

CAPCA ADVISER

FEBRUARY 2023 | VOL. XXVI, NO. 1



California Association of
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On the Other Side of 50 Years

Before we turn the page to 2023, we have to acknowledge the work that has been done over the past 50 years. The PCA has stood as a constant, trusted, adviser to growers. The role of the PCA may have progressed over the years as IPM tools, technology, and science have evolved since 1972 – but the license continues to withstand the test of time. Leaving the year of the 50th anniversary behind us, we know that the next stage of evolution is yet to be written. What we do know is, 2022 has been full of public comment periods around pesticide policy issues and impending communications over the future of IPM and all while we await the results of the Sustainable Pest Management Workgroup in January 2023.

This constant pressure for change is reflective of the moment we are in. But CAPCA's duty is clear to support and maintain the integrity of a professional license – the PCA license. While 2023 brings renewed discussions around statewide notifications, active ingredient-specific mitigations, and mill funding for DPR, the professional role PCAs play is vital to our communications now and in the future.

It is imperative that the PCA license is professionally managed—therefore the quality with which DPR Licensing staff issue and renew licenses bolsters the integrity of the licensing standard. We welcome inspections from County Ag Commissioners' offices – their regulatory oversight is a key part of a healthy system founded in the principles of accountability and transparency. The agricultural industry's level of compliance, including PCAs, should continue to be a badge of honor that we may point to. A professionally managed industry fulfills the shared mission of safe and effective use of pesticides while protecting human health, communities, and the environment.

We want to prepare you, there is more change to come in 2023. Be prepared for the IPM toolbox you rely on daily to expand and retract. Be prepared for questions around mill to highlight deficiencies in Licensing, which may domino into increased fees. Be prepared for changes to continuing education, and discussions to align PCA CE with an IPM role in the field and for the regulatory changes related to the Certification and Training of Pesticide Handlers.

CAPCA continues to take an active role in the maintenance of your professional license. We were formed 50 years ago alongside the license to provide a voice to PCAs across the state and we will be at the table through the next evolution.

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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.

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Change: The Law of Life

By Paul W. Crout, CAPCA Chairman

President John F. Kennedy said *“Change is the law of life. And those who look only to the past or present are certain to miss the future.”*

What does that mean for CAPCA? The Board of Directors elects a new Executive Committee every two years and the incoming Chairman of the Board selects new committee chairs. It is an honor on my part to be elected CAPCA’s Chairman of the Board of Directors for 2023-24. We have a great Executive Committee for the next term: Matt Bristow is serving as Vice-Chairman, Jennifer De Jong as Treasurer, Adam Tavares as Secretary, and Patrick Dosier as our Ex-Officio. Our Advocacy Committee will be led by Co-Chairs Matt Bristow and Gary Silveria. The Conference Committee will be Co-chaired by Molly Yager and Jackie Tabarez. Jennifer De Jong will lead the Finance Committee as CAPCA Treasurer. In addition, we also have two ad hoc committees currently active focusing on technology and the routine update of our organizational by-laws. As the year progresses, you can expect to hear more from your Board and committee representatives. Expect to hear more from all our groups as the year progresses.

My priorities over the next two years as your Chairman are to address and embrace the changes that we are and will be facing. We will focus on three specific topics: advocacy, technology, and chapter/member engagement. There are significant changes coming down the pipe and the entire agricultural industry, PCAs included, are going to have to face them.

CAPCA is prioritizing advocacy and partnering with industry stakeholders to address significant challenges and threats to our industry that are already in the works. These changes impact how our CE hours are recorded and reported, the CE

categories we get credit for, how our licenses are renewed, and the products we can recommend. In addition, there are many more, significant issues currently being decided by our elected officials and regulatory agencies. With CAPCA’s active participation in industry-wide groups, such as the Alliance of Farmers and Ranchers, and Californians for Smart Pesticide Policy, we are dedicated to advocating for you, our members, to support our licenses and allow us to continue to provide a valuable service for the pest management industry on a daily basis.

Technology is an ever-evolving piece and CAPCA is investing resources to update our website, our online CE platform, and our hours tracking. Everyone who attended the Annual Conference this past October experienced the new QR code system that replaces scantrons for hours tracking at CE meetings. We will continue to refine the system to make it more user friendly this coming year.

Finally, chapter and member engagement is a vital priority for CAPCA. To better understand the challenges each chapter experiences in their unique geographies, I will be working with chapter representatives to schedule a time to attend a local chapter meeting. I want to hear from our members about the challenges that they are facing at a local level and address statewide issues with them directly.

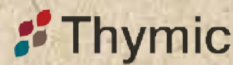
Finally, you can be assured that CAPCA Staff and volunteers on the Board of Directors are working hard every month to ensure that you, the CAPCA membership, and the entire PCA’s industry of California are being represented at the highest levels of state government. Your interests and license are being defended. Our efforts continue to highlight new opportunities for professional continuing education, license renewals, and hours tracking. ■



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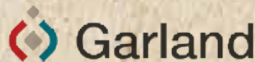
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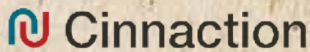
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2022 Elections Recap & a Look Ahead (...2024 is coming sooner than you think)

By Joshua C. Walters, Esq.

Results are in and the 2022 mid-term election is finally over
 With the stroke of a pen on December 16, 2022, California's Secretary of State certified the results of the 2022 General Election, bringing an end to a cycle that saw 32 new members (more than 26%) of the Legislature take office. 22 new Assemblymembers and 10 new State Senators have been sworn in, an especially high number which was the result of redistricting, term limits, and early retirements.

The Assembly is now comprised of 62 Democrats and 18 Republicans, and the State Senate 32 Democrats and 8 Republicans, representing a net loss of 1 Republican seat in either house as compared to the previous legislative session. Although Republicans lost seats, moderate Democrats were successful in several races. I have written previously; the unfavorable political climate for the GOP in California has made electing moderate Democrats imperative to creating a policymaking environment that is receptive to the concerns of the agricultural industry.

Success in the 2022 Campaign Arena

As you may already know, CAPCA is a member of the Alliance of California's Farmers and Ranchers (the "Alliance"), which is comprised of members of the agricultural industry seeking to moderate of the State Legislature. This year, the Alliance achieved substantial success in our political endeavors, and I would like to take this opportunity to highlight a few of our most important wins.

Assemblywoman Dr. Jasmeet Bains (D – Bakersfield)

Following the announcement that then-Assemblymember Rudy Salas (D) would be running for Congress, two candidates declared their candidacies to represent Bakersfield in the State Assembly: Kern County Supervisor Leticia Perez and Dr. Jasmeet Bains. As a practicing physician and the daughter of an owner of a successful car dealership in the Central Valley, Dr. Bains presented a unique opportunity to deprive career politician and longtime labor advocate Leticia Perez the chance to come to Sacramento.

While labor groups organized to support Supervisor Perez, business organizations including the Alliance and the New Car Dealers Association created a novel partnership with the California Medical Association which engaged in a comprehensive independent expenditure effort across every relevant medium in the district. The Alliance recognized the importance Republicans would play in this race and took primary responsibility for driving Republican turnout on behalf of Dr. Bains.

Our efforts were overwhelmingly successful, ultimately propelling Dr. Bains to victory with over 60% of the votes cast.

