to protect endangered species while managing pests, with easy-to-follow examples.

Matt Reardon, Senior Atmospheric Scientist, Nutrien Ag Solutions, Inc. |
Leveraging California's Microclimate for Better Decisions

This talk will explore how California's changing climate affects local agriculture and pests. It will discuss what these changes mean for important crops and common pests, highlight recent weather trends, and explain what farmers and growers might expect in the coming years. Real-life examples, like how certain pests respond to wet or dry years, will help make the science practical and relevant to everyday planning and decision-making.

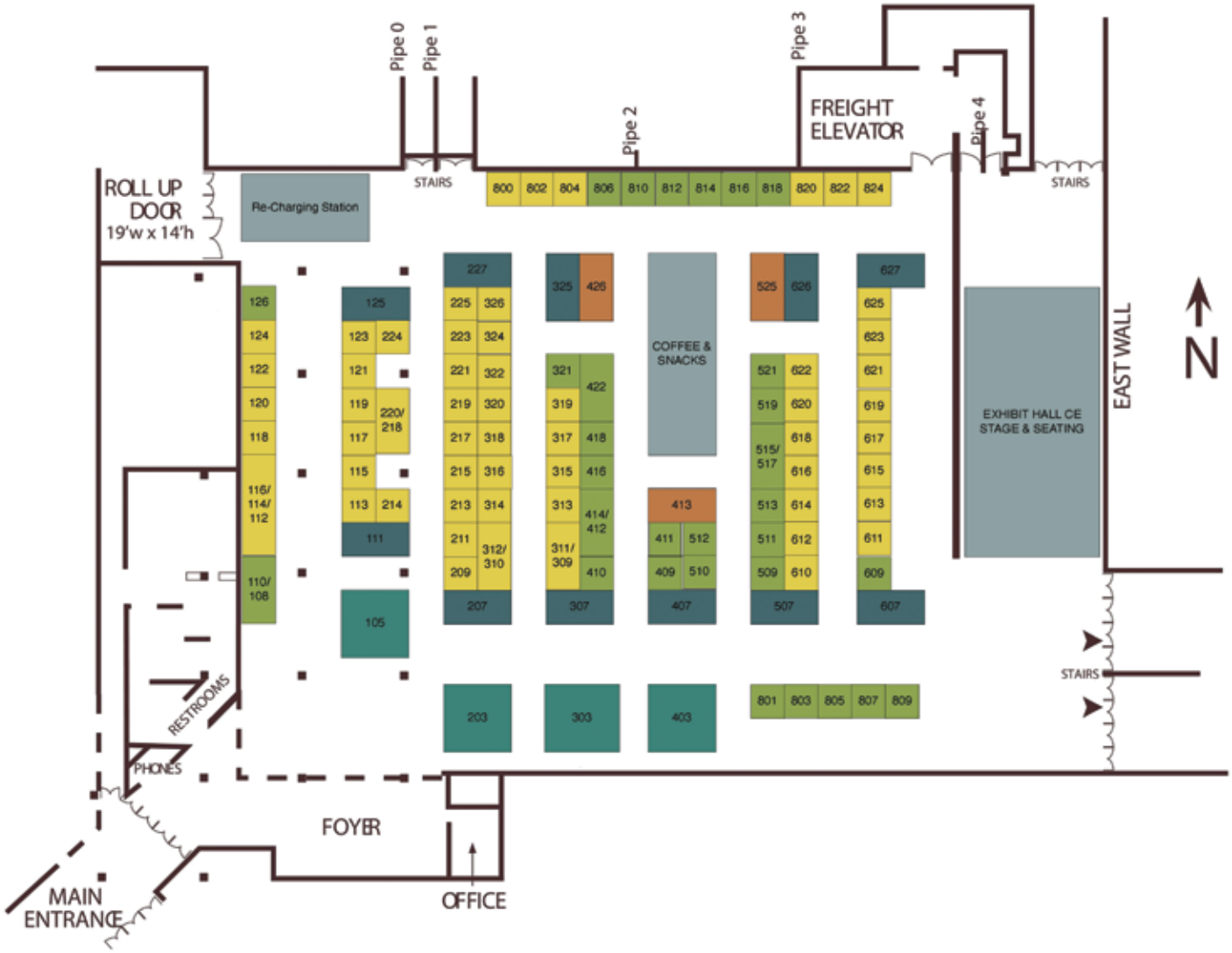
Shaku Nair, PhD, Extension Entomologist, University of Arizona |
Flies – Biology and Management

This seminar will give an easy-to-understand overview of flies—what they are, why they're important, and how to identify different kinds. It will explain where flies are most commonly found, how to prevent them from becoming a problem, and what to do if you need to control them. You'll also learn about safe and effective ways to manage flies using simple strategies and, if necessary, choosing the right pesticides. The talk covers practical tips for both homes and farms, so everyone can walk away with useful, real-world advice.

MAKE THE MOST OF YOUR TIME IN THE EXHIBIT HALL

A vital part of the CAPCA Conference experience is engaging with exhibitors. Discover new technologies, innovations, and resources designed to help PCAs, applicators and growers succeed throughout every season!

Plan ahead for your time in the Exhibit Hall to make the most of the schedule with open Exhibit Hall Hours, dedicated CE engagement, coffee and snack breaks.



2025 EXHIBITORS

- A4 Promotions - 316
- Acadian Plant Health - 321
- AGP4 Inc - 803
- AgroLiquid - 426
- Agroplantae - 810
- AgroSpheres - 805
- Almond Board of California - 307
- Alzchem LLC - 800
- AMVAC - 412/414
- Arizona Cotton Research and Protection Council - 322
- Atticus LLC - 218/220
- Axill Solutions LLC - 409
- Baicor - 804
- Balchem/Albion - 620
- BASF - 309/311
- Bayer - 203
- BeeHero - 621
- BioSafe Systems - 515/517
- BioWorks - 807
- Bird Gard - 513
- Blue Mountain Minerals - 326
- Blue White - 124
- BRANDT - 303
- California Department of Food and Agriculture - 612
- Catalera BioSolutions - 217
- Certis Biologicals - 814
- Chemurgic Agricultural Chemicals Inc - 512
- Corteva Agriscience - 407
- Cultiva LLC - 215
- D&V Unlimited - 221
- Duarte Nursery - 224
- EarthSol LLC - 410
- Ecorobotix INC - 214
- EnSoil Algae (formerly Enlightened Soil Corp) - 623
- Ever.Ag - 816
- FMC - 403
- Gowan USA, LLC - 607
- Green Solutions LLC - 122
- GroPro - 626
- Grow West - 119
- Helena Agri-Enterprises – 209
- Heritage Crop Science /Kim-C1, LLC - 125
- Huma Inc - 120
- ICL - 314
- Irrometer Company Inc. - 219
- JH Biotech, Inc. - 317
- Kemin Crop Technologies - 418
- Koppert USA - 511
- Lallemand Plant Care - 510
- Liphatech Inc - 610
- Magna-Bon II, LLC. - 411
- Malcolm Media - 113
- Marion Ag Service - 318
- Micro-TES, Inc dba Liventia - 806
- Miller Chemical & Fertilizer - 325
- Momentive - 622
- Motomco - 315
- Nichino - 507
- Novonesis - 519
- Ocean Organics - 416
- Pacific Biocontrol - 213
- Parabug - 802
- PhycoTerra - 509
- Plant Food Systems - 115
- Polymer Ag, LLC - 812
- Pro Farm Group - 111
- Pursell - 225
- QualiTech, LLC - 319
- Redox - 117
- Rovensa Next - 112/114/112
- RTI Ag - 223
- SAN Agrow - 123
- Semios + Agworld - 320
- Sharda USA - 118
- Spectrum Technologies, Inc. - 801
- SQM North America - 207
- Suterra, LLC - 809
- Syngenta - 105
- TELUS Agriculture & Consumer Goods - 413
- Tessenderlo Kerley - 525
- Tiger-Sul - 521
- TriCal - 227
- True Organic Products - 121
- Trécé Inc. - 310/312
- UnitedAg - Re-Charging Station
- UPL - 108-110
- Valent U.S.A. - 422
- Verdegaal Brothers, Inc. - 313
- Verdesian Life Sciences - 324
- Western Region Certified Crop Advisers - 211
- Wilson Organic Solutions - 126

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At CAPCA, we recognize that the success of our Annual Conference would not be possible without the unwavering support of our generous sponsors. We want to express our sincere gratitude for your partnership and commitment.

Your contributions play a pivotal role in bringing CAPCA's 51st Annual Conference to life, helping us create a dynamic, engaging, and valuable experience for all who attended. From licensed professionals advancing their continuing education, to students just beginning their journey in the industry, and exhibitors showcasing innovative solutions, your support makes it all possible.

Thanks to your investment, we are able to offer enhanced networking opportunities, thoughtful programming, and meaningful engagement across every facet of the event. You have helped us provide the tools and connections that our attendees rely on to maintain their professional licenses, expand their trusted networks, and stay at the forefront of the pest management industry.

Beyond financial support, your dedication to our mission reinforces the strength of the CAPCA community. It is through your partnership that we continue to grow, evolve, and deliver the kind of impactful programming our members count on year after year.

We are truly grateful for your role in the success of this time-honored gathering. Thank you for helping us cultivate a conference where the future of pest management continues to take root.

CAPCA: Charting New Paths at the President's Summit and Board Meeting

Volunteer Leadership, Strategic Roadmaps, and a Renewed Commitment to PCAs

CAPCA Leaders Gather to Shape the Future

The recent President's Summit and Board Meeting marked a pivotal moment for CAPCA, bringing together passionate volunteer chapter leaders and board members to reaffirm the association's member-driven vision. As a member-led trade association, CAPCA depends on the energy and commitment of its volunteers—those who guide the organization's direction and ensure its programs remain relevant and beneficial for local members, colleagues, and peers.

Adapting to Change: Navigating a Shifting Landscape

Much has changed over the years for PCAs and the industry you serve. The discussions at the summit reflected on evolving regulations, new processes for license renewal, and the increasing demands on members' time. In addition, the way CAPCA's local chapters connect and deliver value has transformed, prompting leaders to consider innovative strategies for regional engagement and ongoing professional development.

CAPCA Forward: Building a Roadmap for Success

One of the meeting's highlights was a discussion around the CAPCA Forward initiative, a strategic roadmap designed to address challenges and leverage opportunities within the PCA career arc. Leaders acknowledged the twin issues of reaching members in real time—information accessibility and cutting through potential information overload—and the need to proactively position the PCA license for continued success along the State's SPM Roadmap, seeking to ensure that members stay informed and empowered.

Steadfast Advocacy and Financial Stewardship

The CAPCA Board and Chapter leadership are dedicated to the membership! They sacrifice their own time to provide insight and direction on how to put membership dollars to work in meaningful ways. CAPCA remains unique as the only association led by PCAs, with an unwavering focus on safeguarding and elevating the license. Along with membership, revenues from events, marketing and online continuing education are reinvested directly into the association's efforts to support the future of the PCA license—from funding scholarships at the chapter level to supporting broader educational and advocacy efforts across the state.

Supporting Members Beyond the Numbers

A key theme throughout the summit was that CAPCA's value extends well beyond simply tracking CE hours. While DPR now "tracks" hours, CAPCA continues to offer reliable support for audits, easy access for CE sponsors to comply with regulations, and a robust backup plan for members should regulatory systems fall short. Along with these and other member benefits, the association's decades-long legacy as a trusted source of advocacy, information and support remains unchanged. Choosing CAPCA means choosing the association that prioritizes the success and security of the PCA license—the most vital credential in the field.

Looking Ahead

The ongoing work of volunteer leaders ensures that CAPCA continues to evolve, adapt, and deliver the best possible support for every member across the vast needs of our state and through the special interests of local chapters. The association's commitment to innovation, advocacy, and member empowerment remains stronger than ever, and the coming year promises new opportunities for growth and engagement.

For all CAPCA members, the message from the summit is clear: your association is working tirelessly to advance your interests, keep you informed, and help you thrive. *Stay connected, get involved, and trust CAPCA to keep your license–and your career–on the path to success.* ■

Updates from the CAPCA State Office

by Katrina Silver, Director of Business Operations

See You Later

This summer, we said "See you later" to Patrick Dosier, who departed CAPCA in July to return to the private agriculture sector. We are deeply grateful for Patrick's many years of dedicated service—beginning with his involvement in local chapter leadership, followed by time on the Executive Board, and most recently as a valued member of CAPCA's state office team.

While on staff, Patrick played a key technology role in navigating CAPCA through sudden and complex DPR regulatory changes and was instrumental in creating and launching the CE Hours Reported platform at cereported.com. This platform allows CE sponsors to manage their courses directly or report course completion data, ensuring your hours are seamlessly tracked and reflected in your renewal summary. Patrick also led the development and progress of the CDFA OPCA grant, which continues to gather vital data on PCAs' contributions to sustainable pest management strategies across California.

Patrick's easygoing nature and good humor will be missed around the office. We were tempted to include a photoshopped picture of him—he'd get a kick out of it—but decided to keep things professional (this time).

In all seriousness, Patrick remains a CAPCA member and will continue to support the association in the years to come. We wish him the very best in his next chapter, and we know we'll see him around.

What's Ahead

As you read this, your CAPCA state office staff is hard at work behind the scenes—expanding our library of gold-standard online CE, supporting board and committee initiatives, assisting members during renewal season, and wrapping up final details for CAPCA's 51st Annual Conference & Agri-Expo. At the same time, we're already building a strong foundation for the 2026 conference and preparing for the year ahead.

As CAPCA continues to evolve, our small but mighty team remains committed to delivering value and advancing the work of PCAs across California. Whether expanding CE offerings or preparing for our biggest annual event, we're proud and excited to build the future of PCA leadership—together.

To those heading into fall harvest, may it be a safe and successful one—and to all, we'll see you soon in Reno! ■

52 Annual CAPCA Conference & Agri-Expo

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OCTOBER 11-13, 2026

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2025 ONLINE CE COURSES & BUNDLES NOW AVAILABLE!

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Once purchased, users have access to courses through 12/31/25.
Over 20.0 total DPR-approved hours available, with some FREE DPR hours available to all CAPCA.com users and exclusive free hours for CAPCA members!

COMING SOON:

Invasive Fruit Flies in California – $0 – FREE to all users
DPR Hours TBA
The California Department of Food and Agriculture (CDFA) is offering a new CE course designed specifically for PCAs and other industry professionals focused on invasive pest management. This course provides an in-depth look at the rising pressure of invasive fruit flies (IFF) across the state and the critical role PCAs play in early detection and containment. This CE course is available at no cost and is an essential resource for PCAs looking to stay informed and proactive in protecting California's agricultural economy. Participants will:

- Understand the pest profiles of major IFF species affecting California
- Learn the triggers that initiate state quarantines
- Explore best practices for supporting growers with timely, science-based recommendations
- Review the 2023–2025 IFF response strategies
- Discover innovations shaping the future of pest detection and management

NEW COURSES:

Alternatives + Weed Control – $30 (ON SALE until 09/07/25, $40 thereafter)
2.0 DPR Hours (Other)
Includes:

- Landscape and Turfgrass Weeds and Control Options – Krystal Abbott
- Mixing and Loading in the 21st Century – Dr. Kevin Caffrey
- The Winery says "No glyphosate;" What are your options? – John Roncoroni
- Biologicals 101 – Jose Ramirez

Updates & Regulatory Landscape – $37.50 (ON SALE until 09/07/25, $50 thereafter)
2.5 DPR Hours (0.5 Laws, 2.0 Other)
Includes:

- CACASA Update – Jose Arriaga
- Digitalization of Label Information & Bringing Ag into Modern Times – Sarah Hovinga
- A Sustainable Future for Pest Management – Dr. Karen Morrison
- PCAs Who Develop & Adopt New Technologies Will Benefit Their Growers – Patrick Dosier
- CEQA – Yesterday, Today, & Tomorrow – Dan Wickham

Specific Pest Updates – $37.50 (ON SALE until 09/07/25, $50 thereafter)
2.5 DPR Hours (Other)
Includes:
- California Invasive Fruit Fly Update – Dr. Jason Leathers
- Identification & Control of Emerging Pests in Urban Landscapes – Dr. Chris Shogren
- Mosquito Control Update – Laura Krueger
- Successful Mitigation of Pests that Threaten Ag in the Conurbation Environment of So. CA – Dr. John Kabashima

Industry 101 – $0 – FREE to 2025 CAPCA members
2.0 DPR Hours (1.5 Laws, 0.5 Other)
Includes:
- PPE & Health Effects for Workers – Ben Laverty IV
- Updates on Soil Fumigant Application Requirement – Dr. Rais Akanda
- Why is Weed Management So Difficult? – Dan Wickham

Pests in Crops – $52.50 (ON SALE until 09/07/25, $70 thereafter)
3.5 DPR Hours (Other)
Includes:
- Non-Fumigated Nematicides for the Managing of Root-Knot Nematodes in Carrots & Other Vegetable Crops – Dr. Jaspreet Sidhu
- Principles & Practices in Disease Management in CA Strawberries & Beyond – Dr. Gerald Holmes
- Soil-borne & Insect-vectored Diseases in Processing Tomatoes & Cucurbits – Dr. Zheng Wang
- Ensuring Correct Disease Identification when Managing Field Pests – Allie Cushnyr
- Routes of Insecticide Activity in Crops – Dr. Jesse Richardson
- Managing Aloe & Agave Mites – Dr. Eric Middleton

Nuts & Trees – $22.50 (ON SALE until 09/07/25, $30 thereafter)
1.5 DPR Hours (Other)
Includes:
- Invasive Carpophilous Beetle in CA's Nut Crops – Dr. Jhalendra Rijal
- Pest & Disease Research Update: Pistachios – Steve Vasquez
- Climate-resilient Tree Species for CA Landscapes – Janet Hartin

How PCAs Participate in the CDFA SPM Grant with Crop Steward – $0 – FREE to all users
1.0 DPR Hour (Other)
- Learn how to use CAPCA's Crop Steward App
- In-field support for grant participants
- Eligible participants receive a $2,000.00 stipend at season's end!

Trees, Nuts, & Citrus Pests – $60.00
3.0 DPR Hours (Other)
Includes:
- Spring Tree Disease Insights – Dawn Fluharty
- Hemipteran Insect Pest Management – Dr. Sudan Gyawaly
- Almond Canker – Dr. Florent Trouillas
- European Earwigs in Citrus – Dr. Jay A. Rosenheim
- Walnut Husk Fly Control – Dr. Robert Van Steenwyk

PCA Best Practices – $40
2.0 DPR Hours (Other)
Includes:
- Keep Your Head on a Swivel – Mike Blankinship
- Benefit with Biologicals – Jose Muro
- Spray Guidance via Temperature Inversion – Mark Battany

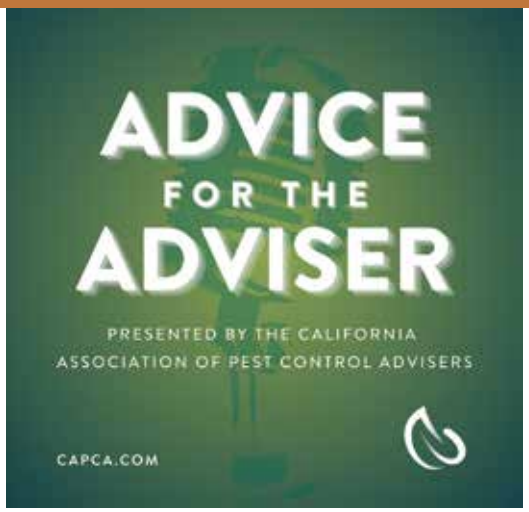
NorCal Focus – Vines, Tomatoes, & Rice – $40
2.0 DPR Hours (Other)
Explore pest management innovations in key Northern California crops. Includes:
- Mealybug Control: Mating Disruption & Pesticides – Dr. Kent Daane
- Fungal Disease Management in Tomato – Brenna Aegerter
- Rice Pest Management Updates – Dr. Whitney Brim DeForest

HOW TO PURCHASE:

Log in to your CAPCA Dashboard, click "Online Learning," then navigate to the "Shop" tab.

Earn your CE credits online and stay current!

ADVICE for the ADVISER Podcast



Latest Episode:

When Beetles Go Rogue – The Curious Case of Pear-Feeding Borers

Have you ever come across a pest in pears that defies all expectations? In August 2023, a seasoned PCA with more than five decades in the orchards encountered a remarkable discovery: a flatheaded borer—typically a menace to wood—now turning its attention to pear fruit. This unprecedented find could signal a new era in pest behaviors and fruit crop challenges.

The implications are still unfolding, and the full story is just beginning. In this eye-opening episode, Dr. Cindy Kron, UC Cooperative Extension IPM Advisor for Sonoma, Napa, Mendocino, and Lake Counties, unpacks what we know so far and what the future may hold.

For a deeper dive, pair this podcast with Dr. Kron's insightful article previously featured in the June issue of The Adviser magazine.

Next Episode:

Steward Stories: California PCAs in Their Own Words (Expected Late 2025)

Step inside the world of California agriculture in this inspiring episode. Here, the microphone is handed to the people who know the land, the science, and the stakes best—California's PCAs. Through vivid personal narratives, each adviser reveals the realities behind sustainable agriculture: the tough decisions, the lessons learned from the field, and the profound connections they build each day. Listeners will learn about the ethical stewardship and innovation that fuels these essential roles. Whether you're a fellow PCA, an agricultural professional, or simply curious about the people safeguarding California's crops and environment, this episode is a celebration of expertise, dedication, and heart. Don't miss this chance to hear the voices and stories that are shaping the future of California agriculture.

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- Rulemaking
- Pesticide Safety

PCA Profile

From Disneyland to Fire Lines:
Conrad Kiernan's Journey as a Caltrans PCA

A New Chapter Begins

When Conrad Kiernan returned to college after his children had grown up, he didn't imagine that his next chapter would involve removing invasive plants and helping prevent wildfires. Yet that's exactly where his path led. Today, Conrad is a Senior Environmental Scientist (Specialist) and he works closely with Caltrans Landscape and Road crews to keep California's highways safer by managing the vegetation growing along road shoulders, a task that's more critical than most people realize.

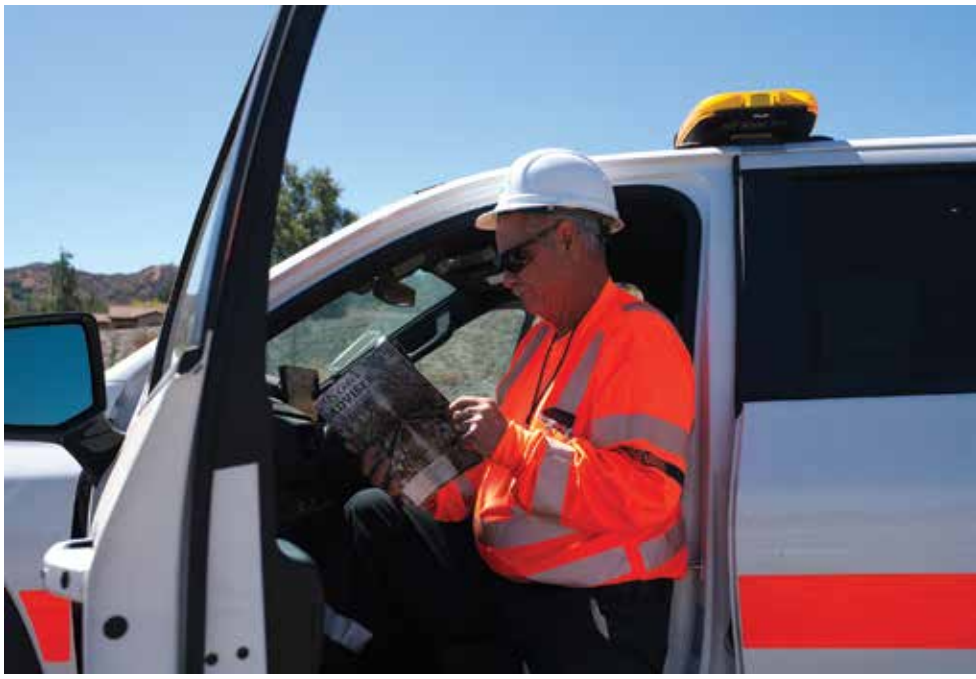
Plant Science and Purpose

Conrad began his studies at Mt. San Antonio College, where he focused on Sports Turf Facilities Management and Horticultural Science under Dave Lannom. While working in the campus nursery, which was then a full-scale production nursery specializing in palms, he learned about pre-emergent herbicides and developed a deep appreciation for California's native plant species. This early experience planted the seeds for a career in vegetation management.

He transferred to Cal Poly Pomona and earned his degree in Plant Science in 2007. Afterward, he joined the horticulture team at Disneyland, Anaheim CA, where he learned how to keep landscapes "show ready." During

this time, he earned his PCA license, which opened the door to more opportunities at Caltrans.

"I liked the independence and the chance to make a difference," Conrad said. "And I liked having weekends and holidays off."



Steward of the Roadside

Conrad spent over a decade in Caltrans District 7, covering Los Angeles and Ventura Counties. His work focused on managing invasive weeds along roadways. These weeds not only crowd out native species but also increase fire risks and consume more water. In early 2025, he took on new responsibilities in District 4, which includes the Bay Area. As of this writing, Caltrans has an open position for a Senior Environmental Scientist (Specialist) in District 4. Conrad encourages other PCAs to apply: "You can make a difference, and the 9/80 schedule gives you a three-day weekend every other week."

One of Conrad's most impactful projects was on State Route 33 through the Los Padres National Forest near Ojai. A bright yellow-flowering invasive species, Spanish broom (Spartium junceum), had taken over 10 miles of highway shoulder. This is equivalent to 20 acres, using the Caltrans measure of 8.25 feet wide per mile. Although visually striking, Spanish broom poses a severe fire hazard and outcompetes native vegetation. Because the road passed through federal land, Conrad worked closely with Forest Biologist Heidi Gunther and the U.S. Forest Service to secure a pesticide use proposal.

Despite COVID-related delays, the proposal was approved within five days, which was a sign of urgency. Crews from LA County Department of Agriculture, Caltrans Ojai Road Maintenance, and private contractors used triclopyr and aminopyralid at labeled rates. Within 30 days, the Spanish broom was dead, and within 60 days it was removed. The area is now monitored monthly, with any new growth treated by hand or by spot spray.

In the Bay Area, Conrad's attention has shifted to Scotch broom (Cytisus scoparius) and Fennel (Foeniculum vulgare), both aggressive invaders. Unlike Los Padres, most of the affected land here is under Caltrans jurisdiction, which streamlines the approval and treatment process.

The Sustainable Nature of Prevention

Conrad is a strong advocate for pre-emergent herbicide applications in the fall, just before California's winter rains. "They're efficient, they use very little product, and they stop weeds before they emerge," he explained. This not only reduces the need for mowing, which is important for protecting nesting birds, but also lowers long-term maintenance costs. Moreover, Caltran's total usage of active ingredients is closely scrutinized. The ability to use a low poundage pre-emergent is not only more effective, but it also keeps a key metric under control.

"CAPCA needs to keep doing a good job of advocating with environmental justice groups," Conrad added. "Herbicides are definitely part of sustainable pest management."

But his work is not without challenges. "Some crews are only a lead worker and a supervisor. We need more trained people, especially those with PCA and arborist backgrounds," he noted. Currently, there's no job classification for arborists within Caltrans, although Conrad sees that as a much-needed addition.

Conrad also emphasized that, like many PCAs, he serves

in an advisory role. “We make recommendations, but we’re not the ones doing the applications. If a crew is short on time or equipment, they might not be able to implement what we propose.”

Natives and Monarchs

Off the clock, Conrad remains deeply committed to environmental restoration. He grows narrow-leaf milkweed at home to support monarch butterflies and cares for Sheldon, a rescued Mojave Desert tortoise. He also — with the blessing of his Supervisor, Ed Siribohdi, Senior Landscape Architect for Maintenance — transformed a freeway on and offramp in downtown Los Angeles into a drought tolerant thriving native habitat featuring poppies, lupine, salvia, and other California natives.

Sharing Knowledge Through CAPCA

This September, Conrad will speak at the CAPCA Annual Conference on strategies for controlling invasive weeds and preventing wildfires along roads and rights-of-way. “Roadsides are hot spots for ignition,” he said. “Take the 2018 Carr Fire: it started when a flat tire’s rim threw sparks into dry roadside grass.”

“CAPCA gives us education, support, and a strong professional network,” Conrad said. “They help us explain why science-based pest control is not only safe, but necessary.”

He encourages more people to explore PCA careers. “You can make a real difference. You’re not just managing weeds, you’re protecting California.”

Conrad is a proud member of CAPCA’s Southern California Chapter and is dedicated to educating others about the vital role PCAs play in safeguarding California’s infrastructure and ecosystems. ■

THANK YOU 2025

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Southern Valley Chemical Co.

Spectrum Technologies, Inc.

Summit Agro USA LLC

Sunridge Nurseries

Target Specialty Products

Teleos Ag Solutions

The Morning Star Company

Tiger-Sul Products, LLC

True Organic Products

Western Region Certified Crop Advisers

Photo: D. Trobaugh

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From The Archives

Environmental Justice is Playing a Long Game

FROM THE ARCHIVES

ENVIRO-TERRORISM

BIOTECHNOLOGY CAMPAIGN

In a sign that U.S.-based direct action campaigns might be becoming more confrontational, Earth First! (EF!) on May 6 posted on one of its Internet listservers the names and addresses of people it believed were opinion leaders in promoting the biotechnology industry. The list was originally sent to EF!'s various listservers, and from there it was picked up and sent to numerous anti-biotechnology listservers.

The list is composed of a mix of think-tank academics, science NGO members, industry representatives and government officials. Specific names mentioned include Dennis Avery of the Hudson Institute, Greg Conko of the Competitive Enterprise Institute (CEI), Carl Feldbaum of the Biotechnology Industry Organization (BIO), Dr. Elizabeth Whelan of the American Council on Science and Health (ACSH) and John Krebs of the UK's Food Standards Agency.

Two weeks later EF! published a second list, this one containing the names and addresses of the leading biotechnology companies in the U.S. and the European Union (EU). This list included: Monsanto; Aventis CropScience (now owned by Bayer); BASF; Dow AgroSciences; DuPont; and Syngenta. In addition, the second list also provided the names and titles of the chief corporate officers of Monsanto, Dow AgroSciences, DuPont and Syngenta.

It appears that Earth First! and other radical activists groups associated with Earth First!, such as the Earth Liberation Front (ELF) and the Animal Liberation Front (ALF) are adopting the tactics being used by Stop Huntingdon Animal Cruelty (SHAC) and are themselves becoming more radical.

SHAC

Publishing names and email addresses by EF! is the latest example of a new activist approach to bring pressure on individuals involved in industries that activists oppose. The tactic was first introduced two years ago by the English animal rights group Stop Huntingdon Animal Cruelty. SHAC was formed for the express purpose of driving the product testing company, Huntingdon Life Sciences (HLS), out of business. Huntingdon performs animal testing for a range of products, many of these being personal care products. With the Huntingdon campaign, SHAC elevated the level and expanded the range of harassment it was willing to use in its campaign.

From the start SHAC has waged a vicious and virulent campaign against HLS and its investors. Targeting a company's financial backers is not a new tactic, but the way SHAC went about it was. It decided to target anyone who was remotely involved with HLS. This meant that anyone who worked at HLS or its investors was a target, whether you worked on the HLS account or not.

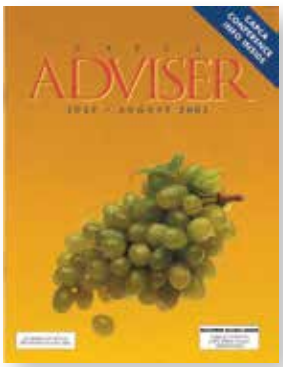
In addition, the campaign was made brutally personal. SHAC acquired the phone numbers of employees and made harassing phone calls in the middle of the night. Pornographic materials were sent to employees' homes. Cars were firebombed, threats of rape and other personal injury were lodged. In two cases, HLS executives were physically attacked outside their homes, one beaten with a baseball bat, one sprayed with mace. In some cases, even neighbors were targeted, as it was thought that they would bring pressure to bear on the HLS-connected neighbor.

This is a fundamental shift in tactics from animal rights activism in the past. What made the SHAC tactics so different from previous animal rights campaigns was the length the group was willing to go, both in harassment and the people being harassed. In the past, animal rights groups believed that terrorizing people would cost them public sympathy and support, and so they only targeted property. But SHAC believes HLS' crimes are so "horrific" that there is no way people could be sympathetic to them. Thus the personal attacks on corporate employees, their neighbors and families.

The attacks, because they are personal are more effective. And they do not stop at just threats. Economic sabotage has occurred as well. Warren Stephens, of Stephens, Ltd, an investment company, had his credit card number stolen by SHAC and then had $100,000 charged to it in addition to having his apartment broken into and vandalized.

After two years of attacks by SHAC, Huntingdon re-incorporated itself in Delaware, where the disclosure laws are such that it can afford its employees more privacy. The anti-Huntingdon campaign followed the

20 *July / August 2002*



Excerpt from The Adviser published in July / August 2002

A 2002 issue of The Adviser offers a revealing snapshot of early environmental activism and legal strategy - threads that continue to influence our regulatory landscape.

One article recounts how groups like Earth First! targeted biotechnology professionals through aggressive campaigns, employing tactics that, in hindsight, resemble what we now refer to as "doxing." While the term wasn't in use then, the pressure these groups exerted on individuals and institutions was both disruptive and deliberate.

Another piece from the same issue covers the Washington Toxics Coalition v. EPA lawsuit. Filed in 2001, the case leveraged the Endangered Species Act (ESA) to compel EPA to reassess pesticide registrations. This is a legal approach that clearly foreshadowed today's sweeping ESA Workplan. While we won't draw direct comparisons to the current political climate, these archival moments provide valuable context. The confrontational and judicial strategies have been in motion for decades. ■

FROM THE ARCHIVES

company across the Atlantic and a key London SHAC organizer created SHAC-USA, based in Philadelphia, and has set out to harass American financial institutions into withdrawing their support for the testing company. Already some banks have backed away from dealing with the company and SHAC is currently waging a campaign against international insurance broker Marsh McLennan.

Influence on U.S. campaigns

This is all by the way of explaining the origin of these tactics and how they are filtering their way into American animal rights and anti-biotechnology activists' arsenals. Europe has always been the breeding ground for issues and tactics that eventually move to the U.S. such as animal rights, the anti-chlorine movement and the anti-biotechnology movement. The modern animal rights and anti-biotechnology movements in the U.S. were founded by European activists who came to the U.S. specifically to launch these efforts.

The assimilation of these tactics by American activists has already begun. The Animal Liberation Front recently joined SHAC's campaign against HLS and HLS' financial backers. In an ALF press release published on SHAC's website, ALF claims to have vandalized the home of James Meathe, Marsh McLennan's Midwest regional director, on June 7th. ALF states that it broke windows, splashed red paint on the house and left a message that read, "We are watching." While this is yet another attack against Marsh McLennan, a financial backer of HLS, the attack is unique in that it was carried out by ALF, not SHAC.