Senator Angelique Ashby (D – Sacramento)

With Senator Richard Pan terming out in 2022, there was a highly competitive election to replace him as the Sacramento area's State Senator. This election saw two competitive candidates emerge: labor-backed Dave Jones (D) and the more moderate Angelique Ashby (D).

A broad coalition of business groups including energy, healthcare, home builders as well as the Alliance backed Angelique Ashby and provided her with a 2:1 spending advantage in the independent expenditure arena, which bolstered her campaign in the general election and resulted in Ashby defeating Jones by three percentage points. This was one of the most fiercely contested races of the 2022 cycle and one of the most expensive races for a seat in the California State Legislature in history.

Senator Marie Alvarado-Gil (D – Sierras/Stanslaus)

The Alliance was presented with a unique opportunity resulting from a bizarre and unfortunate primary election in which six candidates splintered Republican primary voters and created a pathway for two Democrats to make through to the general election in a district that is overwhelmingly Republican. Those two candidates were regional labor leader Tim Robertson (D) and the more moderate Marie Alvarado-Gil (D) with connections to California's ag industry.

While disappointed there would be a net loss of one

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AMVAC®'s new learning management system, AMVAC Academy, is a state-of-the-art system, providing opportunities for retailers, farmers, advisors, and consultants to stay current with technical, agronomic, and product information. The suite of self-guided learning modules covers a range of agronomic and horticultural topics in four major course categories, including soil fumigants, GreenSolutions™, herbicides, and insecticides.

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“The proven chemistries of K-PAM and VAPAM are proven to develop strong soil foundations for growers across multiple crops,” said Micah Scanga, Commercial Product Manager, AMVAC. “We look forward to using AMVAC Academy as a platform for Metam stewardship training and education.”

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Other learning modules feature three GreenSolutions products, including B Sure®, iNvigorate®, and UpLift®. The modules walk users through a product description, explore threats that crops face along with solutions, define product use, supply handling and application guidelines, and provide examples of product performance from results, trials, and testimonials.

“Because biologicals are relatively new to farmers and their advisers, technical education about how they work and how to use them is every bit as important as for traditional crop inputs,” said Ted Walter, GreenSolutions Marketing Manager, AMVAC.

EASY-TO-USE PLATFORM

AMVAC Academy is readily available for users at AMVACAcademy.com. Each module features video, graphics, or written information and concludes with a self-guided quiz to help users retain and test their knowledge of the subject matter. AMVAC Academy logs test scores as users advance through modules and subject areas, and provides proof of participation.

Opportunity to earn Continuing Education Units for accreditations including Certified Crop Advisers (CCAs) and state-specific pesticide application licenses, such as California's Pest Control Advisors (PCAs) will be coming soon for AMVAC Academy modules.

“Education and technical knowledge are more critical to agriculture than ever before,” said Scott Hendrix, Senior Vice President, U.S. and Canada Crop Sales and Application Technology, AMVAC. “We're pleased to provide access to AMVAC Academy to AMVAC's many ag retail, farmer, advisor, and consultant customers and partners.”



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Republican seat no matter what, the Alliance recognized how critical it was to limit the damage by electing a more moderate Democrat to this district. Again, the Alliance forged partnerships with other prominent business groups including the Charter School Association and healthcare groups in an independent expenditure effort which propelled Alvarado-Gil to a 53-47 victory.

The efforts in these three legislative races demonstrate how proactive engagement, novel partnerships and a focus on moderate Democrats are achieving real results on behalf of CAPCA members.

Changing Trends Make Post-Election Night Predictions Difficult, if Not Impossible

The shift to elections in which every Californian is mailed a ballot has created an election landscape where predicting how results are going to evolve after election night is nearly, if not entirely impossible. Prior to 2020, absentee ballots needed to be requested by each individual, and generally, were favored by Republicans and older voters. This created a situation in which pundits could predict with some degree of certainty how certain “types” of ballots would be counted because all absentee votes received a week before election day would be tallied as part of the first results released by county registrars. Generally, absentee ballots were thought to be more conservative, while day-of poll voters were thought to be more liberal.

However, those trends have completely disappeared in today’s election environment. Former President Trump’s insistence that vote-by-mail elections are fraught with fraud has resulted in the majority of Republicans holding their ballots until election day, and either turning them in on election day or surrendering them in favor of voting with a new ballot on election day.

Now, there are four types of voters: 1) Early absentee; 2) Late absentee; 3) Day-of absentee; and 4) Day-of poll voters. We are seeing that Republicans are generally falling in categories 3 and 4, while Democrats are comprising most of categories 1 and 2, with some also falling into 3 and 4.

This shift and intermingling of voters throughout the various categories, combined with registrar’s counting various batches of votes at different times, has made predicting election results after election night essentially impossible in close races.

Fogging up the crystal ball even further is the fact that only half of the votes in the 2022 general election were tallied on election night. The day after the election, the Secretary of State estimated that turnout of the ballots counted at that

point was approximately 25.7%. Now that all the ballots have been counted, turnout stands at 50.8%. This means that the morning after the election, we only had visibility of half the ballots that were cast in the 2022 general election. With only half of the picture on election night, and the changing trends in who votes when and when those votes are counted, it’s easy to see why forecasting results after election night has become so difficult in the modern era.

Examples of this new reality can be seen in Senate District 16, where Democrat Melissa Hurtado appeared to face an insurmountable gap on election night but ultimately won by 20 votes once all the votes have been counted. Whereas in Assembly District 47 (Palm Springs Area), on election night Democrat Christy Holstege appeared to have an insurmountable gap propelling her to victory but ultimately lost her race by 85 votes to Republican Greg Wallace. And incumbent Democrat Ken Cooley (D-Rancho Cordova) appeared to be close but safe on election night but lost his seat to Republican Josh Hoover.

The lesson learned is that the results on election day are just an initial snapshot of the total votes cast and we won’t have a full understanding of all the winners and losers until all the ballots cast are counted.

The New Frontier: Looking to 2024

After a very brief respite legislators, political operatives, and pundits are now turning to the 2024 election, which promises to be another very busy year. The combination of redistricting and term limits has created a landscape in which at least 18 districts, 10 in the Senate and 8 in the Assembly, will be open for hopeful candidates to square off. Already, we have seen candidates begin to declare their intentions to run and in the coming months we expect to see that trend continue as the battle lines are drawn for the next big election cycle.

The 2024 election will be a presidential year, which means we can expect higher turnout, and earlier primaries in California. The primary election will be held in March of 2024, which means the filing period for candidates to put their name on the ballots will be open in November of 2023. We can expect campaign mail and TV to start in the middle of January, so get ready!

In the coming months I look forward to continuing to keep CAPCA members apprised as the 2024 election takes shape. As always, if you have any questions in the meantime, never hesitate to reach out. ■

Joshua C. Walters is a Democratic political consultant and CEO of Walters Strategies.

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2023 Stanley W. Strew Educational Fund, Inc.

SCHOLARSHIP

A scholarship opportunity is now available for students interested in careers in the pest management industry. The scholarship is sponsored by the California Association of Pest Control Advisers (CAPCA) and is administered by the Stanley W. Strew Educational Fund, Inc.

The CAPCA Scholarship will provide \$3,000 to a selected college student actively engaged in a PCA career pathway. The scholarship recipient will be selected by the SWS Board of Directors.