Like ALF's latest attack, the publishing of lists of names of people who are known to be visible and credible supporters of biotechnology is a new step for EF!. The group in the past has not targeted people, but rather property. Through its Earth Liberation Front affiliate, EF! has repeatedly uprooted GM test crops, destroyed greenhouses containing GM plants, vandalized buildings belonging to biotechnology companies and firebombed research laboratories. All this activity occurred under the EF!/ELF rubric that violence directed against property is not really violence.

The one thing these past actions lacked was a specific focus against a person or persons. By publishing these lists of names, EF! is now indicating that people are targets as well as property. The lists and ALF's actions show that SHAC's tactics are permeating into the greater acts without consciousness. SHAC has had tremendous success in both the U.K. and here, and so it makes sense that these tactics would be taken up by other activists.

Activist frustration over the lack of progress in their anti-biotechnology movement, and the lack of consumer response to the activists' messages has increased frustration in the anti-biotechnology movement. It appears that for some activists, this frustration has resulted in the adoption of the more confrontational SHAC tactics. ALF by joining the SHAC campaign has demonstrated that American activists are receptive to SHAC's ideas. EarthFirst! and ELF are apparently coming on board as well. ❧

Special thanks to Ron Duchin with Mongoven, Biuce & Duchin, Inc. for this information.

www.envirotruth.org

Envirotruth.org is dedicated to injecting badly needed truth into the debate about our environment.

For too long, environmental groups have seized the world stage and the public's attention by distorting facts, bending the truth and even committing acts of terrorism against innocent citizens.

The Envirotruth.org site includes the following sections:

Issues: What are the key issues that environmental organizations have used to spread their messages?

Quotes: What have those affected by environmental groups - and the groups themselves - said?

Credibility: Should we believe what the environmental groups say?

Ecoterrorism: How does destroying millions of dollars worth of property help advance the cause of environmentalism?

When you visit the Envirotruth.org site, be sure to sign up for weekly free email updates with the latest in Envirotruth!

Visit ***www.envirotruth.org*** today!

FROM THE ARCHIVES

ENVIRONMENT

COURT RULING ON WASHINGTON

Late Wednesday (July 3), Judge Coughenour issued his decision in the Washington Toxics v. EPA concerning the Endangered Species Act (ESA). The judge said the Environmental Protection Agency had failed to consult the National Marine Fisheries Service (NMFS), beginning in 1989, about the potential harm to fish from 55 commonly used pesticides. The decision is in response to motions for summary judgment and dismissal filed by all parties in the lawsuit - plaintiffs Washington Toxics Coalition and three other environmental groups, and defendants EPA and intervenors.

In short, the Judge granted in part and denied in part everyone's motions.

CHIEF FINDINGS AND RULINGS BY THE COURT

The Court agreed with defendants EPA and intervenors that the Agency has not violated ESA sec. 7(a)(1) regarding EPA's development of conservation programs.

Accordingly, the Court denied the plaintiffs' sec. 7(a)(1) claims.

The Court agreed with the plaintiffs that, as a matter of law, EPA violated sec. 7(a)(2) of the ESA with respect to 55 pesticide active ingredients and registration of pesticides containing these ingredients (see page 25 for a list of the 55 products implicated). The Court, however, dismissed the plaintiffs' claims with regard to 898 other pesticides active ingredients asserting that the plaintiffs failed to establish standing to challenge EPA's actions with regard to these pesticides.

The Court ordered EPA to initiate and complete sec. 7(a)(2) consultation with NMFS regarding the effects of the 55 pesticide registrations on threatened and endangered salmonids based on the following schedule. The Court, however, left it to EPA to decide the order of consultations for the 55 pesticides.

- *3 pesticides by July 15, 2002*
- *3 more pesticides by Aug. 1, 2002*
- *7 more pesticides by Dec. 1, 2002*
- *7 more pesticides by April 1, 2003*
- *7 more pesticides by Aug. 1, 2003*
- *7 more pesticides by Dec. 1, 2003*
- *7 more pesticides by April 1, 2004*
- *7 more pesticides by Aug. 1, 2004*
- *7 more pesticides by Dec. 1, 2004*

While the Court asserted that it had no jurisdiction to compel any schedule for the remaining 898 pesticides, it did note that EPA in its briefs projected that the agency could complete consultation on all pesticides by 2007.

In short, the Judge granted in part and denied in part everyone's motions.

ANALYSIS

The Court rejected the plaintiffs' sec. 7(a)(1) claims; the Court limited the decision regarding violations of sec. 7(a)(2) only to 55 of the 953 pesticide active ingredients that the plaintiffs suggested were the subject of the lawsuit; the Court did not mention any requirement of interim measures during the consultation period; and the Court left to EPA the order of consultation of the 55 products subject to the decision.

This decision, however, cannot be construed as completely favorable for our intervenor group. Fifty-five products are now subject to a court-ordered schedule for consultation. In addition, we may expect the plaintiffs to return to the court with a motion for interim measures. Of course, we will keep you posted as to any such developments.

An additional point of concern is the Court's discussion on its ruling that the plaintiffs had standing to challenge EPA's actions or lack thereof. In limiting the scope of the lawsuit, the court noted that the plaintiffs submitted adequate evidence only for the 55 pesticide active ingredients. The court described adequate evidence as "scientific or competent declaratory evidence demonstrating a causal link between EPA's ongoing registration actions and direct or indirect adverse effects on salmonid populations." The court noted, however, that the plaintiffs' burden, i.e., the material they need to submit, is "relatively minimal" and pointed out that the plaintiffs failed to even identify the names of the

TOXICS V. EPA, ESA LAWSUIT

other 898 active ingredients. While it may be difficult to obtain such evidence for some of the products, this decision may provide a partial roadmap for plaintiffs in future lawsuits.

The following statement will be released to the media by CropLife America, if asked:

"We are satisfied with the ruling. Our industry has always favored EPA's approach of developing a more thorough process for evaluating pesticide registration and re-registrations in relation to endangered species.

Moreover, the industry has been willing to provide data and to participate in consultations as contemplated under ESA sec. 7. It is unfortunate that this ruling undermines EPA's decision-making authority and its priorities in dictating a specific schedule for consultation that will likely take precedence above other issues that EPA regards as more pressing." ❧

If you have questions about this decision, please contact Doug Nelson, <dnelson@croplifeamerica.org>, or Gabriel Eckstein, <geckstein@croplifeamerica.org>. This information was made available through CropLife America's Communications Office.

55 PRODUCTS IMPLICATED BY DECISION

1,3-dichloropropene
2, 4-D
acephate
alachlor
atrazine
azinphos-methyl
bensulide
bentazon
bromoxynil
captan
carbaryl
carbofuran
chlorothalonil
chlorpyrifos
coumaphos
diazinon
dicamba
dichlobenil
diflubenzuron
dimethoate
disulfoton
diuron
ethoprop
fenamiphos
fenbutatin-oxide
lindane (gamma-BHC & HCH)
lindane
linuron
malathion
metamidophos
methidathion
methomyl
methyl parathion
metolachlor
metribuzin
molinate
naled
norflurazon
oprodione
oryzalin
oxyfluorfen
paraquat dichloride
pebulate
pendimenthalin
phorate
phosmet
prometryn
propargite
simazine
tebuthiuron
terbacil
thiobencarb
thiodicarb
triclopyr
trifluralin

Are You Facing DPR CE Roadblocks?
Speak Up and Shape the Future!

Your Experience Matters—Let's Act Together

Is navigating the Department of Pesticide Regulation's (DPR) continuing education (CE) system leaving you confused, frustrated, or feeling unheard? You're not alone. Across California, licensees and CE course sponsors alike are encountering obstacles. Whether it's inconsistent feedback, confusing requirements, or gaps in attendance tracking, these issues add unnecessary stress to an already demanding field.

Common Challenges Affecting Licensees & Sponsors

- Tracking Troubles: Licensees sometimes find completed hours missing from DPR's record totals, raising questions about how attendance is tracked and credited.
- Inconsistent Communication: Sponsors report mixed messages on course approvals and attendance reporting, leaving standards unclear and the process unpredictable.
- Eligibility Confusion: Uncertainty persists for sponsors applying for CEUs about which topics truly count for DPR CE credit. While DPR's course approval process often emphasizes pesticide-related content, many of their own CE examples highlight additional critical and valuable curriculum areas, like IPM/SPM practices. Sponsors report uncertainty around these broader course topics meeting with approval standards.
- Attendance Reporting Challenges: CE sponsors have encountered challenges when DPR does not use the license number as the primary means of verifying attendance, since sponsors may only have access to the license number and the name provided by an attendee.
- Delayed Response Time: Stakeholders frequently cite the extended response time to inquiries and communications with DPR, which can impact the efficiency of CE-related processes.

- Disconnected Dialogues: Many feel unsure about how to contact DPR for help, with a lack of guidance on starting effective conversations.

If these sound familiar—or if you're grappling with other barriers that haven't received attention—your voice is vital. CAPCA is gathering feedback to advocate for clearer, fairer, and more efficient solutions.

Share Your Story: Fill Out Our Short Survey

Your experience can spark change. By completing our confidential survey, you help CAPCA see the bigger picture, identify patterns, and represent your concerns to DPR. While CAPCA cannot address individual issues, we are committed to championing the industry's collective needs.

How You Can Help

- Fill Out the Survey: Tell us about your challenges, whether they relate to CE hours tracking, course approvals, reporting, eligibility, or other DPR communications.
- Encourage Your Colleagues: The more responses, the stronger our case for positive change.
- Stay Informed: Watch for updates from CAPCA and DPR so you're equipped with the latest information.

Make Your Voice Count

Don't let confusion or frustration go unnoticed. Your feedback is the first step in building a smoother, more transparent CE system for everyone.

Ready to take action? Complete the survey today and help shape the future of continuing education for California's pest management professionals. ■

Fill Out the Survey!

Featured Article

Lawmakers Join CAPCA Leaders in Santa Maria

By Josh Walters, Alliance of California's Farmers and Ranchers Community Fund

When laws that govern how PCAs can do their jobs are written by legislators who have never set foot on a farm, we have a problem. That's why CAPCA was excited to partner with the Alliance of California's Farmers and Ranchers Community Fund to bring two freshmen legislators to tour agriculture in the Santa Maria Valley on June 20th.

This all-day tour gave two Democratic urban legislators a firsthand look at how Pest Control Advisers translate science into on-farm stewardship.

The tour unfolded as an all-day experience, offering two Democratic urban legislators a rare, ground-level perspective on how Pest Control Advisers turn scientific knowledge into practical stewardship in the field.

Assemblymember John Harabedian (D–Pasadena), chair of the Joint Legislative Audit Committee, and José Solache (D–Lynwood), a member of the Budget and Economic Development Committees, began their morning immersed in operations at Betteravia Farms.

Inside the company's on-site soil lab, the legislators learned how diagnostics guide custom nutrient blends. Outside, engineers idled up a prototype precision sprayer capable of toggling individual nozzles in milliseconds — a machine designed to help farmers trim pesticide use, boost the efficacy of inputs, and foster healthier produce and communities.

"Seeing data drive every decision, from fertilizer rates to spray volumes, underscored how much accountability already exists in the field," Harabedian noted.

After lunch, the group headed to Presqui'le Winery, where vineyard manager María Torres outlined an integrated pest management (IPM) program built on

Assemblymember Jose Solache (D-Lynwood) following a demonstration of a prototype precision sprayer

beneficial insects and targeted fungicide applications. The setting illustrated how planthealth decisions ripple beyond row crops to tourism and rural jobs. “Vineyards are economic engines in my district,” Solache said. “Linking IPM to workforce stability helps me explain its value at the Capitol.”

Following a working lunch at Presqu’ile Winery, the group learned how vineyard pest management programs rely on integrated approaches, including beneficial insects and targeted fungicide applications. The visit highlighted how plant-health practices in vineyards affect crop quality as well as tourism and rural employment.

Partnerships Among Ag Groups Matter

The California Agricultural Air Association donated flight time, creating an opportunity to bring the delegation together to tour the Santa Maria Valley and get back to their districts in a single day. According to CAPCA CEO Ruthann Anderson, that efficiency matters: “You don’t change minds with slide decks. You change them when policymakers stand in the rows and talk, unfiltered, with the people doing the work.”

Both Harabedian and Solache were grateful for the opportunity to learn about the important work PCAs do and, more importantly, carried new contacts from the CAPCA team for future follow-up. For PCAs, the tour was less a photo op than a down payment on informed oversight and, ultimately, better rules. ■

From left: Taylor Triffo (Kahn Soares & Conway), Matt Bristow (CAPCA), Paul Crout (CAPCA), Ruthann Anderson (CAPCA), Josh Walters (Community Fund), Asm. José Solache, Asm. John Harabedian, Jaycob Bytel (Community Fund)

Featured Article

Aphid Management in Stone Fruits

By: Idongesit Mokwunye, Ph.D., San Joaquin Valley IPM Entomology Advisor, University of California Statewide IPM Program and Cooperative Extension

Introduction

Stone fruits refer to a group of fruits characterized by a large, hard pit or "stone" surrounded by fleshy pulp. The seed is enclosed within the stone. Common stone fruits include peaches, nectarines, plums, cherries, and apricots. One of the primary insect threats to stone fruit production is aphids. These soft-bodied, pear-shaped, sap-sucking insects pose significant challenges to growers due to their rapid reproduction and damage potential.

Aphid Identification and Biology

Aphids are small insects with long legs and antennae. Their colors can range from green, yellow, brown, and red to black, depending on the species. A distinguishing feature of aphids is the pair of tubelike structures, known as cornicles, projecting from their abdomen. These structures secrete defensive compounds to deter predators.

Aphid species found on stone fruits often occur in both winged and wingless forms. Wingless aphids can be transported by wind or ants. Their lifecycle includes both sexual and asexual phases. The sexual phase occurs in the fall, typically on primary hosts such as stone fruits, resulting in overwintering eggs that can withstand cold temperatures. The asexual phase takes place in the spring and summer, facilitating rapid population growth through live births.

Common aphid species affecting stone fruits in regions like California include the leaf curl plum aphid (*Brachycaudus helichrysi*), black peach aphid (*Brachycaudus persicae*), mealy plum aphid (*Hyalopterus pruni*), black cherry aphid (*Myzus cerasi*). These aphids are polyphagous and can alternate between distantly related host plants. Woody plants like stone fruits serve as primary hosts for both asexual and sexual reproduction, while herbaceous plants act as secondary hosts for asexual reproduction.

Lifecycle

Aphids overwinter as eggs on buds, leaf undersides, bark, or roots, depending on the species. These eggs hatch, giving rise to wingless females called stem mothers. Stem mothers reproduce asexually, producing 60 to 100 live nymphs over 20 to 30 days. The nymphs undergo several molts before becoming adults, with no pupal stage involved. Under favorable conditions, aphids can complete a generation in 5 to 10 days.

Due to overcrowding, declining food quality, or environmental cues, some nymphs develop into winged adults that migrate to summer host crops such as weeds, vegetables, and ornamental plants. Multiple generations may be produced on these secondary hosts. In the fall, winged adults return to stone fruit orchards to produce sexual forms that mate and lay overwintering eggs. Aphids' ability to reproduce both sexually and asexually, and to alternate between hosts, allows them to adapt and survive across seasons. Some species can complete up to 20 generations per year.

Damage

Aphids form dense colonies on the underside of leaves. Both nymphs and adults use their piercing-sucking mouthparts to extract plant sap, leading to leaf curling, twisting, and deformation. Severe infestations can result in flower shedding, premature fruit drop, and tree defoliation, which negatively affects fruit development.

Table 1. Common aphid species in Californian stone fruit orchards and their characteristics.

Common Aphid Species	Description	Photo
Black peach aphid *Brachycaudus persicae* *Photo Credit: influentialpoints.com. Licensed under a Creative Commons Attribution 3.0 License.*	**Hosts:** Peach, Nectarine Wingless adults are shiny black. Nymphs are reddish brown. Overwinters in roots	
Black cherry aphid *Myzus cerasi* *Photo Credit: Jack Kelly Clark, UC IPM*	**Host:** Cherry **Summer host:** mustard family weeds Wingless adults are shiny metallic black. Eggs are shiny black. Overwinters in twigs and fruits spurs.	
Mealy plum aphid *Hyalopterus pruni* *Photo Credit: Jack Kelly Clark, UC IPM*	**Host:** Apricot, Prune **Summer host:** Reed grass, cattails Wingless adults are pale green with three dark green longitudinal stripes on their backs and are covered with white mealy wax.	
Leaf curl plum aphid *Brachycaudus helichrysi* *Photo Credit: Jack Kelly Clark, UC IPM*	**Host:** Plum, Prune **Summer host:** Asteraceae family Wingless adults vary from shiny green to brownish green or brownish yellow.	
Short-tailed almond aphid *Brachycaudus amygdalinus* *Photo Credit: Sara Savary. Used by permission.*	**Host:** Peaches, Nectarines **Summer hosts:** Horsetail knotweed, redshank Wingless adults are green with a large dorsal black patch. Nymphs are dull greenish yellow.	

In a recent survey of peach and nectarine orchards, aphid colonies were found inside curled, deformed leaves. These damaged leaves often wither and fall, weakening the trees. Additionally, some aphid species transmit viral diseases. Aphids also excrete honeydew, which promotes the growth of sooty mold on leaves and fruit, further reducing fruit quality and marketability. Overall, aphid infestations reduce plant vigor and yield.

Monitoring

Dormant Spur Sampling for Aphid Monitoring

Dormant spur sampling, typically used to determine the need for scale insect treatments, can also be an effective method to monitor the presence of aphid eggs—specifically mealy plum aphid and leaf curl plum aphid—in both prune and plum orchards with a history of infestation. This sampling is typically conducted between November and January, a period when foliage is absent, allowing for optimal spray coverage targeting overwintering eggs. If aphid eggs are detected and control is warranted, insecticide applications at this stage are more effective when using low rates of insecticides alone or in combination with dormant oil, rather than dormant oil alone.