Applications are available for students who are currently attending college in an agricultural/horticultural related field or who are entering or returning to college in an agricultural/horticultural related field in the fall and will have a junior level status.

Nominees should submit a completed application form and copies of their transcripts. **Applications must be postmarked no later than May 5, 2023** and submitted with required letters of recommendation so that the committee can make final selections. The student selected will be notified in July.

For application information please contact CAPCA at (916) 928-1625 or email scholarship@capca.com

<https://capca.com/scholarships-awards/>

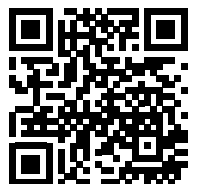


Photo: Fred Rehman, Elysian Fields

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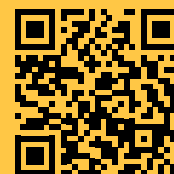
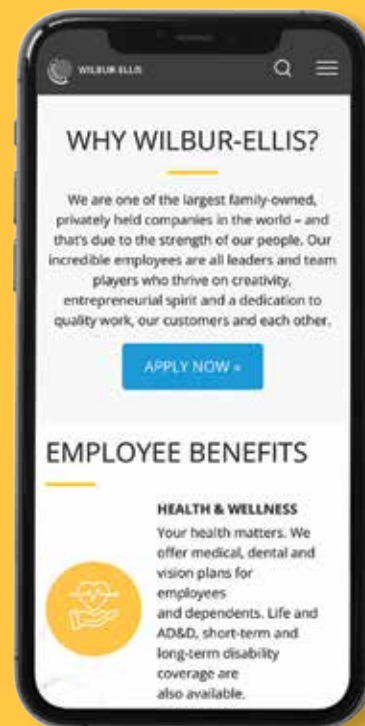
Throughout these years, we're proud to have worked with you to provide the best solutions for you and your growers.

CAPCA Through the Decades

In the last hundred years and the next, we're excited to give customers and PCAs access to groundbreaking technologies on a local level. The quality and commitment from Wilbur-Ellis will stay the same. From water management to biological pesticides to organic-approved formulations, we have the most advanced crop protection technology on the market. That means everyone who works with Wilbur-Ellis has access to a full suite of products that addresses any and every challenge—so you can be sure your growers are getting the best solutions available.

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Tracy Cleveland, Napa County Agricultural Commissioner

By CAPCA Staff

Tracy Cleveland will be celebrating 20 years of service with the Napa County Agricultural Commissioner’s Office this April. Though not a straight path, Cleveland’s journey has been fascinating, and her time as County Agricultural Commissioner is just getting started.

Cleveland grew up in urban Los Angeles, far removed from the agricultural industry and unaware of the role of a County Agricultural Commissioner. In 1992, she left home and moved to Hawaii to attend Chaminade University of Honolulu, where she later received a Bachelor of Science degree in Criminal Justice. It was in Hawaii, she says, that she was first exposed to agriculture.

After college, Cleveland moved back to the mainland and spent several years working with high-risk youth. She then decided to return to college and attended Sonoma State University, earning a Bachelor of Science degree in Ecology in 2002. During this time, she was able to experience the urban-agricultural interface; it was the vast farmland and woodlands that caught her eye.

Cleveland’s career path to Napa County Agricultural Commissioner began in April of 2003. Initially, Cleveland was hired as an Extra Help plant inspector in the glassy-

winged sharpshooter (GWSS) program. Her duties were to inspect incoming nursery shipments for GWSS egg masses, nymphs, and adults. Within the first few months, she was given a permanent position as an Agricultural & Standards Service Worker, and soon after, was promoted to Inspector, working primarily within the department’s Pesticide Use Enforcement Program. For ten-plus years, Cleveland conducted field safety inspections, ran pest detection trapping routes, and worked very closely with other inspectors and growers within the county.

In 2014, Cleveland was selected as the Pest Detection Deputy, overseeing trapping programs and continuing the work in the European grapevine moth eradication effort. In 2016, after two years in the Deputy position, Cleveland was promoted to the Assistant Agricultural Commissioner position, working for four years under two different Agricultural Commissioners. On April 5, 2021, the Napa County Board of Supervisors appointed Cleveland Agricultural Commissioner.

Cleveland has devoted the last 20 years of her career to Napa County because, as she says, “It is truly one of the most remarkable and special counties within California.” Napa County is a small county, and the Agricultural Commissioner’s



Office is supported by a staff of thirty full-time employees and as many as fifteen Extra Help workers who are hired seasonally to help run their extensive trapping programs.

Cleveland outlines the mission of the County Agricultural Commissioner's Office as "the promotion and protection of agriculture, agricultural employees, the community, and the environment." Her position is also responsible for ensuring equity in the marketplace through the weights and measures programs.

Cleveland and her team support this mission through a variety of core programs, including the Pesticide Use Enforcement Program. Their office is charged with regulating pesticide use in the county, including agricultural and structural settings. Ensuring the safe and effective use of pesticides helps protect people and the environment. This is done through training, outreach efforts, field inspections, and investigations. In Napa, their primary efforts are outreach and education. The department also works closely with growers and provides feedback on their internal worker training programs and processes.

"In farming there is constant pest pressure that growers must deal with on a continuous basis, including both native and invasive pests that occur in the environment, have been

introduced, or have a high probability of introduction," stated Cleveland. "Napa County has a variety of pest exclusion and pest detection programs intended to help keep unwanted and often detrimental pests out of Napa County through inspection and detection efforts."

Winegrapes are the bread and butter of Napa County, which is known for growing and producing world-class wines. In 2021, Napa County's total crop value was \$745,778,100. Of that dollar amount, the winegrape value alone totaled more than \$741,000,000 for 46,000 production acres.

Pests of concern continue to be major pests of winegrapes, including glassy-winged sharpshooter which can vector Pierce's disease, a non-curable disease of grapevines. Cleveland shared with us that neighboring Solano County has a small GWSS infestation in a residential neighborhood. A neighboring infestation so close to Napa is concerning because it creates a potential pathway for the introduction of a pest that currently is not present.

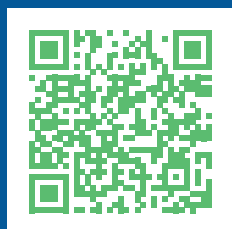
The vine mealybug and the spotted lanternfly are additional pests of concern, according to Cleveland. Vine mealybug is an example of a pest that was introduced and has become widespread throughout the state, including large portions of Napa. The department continues to work closely with

STAY INFORMED

Increase your knowledge of the news, actions and proposed regulatory changes from the Department of Pesticide Regulation (DPR) that may affect your PCA license and the pest management industry.

Subscribe at:

<http://www.cdpr.ca.gov/docs/dept/listserv/listdesc.htm>



DPR Electronic Subscription Lists

DPR's web site includes a subscription page for their electronic mailing lists. You can sign up to receive free, automatic delivery of:

- DPR News Releases.
- Licensing, Certification and Continuing Education Information.
- Notices on Regulatory Actions or Proposed Regulatory Changes that may affect your license and/or business operations.
- Updates on over 20 regulatory issues and programs.

growers, PCAs, University of California Farm Advisors, and the local Winegrape Pest & Disease Control District, to trap for and monitor the spread of VMB within the county, and to share effective control strategies with growers. Spotted lanternfly is another pest of concern, though it is not established in California. SLF is mobile, potentially moving on freight vehicles, trains, planes, or trucks. Cleveland's staff has been trapping for spotted lanternfly in Napa County for three years as a part of a sentinel trapping program.

Cleveland believes one of the most significant challenges facing the industry is the ability to tell the story and communicate the importance of agriculture to the communities they are farming in. "At times there is a disconnect between farmers and their surrounding communities," said Cleveland. "People are not always aware of where their food comes from and they are not aware of the constant challenges that farmers are faced with, like the rising costs of farming, the lack of water, issues sourcing labor, and the constant pest pressures they must address."

Cleveland stated, "An equally important part of that conversation is that farmers are innovative and important stewards of the land. They strive to farm sustainably and incorporate farming practices that benefit not only the farmers, but the environment and the land, to ensure its continued legacy for generations to come." Cleveland believes that is the story and it is both inspiring and vital.

Cleveland related to this struggle as she explained it. In her department, they work to tell the story of the Napa County Agricultural Commissioner's Office. She sees new challenges as new opportunities to learn and grow, and says this struggle is no different. Through newsletters, social media, outreach

to various partners, and speaking engagements, they are constantly brainstorming ways to share their story, educate the public, and reach groups that aren't familiar with their mission. At the end of the day, they work through a very robust regulatory system, intended to protect agriculture, people, and the environment.

Cleveland said she has been fortunate to have had several key figures or mentors throughout her career who have helped guide her. Without fail, every one of them has highlighted the importance of relationships that you build among your team, with other counties, state, and federal partners, industry partners, farmers, pest control advisers, field workers, pesticide applicators, and the community.

"It all starts with communication and collaboration," said Cleveland. "We communicate frequently with our farmers and other partners and collaborate on extensive outreach and education efforts. That open dialogue has resulted in a great working relationship with our industry groups, CAPCA, and our local Pest Control Advisers." She encourages any and all PCAs in Napa County to call or come into their office anytime with questions or concerns.

We asked Cleveland what the biggest highlight of her career has been so far. Cleveland's response was that she is not looking back only two years into this position, as she believes this is just the beginning. Instead, she said, she is looking forward. She is proud of her amazing team. Many of them are working in positions that got her to where she is today. It is their knowledge, passion, professionalism, and dedication that excite her. "It's especially rewarding to see them grow, succeed, and achieve leadership roles within our organization." ■





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.



Make CAPCA Your Association in 2023 & Beyond

Crystelle Turlo, Chief Operations Director

<https://capca.com/membership/>

The initial mission of CAPCA was to ensure that Pest Control Advisers (PCA) of California were provided unique and valuable benefits. Today's CAPCA has evolved; we are an association that provides quality continuing education, advocacy, networking events within the industry, and reliable updates and information.

As we move into a new year, we recognize our member's needs are changing, and we are ready to grow and change with them.

In 2022 we rolled out QR codes for scanning in and out of in-person CE. In 2023, one of our top priorities will be to continue providing quality in-person and online continuing education. We will also continue to utilize technology to ensure that our members receive accurate information regarding their CE hours.

Your PCA license matters to CAPCA, which is why we will continue to advocate for our members and other PCA's throughout the state. While advocates from all sides come to the table, CAPCA continues to have a seat to ensure your voice is heard. We encourage you to join us at an advocacy training to learn the importance of your voice from the local to the state level. The power of your voice is vital, and we encourage you to reach out to your representatives.

This year you can expect to enjoy the same quality information and communications. Some things will remain the same, like the Adviser magazine, but you may also experience different communication formats. We are enhancing our communications efforts, from social media to emails. You can expect to see more streamlined and interactive communications. ■

CAPCA MEMBERS-ONLY BENEFITS

Membership with CAPCA is the best way to take your involvement, education, and skill set to the next level.

CAPCA provides three levels of membership for individuals:

MEMBERSHIP LEVELS

ACTIVE MEMBER

Only California State licensed Pest Control Advisers are eligible for Active Membership in the Association.



ASSOCIATE MEMBER

An Associate Member is any person not licensed as an agricultural Pest Control Adviser, but may hold other licenses issued by the State of California, and wants to promote the purpose of the Association.

STUDENT MEMBER

A student member is a student regularly enrolled in a college or university, majoring in biological or agricultural sciences and preparing for a career in pest management. A student member may not hold a DPR license.

To join, visit <https://capca.com/membership/>

STANDARD OF CONDUCT

Adopted 1989

CAPCA members will conduct themselves in a professional manner according to their code of ethics by observing all laws and all regulations, broadening their abilities through continuing education, and respecting the needs of their clients, the environment and public safety at all times.

CODE OF ETHICS

Adopted 1992

INTRODUCTION

The California Association of Pest Control Advisers (CAPCA) recognizes the unique ethical and professional responsibility of the licensed pest control adviser (PCA). PCAs have the responsibility to support and promote the highest standards of conduct in the performance of their duties to the public, the environment and their clients.

CAPCA members will observe and obey all laws and regulations pertaining to our industry, and will voluntarily assume the obligations of self-discipline, honor, and environmental respect set forth in the CAPCA 'Code of Ethics.'

ARTICLE I: Obligation of the PCA to the Public and Environment

- Prescribe environmentally sound pest management methods which do not jeopardize the public health and welfare.
- Ensure that alternative measures for pest management situations have been reviewed, as provided by law.
- Maintain an awareness of public concerns and be willing to address those concerns in a sound, scientifically-based manner.
- Serve as a leading advocate of safe and effective pest management technologies.
- Participate in the advancement of pest management and professional knowledge.

ARTICLE II: Obligation of the PCA to the Client

- PCAs have an affirmative ethical obligation not to conceal their source of compensation when asked.
- Help the client keep abreast of relevant regulatory and technological changes which could impact the client's business.
- Provide the client with pest management advice which meets the following criteria:
 - environmentally, economically, and ethically sound
 - legal uses that are objective and are research-based

ARTICLE III: Obligation of PCA to the Profession

- Refrain from making false or misleading statements about the work of other PCAs.
- Recognize the duty to report illegal practices to the proper authorities.
- Maintain state-of-the-art knowledge of pest management through conscientious pursuit of continuing education.
- Participate in industry affiliated organizations and activities which encourage the betterment of the profession.
- Foster and support research and education for the advancement of pest management.



New Communications Coming Your Way

Alexis Silveira, Communications Director

It is a pleasure to serve as the Communications Director for the California Association of Pest Control Advisers (CAPCA). During my career, I have had the wonderful opportunity of representing the agricultural industry, most recently for California Citrus Mutual (CCM). The PCA industry plays a vital role in the health and viability of California agriculture, and I believe that as an association we have an incredible story to share with both the public and our representatives at the State Capitol.

The CAPCA team has been hard at work building a new tool to help you more easily navigate your digital CAPCA benefits. This new member dashboard will be unveiled this spring. As a member, you will be receiving critical communications regarding your user profile. You will be prompted through an email that you currently have on file to recreate a username and password. This is all being done to

enhance our security and ensure your privacy. The creation of your new user account will be linked to your CAPCA membership and must be done promptly. If you have any questions about this process, please email support@capca.com or call (916) 928-1625.