Spring/Summer Monitoring

Begin monitoring in early spring as trees leaf out, especially in orchards with a history of aphid issues. Prioritize orchard edges, areas near windbreaks, natural vegetation, and previous damage sites. Key signs of aphid activity include:

- Curled leaves
- Honeydew accumulation
- Sooty mold presence
- Visible aphid colonies
- Ant activity on tree trunks and orchard floors

Early detection through regular monitoring is necessary for timely and effective in-season spray decisions.

Management Strategies

Natural Enemies

Early in the season, aphids are relatively immobile and vulnerable to natural enemies. However, some ant species protect some aphid colonies; this can interfere with biological control. For instance, observations in a nectarine orchard revealed high ant activity near aphid-infested trees, both on the ground, on the tree trunk, and within leaf colonies. Controlling ants is crucial to enable natural enemies to suppress aphid populations.

Key aphid predators include lady beetles especially the multicolored Asian lady beetle (*Harmonia axyridis*), green and brown lacewing larvae, syrphid fly larvae, soldier beetles, and predatory midges. Parasitic wasps also play an important role, laying their eggs inside aphids, which become mummified and turn golden brown. These natural enemies can effectively manage aphid populations if pesticide use is minimal.

Chemical Control

Dormant sprays can be applied targeting hatching of the overwintering eggs. On plums, fall applications may be more effective. Dormant oils act through contact, smothering nymphs, and adults. Complete coverage is essential for effective use. These oils can be tank-mixed with low rates of insecticides for added effectiveness.

Once aphids become established within curled leaves, control becomes difficult. Broad-spectrum insecticides may harm beneficial insects and disrupt natural pest control. Additionally, by this time, many aphids may have migrated to alternate hosts, leaving behind individuals that could be managed naturally.

Systemic insecticides such as acetamiprid and imidacloprid are effective in controlling heavy infestations. However, they may pose risks to pollinators and natural enemies. Applications should be avoided before and during bloom. Fall-applied insecticides may help reduce egg-laying and lower populations for the following year.

A Pest Control Adviser (PCA) reported consistent aphid outbreaks two weeks after nitrogen fertilizer applications. Excess nitrogen and irrigation encourage tender new growth, which is attractive to aphids. To mitigate this, apply nitrogen in smaller doses throughout the season or use slow-release formulations.

Conclusion

Effective aphid management in stone fruit orchards requires a combination of monitoring, biological control, and targeted chemical applications. Understanding aphid biology and seasonal dynamics helps growers and PCAs implement timely and sustainable control strategies that protect yield and preserve ecosystem health. ■

CAPCA: Advocating for Resources

You may often hear that CAPCA is advocating on behalf of your license and your industry to ensure that you can stay focused in the field. But sometimes that isn't clear to members as harm reduction tends to be our focus - *fighting against changes or policies that would negatively impact you is often the nature of doing business in California.* This year has given us a rare moment to advocate on your behalf for tools, resources and opportunities to help PCAs and their growers who are being impacted by the rat infestation in the Central Valley.

Last fall after harvest, once irrigation systems were turned back on, we began receiving an increasing number of reports about rats causing damage to irrigation lines, girdling trees, and harming field equipment, wiring, and structures.

We spent countless hours in meetings, reporting to agencies about concerns in the field and hearing from PCAs about the economic damage that continued to ensue.

In June, in a step to bring the issue from meetings to reality in the field, we hosted a tour with the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA APHIS), California Department of Food and Agriculture (CDFA), California Department of Pesticide Regulation (CDPR), California Department of Public Health (CDPH) and representatives from various stakeholder groups, including the Almond Board of California and Western Growers, to ensure that your needs and concerns from the field were being heard.

We also saw some innovative measures being taken by growers and PCAs to help support production despite the infestation:

- Owl boxes found success in multiple crops – rat populations are predominantly based on the presence of a food source and every field representative we visited with owl boxes remarked that they are immediately being filled in impacted areas.
- Discing orchards to collapse rodent burrows was successful in one example but comes with secondary pressures from the impact to winter sanitation, harvest safety and soil compaction.
- Tree collars keep rats from climbing trees and damaging the tree but are met with secondary pressures from Naval Orange Worm (NOW) or other pests that may additionally harbor in collar.
- Removing food sources and managing water sources to reduce rat pressures – included clearing and cleaning ditches and riparian areas around fields.
- Increasing density of bait station deployment
- CO2 devices and burrow inundation procedures coupled with mechanical elimination measures

The damage goes beyond this year's crop into irrigation damage and tree girdling that could impact the yields of the tree for years to come. At the first field we visited, the grower was managing over 1000 rats per day during the peak of their infestation. This grower had invested over $2300 an acre just to address the infestation but that cost is unsustainable for many growers. *Despite the pest management investment made, this grower estimated at least a 10% crop loss in the first year due to rats.*

A tomato field was adjacent to abandoned vineyards with marks of thousands of burrows, which lead to infestations in the tomatoes. Because no bait label is available for use in tomatoes, the grower was left with very limited options to effectively combat the adjacent rat population.

Finally, one almond orchard has infestations so large they are losing entire limbs to girdling from the rats. This grower, along with doing ongoing repairs every time they turned on the water, had replaced the irrigation lines completely twice in the last 6 months due to rats chewing the lines to access a water source.

The consensus was there are actions that can be taken, but none are panaceas and all come with tradeoffs. We came out of the tour with the same requests regarding gaps in managing and addressing this issue long term. Since December of 2024, our request has been consistent:

- We need an area wide coordination plan (treatment recommendations when looking at larger impacted areas) and oversight/implementation through appropriate agencies to ensure that the efforts on one farm are not simply driving rats to a new location (and possibly back to their host burrows over time).
- We need assistance to provide updates to the industry on proven and allowable IPM solutions including pesticides, especially new CDFA label updates for Zinc Phosphide and Diphacinone. ***We have additionally requested CDFA consider an emergency label for additional row crops impacted in the dormant season to support an area wide coordination, if deemed beneficial.***
- We need to clearly identify the types of relief and support we can offer to affected growers—for example, implementing bait stations, installing owl boxes, and providing education to promote additional

Integrated Pest Management (IPM) strategies alongside other effective measures.

- We need an updated survey of affected regions to more accurately capture all commodities and acreage impacted. *This may help us set a baseline for monitoring and/or anticipate continued movement of rats if population control is not achieved.* See **Participate in a survey to help us baseline the Rat issue** below to participate.
- Due to the abnormal behavior of these rats, we have requested genetic testing and, more importantly, a resistance marker check, to ensure the recommendation of Diphacinone within the coordination plan is not unintentionally creating more resistance in the rat population.

Within this issue, CAPCA has proactively worked with and collected the following interim resources for you to best advise your grower:

- **Label Amendment update from CDFA** – see page 56. We have requested an additional label amendment that is being considered in an upcoming VPCRAC meeting in August. *CAPCA will provide updates digitally if finalized.*
- **Rat Management Infographic** – see page 60. This chart was provided by CDFA OPCA to consolidate all the regulatory structure around rodenticides into one simple view. *This is not a recommendation and, as always, we recommend you consult the label and current regulations as they continue to evolve.*

But don't be mistaken: the problem goes beyond just rats. It's rooted in a range of policy decisions. For example, the Sustainable Groundwater Management Act (SGMA) is significantly increasing the amount of abandoned farmland, which is turning into breeding grounds for pests—not just rats. At the same time, PCAs lack effective tools in their Integrated Pest Management (IPM) toolbox to both prevent and control pest infestations, especially with limited access to rodenticides. It's also unclear which agency is responsible for addressing serious pest outbreaks when the pests aren't classified as invasive or novel in California, even though they cause substantial damage.

To help us speak more broadly about the issue as we continue to seek support, we have collaborated with

Crop Life America to develop the following talking points for this situation:

- California's Central Valley is facing a severe rat infestation crisis, causing damage and agricultural loss to a growing number of crops including almond orchards.
- The infestation is causing widespread economic harm to farmers and communities and threatening higher grocery prices.
- The infestation is worsened by California's ban on safe and effective rodenticides and Integrated Pest Management practices, prioritizing politics over science.
- If left unchecked, the widespread infestation in California threatens our communities and public health. Californians deserve access to healthy food and safe, pest-free communities.

If you want to lend your voice to this issue, email ruthann@capca.com to get involved in upcoming opportunities to have your experience heard. Share your story and help shape the conversation around this critical issue.

What steps are being taken politically to address this issue? CAPCA has been briefing state legislators at a regular clip. Assembly Bill 732, a bill introduced but vetoed in 2024, has been reintroduced by Assembly member Alexandra Macedo (R-Tulare). The bill is designed to give County Ag Commissioners better authority to address nuisance and neglected acres before they reach the level of full infestation. Feedback from the field is that most growers experiencing rat infestations are situated adjacent to abandoned acres.

Does this bill solve the problem? Not entirely, but it starts to expand the tools available to impacted counties to address this issue quickly and before a larger infestation. As an IPM or SPM expert, you know that pest prevention and pest management are key steps to mitigating against a widespread outbreak. *By taking a more proactive approach, growers and PCAs can reduce overall pesticide use by addressing pest issues early through regular maintenance, rather than waiting for an outbreak to occur. A recent study by CDFA-OPCA supports this strategy, showing that in cotton, responding to lygus bug problems with ongoing maintenance required significantly less pesticide than reacting to a full outbreak or infestation. For more details, scan the QR code:*

Where do we go from here? *One of the points of knowledge we have gleaned from this process is the need for an industry-led baseline pest map and response network to provide current and ongoing updates to impacted stakeholders.* While we can't deploy a map overnight (although we have some ideas in the works), we can start getting a baseline from PCAs, growers and farm managers who are currently dealing with the rat infestation and ensure that resources, opportunities and updates are directly deployed to them along with the broader network.

"With a pest management challenge like this, the PCA has a golden opportunity to demonstrate their added value to a grower," Gary Silvera, CAPCA Advocacy Chair remarked. *"PCAs are IPM practitioners, and you can*

demonstrate how effectively you can help your grower in both innovation and reporting to benefit their growing season."

Talking with other PCAs to gather information and ideas and learn from shared experiences is an old IPM tool that CAPCA is uniquely set up to support through our Chapter network. *CAPCA will be hosting grower and PCA learning opportunities as well as distributing further resources as more information and funding become available.*

Participate in a survey to help us baseline the Rat issue: Along with Western Growers and the Almond Board of California, CAPCA developed a survey to assess the scope of current rat infestations. Along with a direct link, TELUS Ag and Consumer Goods has added the survey (linked below) to the dashboard of PCAs and growers in impacted geographies. If you have not completed the survey, scan the QR code to share your experiences and join the updated network. Your participation, regardless of the impacted commodity you work in, gives us tangible data in our request to update the economic impact of rat infestations to growers across the valley.

Rodent Pests Resources Survey

Not impacted or want to stay up to date without participating in the survey? Visit:

Rats in the Valley - CAPCA

Lastly, as a part of our deep resource dive, we have had discussions with USDA RMA and various crop insurance brokers to share our learnings from the field and understand how PCAs can support their affected growers.

Ultimately, the PCA and grower should consult with a crop insurance broker, but USDA RMA emphasized that the rats (especially this infestation) would be consistent with wildlife allowance below (outlined for almonds but broadly in other commodities as well):

Damage caused by rats would be a covered loss for almonds including the damage caused to irrigation systems that prevents growers from carrying out their regular practices.

What crop insurance doesn't cover is farm equipment such as tractors and the actual irrigation lines. Federal Crop Insurance kicks in when there is a decline in production of the crop caused by a covered cause of loss (see below).

9. Causes of Loss (a) In accordance with section 12 of the Basic Provisions, insurance is provided only against the following causes of loss that occur during the insurance period:

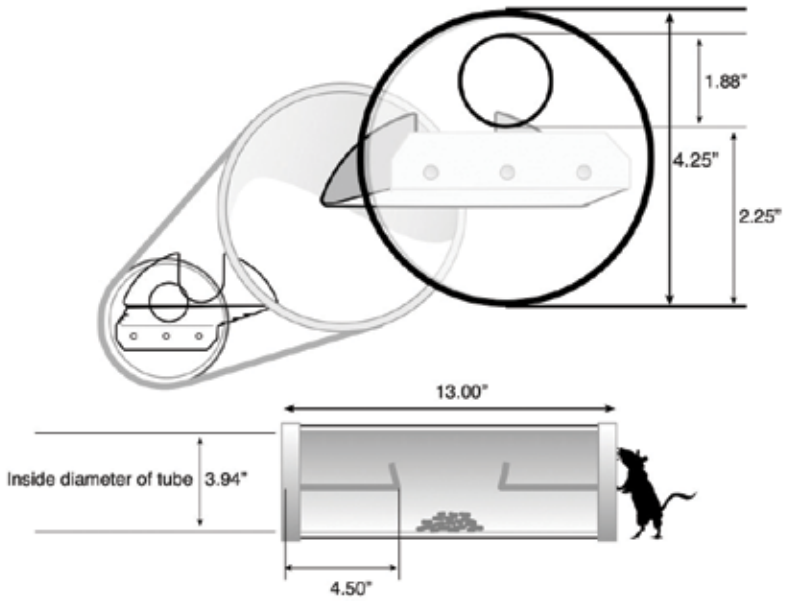
1. Adverse weather conditions;
2. Fire, unless weeds and undergrowth have not been controlled or pruning debris has not been removed from the orchard;
3. Insects, but not damage due to insufficient or improper application of pest control measures;
4. Plant disease, but not damage due to insufficient or improper application of disease control measures;
5. Earthquake;
6. Volcanic eruption;
7. Failure of the irrigation water supply, if caused by an insured peril that occurs during the insurance period; or
8. **Wildlife, unless control measures have not been taken.**

For additional guidance, see page 62 for a memo from Jack Roudebush, Advisor - Captive Strategist at HUB International Limited. This memo provides important information for PCAs on how to support growers with proper reporting and documentation, helping them determine their eligibility for crop insurance coverage. ■

Featured Article

Rat Management: Zinc

The Vertebrate Pest Control Research Program has revised the CDFA label, Zinc Phosphide Treated Grain (2.0%), with the Department of Pesticide Regulations (DPR). The new Zinc Phosphide Treated Grain (2.0%) label has been revised to include a Norway and Roof rat section within the Orchards (dormant) section, to clarify use restrictions language within the Orchards (dormant) section, to add DPR's PRESCRIBE internet database information to the Endangered Species Consideration section, and to remove the expiration date. Attached is the updated label that should be used going forward. If you have any questions, please contact Emily Schoenborn by phone at (916) 764-7759 or by email at Emily.Schoenborn@cdfa.ca.gov.



PRECAUTIONARY STATEMENTS
HAZARDS TO HUMAN AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed or absorbed through the skin or inhaled. Causes moderate eye irritation. Avoid breathing dust.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All handlers, including loaders and applicators must wear long sleeve shirt, long pants, shoes, socks, and waterproof gloves.

In addition, persons loading pellets or baits into aircraft or mechanical ground equipment and persons loading/applying with hand-pushed or hand-held equipment, such as a push-type spreader or cyclone spreader, must wear a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with an R, P or HE filter) and protective eyewear.

Any person who retrieves carcasses or unused bait following application of this product must wear waterproof gloves.

User Safety Requirements:
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash hands thoroughly after applying bait and before eating, drinking, chewing gum, using tobacco or using the toilet, and change into clean clothing.

ENVIRONMENTAL HAZARDS
This product is extremely toxic to birds, fish and other wildlife. Wildlife feeding on treated bait may be killed. Dogs, cats, and other predatory and scavenging mammals and birds might be poisoned if they feed upon animals that have eaten this bait. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not apply where runoff is likely to occur. Do not contaminate water by cleaning of equipment or disposal of wastes.

ENDANGERED SPECIES CONSIDERATION
Notice: The use of this product may pose a hazard to Federally designated endangered/ threatened species. It is a Federal offense to use any pesticide in a manner that results in the death of a member of an endangered species. Consult the nearest U.S. Fish and Wildlife Service regional office or the appropriate State Agency for current information on habitats occupied by endangered species. Before applying this product, applicators must obtain information regarding the proximity of endangered species habitats and follow any applicable use limitations. Contact your County Agricultural Commissioner or refer to the Department of Pesticide Regulation's PRESCRIBE Internet Database: http://www.cdpr.ca.gov/docs/endspec/prescint.htm for details.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*). Do not use this product in critical habitat within 0.5 miles of salt marsh vegetation and/or brackish water wetlands which are located: 1) near or adjacent to San Pablo Bay and San Francisco Bay, or 2) in the Sacramento River below or adjacent to confluence of the Sacramento River and the San Joaquin River (California)

Morro Bay Kangaroo Rat (*Dipodomys heermanni morroensis*). Do not use this product in critical habitat within 2.5 miles of Baywood Park which is located on Morro Bay (California).