In other news, while staff has been busy updating our member dashboard, the communications team has been redesigning the front-facing website. This will also be unveiled in the spring. Our hope is that the new website better helps our members understand their member benefits and CAPCA priorities. As we release the new website design, we ask you to send any feedback to me at Alexis@capca.com.

I look forward to working with you and the CAPCA team to shine a light on the exceptional work that PCAs do across California. Please do not hesitate to reach out to me if you have any questions. ■

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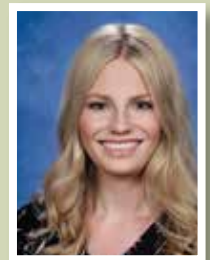
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2023-2024 CAPCA EXECUTIVE COMMITTEE

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Vice Chair



Jennifer DeJong
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Adam Tavares
Secretary



Patrick Dosier
Ex-Officio



<https://capca.com/board-of-directors/>





DPR releases 1,3-D proposal, but EJs call for more

Brad Hooker, Agri-Pulse

The Department of Pesticide Regulation (DPR) has issued a proposed regulation to further restrict the use of 1,3-D, known by the brand name Telone. The measures include tarping, deeper injections and expanded buffer zones.

While agricultural groups have questioned the need for additional mitigation measures for the restricted material, environmental justice advocates (EJs) are also disappointed, blasting DPR for excluding specific protections for workers.

“Reducing human health risks from 1,3-D exposure is a priority for the state,” said DPR Director Julie Henderson in a statement. “Taking action to strengthen restrictions on the use of 1,3-D to lower those risks is core to our mission of protecting human health and the environment.”

DPR reasoned the fumigant could cause acute and chronic cancer effects at certain levels of exposure to residents and other bystanders. The regulatory actions were in response to a brief spike in 1,3-D emissions recorded by air quality monitors in Fresno County in 2020.

1,3-D is a pre-plant fumigant used to control insects, nematodes and other organisms in the soil that threaten a variety of crops, including tree nuts, berries, sweet potatoes and grapes. It is commonly injected into the soil or applied through drip irrigation.

Under the proposed measures, anyone applying the fumigant must incorporate as much as a 500-foot setback for buildings depending on the time of year, limit the application size to 80 acres, apply a deep 24-inch injection and ensure a soil moisture content of 50% through irrigation, sensors or a basic hand test for stickiness.

The aim is to develop protections equivalent to covering fields in impermeable tarps during applications. Agricultural trade groups worried that requiring tarps for all applications would lead to environmental issues when tarps blow away and to excess landfill waste, conflicting with the state’s recycling goals.

DPR hosted the first discussion on the new proposed rulemaking during a monthly meeting of its pesticide registration and evaluation committee. During public comments, an anonymous San Mateo County farmer worried that meeting the soil moisture requirement would be difficult during drought years, especially when water costs have gone up for some growers, and that waiting 36 hours between applications would be challenging when DPR already requires a 36-hour pause before school is in session.

On the other hand, Jane Sellen, who co-directs the environmental group Californians for Pesticide Reform, claimed that DPR was ignoring a recommendation by CalEPA’s Office of Environmental Health Hazard Assessment (OEHHA) to establish protections for agricultural workers as well. Sellen argued that a 2018 court decision in a lawsuit led by her group “clearly directed DPR to develop a rule for occupational bystander exposure.” OEHHA also proposed a cancer risk level that was 14 times more protective than DPR’s, according to the group.

Mark Weller, organizing strategist at Californians for Pesticide Reform, shouted at DPR staff in disbelief over the issue and called it “mind boggling” for DPR to not raise the cancer risk level.

DPR plans to host a public listening session and gather more stakeholder feedback. ■

<https://www.cdpr.ca.gov/docs/pressrls/2022/111522.htm>





In My Opinion...

By Mark Brady, Western Marketing Manager, Plant Food Systems, Inc.
P.C.A. License #072918, C.C.A. Certificate #379337

The crop protection industry has come a long way since the days when the early pioneering environmentalist, Rachel Carson, published her 1962 book, *Silent Spring*. I'm always amazed at the amount of migratory waterfowl that seem to increase in abundance every year across California's open winter fields. Remembrance of those same fields back in the mid-1970s was illuminating. It was then, hit with a backlash from those early environmentalists, that the Department of Pesticide Regulation was formed, when those handling and recommending pesticides began a system of credentialing, and the concept of Integrated Pest Management (IPM) blossomed as a new culture evolved within crop protection, and the industry was transformed. The term "IPM" was never specific, but rather a large, encompassing umbrella of tactics to benefit both growers and the sustainability of our environment.

Plant Food Systems, Inc. is proud to be a contributor to California's sustainability and a leader in "IPM". Our principle product, K-PHITE 7LP, registered as both a fungicide and bactericide against a wide spectrum of pathogens, gives growers a safe and effective choice on a broad variety of crops. Founder Carl J. Fabry, a notable chemical engineer and agronomist, patented a process to stabilize potassium phosphite as a linear polymer, thus increasing its efficacies while maintaining its safety as a biopesticide. This unique patented molecule, along with other innovations registered to Mr. Fabry, places Plant Food Systems in the center of true "IPM". While many European formulators continue to introduce single dimension pesticides into our industry, Plant Food Systems advocates using a multi-pathogen approach to protect plant health, controlling numerous fungi and bacteria simultaneously while significantly reducing the usage of pesticides and enabling a healthier and more vibrant environment.

Tree nuts being the largest of crop groupings in California, both growers and industry specialists planning their pest control programs should seriously consider implementing "IPM" programs that significantly reduce pesticide volumes. There is no reason to use separate materials for control of ***Phytophthora***, ***Botryosphaeria***, and ***Alternaria*** when one product can provide excellent management of all three.

In My Opinion... why would you?

Pseudomonas syringae, known as Bacterial blast in its primary infection stage and Bacterial canker in its later, more damaging stage are an inconsistent pathogenic infection in almonds that often correlate to excessive wet conditions, earlier frost conditions, as well as nitrogen imbalances. There is minimal data on control of ***Pseudomonas*** because of its inconsistency to sporulate, but controlled University greenhouse trials indicate K-PHITE 7LP to be one of your best choices. Apply early on young trees at pink bud for Bacterial blast, then follow up at 1" leaf stage for both Bacterial canker and Bacterial spot (***Xanthomonas campestris***). Copper hydroxide can be added to K-PHITE 7LP according to label for more numerous modes of action (avoid copper injury, maintain spray tank pH above 6.2).



Mark Brady, Western Marketing Manager, Plant Food Systems, Inc.
(559) 731-1267 mbrady@plantfoodsystems.com

KPHITE is a registered trademark of Plant Food Systems, Inc.

STATEWIDE PESTICIDE APPLICATION NOTIFICATION SYSTEM

The Department of Pesticide Regulation (DPR) has implemented a Statewide Pesticide Application Notification System Pilot Project. DPR partnered with four County Agricultural Commissioners (CACs) to conduct pilot projects in communities within Riverside, Santa Cruz, Stanislaus, and Ventura counties. The pilot project aims to help with the components of the project, including; distance, timing, and material type. DPR held several listening sessions after the pilot projects to receive community feedback.

DPR plans to implement the project in 2024 through a proposed statewide IT system. The information below is what DPR is currently considering to be the components of the project.