Giant Kangaroo Rat (Dipodomys ingrens). Follow the Interim Measures for protecting endangered species on the Department of Pesticide Regulation's PRESCRIBE Internet Database for the following California counties: Fresno, Kern, Kings, Merced, Monterey, San Benito, San Luis Obispo, Santa Barbara and Tulare (California)

Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*). Follow the Interim Measures for protecting endangered species on the Department of Pesticide Regulation's PRESCRIBE Internet Database for the following California counties: Kern, Kings and Tulare (California)

Fresno Kangaroo Rat (*Dipodomys nitratoides exilis*). Follow the Interim Measures for protecting endangered species on the Department of Pesticide Regulation's PRESCRIBE Internet Database for the following California counties: Kern, Kings, Madera and Merced (California)

Stephan's Kangaroo Rat (*Dipodomys stephens*). Follow the Interim Measures for protecting endangered species on the Department of Pesticide Regulation's PRESCRIBE Internet Database for the following California counties: San Bernardino, San Diego and Riverside (California)

San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*). Follow the Interim Measures for protecting endangered species on the Department of Pesticide Regulation's PRESCRIBE Internet Database for the following California counties: San Bernardino and Riverside (California)

Revised 12/12/24

Phosphide Treated Grain (2.0%) Label Revised

RESTRICTED USE PESTICIDE

Due to Hazards to Non-target Species
For retail sale to and used only by Certified Applicators and only for those uses covered by the Certified Applicator's certification.

FIFRA 24[c] Special Local Needs Label (SLN)
For distribution and use only in the state of California

For use on fruit tree orchards (dormant); nonbearing nursery stock; conifer/Christmas tree, poplar/cottonwood, ornamental, and nonbearing fruit tree plantations; grape vineyards; rangeland, pastures and adjacent noncrop areas; non-residential lawns, ornamentals, golf courses and parks for control of voles, ground squirrels, Norway rats and roof rats.

RODENT BAIT ZINC PHOSPHIDE TREATED GRAIN (2.0%)

For use in rangeland, pastures, rights-of-way, sugar beets, grape vineyards, fruit tree orchards, and other sites to control the species listed in the use directions

Active Ingredient:
Zinc Phosphide……..……2.00%
Inert Ingredients.……..…….……..98.00%
Total.…..……..……100.00%

CAUTION

KEEP OUT OF REACH OF CHILDREN

FIRST AID

HAVE LABEL WITH YOU WHEN SEEKING TREATMENT ADVICE
(1-800-858-7378)

If you experience signs and symptoms such as nausea, abdominal pain, tightness in chest, or weakness, see a physician immediately. For information on health concerns, medical emergencies, or pesticide incidents, call the National Pesticide Information Center at 1-800-858-7378.

IF SWALLOWED: Call a Poison Control Center, doctor, or 1-800-858-7378 immediately for treatment advice or transport the person to the nearest hospital.
Do not give any liquid to the patient. Do not administer anything by mouth. Do not induce vomiting unless told to do so by the poison control center or doctor.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center, doctor, or 1-800-858-7378 immediately for treatment advice.
IF INHALED: Move person to fresh air. If person is not breathing call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.
Call a poison control center, doctor, or 1-800-858-7378 immediately for treatment advice
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes.
Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
Call a poison control center, doctor, or 1-800-858-7378 immediately for treatment advice.

TREATMENT FOR PET POISONING

If animal eats bait, call veterinarian at once.

NOTE TO PHYSICIAN OR VETERINARIAN

Contains the phosphine-producing active ingredient, Zinc Phosphide. Probable mucosal damage may contraindicate the use of gastric lavage. For animals ingesting bait and/or showing poisoning signs, induce vomiting by using hydrogen peroxide. Sodium bicarbonate can be given orally to neutralize the stomach acidity. The stomach and intestinal tract can be evacuated, oxygen administered and cardiac and circulatory stimulants given. See Left Panel for additional precautionary statements.

Manufactured for:
California Department of Food and Agriculture
1220 N Street
Sacramento, California 95814
(916) 654-0768

EPA SLN No. CA 890027
EPA EST. No.
California Reg. No. 10965-50015

Net Contents:

This label is valid until amended, withdrawn, cancelled or suspended.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.
PESTICIDE STORAGE: Store only in original container, in a cool, dry place inaccessible to children and pets. Keep containers closed and away from other chemicals.
PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Completely empty bag by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Dispose of bags in an approved waste disposal facility or by incineration.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

READ THIS LABEL: **Read entire label and follow all use directions, use precautions, and use restrictions. Use only for the sites, pests, and application methods described on this label.**

Use Restrictions for all Agricultural Sites

Do not apply this product in a way that will contact workers or other persons, either directly or through drift.
Only protected handlers may be in the area during application.
Keep all other persons out of the treated area during this application.
Do not apply on roads or over water.
Do not apply in and around homes and other human residences.
Do not broadcast over crops unless use directions specifically permit aerial application.
Do not apply within a 100-foot radius of any well.
Apply bait on warm clear days when plants and ground are dry and when rain is unlikely within 24 hours.
Do not pile bait.

Disposal of Spilled Bait, Leftover Bait, and Carcasses
Information Applicable for All Uses

Spilled and Excess Bait: Wearing waterproof gloves, clean up any spilled bait immediately and collect excess bait from application equipment. If bait cannot be applied according to label directions, properly dispose of it according to the "Pesticide Disposal" instructions.
Carcasses: Wearing waterproof gloves, bury carcasses of ground squirrels (18 inches deep) in holes dug on site or in inactive burrows. Cover and pack with soil. Alternately, use other disposal methods allowed by state and local authorities.

Bait Acceptance Tests: Before applying toxic bait, test for target species' readiness to accept this product by manually scattering untreated crimped oat groats to portions of the infested areas. Using flagging or other suitable items, mark areas where oats were scattered and return the following day to observe whether oats have been consumed and to assess whether target or nontarget species have consumed the bait. Do not apply toxic bait if it appears that nontarget species were primarily responsible for consuming oats. Apply toxic bait only if target species appear to have accepted oats readily. The County Agricultural Commission can supply the nontoxic pre-bait.

Pre-Baiting (Strongly Recommended), Ground Squirrels: Prebaiting – applying nontoxic bait throughout the proposed treatment area by the same method for applying toxic bait – is strongly recommended to enhance ground squirrel bait acceptance.

FRUIT AND NUT TREE ORCHARDS (DORMANT)

USE RESTRICTIONS: Use this product to control California Voles (*Microtus californicus*), Montane Voles (*M. montanus*), California Ground Squirrels (*Spermophilus beecheyi*), and Norway rats (Rattus norvegicus) and roof rats (Rattus rattus) in pome fruit (apple, pear) stone fruit (peach, cherry, apricot, plum, prune, nectarine) and nut tree orchards (almonds, walnuts, pistachios, pecans, filberts). Apply bait after harvest (including the removal of fruit and nut drops), before new spring growth and when no rain or snow is expected for three consecutive days. Do not graze animals in treated areas.

VOLES
HAND BAITING: Place bait near base of each infested tree at 2-4 locations, either on surface trails or at the mouth of holes leading to underground burrow systems. When practical, cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. Avoid applying to bare ground. Do not disturb the runway system. Apply teaspoon amount (4 grams) per placement, 2 - 3 lb/A (0.04 - 0.06 lb ai/A).

TRAILBUILDER: Set equipment to drop one teaspoon quantity of bait (4 grams) at 4-5 foot intervals in the artificial trail, made by the machine, just inside the drop line on both side of the trees. Apply at the rate of 2 - 3 lb/A (0.04 - 0.06 lb ai/A.

GROUND BROADCAST: Broadcast evenly by cyclone seeder or by hand. Concentrate in areas with heaviest vegetative cover. Avoid applying to bare ground. Apply at the rate of 6 - 10 lb/A (0.12 - 0.2 lb ai/A)

AERIAL BROADCAST: Apply at the rate of 6 - 10 lb/A (0.12 - 0.2 lb ai/A)

GROUND SQUIRRELS
PREBAITING (Strongly Recommended): Prebaiting with 6 lbs. of untreated steamed crimped oats per acre, one or two days prior to using toxic bait is likely to enhance bait acceptance by California ground squirrels.

HANDBAITING: Apply one teaspoon (4 grams) of bait within 3 ft of active burrows. Treat only once during treatment period. Broadcast bait using hand or ground-driven dispensing devices not to exceed 6 lbs. per acre (0.12 lb ai/A).

GROUND BROADCAST: Broadcast evenly by cyclone seeder or by hand. Concentrate in areas with heaviest vegetative cover. Avoid applying to bare ground. Apply at the rate of 6 - 10 lb/A (0.12 - 0.2 lb ai/A)

AERIAL BROADCAST: Apply at the rate of 6 - 10 lb/A (0.12 - 0.2 lb ai/A)

NORWAY AND ROOF RATS
BAIT ACCEPTANCE TESTS: Delay baiting until rats are readily accepting bait to reduce hazard to nontarget birds and mammals.

HANDBAITING: Using a bait spoon, place bait deeply into burrows at the rate of one teaspoon (4 grams) of bait to reduce hazard to nontarget birds and mammals. Do not place bait above ground.

GROUND BROADCAST: Treat only once during treatment period. Broadcast bait evenly using hand or ground-driven dispensing devices at the rate of 5 to 10 lbs. per acre (0.10 – 0.20 lb ai/A). Concentrate in areas with heaviest vegetative cover. Dispose of excess bait from application equipment according to "Pesticide Disposal" instructions.

NONBEARING NURSERY STOCK, CONIFER/CHRISTMAS TREE, POPLAR/COTTONWOOD, ORNAMENTAL, AND NONBEARING FRUIT TREE PLANTATIONS

USE RESTRICTIONS: Use this product to control California Voles (*Microtus californicus*), Montane Voles (*M. montanus*), and California Ground Squirrels (*Spermophilus beecheyi*) in nursery stock, and conifer/Christmas tree, poplar/cottonwood, ornamental, and non-bearing fruit tree plantations. Do not apply by air.

VOLES
HAND BAITING: Near the base of infested nursery stock, conifer/Christmas trees, poplar/cottonwood trees, ornamental trees, or non-bearing fruit trees, apply one teaspoon
(4 grams) of bait at 2-4 locations, either on surface trails or at the mouth of holes leading to underground burrow systems. When practical, cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. Avoid applying to bare ground. Do not disturb the runway system. Bait at a rate of 2-3 lbs. per acre (0.04 – 0.06 lb ai/A) of infested stock.

BROADCAST BAITING: Under infested nursery stock, conifer/Christmas trees, poplar/cottonwood trees, ornamental trees, or non-bearing fruit trees, broadcast bait evenly by cyclone seeder or by hand. Concentrate in areas with the heaviest vegetative cover Avoid applying to bare ground. Apply at a rate of 6-10 lbs. per acre (0.12 - 0.2 lb ai/A).

GROUND SQUIRRELS
PREBAITING (Strongly Recommended): Prebaiting with 6 lbs. of untreated steamed crimped oats per acre, one or two days prior to using toxic bait is likely to enhance bait acceptance by California ground squirrels.

HANDBAITING: Apply one teaspoon (4 grams) of bait on the ground within 3 ft of active burrows. Treat only once during treatment period, not to exceed 6 lbs. per acre (0.12 lb ai/A).
GROUND BROADCAST: Broadcast evenly by cyclone seeder or by hand. Concentrate in areas with heaviest vegetative cover. Avoid applying to bare ground. Apply at the rate of 6 - 10 lb/A (0.12 - 0.2 lb ai/A).

GRAPE VINEYARDS

USE RESTRICTIONS: Use to control California voles (*Microtus californicus*) and Montane voles (*M. montanus*) in grape vineyards. Do not graze animals in treated areas

BROADCAST BAITING: Broadcast bait evenly on the ground between the rows by cyclone seeder or by hand. Apply bait at a rate of 6-10 lbs. per acre (0.12-0.2 lb ai/A). Do not apply by air.

SUGAR BEETS

USE RESTRICTIONS: Use to control California voles (*Microtus californicus*) and Montane voles (*M. montanus*) in sugar beets. Do not apply this product to sugar beets within 30 days of harvest. Aerial applications are limited to overwintered sugar beets only. Do not graze animals in treated areas. Do not use sugar beet tops for animal feed.

BROADCAST BAITING: This product may be broadcast by air or ground-driven dispensing devices. Apply bait at rates up to 10 lbs. per acre (0.2 lbs. ai/A) at planting. A second application may be made at the same rate. Do not treat same treated area within 30 days. The maximum annual application rate is 20 lbs per year (0.4 lb. ai/A).

RANGELAND, PASTURES AND ADJACENT NONCROP AREAS

USE RESTRICTIONS: Use this product to control California voles (*Microtus californicus*), Montane voles (*M. montanus*), and California Ground Squirrels (*Spermophilus beecheyi*) in rangeland, pastures, and adjacent noncrop areas.

Revised 12/12/24

This product must not be applied on roads, near residential areas, over water or where plants are grown for food or feed. Do not apply more than once per year to the same treatment area. In rangeland, only apply in areas with < 50% ground cover.

GROUND SQUIRRELS
PREBAITING: (Strongly Recommended). Prebaiting with 6 lbs. of untreated steamed crimped oats per acre, one or two days prior to using toxic bait is likely to enhance bait acceptance by California ground squirrels.

HANDBAITING: Apply one teaspoon (4 grams) of bait on the ground within 3 ft of active burrows.

GROUND BROADCAST: Treat only once during treatment period. Broadcast bait evenly using hand or ground-driven dispensing devices at the rate of 6 to 10 lbs. per acre (0.12 – 0.20 lb ai/A). Concentrate in areas with heaviest vegetative cover.

VOLES
HANDBAITING: Apply one teaspoon (4 grams) of bait per placement, 2 - 3 lb/A (0.04 - 0.06 lb ai/A), either on surface trails or at mouth of holes leading to underground burrow systems. When practical, cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. Avoid applying to bare ground. Do not disturb the runway system.

GROUND BROADCAST: Treat only once during treatment period. Broadcast bait evenly using hand or ground-driven dispensing devices at the rate of 6 to 10 lbs. per acre (0.12 – 0.20 lb ai/A). Concentrate in areas with heaviest vegetative cover.

AERIAL BROADCAST: Apply at the rate of 6 - 10 lb/A (0.12 - 0.2 lb ai/A)

RIGHTS-OF-WAY AND CROP BORDERS

USE RESTRICTIONS: Use this product to control California Ground Squirrels (*Spermophilus beecheyi*), California voles (*Microtus californicus*) and Montane voles (*M. montanus*), and Norway rats (*Rattus norvegicus*) and roof rats *(Rattus rattus*) on noncrop rights-of-way (levees adjacent to canals and ditchbanks, highways, railroads, and utilities) and crop borders. This product must not be applied on roads, near residential areas, over water or where plants are grown for food or feed. Do not apply by air.

GROUND SQUIRRELS
PREBAITING: (Strongly Recommended): Prebaiting with 6 lbs. of untreated steamed crimped oats per acre, one or two days prior to using toxic bait is likely to enhance bait acceptance by California ground squirrels.

HANDBAITING: Apply one teaspoon (4 grams) of bait on the ground within 3 ft of active burrows.

GROUND BROADCAST: Treat only once during treatment period. Broadcast bait evenly using hand or ground-driven dispensing devices at the rate of 5 to 10 lbs. per acre (0.10 – 0.20 lb ai/A). Concentrate in areas with heaviest vegetative cover.

NORWAY AND ROOF RATS
BAIT ACCEPTANCE TESTS: Delay baiting until rats are readily accepting bait to reduce hazard to nontarget birds and mammals.

HANDBAITING: Using a bait spoon, place bait deeply into burrows at the rate of one teaspoon (4 grams) of bait to reduce hazard to nontarget birds and mammals. Do not place bait above ground.

GROUND BROADCAST: Treat only once during treatment period. Broadcast bait evenly using hand or ground-driven dispensing devices at the rate of 5 to 10 lbs. per acre (0.10 – 0.20 lb ai/A). Concentrate in areas with heaviest vegetative cover. Dispose of excess bait from application equipment according to "Pesticide Disposal" instructions.

VOLES
HANDBAITING: Apply one teaspoon (4 grams) of bait per placement, 2 - 3 lb/A (0.04 - 0.06 lb ai/A), either on surface trails or at mouth of holes leading to underground burrow systems. When practical, cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. Avoid applying to bare ground. Do not disturb the runway system.

GROUND BROADCAST: Treat only once during treatment period. Broadcast bait evenly using hand or ground-driven dispensing devices at the rate of 5 to 10 lbs. per acre (0.10 – 0.20 lb ai/A). Concentrate in areas with heaviest vegetative cover.

NON-RESIDENTIAL LAWNS, ORNAMENTALS, GOLF COURSES, AND PARKS

USE RESTRICTIONS: Use this product to control California Ground Squirrels (*Spermophilus beecheyi*), California voles (*Microtus californicus*) and Montane voles (*M. montanus*), and Norway rats (*Rattus norvegicus*) and roof rats (*Rattus rattus*) on non-residential lawns, ornamentals, golf courses, and parks. Do not broadcast bait by air or ground application.

GROUND SQUIRRELS
PREBAITING: (Strongly Recommended). Prebaiting with 6 lbs. of untreated steamed crimped oats per acre, one or two days prior to using toxic bait is likely to enhance bait acceptance by California ground squirrels.

HANDBAITING: Apply one teaspoon (4 grams) of bait on the ground within 3 ft of active burrows. Do not place heaps or piles.

BAIT STATIONS: Place bait in tamper-resistance bait stations if children, pets, or nontarget mammals or birds may access the bait.

NORWAY AND ROOF RATS
BAIT ACCEPTANCE TESTS: Delay applying toxic bait until rats are readily accepting prebait to reduce hazard to nontarget birds and mammals.

HANDBAITING: Using a bait spoon, place bait deeply into burrows at the rate of one teaspoon (4 grams) of bait to reduce hazard to nontarget birds and mammals. Do not place bait above ground. Do not pile bait. Do not overbait.

VOLES
HANDBAITING: Apply one teaspoon (4 grams) of bait per placement, 2 - 3 lb/A (0.04 - 0.06 lb ai/A), either on surface trails or at mouth of holes leading to underground burrow systems. When practical, cover bait artificially (e.g., mats, boards) or by pulling overhanging grass over bait. Avoid applying to bare ground. Do not disturb the runway system.