Please note CAPCA has worked closely with the CACs and various agricultural associations to explain the burden this notification system places on PCAs, growers, and CACs. If you live in a community that had a pilot project, please share your thoughts and experiences with CAPCA.

You can email our Communications Director, Alexis Silveira, at alexis@capca.com.

NOTIFICATION



**ALL
RESTRICTED
MATERIALS**



**2 MILE
RADIUS**



**24 HOURS
PRIOR TO
APPLICATION**

Growers or a designated representative will be required to submit a Notice of Intent (NOI) to their CAC at least 24 hours prior to use of Restricted Material pesticides. From there, the CAC will either approve or deny the application.

The public will have the opportunity to enter a location(s) and receive notifications of Restricted Material pesticides within two miles of their chosen location. The public will also be able to search the system anonymously. The notifications will be offered in both English and Spanish.

For more information, please visit cdpr.ca.gov.

CAPCA.COM

Pesticide Notification Pilot Projects Fact Sheet

California Agricultural Commissioners and Sealers Association

Santa Cruz County

The Santa Cruz County pilot project was focused around a one-mile pilot community, within the city of Watsonville, specifically focused on 1,200 homes including a senior community. The pilot began in July and ended in December 2022. The pilot targeted only the restricted materials 1,3-dichloropropene, chloropicrin and metam potassium. Notifications went out 36-hours ahead of the intended application time and were delivered to pilot community residents only, via text, email or both forms. The notifications were also posted on the Santa Cruz County pilot notification website and available to the public at large. The information provided in the notification includes the brand name of the pesticide product, EPA registration number, date of application, start time of application, acreage to be treated, application rate and application method. All information was provided in both English and Spanish.

In examining the statistics of the usage of the notification system, of the approximately 1,200 homes in the pilot community, only an estimated 10% have signed up to receive notifications as of September. General feedback on the pilot program has included requests for a map of specific application location, requests for direct safety measures to take when they receive notifications, and criticisms included the notifications causing increased fear or panic, too many notifications and concern for the difficulty of seniors to sign up via technological barriers. Total staff time allocated to this project is currently 124 hours, as of September.

Riverside County

The Riverside County pilot project was focused around a five-mile radius around two communities, of North Shore and Mecca. The pilot began on March 4, 2022 and ended on July 12, 2022. The pilot targeted all restricted materials. Notifications went out immediately after a NOI was reviewed and approved, which included a 12-24-hour window, via an online portal. The website was updated daily and no additional notifications were provided. The information provided in the notification included proposed application date, region, estimated time of application, active ingredient and the rate of application. All information was provided in both English and Spanish.

In examining the statistics of the usage of the notification system, included 1 website visit from a community member and 1,777 page visits from outside community areas,

which included only 54 page visits from within the greater Coachella Valley. General feedback on the pilot program has included requests for a phone meeting, which was held and included environmental justice groups from throughout the state, but did not include any representatives from within the Coachella Valley. Additional feedback included questions regarding specific location and more information about the actual application and included questions from growers about why the pilot was needed and how it will impact their ability to farm. Total staff time allocated to this pilot was 37.5 hours.

Stanislaus County

The Stanislaus County pilot project was focused around a one-two mile radius in the rural community of Grayson. The pilot began on April 1, 2022 and is still ongoing with no defined end time. The pilot targeted all restricted materials for production ag usage. Notifications were sent out 12 hours prior to proposed application time, via a non-personalized text. The text directed those interested to obtain full application information on a website, that requires a registration and log-in. The information provided in the notification included the brand name of the pesticide product, EPA registration number, date of application, start time of application and method of application. All information was provided in English and Spanish for the text notification and able to be translated to 144 languages via Google translate on the website.

In examining the statistics of the usage of the notification system, included 44 interested users, not all live within the Grayson community, but these 44 users have been validated as non-county, non-DPR users. General feedback has been limited and questions and concerns have been answered by staff as they have come in. Total staff time allocated to this pilot was 466 hours, as of June 2022.

Ventura County

The Ventura County pilot project was focused around a one-mile radius of the Nyeland Acres community in the El Rio area between Ventura, Oxnard and Camarillo. The pilot began in May 2022 and is ongoing. The pilot targeted all restricted materials. Notifications went out the prior calendar day to the application date, via text and will be available on the county notification website. The information provided includes the brand name of the pesticide project, EPA registration number, date of application, start time of application and application method.



CAPCA Spring Summit

REGISTRATION OPENS 1/16/2023!

REGISTRATION INFORMATION

Pre-Registration is Online Only

(RUNS FROM 1/16/23 TO 4/18/23)

	MEMBER	NON-MEMBER
EARLY RATE (BY 3/7/23)	\$200	\$250
STANDARD RATE (AFTER 3/7/23)	\$250	\$300
ONSITE* RATE	\$275	\$350

*ONSITE REGISTRATION IS FIRST COME, FIRST SERVED

SPONSORSHIPS AVAILABLE

**IN-PERSON LABEL UPDATES,
PRODUCT PROFILE, & EXHIBITOR
OPPORTUNITIES AVAILABLE**

FOR MORE INFORMATION:



2023 SPRING SUMMIT

APRIL 25-26, 2023

PECHANGA RESORT CASINO | TEMECULA CA

2023 PROGRAM AND CE

DPR & CCA HOURS TBA

MUST ATTEND TUESDAY AND WEDNESDAY BOTH FOR TOTAL HOURS

MONDAY, APRIL 24, 2022

2:00 PM - 5:30 PM | SPONSOR-EXHIBITOR SET UP

TUESDAY, APRIL 25, 2022

8:00 AM - 11:00 AM | SPONSOR-EXHIBITOR SET UP

1:00 PM - 5:00 PM | LABEL UPDATE HOUR & GENERAL SESSION (CE)

5:30 PM - 7:00 PM | EXHIBITOR RECEPTION (CE)

WEDNESDAY, APRIL 26, 2022

6:30 AM - 8:00 AM | BREAKFAST AND EXHIBIT HALL (CE)

8:00 AM - 12:00 PM | GENERAL SESSION (CE)

12:00 PM - 12:30 PM | LUNCH BREAK

12:30 PM - 3:30 PM | TWO BREAKOUT OPTIONS:

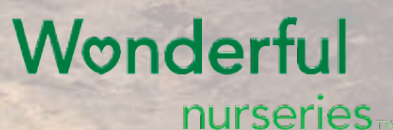
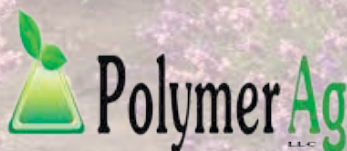
- PRODUCT PROFILE PRESENTATIONS (CE) NEW!

- ADVOCACY PRESENTATION (NO CE)

3:30 PM | PROGRAM END



THANK YOU TO OUR SPONSORS!



Let's get social.



CAPCA is working hard to build out a robust social media platform to connect with members, and to bring them additional industry-focused content.

FOLLOW CAPCA ON THESE SOCIAL MEDIA SITES:



Facebook - *@California Association of Pest Control Advisers (CAPCA)*



Instagram - *@capca_plant_health*



Twitter - *@CAPCA3*



LinkedIn - *@California Association of Pest Control Advisers (CAPCA)*





New online continuing education courses for 2023 coming soon.

Watch our website at <https://capca.com/onlinece/> for more information.



SAN
AGROW

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**YOUR YEAR-ROUND ORGANIC SOLUTION
FOR WEED CONTROL AND DESICCATION**

With years of proven efficacy, **SUPPRESS**[®] Herbicide EC consistently provides fast and effective broad-spectrum burndown on a wide variety of post-emergent weeds.

Now it is approved for use as a plant desiccant!

ADVANTAGES

- Excellent tool in IPM programs
- Helps break chemical resistance
- No pre-harvest interval or MRLs
- Effective pre-harvest desiccant

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CAPCA 2023 Sustaining Membership Levels

BENEFITS	BRONZE	SILVER	GOLD	CHROME	DIAMOND	PLATINUM
	\$750	\$2,200	\$3,500	\$6,500	\$10,000	\$25,000
Sustaining Member Acknowledgement on CAPCA Website and in Each Issue of <i>Adviser Magazine</i>	✓	✓	✓	✓	✓	✓
Subscription(s) to <i>Adviser Magazine</i>	1	1	1	1	2	2
Job Opportunities Posting in <i>Adviser</i>		1	2	3	Unlimited	Unlimited
Half-page Ad in <i>Adviser Magazine</i> (October issue excluded)		1		1		
One-page Ad in <i>Adviser Magazine</i>					1	3
<i>Adviser Magazine</i> Advertorial*			1	1**	1**	1**
Discount on <i>Adviser</i> Ad Placement			10%	15%	15%	15%
Complimentary Mailing Labels	20% off 1 order	30% off up to 3 orders	2	2	3	5
Comp Conference Registration(s)**			1	2	2	3
Conference Booth Discount***				\$100	\$200	\$300
				discount per booth, limit 4		
Priority Placement for Conference Exhibit Booth***	6 th	5 th	4 th	3 rd	2 nd	1 st
CAPCA Online CE Host or Collaboration Discount			\$250	\$500	\$500	\$750
Spring Summit Complimentary Registration***	1	1	1	1	1	1

* October issue fills quickly, first come, first served

** October issue guaranteed if booked by March 31, 2023

*** Complimentary Conference Registrations: Pending the availability of hosting in-person events in 2023. CAPCA reserves the right to limit benefits and/or adjust to online programming value due to unknown gathering and spacing restrictions. CAPCA will provide Sustaining Member companies redeemable Conference registration codes for their employees. \$100 service fee will be applied to any refund requested for a registration purchased without use of the provided redeemable registration code.

The rights, privileges, membership benefits and unused portion thereof of CAPCA Sustaining Members applies only to the Company purchasing membership and cannot be transferred or assigned to said Company's subsidiary(ies) or any other entity(ies) of which the Company has full or partial ownership. The rights, privileges, membership benefits and unused portion thereof of CAPCA Sustaining Members applies only to the calendar year (Jan. 1-Dec. 31) for which the Company purchases membership and cannot be transferred or rolled over to any subsequent calendar year.

There is a limited window to sign up for 2023 Sustaining Membership:

Sept. 12, 2022 to Mar. 31, 2023

Don't Miss Your Benefits!

For Sustaining Membership sign-up, visit
www.capca.com/sustaining-membership



THANK YOU 2023 SUSTAINING MEMBERS

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Potassium Nitrate **experts**



DIAMOND LEVEL



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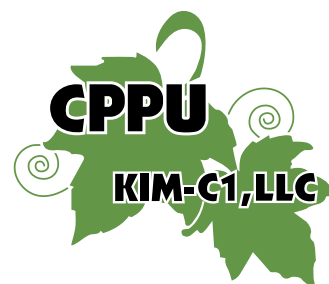
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Grower's Secret

Lallemand

Magna-Bon

Motomco

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Polymer Ag

Sacramento Ag Products, LLC

Semios

Spectrum Technologies

Summit Agro USA

Sunridge Nurseries

Tiger-Sul Products

Western Region Certified Crop Advisers

Cotton seed bug:

another invasive pest that has established in California



Christina D. Hoddle and Mark S. Hoddle, Department of Entomology, University of California Riverside

California has a significant invasive arthropod problem.

On average, around nine to ten species of macro-invertebrates (e.g., insects, mites, slugs, snails, and spiders) establish in California each year. Of these, around three or so, are likely to become pests requiring management because they cause some level of economic or environmental damage in urban, agricultural, or wilderness areas (Dowell et al. 2016). The threat to California from invasive species is perennial and unrelenting, and is driven by rapidly increasing trade, tourism, smuggling, and climate change. Every California resident is negatively affected in some way by invasive pests (e.g., insecticide residues on food) and the economic costs to the state likely amount to billions of dollars per year.

With respect to the value of California agriculture, in 2020, California's 69,600 farms, ranches, orchards, and nurseries contributed \$49.1 billion to the state's economy and the agricultural industry provides employment for more than 1.2 million people. California is the leading agricultural state in the USA with revenues approximately double that of the second leading state, Iowa. California has nine commodities worth more than \$1 billion in annual revenues (CDFA 2021). Of these billion dollar crops, grapes, nuts, and citrus are under increasing risks posed by invasive pests. For example, the brown marmorated stink bug, established in Los Angeles County in 2006, threatens nut crops (Lara et al. 2018a,b, 2019); spotted lanternfly (SLF), not yet in California but widely established on the east coast, poses an extreme invasion risk to grape production (Hoddle 2019); Asian citrus psyllid, detected in San Diego County in 2008, vectors a citrus-killing bacterium, *Candidatus Liberibacter asiaticus*

(CLas), presents an unprecedented threat to California's citrus, in both urban and commercial production areas (Milosavljević et al. 2017); and South American palm weevil, established in San Diego sometime around 2014, poses a significant threat to date gardens in the Coachella Valley (Hoddle and Hoddle, 2017). To this ever-increasing list of invasive agricultural insect pests, the cotton seed bug (CSB), *Oxycarenus hyalinipennis* (Hemiptera: Oxycarenidae), can be added.

Cotton seed bug in California – what do we know?

Native to Africa, CSB (Fig. 1) has exhibited high invasion potential, having successfully invaded Asia, Europe, the Middle East, and South America (USDA 2021). This pest established in the Caribbean in 1991, and established populations were detected in the Florida Keys in 2010 and were subsequently eradicated by 2014 (USDA 2021). In California, this pest was first detected in urban areas in Los Angeles County in 2019, and by 2021, CDFA confirmed finds in urban areas of Riverside, Orange, and San Diego Counties. At this time there have been no confirmed finds of CSB in commercial cotton production areas of California or other cotton growing areas in the US. CSB populations in urban areas threaten commercial cotton production areas in California and other areas in the US as it is likely that this pest will be moved inadvertently from invasion bridgeheads in residential areas into new locations, most likely urban zones, from where they can infiltrate cotton growing acreage. This is a scenario that California has repeatedly observed with invasive pests where populations establish first in urban areas from where they build up and threaten agricultural production areas (e.g., Asian citrus psyllid, brown marmorated stink bug, and South American palm weevil).

FIG. 1. (left) Adult cotton seed bug, *Oxycarenus hyalinipennis*, on an okra pod. Photo: Mike Lewis, UC Riverside.