BAIT STATIONS: Place bait in tamper-resistance bait stations if children, pets, or nontarget mammals or birds may access the bait.

ALFALFA

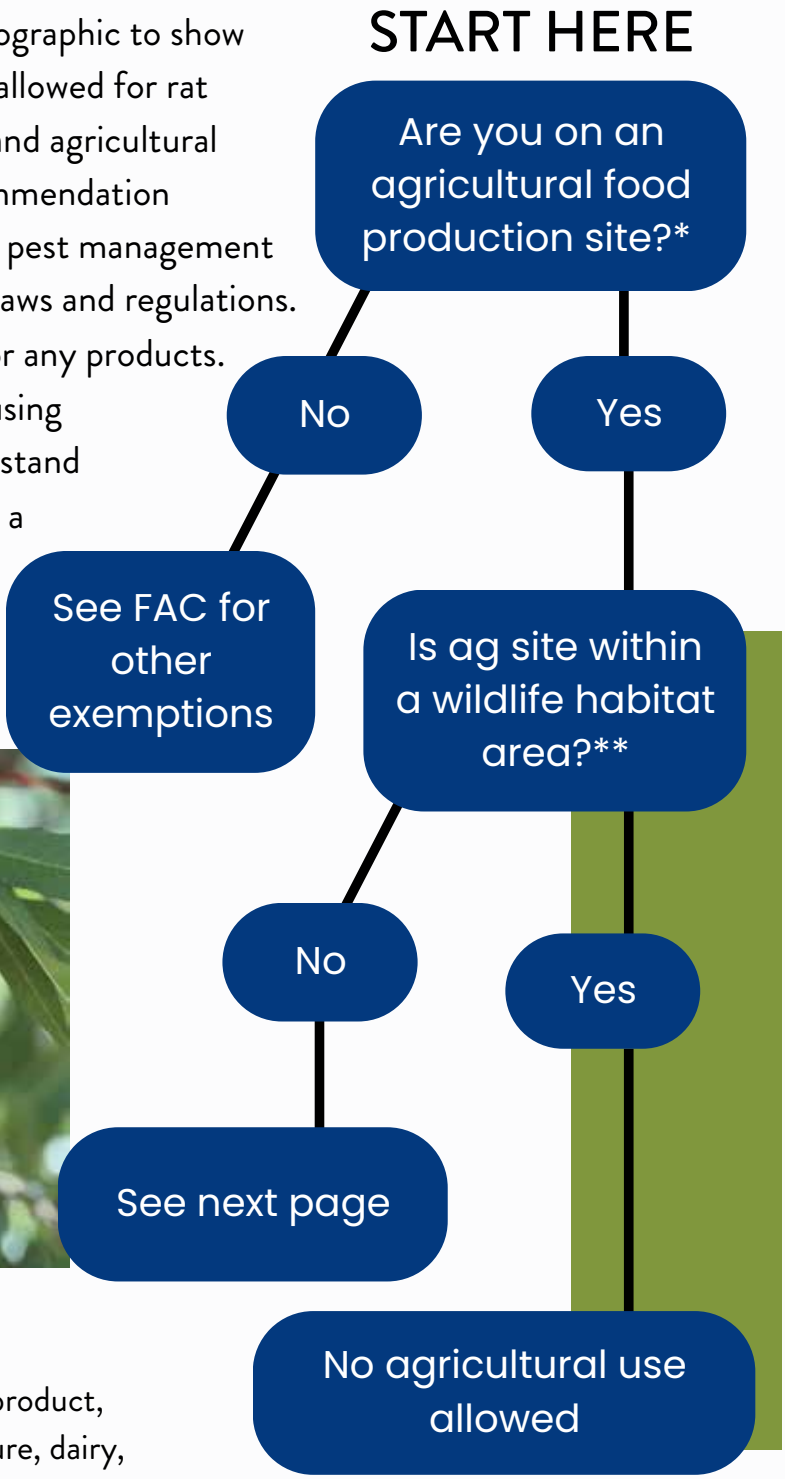
USE RESTRICTIONS: For control of meadow voles, long-tailed voles, California voles, mountain voles and Townsend's voles (Microtus spp.) in alfalfa. All applications must occur shortly after a cutting of the hay, and/or prior to the next growth's attaining a length of 2 inches. Alfalfa forage from treated areas must not be harvested until it reaches maturity.

BROADCAST BAITING: This product may be broadcast by air or ground-driven dispensing devices. Apply at a rate of up to 10 lbs. per acre (0.2 lb. ai/A), a second bait application may be made after 10 days. A maximum of 20 lbs. (0.4 lb. active ingredient) per acre may be applied per year. Do not apply by air when wind velocity exceeds 10 mph. Do not apply in piles or permit piles to be formed by equipment.

Chemical Rat Management in Agricultural Settings

The Office of Pesticide Consultation and Analysis has created an infographic to show what chemical options are allowed for rat control in various orchard and agricultural settings. This is not a recommendation document or an integrated pest management plan. It is a visualization of laws and regulations. It does not explain labels for any products. It is essential that anyone using rodenticide read and understand product labels before using a product. This document is not a replacement for reading product labels.

Rat damage in almonds



*Any site that produces an ag product, including those from horticulture, dairy, livestock, poultry, or bees.

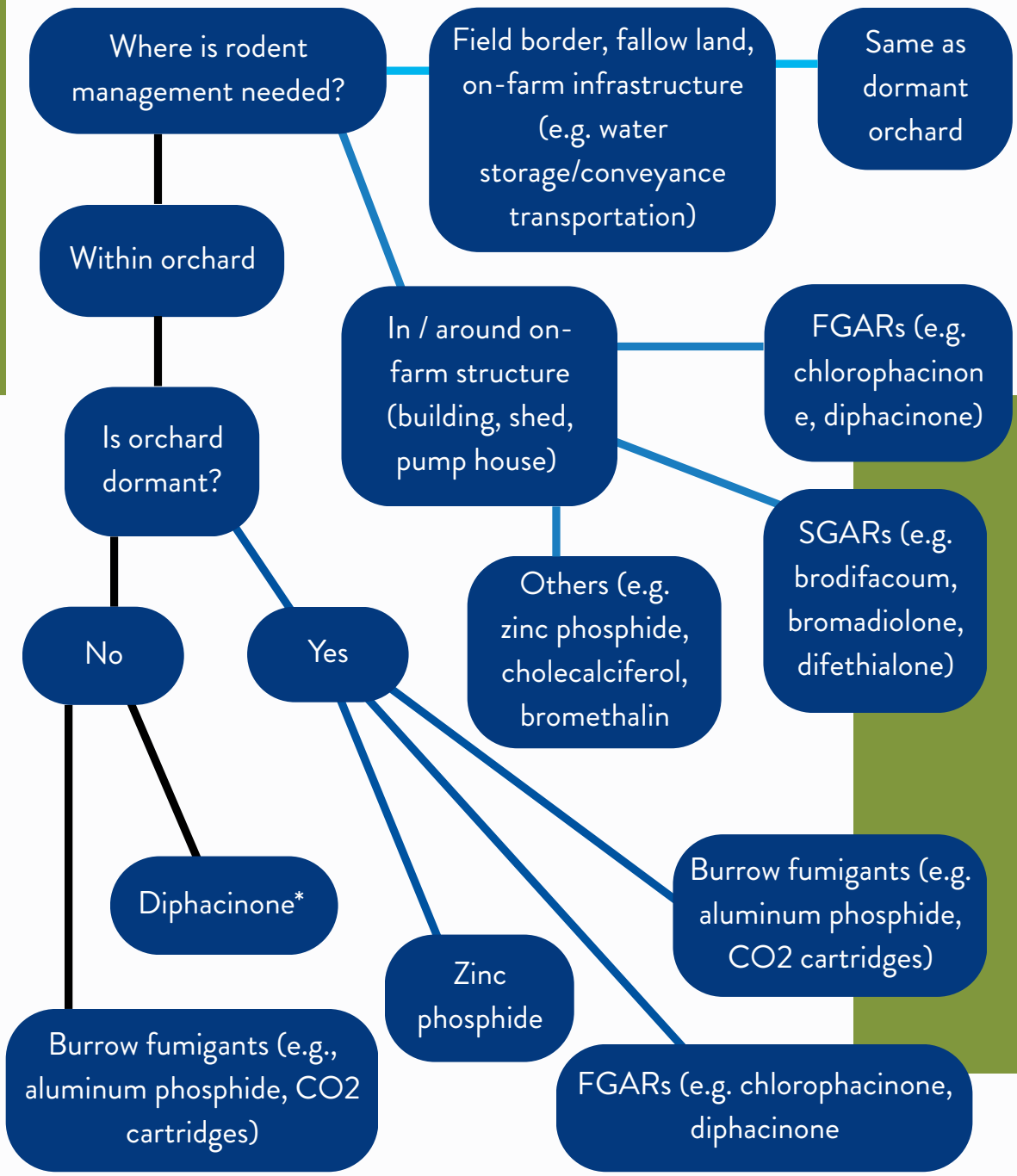
**Any park or wildlife refuge managed by a state agency, regional government, or quasi-government agency, or by a special district.

This information is current as of 08/11/2025.

Chemical Rat Management in Agricultural Settings

General note: not all products containing listed active ingredients can be used for the listed purposes.

Always read product labels thoroughly to confirm allowed uses and application requirements.



*Only RODENT BAIT DIPHACINONE TREATED GRAIN (0.005%) allowed for this use. In-orchard applications during the growing season are permitted only in elevated bait stations.

This information is current as of 08/11/2025.

This memo, prepared by Jack Roudebuch, Advisor – Captive Strategist with HUB International Limited, is intended to provide PCAs with essential information on how to effectively support growers in reporting and documenting crop damage to determine their eligibility for crop insurance coverage and successfully navigate the claims process.

Protect Your Crop: Rat Damage May Be Covered by Federal Crop Insurance

As your Pest Control Advisor, we want to ensure you're aware that damage from rats may be covered under the Federal Crop Insurance Program. This coverage can help protect your yield and income from unexpected losses caused by wildlife, including rodents like rats.

Key Details About Coverage

- **Rat Damage Is Insurable:** Losses caused by rats can be considered wildlife damage, a covered peril under Multi-Peril Crop Insurance (MPCI) policies.
- **How It Works:** If rat damage reduces your yield below the insured level (50–85% of your historical yield), you may qualify for an indemnity based on the yield shortfall and insured price.
- **Good Farming Practices Are Required:** To maintain coverage, follow PCA-recommended pest control practices, such as baiting or trapping, and keep records of these efforts. Losses due to neglect or poor management are not covered.

Steps to File a Claim

1. **Notify Your Agent Promptly:** Contact your crop insurance agent within 72 hours of discovering rat damage.
2. **Submit a Written Claim:** Follow up with a written notice of loss within 15 days after the end of the insurance period
3. **Allow Inspection:** A loss adjuster will verify the damage. Do not destroy affected crops before the inspection, as this could result in a denied claim.

Get Started

- **Contact Your Crop Insurance Agent:** Discuss MPCI policies and confirm coverage for rat damage in your county.
- **Reach Out to Us:** Have questions about pest management or documentation for claims? Your PCA is here to help.
- **Learn More:** Visit the USDA Risk Management Agency website at www.rma.usda.gov or contact your local RMA specialty crop liaison.

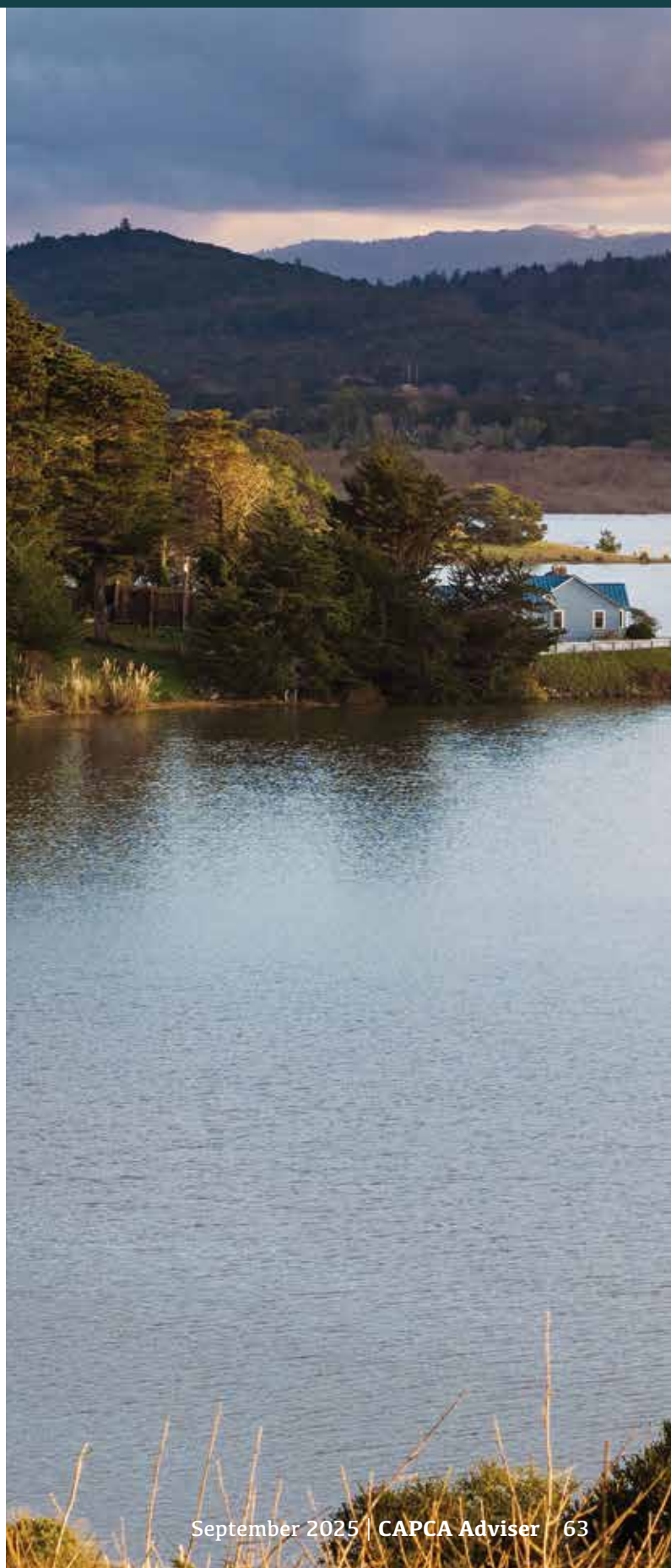
CAPCA
AT THE CENTER OF PLANT HEALTH

Mission & Purpose

CAPCA's mission is to facilitate the success of the PCA and to represent our 3000 members who provide pest management consultation for the production of food, fiber and ornamental industries of California.

CAPCA's purpose is to serve as the leader in the evolution of the pest management industry through the communication of reliable information.

CAPCA is dedicated to the professional development and enhancement of our members' education and stewardship, which includes legislative, regulatory, continuing education and public outreach.



Featured Article

Proactive Monitoring and Biocontrol of Emerald Ash Borer in California

By Ricky Lara, Daniel Roberts, Vincent Maiquez; California Department of Food and Agriculture

The emerald ash borer (EAB), *Agrilus planipennis* (Coleoptera: Buprestidae, **Figure 1**), native to China and other areas of East Asia, is a destructive wood-boring insect pest of ash (*Fraxinus* spp.) and other members of the family Oleaceae. First discovered in the United States (US) in southeast Michigan in 2002, EAB is now distributed across 37 US states (USDA-APHIS 2025a) and 6 Canadian provinces (CFIA 2025) where this pest infests and contributes to the mortality of healthy trees, in both natural and urban environments. The economic impact attributed to EAB since its arrival in the US exceeds $10 billion and continues to increase to spread westward (Kovacs et al. 2010) (**Figure 2**).

FIG. 1. Adult emerald ash borer (*Agrilus planipennis*)

EAB biology

In the US, EAB can complete its 4-stage life cycle (i.e., egg, larvae, pupa, adult) (**Figures 1, 3-5**) on ash trees in 1-2 years, depending on environmental factors (USDA-APHIS 2025b). EAB adults (7.5-13.5 mm long, metallic-green in body color) emerge from trunks and branches during summer months, feed on foliage, and locate mates. Females lay 60-90 small eggs (1.0 mm long) during their lifetime on the host tree bark (USDA-APHIS 2025b). The hatching larvae bore through the bark to reach phloem tissue, their primary food source. As they feed, the larvae complete four larval instar stages (26-32 mm long) during summer-fall, overwinter as late instar larvae, transform to pupae (10-14 mm long) during spring, and emerge as adults during summer (USDA-APHIS 2025b).

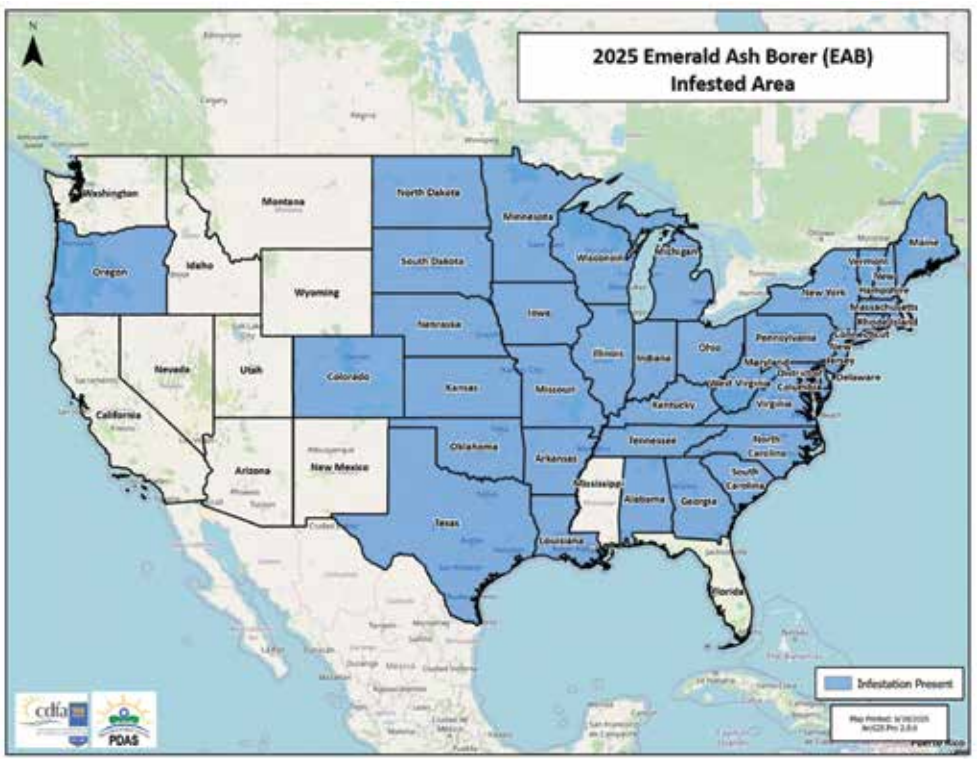


FIG. 2. Current EAB distribution in the US

Tree death can occur over the span of 2-5 years as cumulative EAB phloem feeding girdles the infested tree, disrupting critical nutrient movement (Duan et al. 2022ab). Visual signs of EAB infestation on host trees include D-shaped adult emergence holes (3-4 mm in diameter), serpentine larval galleries under the bark (20-30 cm long), branch dieback, bark splits, and epicormic branching from the trunk (Nobua-Berhmann et al. 2023; USDA-APHIS 2025b) (**Figure 6, 7**).

Known EAB host plants

All North American ash species, white fringetree (*Chionanthus virginicus*), and cultivated olive (*Olea europaea*) are presumably at risk, but susceptibility varies across species (Rebek et al. 2008; Tanis and McCullough 2012, 2015). Ash trees are an important food and habitat resource for wildlife and are used to produce a variety of commercial products (e.g., furniture, flooring, and baseball bats) (USDA-APHIS 2025b). The white fringetree is an ornamental species native to the Southeastern US with documented medicinal uses in some communities. It represents a novel host for EAB in North America (Ellison et al. 2020), and this suggests that other members of the Oleaceae that EAB will encounter as it invades new areas could be vulnerable to EAB attack. Initial lab studies demonstrated that EAB can reproduce on cultivated olive (Cipollini et al. 2017), and new follow-up field/lab studies are being conducted to quantify this risk (Callahan et al. 2025). Olives are an important specialty crop valued at $63 million in California (CDFA 2023). As a result, EAB remains a national invasive pest threat to vast urban and forested ecosystems, timber, commercial olive, nursery, and specialty crop industries.

A growing threat to California

The risk of EAB arrival in California from infested areas continues to increase and this situation warrants immediate attention. EAB establishment was detected for the first time west of the Rocky Mountains in Oregon during summer 2022 (ODA 2025). EAB arrival in California would exacerbate current statewide problems with other invasive wood-boring beetles, e.g., shothole borers (*Euwallacea* spp.), Mediterranean oak borer (*Xyleborus monographus*), and gold-spotted oak borer (*A. auroguttatus*) (**Figure 8**). EAB management in the US remains challenging as susceptible hosts are abundant (>7.5 billion ash trees in the US) and at risk of infestation (USDA-APHIS 2007; Rebek et al. 2008; Tanis and McCullough, 2012, 2015). Furthermore,

FIG. 3. Emerald ash borer eggs.

FIG. 4. Emerald ash borer larva feeding.

FIG. 5. Emerald ash borer pupa.

FIG. 6. Emerald ash borer adults produce diagnostic D-shaped exit holes from ash trees

FIG. 7. Ash tree with typical signs of EAB damage, including epicormic shoots and branch dieback.

human-assisted movement of infested material (e.g., firewood, timber) has facilitated EAB spread. By the time EAB is detected, it has usually spread beyond actionable response areas that would be compatible with eradication and containment efforts (Herms and McCullough 2014). Currently, EAB is classified as an A-rated pest by the California Department of Food and Agriculture (CDFA). This rating is reserved for species of known economic and/or environmental detriment that are not known to be established in California or have a limited distribution that allows for the possibility of successful eradication or containment. A-rated pests are prohibited from entering the state because, by virtue of their rating, they have been placed on the of Plant Health and Pest Prevention Services Director's list of organisms "detrimental to agriculture" in accordance with the Food and Agriculture Code sections 5261 and 6461 (CDFA 2021).

EAB monitoring

In 2024, CDFA led a cooperative EAB field survey in coordination with several stakeholders, including the University of California, Davis - Department of Plant

FIG. 8. *Agrilus auroguttatus* is an invasive buprestid beetle in California known to attack oak trees.

CDFA Pest Exclusion Branch

FIG. 9. CDFA personnel set up EAB (A) purple prism and (B) green Lindgren funnel traps for deployment at selected sites.

Ricky Lara, CDFA

FIG. 10. Personnel from several County Departments of Agriculture receive training provided by CDFA on emerald ash borer prism and funnel trap deployment and servicing.

Martin Hauser, CDFA

FIG. 11. Senior insect biosystematist, Dr. Alexey Tishechkin (CDFA), compares buprestid specimens collected from EAB trap samples with curated buprestid specimens from the California State Collection of Arthropods.

Sciences, the California Department of Forestry and Fire Protection, the University of California Cooperative Extension, the La Jolla Band of Luiseño Indians, CDFA Border Stations, and several County Departments of Agriculture. A combination of purple prism and green Lindgren funnel traps (**Figure 9**), both baited with the EAB lure (Z-3-hexenol), were deployed by trained cooperators across >100 sites throughout California, ranging from San Diego County to the Oregon border (**Figure 10**). Protocols followed recommended federal EAB monitoring guidelines (USDA-APHIS 2025c). The traps were effective in catching buprestid beetles – more than 300 buprestid species are known to occur in California (McRae, pers. comm.). The CDFA Plant Pest Diagnostics Center confirmed that none of the buprestids recovered were EAB (**Figure 11**). A complete list of the buprestid species recovered is still being compiled. EAB monitoring continues during 2025 with field support from a growing number of stakeholders across the state and with state/federal funding.

Applied EAB biocontrol

The implementation of classical biological control is becoming a long-term, cost-effective, self-sustaining, area-wide management strategy for EAB in the US (Duan et al. 2022ab). During the early EAB outbreak phase in the 2000s, field results showed that the limited parasitism and predation by resident natural enemies alone would not regulate invasive EAB populations (Herms and McCullough 2014; Duan et al. 2022ab). In response, USDA led foreign exploration efforts to Asia to find, collect, import, and screen EAB-specific natural enemies in the native range of this pest. US field release petitions were submitted to USDA-APHIS for biological control agents that demonstrated high EAB-specificity. USDA-APHIS approved the field release of one egg parasitoid, *Oobius agrili* (Hymenoptera: Encyrtidae) and three larval parasitoids, *Spathius agrili*, *S. galinae* (Hymenoptera: Braconidae), and *Tetrastichus planipennisi* (Hymenoptera: Eulophidae) (USDA-APHIS 2007, 2015; **Figure 12**). Post-release monitoring to measure their combined impact on EAB is still in progress (Quinn et al. 2002ab, Duan et al. 2022ab), but current results are promising.

Proactive biological research in California promotes timely integration and compatibility of classical EAB parasitoid releases with state EAB management guidelines. CDFA is identifying key locations within high risk EAB infestation zones in California where

FIG. 12. *Tetrastichus planipennisi* is one of several specialized larval parasitoids that are being released in the US for control of emerald ash borer.

FIG. 13. *Atanycolus cappaerti* is a North American parasitoid species known to attack emerald borer in the US.

EAB parasitoids could be released to strengthen future EAB response measures implemented by CDFA and partner agencies. Furthermore, field surveys are being conducted in ash-dominant field sites to document the diversity of resident natural enemies that may complement future EAB biological control efforts in California. For example, native parasitoids found attacking EAB larvae in eastern US sites are members of the genus *Atanycolus* (Hymenoptera: Braconidae) (Duan and Schmude 2016) (**Figure 13**). Regional occurrence data for these native EAB parasitoids in California is limited. Further information on native parasitoids could

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KEMIN INTRODUCES A NEW TOOL TO ADDRESS AGRICULTURAL ISSUES SUCH AS RESTRICTIONS ON FUMIGANTS AND THE REQUIREMENTS FOR BUFFER ZONES.

Fumigants are a cornerstone of conventional agriculture in the United States for combatting soil-borne pests and diseases. However, fumigants also have significant limitations, including application requirements, buffer zone restrictions and the lack of available products for organic farmers.

THE ROLE OF FUMIGANTS IN AGRICULTURE

Fumigants are chemical agents applied before planting to eliminate pests, pathogens, and weeds, which protect crops and improve vigor and yields, especially in high-value crops like strawberries and tomatoes. Despite their effectiveness, most carry significant health and environmental risks, leading to strict regulations on their use, application timing, permitting, and buffer zones[1,2]. In some cases, these health concerns have led to complete bans on specific products, such as methyl bromide, which has been restricted in both the United States and Europe[2,3].

BUFFER ZONE RESTRICTIONS

To reduce exposure risks, the Environmental Protection Agency (EPA) enforces strict buffer zones, areas where fumigant application is prohibited, near public spaces like schools and hospitals. Zone size depends on the fumigant used, application method, local environmental conditions, and distance to public spaces. While crucial for public safety and conservation efforts, buffer zones decrease usable farmland. Often, untreated buffer zones can lead to uneven pest control and reduced crop yields[4]. Buffer zones also add regulatory burdens, including signage and detailed management plans, increasing cost and complexity[2].

ADDITIONAL LIMITATIONS OF FUMIGANTS

Beyond buffer zone requirements, fumigants come with additional key limitations:

- **Cost:**
Fumigation is expensive, requiring investments in chemicals, labor, and regulatory compliance – often unaffordable for small-scale farmers.

- **Equipment:**
Application demands specialized equipment, including shank injectors, calibrated applicators, tarping systems, and enhanced personal protective equipment, further raising total expenses.

- **Application Conditions:**
Efficacy depends on precise environmental conditions (soil temperature, soil moisture, weather) and properly calibrated equipment to ensure efficacy

- **Environmental Risks:**
Fumigants are highly volatile and can drift off-site, endangering nearby communities and ecosystems. Improper application may lead to water contamination or harm to non-target organisms.

ORGANIC ALTERNATIVES TO FUMIGANTS

For organic farmers, the limitations of fumigants are even more pronounced as organic certification prohibits the use of most synthetic fumigants. In response to these challenges, organic farmers rely on natural alternatives to manage soil-borne pests and diseases[5]:

- **Soil Solarization:**
Fallow fields are covered with plastic during peak heat for 4-8 weeks to trap solar energy, which can kill pathogens, pests, and weed seeds. This timeline may be challenging as the temperatures required for effective treatment coincide with peak growing seasons.

- **Anaerobic Soil Disinfestation (ASD)[6]:**
Organic materials like rice bran or mustard seed meal are incorporated into the soil and the soil is then saturated with water and covered with plastic to create anaerobic conditions. As oxygen is depleted, aerobic pests die and anaerobic species flourish, producing byproducts that further suppress pathogens. Once the field is cleared and prepared for planting, the reintroduction of oxygen into the soil then reduces anaerobic microbial populations, resulting in a cleaner overall soil. This process, however, can be quite expensive as it is water- and input-intensive and can be ineffective if fields are drained too early.

- **Crop Rotation and Cover Cropping:**
These practices disrupt pest life cycles and improve soil health; however, they are inadequate to knock down heavy infestations without additional inputs.

- **Biological Controls:**
Beneficial species help suppress pests via predation or competition. Their success depends on careful species selection, application timing, and environmental fit, and they work best when paired with other methods of control.

[1-6] References upon requests.

RevoCURB™

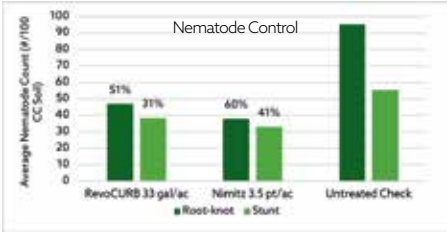
Introducing RevoCURB™, a safe-to-use, 3-in-1 solution for organic and conventional growers.

RevoCURB™ is a new OMRI-listed, 3-in-1 soil treatment designed to enhance crop health and yield by targeting plant parasitic nematodes, microbes, and pre-emergent weed seeds. Exempt under FIFRA 25(b), RevoCURB offers a 0-hour restricted entry interval (REI), no restrictions on maximum residue levels, minimal requirements for personal protective equipment, and no need for buffer zones.

RevoCURB utilizes the power of Smart Blend Technology and four essential oils - thyme, clove, garlic, and cinnamon to provide control through multiple complementary modes of action. These oils disrupt cellular membranes on contact, inhibit nematode egg hatching, impact the nervous systems of juvenile nematodes present in the soil, causing paralysis and death. They vaporize within the soil column, repelling pests and delaying repopulation and suppress weed seed germination.

"These contact and repellency modes of action work in tandem upon application of RevoCURB to disrupt pest lifecycles and prepare soils for planting." - Emma Trainer, Scientist at Kemin Crop Technologies

RevoCURB should be applied 14 days prior to planting or post-harvest and watered in per label directions to maximize efficacy and the zone of protection without harming crop seeds, seedlings, and plugs.



Field trial to assess the effectiveness of RevoCURB on root-knot and stunt nematode populations on cucumber. San Luis Obispo California (Credit: Bradley Booker at Pacific Ag Research) (SD-25-28093)

RevoCURB protects young crops from multiple soil pest pressures, allowing for healthier plants and greater yields. Because it's free from buffer zone requirements, REI, and residue restrictions, RevoCURB is ideal for transitional areas and organic acreages – bringing flexibility and safety where conventional fumigants fall short.

Include RevoCURB in your IPM program today!

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open future opportunities for the development of augmentative/conservation biological control programs. CDFA is currently screening EAB trap samples for resident natural enemies of buprestids (**Figure 14**).

Future direction

To date, EAB infestations have fortunately not been detected in California. CDFA continues to conduct public outreach across California to inform stakeholders about the threat of invasive species like EAB (**Figure 15**) and share guidelines from the Don't Pack a Pest (https://www.dontpackapest.com/) and Don't Move Fire Wood campaigns (https://www.dontmovefirewood.org/map/). Furthermore, CDFA and partner agencies will continue to proactively monitor for EAB across the state to facilitate early detection and response measures. They will also research and deliver sustainable pest management tools in anticipation of EAB arrival, including options for classical, conservation, and augmentative biological control. These efforts aim to protect California's agricultural and natural resources and reduce the potential economic and ecological impact of EAB in the state. With diligence, preparedness, and cooperation California can be buffered against the extreme impacts of this pest on biodiversity and ecology seen in other regions of North America.

For more information, please visit: https://www.cdfa.ca.gov/plant/PDEP/target_pest_disease_profiles/eab_profile.html.

If you suspect you found EAB, please contact the CDFA Pest Hotline: https://www.cdfa.ca.gov/plant/reportapest/ ■

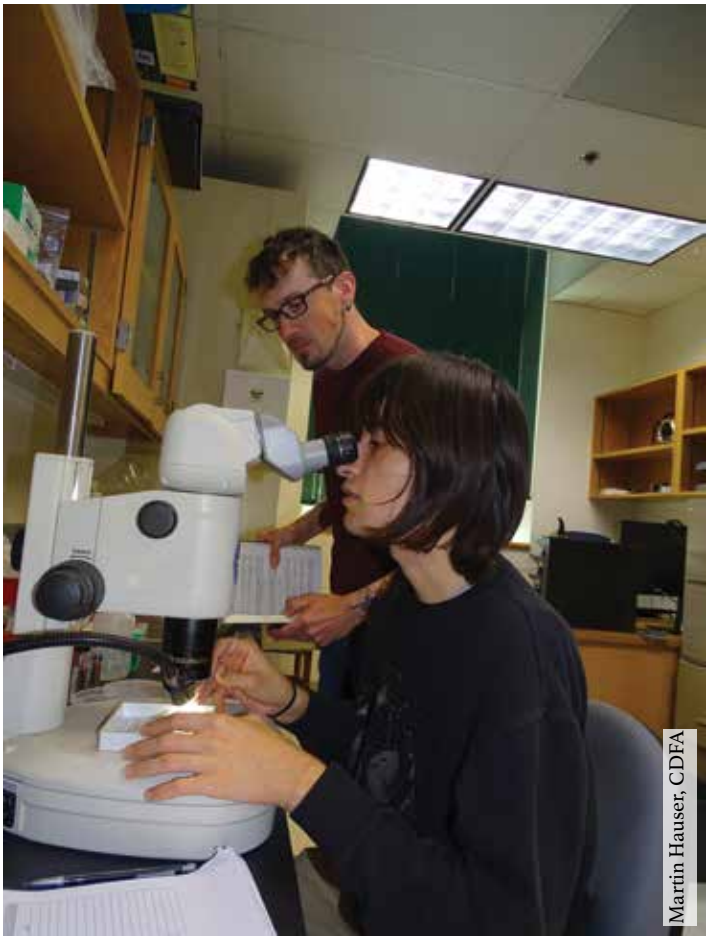

FIG. 14. Undergraduate researcher, Abel Ruvalcaba (Sacramento State University), and senior insect biosystematist, Dr. Michael Forthman (CDFA), examine EAB trap samples for parasitic Hymenoptera.

FIG. 15. CDFA personnel conducts public outreach events across the state informing the public about the threat of invasive species and what can be done to prevent their introduction and eradicate or manage infestations once detected. Photo credit: Ricky Lara, CDFA.

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Featured Article

A Few Words from DPR Director Karen Morrison

In February, Dr. Karen Morrison was appointed to the role of Director at DPR.

Dr. Morrison joined DPR in 2018 as science advisor to the department's executive team. Later, she served as deputy director for DPR's human health assessment, evaluation and pesticide registration programs before being appointed as DPR's chief deputy director and science advisor in 2022.

In her role as chief deputy director, Dr. Morrison led the creation of DPR's 2024-28 Strategic Plan, which outlines DPR's mission, vision and goals for the coming years. Notably, it reaffirmed the department's commitment to accountability, continuous improvement, collaboration and integrity and prioritized implementation of the state's goals to foster safe, effective and sustainable pest management for all Californians and the environment.

We sat down with Dr. Morrison to discuss department priorities, and what PCAs and the pest management industry can anticipate in the year ahead.

As DPR's new director, what are the top priorities you want to see fulfilled?

I'm really honored to step into this position. I've been with the department for a little over seven years now and have deeply appreciated my time with our department's teams and with those who rely on the department as a part of their work. I'm really excited to build on our commitments from the last several years as we move forward.

As a part of that, my top priority is implementing our Strategic Plan, released in December of last year. That includes focused work around availability of alternative products through our registration system, continued work around our continuous evaluation of pesticides, and looking at and addressing, where appropriate, risks from pesticides. I also look forward to continuing to partner with our local County Agricultural Commissioners on our enforcement work to ensure a level playing field within the state and appropriate use of products, as well as continuing to fulfill environmental justice commitments. This includes making sure all voices are brought to the table, heard, and considered when we are making pest management regulatory decisions that impact our health, our food supply and our environment.

There is a lot of necessary and critical training, expertise and education that goes into the work of a licensed pest management professional. I want to make sure we at DPR are supporting that system and aligning the education, training and resources for licensees to align with the direction of the department and our collective goals to manage pests safely and effectively.

PCAs are on-the-ground experts on pest management. How can we make sure DPR is hearing what is changing and emerging for pest pressures and how regulations may impact crop protection?

First, I really value on-the-ground-knowledge around what pest management looks like. I can look up a catalog of what products are registered on a particular crop for a particular pest, but that doesn't always reflect on-the-ground realities for resistance, for other considerations on the field as you're looking at thresholds, amount of pests present, etc.

The PCA perspective is critically important as we think about how that impacts the work that we do. I want to hear and want my teams to hear that feedback directly as a part of our ongoing touchpoints within the state. It is also important that we can share information so that PCAs and others are aware of what's coming and can engage and provide that critical feedback. Our goal with our email distribution and updates to our website is to make that information more accessible for everyone and highlight opportunities for engagement – whether that is comments on a regulation or events and workshops we host.

We need feedback from California's pest professionals and all other parties interested and impacted by pest management, by pesticide regulations and by our work to foster sustainable pest management (SPM).

One area we are focused on is the balance of identifying pesticide risks and also identifying where there are critical pest management needs within the state. The upcoming Pesticide Prioritization Committee is a way to do that work publicly, to give advance notice about areas where there may be concerns, to focus our investment and resources on ensuring that there are alternatives in place to be able to manage pests within the state of California.

As a part of that, having expertise around practical pest management practices is very important. The

Dr. Karen Morrison (center) poses for a group photo in a Kern County almond orchard with DPR Chief Deputy Director Leia Bailey (second from left) and representatives from the Farm Bureau.

prioritization process will incorporate expertise from PCAs, along with a number of other scientific experts, to help inform the work that we do.

Specific to the licensing program at DPR – what is your near- and long-term vision for how that will meet the needs of PCAs across California?
There have been a lot of changes relative to our licensing system in the last couple of years, most notably the certification and training requirements that went into place in 2024. We also know there are, every year, procedural frustrations around the renewal period and continued conversations on how we are supporting continuing education (CE) and other requirements.

In the short term, we have been dedicating more resources to making the renewal period as smooth as possible. We continue to encourage licensees to get CEs in early and submit renewal materials as early as possible. On our end, we have also been working to increase staffing around the holidays and shift our workloads to better process renewals as close to the beginning of the year as we possibly can. Over the last renewal season, processing times for our routine licensing renewals (those with complete information) were 40 percent lower than the previous season.

Longer term, we're looking at additional process improvements to better facilitate renewals, including setting up an electronic licensing renewal site. The work just kicked off with our IT development team. I'm very excited about that being a tool to not only engage with the department, but also to pay electronically and track status of your renewal. I hope that this modern approach will allow for an easier user experience with the department.

What other work is DPR initiating to implement the goals of the SPM Roadmap? How will economic vitality be maintained through this process?
The vision of sustainable pest management informed our work last year on the department budget, as well as the release of our Strategic Plan in December. Our 2024-2028 Strategic Plan is a great foundational and transparent look at how we are looking specifically at the 5-year implementation of SPM at DPR.

We are working actively toward implementing our strategic goals, including increasing support for SPM-related training, educational courses for PCAs and others to make sure that training is not only available but also credited as we think about our licensing system.

We're also doing expanded work around funding grant programs — both our Research and Alliance grants — to facilitate and support the development of alternatives. In 2025, we received a total of 52 proposals for close to $18 million in requested funding. We are excited to be able to expand our investments in that area in the coming years.

We are also very mindful of where we are advancing SPM in collaboration with other entities.

We convened a cross-agency working group with close to 30 other state agencies to focus on improved coordination and consistency of language and definitions around integrated pest management (IPM) and SPM.

What other projects or initiatives should PCAs be tracking or expecting from DPR in the year ahead?
There's a lot happening with the department. We are eager to make progress on our Strategic Plan, to fulfill the commitments that we made as a part of last year's budget, and we are dedicated to doing that in a way that is transparent and visible for those who are interested in our work. Those materials will be posted on our website. This includes various rulemakings as well as the development and standing of other advisory committees to help inform and bring in external perspectives as we move forward with our work.

Any closing thoughts for pest management professionals?
California's pest management landscape is unique and relies on highly trained experts like PCAs to be able to make consequential decisions about why, when, where and how pests are controlled within the state. Safe pesticide use is multifaceted, complicated and challenging work.

I appreciate the daily dedication and professionalism that PCAs take in their work in making sure that we are managing pests appropriately. I look forward to continuing collaboration on how to do that best moving forward. ■

Organic Orchards and the Art of Grazing Sheep: A Conversation with Daniel Palla

How a Pest Control Adviser Embraced Low-Input Livestock for Sustainable Weed Management

Introduction

Daniel Palla's career has traversed the world of large-scale farming and small operations. All of that experience has helped him gain years of practical expertise, and he eventually found himself yearning for a fresh challenge — a chance to put textbook sustainability practices to the test on his own land.

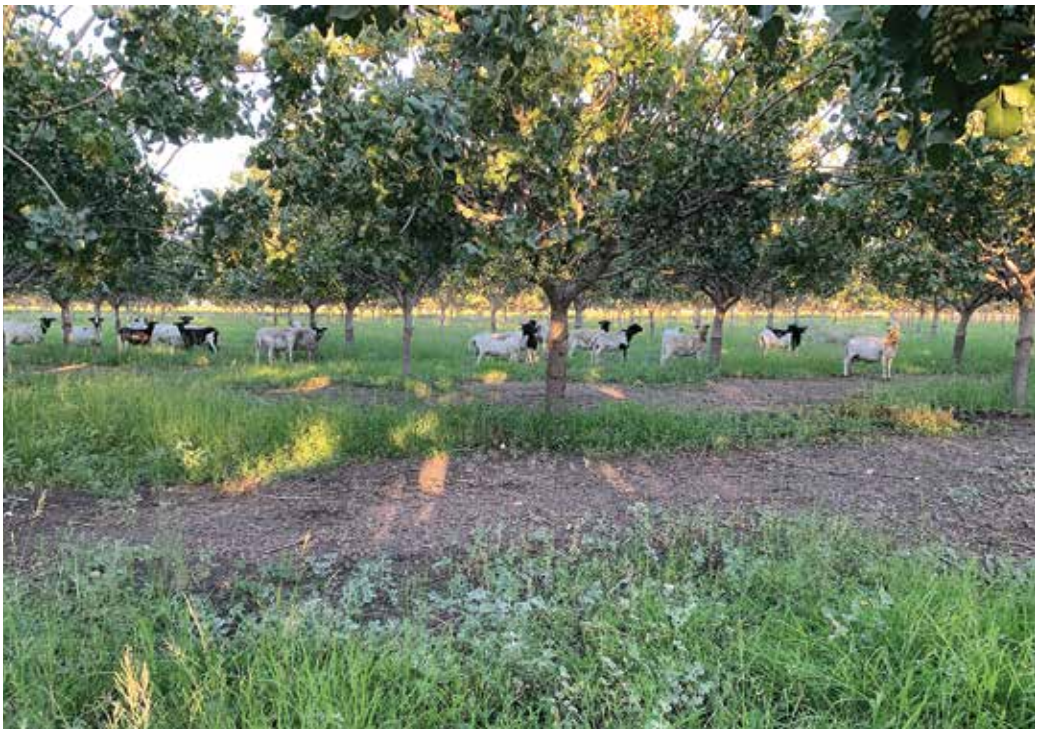
The result: a small, fiercely organic pistachio orchard in California's heartland, where Daniel has swapped sprayers and herbicides for sheep.

We sat down with Daniel to hear firsthand about the motivations, the learning curve, and the realities of using sheep as an integrated weed management tool. What follows is a candid conversation, offering practical insights (and some humor) from the field.

An Origin Story Rooted in Curiosity

Can you start by telling us a bit about yourself and how you first got into sheep grazing?

Daniel Palla: I own a small pistachio field. Very small. And I've worked in pistachios for a very long time. I've worked as an in-house PCA and also as an almond buying rep, and as a chemical rep, and I have a pretty broad view of things I've learned over the course of my career. Pistachios have been my world for a long time



My pistachio orchard is now in its ninth leaf. I planted these trees myself and watched them grow. About five years ago, I felt like I needed a new challenge. I'd been farming conventionally for a long time. I knew it inside and out. But I'd had some older farming friends tell me, "You don't have to be 100% organic, but you need to understand the concepts because sometimes those concepts spill over into different practices and decisions elsewhere." I'm pretty well-versed in how to farm pistachios conventionally. I've done it

for large companies so much that I felt very comfortable in it, so I decided I'm going to try going organic. My field is more organic than the word organic can be. The only Pesticides I use are mating disruption and biological control for aflatoxins.

From Herbicides to Herds

Once you decided to go organic, how did you approach weed control? Did you try organic herbicides?

Daniel: I did. I used organic herbicides at first, but honestly, it didn't feel right. It was more intensive than conventional, more passes necessary, more product, more time. If the material doesn't work as well as glyphosate or glufosinate, you need more of it, right? And for me, with a family and a full-time job, time is precious.

So I looked for alternatives. That's when I reached out to my friend Johnny Etchemendy, a great sheep herder. My trees were finally mature enough that I wasn't worried about sheep damage, and Johnny was game, so we tried grazing. The sheep came in, mowed the weeds, and left the field in pretty good shape. It worked.

Sheep in the Orchard: Management Realities

How do you manage the sheep throughout the year? Are they in the orchard year-round?

Daniel: Yep, my management is a little different. I don't have anywhere else to put them, so my sheep stay in the orchard all year, except during harvest. They breed in there, have lambs in there. It's their home. The orchard is surrounded by an electric fence that keeps them in and the coyotes out.

Weighing the Pros and Cons

What have been the drawbacks, if any?

Daniel: Well, you have to actually manage sheep. They're not plants! They can run away. You can lose them.

Have you ever lost sheep to theft or predation?

Daniel: Some were stolen once. That was a wild night in the neighborhood — trucks in ditches, ATVs stolen, my

sheep disappeared for good. Never got them back and I had to get new ones.

The Agronomic Perspective: Benefits and Uncertainties

Let's talk benefits. What are some of the benefits you've seen with grazing sheep?

Daniel: Well, my herbicide use is way down, obviously. I make fewer tractor passes for mowing. That means less dust, which is a big deal in California. As for soil health, the sheep poop everywhere, which is good fertilizer. I believe the manure is beneficial.

On Grazing Systems: Rotation and Integration

There's a lot of talk about rotational grazing and integrating multiple species. Do you do any of that?

Daniel: I've only got sheep. No chickens. No goats. People ask if I have a dog. No, I don't have a dog. Why not? Because I don't want any more animals. I'm trying to have less complications with these animals and keep it simple.

Plus, rotational grazing isn't really on the table for me. I've only got one orchard and nowhere else to move the sheep. Honestly, chasing sheep around is a full day's work if they get loose, and I just don't have the bandwidth.

Now, my friend Johnny — he's on another level. He does rotational grazing, moves flocks from crop to crop, sells wool and meat. He's got thousands of Basque sheep. I'm just a small-timer with a few Dorper sheep, and I want less work, not more.

Dorper sheep are a South African breed with a short light covering of hair and wool. The Dorper is an easy-care breed which requires a minimum amount of labor and does not need to be shorn.

The IPM Connection

For the PCAs reading this, how do you see sheep fitting into the bigger picture of integrated pest management (IPM)?

Daniel: I see sheep grazing as another tool in the IPM toolbox, and one that hasn't been used enough to select for resistance. For example, sheep eat hairy fleabane, horseweed, junglerice, cheeseweed, and alkali mallow because we have not been selecting for resistance to sheep, only herbicides. It's not a silver bullet, but it's an alternative to chemical or mechanical weed control. Every operation is different, though. What works for me might not scale to a 1,000-acre ranch, but for a smaller or diversified farm, it's a real option.

Lessons Learned and Words of Advice

What have you learned from the experience? Any advice for other PCAs or growers thinking about introducing livestock?

Daniel: Using sheep is the laziest farming I've ever done, in a good way. You let Mother Nature do her thing. You don't try to micromanage everything. Give the trees water, let the sheep graze, and just try to manipulate things less instead of more.

But you do have to be comfortable with animals. They're not going to behave like a tractor or sprayer. There's a learning curve. You also have to be honest about your time and willingness to manage livestock. Picking the right breed is important too, especially if you don't want the added responsibility of shearing them.

Looking Forward

Would you recommend sheep grazing to other pistachio or almond growers?

Daniel: I'd say, try it if you have the right setup — fencing, some time to manage animals, and a willingness to let go of a little control. If you want to hear from the real expert, talk to Johnny Etchemendy. He's doing it at scale, with all the bells and whistles. I'm just sharing my small-farm experience.

Conclusion

Daniel Palla's story is a testament to the power of curiosity, experimentation, and humility in agriculture. For growers and PCAs looking to broaden their IPM horizons, sheep grazing may offer a practical and sustainable option. For those ready to trade a few tractor hours for the bleating of sheep, the rewards — and the learning — are sure to follow. ■

CAPCA

OUR TEAM

RUTHANN ANDERSON
CEO/President
Ruthann@capca.com

KATRINA SILVER
Dir. of Business Operations
Katrina@capca.com

ASHLEY HINSON
Dir. of Editorial/CE Content
Ashley@capca.com

CARRIE KIHLTHAU
CE& Hours Reporting Mgr
Carrie@capca.com

BRIANA LOVE
Member & Chapter
Support Specialist
Briana@capca.com

RYAN DANA
Events Coordinator
Ryan@capca.com

KERI FRANK
Sales Manager
Keri@capca.com

PCA INTERNS:

Bryan Aguilar
PCA Intern - SoCal
bryan@capca.com

Alyssa Lindberg
PCA Intern - Central CA
alyssa@capca.com

Yadira Lucatero
PCA Intern - So. San Joaquin
yadira@capca.com

Nicholas Mello
PCA Intern - NorCal
nicholas@capca.com

Color me a Plant Doctor®

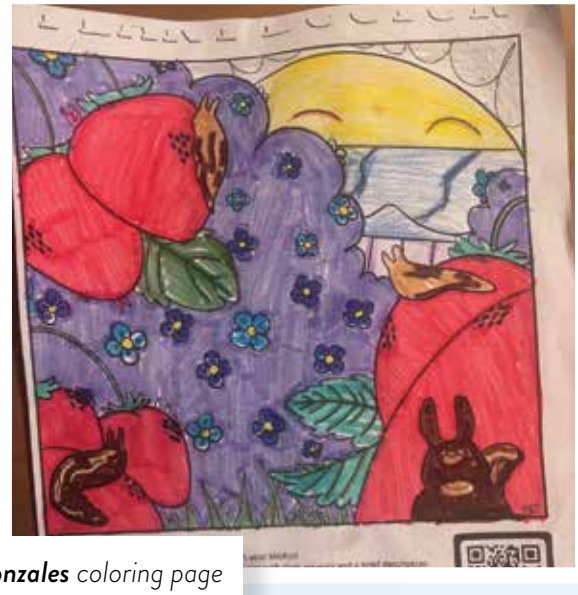
The current coloring page is tucked inside this issue!

Send a photo of your artist with their completed page, along with their name, age, and a few fun facts, to adviser@capca.com for a chance to be featured in the December issue!

*This is **Josie Hesse** from Exeter. She is turning 8 years old on August 30 and is super excited to be going into the 3rd grade at Lincoln elementary school. Besides coloring and drawing she likes to read Dog Man books. She loves peaches, plums, nectarines and most other fruit.*

***Ainsley Heinze** is 6 years old and in 1st grade in Roseburg, Oregon.*

Ainsley likes to color, garden, and learn about plants.



***Olivia Gonzales** coloring page*

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