As its common name suggests, CSB is a notorious pest of cotton, *Gossypium hirsutum* (Malvales: Malvaceae), and this bug poses a significant new threat to California cotton growers. CSB nymphs can only develop to adults by feeding on seeds of plants in the plant order Malvales. In addition to cotton, known reproductive host species include okra, hibiscus, and weedy invasive *Malva* spp. (e.g., cheese weed). With respect to cotton, feeding damage by adult and nymphal CSB to cotton seeds can cause weight loss in cotton seed (up to 15%), decrease seed germination rates (up to 88%), and a reduction in oil seed content. High density CSB populations at time of harvest can cause cotton fibers to become stained during ginning which results in decreased value (USDA 2010). Damage to cotton seeds by CSB is enhanced by insect feeding damage to cotton bolls as holes facilitate easier access to seeds. CSB has been found feeding on seeds of native California mallows, and this pest may suppress the production of viable seeds for a variety of federally threatened or endangered plants in the Malvales (e.g., species in the genera *Abutilon*, *Hibiscus*, and *Gossypium*) (USDA 2010 [this reference provides a very good summary table {Table 2-2} of plant species in the Malvales reported to be hosts for CSB]).

The potential economic impact of CSB on the California cotton industry is significant. In 2020, the California cotton industry was valued at \$269 million per year and the crop is planted on 181,000 acres primarily in five counties, Kings, Tulare, Merced, Fresno, and Riverside Counties. Fortunately, CDFA field surveys, with support from the California Cotton Board, have failed to detect CSB in major cotton growing areas of Glenn, Colusa, Sutter, Merced, Fresno, Kings, Tulare, Riverside and Imperial Counties. CSB has not been detected in Arizona, Arkansas, Georgia, Texas, or North Carolina where cotton is also grown.

Cotton seed bug biology

Adult CSB are small, about 4-5mm (0.16-0.20 inches) in length (Fig. 2) and are brown to black in color. Females can lay up to 110 eggs either singly or in groups and eggs can hatch in about 4 – 8 days (USDA 2021). Eggs tend to be yellow colored when laid and turn reddish-orange as they mature. Females lay eggs inside cotton bolls or seed pods of other suitable hosts in the Malvales. Once eggs hatch, nymphs, which tend to be reddish in color (Fig. 3), aggregate on host seeds in groups referred to as “feeding swarms.” There are five nymphal instars, and depending on

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FIG. 2. Adult cotton seed bugs are small, about 4-5 mm in length. Photo: Mike Lewis, UC Riverside.



FIG. 3. Cotton seed bug nymphs have a reddish color. Photo: Mike Lewis, UC Riverside.



FIG. 4. Adult cotton seed bugs aggregate and hide within desiccated seed pods. Photo: Mike Lewis, UC Riverside.

host availability and temperature, development from egg to adult can occur in about a month and in some areas, four to seven generations per year may be possible. USDA risk maps suggest CSB could survive in plant hardiness zones 8-11 (USDA 2010). To feed, nymphs and adult CSB use their needle like mouthparts to pierce host materials (e.g., seeds), inject saliva, and then ingest the liquefied food. Piercing-sucking feeding by CSB leaves necrotic damage, which may be visible as brown spotting. Nymphs and adults readily drink water which may be taken as dew droplets on leaves, or in lab colonies, from water-moistened cotton wicks. In the absence of freely available water, moisture can be extracted from leaves or fruit (e.g., apples, apricots, avocados, dates, figs, pear, persimmons, and quince) which can result in feeding damage and contamination with fecal droplets (Halbert and Dobbs 2010; USDA 2010, 2021). Adult CSB can enter diapause over winter when host plant seeds are unavailable. Overwintering CSB exhibit cryptic behaviors such as hiding in cracks and crevices on tree bark, amongst the roots of grasses, inside seed pods and curled dead leaves, or within human-made structures (USDA 2021). This latter behavior, hiding in human-made structures (e.g., cars, BBQs, picnic tables), may greatly increase the chances of this pest being accidentally moved into new areas where new populations establish long distances from the source population.

Controlling Cotton Seed Bug

Several control methods are recommended for CSB management. Foremost amongst these are good sanitation practices, which include the removal of overwintering debris (e.g., cotton stalks with bolls) (Fig. 4) and elimination of weedy malvaceous hosts near cotton fields or other areas of concern (USDA 2010; 2021). Seed cotton stored in large compacted modules after harvest should be covered before being ginned to prevent infestation by CSB and processing material through cleaning equipment to remove foreign matter may reduce CSB staining to ginned cotton (USDA 2010). The most commonly employed control method for CSB is insecticide applications. However, effective control may be difficult as CSB may aggregate in areas away from the crop being sprayed, penetration of products into cotton bolls where CSB are feeding may be difficult, and time of day when applications are made could be poorly timed and do not coincide with CSB activity. For example, CSB may be relatively inactive in early morning when conditions for spraying are optimal (USDA 2010). A variety of broad-spectrum contact and systemic insecticides appear to have efficacy against CSB (USDA 2010; 2021). However, a review of the published scientific literature strongly indicates that CSB has a remarkable ability to develop resistance to several classes of insecticides with different modes of action. Effective biological control agents of CSB appear to be either unknown or non-existent



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and natural enemies associated with this pest appear to be generalist predators such as assassin bugs (i.e., Reduviidae). Should CSB establish in cotton production areas, effective sustainable management programs are likely to be IPM-based and will involve a combination of good sanitation practices, judicious use of carefully-timed applications of

effective insecticides with different modes of action that are used in rotation to minimize resistance development, and conservation biological control to maximize contributions of naturally-occurring generalist predators (e.g., lacewing larvae [*Chrysoperla* spp.] and predatory hemipterans [e.g., *Zelus* and *Nabis* spp.]) inhabiting cotton fields. ■

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Herbicide Flexibility Offers Growers Improved Control of Broadleaf Weeds in Spinach

WEED CONTROL IN SPINACH

California and Arizona produce about 90% of the nation's spinach. According to the CDFA the acres of spinach production have decreased in recent years, making weed control an even more important topic, as growers strive to produce a top quality crop. Unfortunately herbicide options are limited, add in the shorter crop cycles and PHI requirements in the Arizona and California markets, and weed control becomes even more challenging for growers. The primary pre emergence herbicide is cycloate. For post emergent control of broadleaf weeds, **Belchim Crop Protection USA**, provides spinach (processing/seeding) growers **Spin-Aid**,[®] the only registered active ingredient (15.9% Phenmedipham). **Spin-Aid** is extremely effective and with the FIFRA 2(ee) in California and Arizona, offers growers a flexible application window for broadleaf weed control.

Dr. Steve Fennimore, Extension Specialist at University of California, Davis' Department of Plant Sciences, states, *"Hypothetically, if we use a pre-emergence solution like Cycloate that suppresses the weeds for a little while on its own it may buy you time, but that time is a chance to actually utilize additional treatments of a post-emergence product,"* Dr. Fennimore noted. *"Most post-emergence herbicides need time to be safely applied to larger plants. When your crop is spinach, fewer weeds means fewer hours of hand weeding per acre thus saving you both time and money. Therein lies the challenge growers have felt for decades."*

Fennimore has been conducting research with **Spin-Aid** for years and has observed the results of applying it to early stage spinach in California. *"We are seeing real positive results with Phenmedipham*

and have been able to meet the 21-day PHI. The key is the flexibility to modify rates and program applications to achieve success, whereas others are still only offering strict 50 days with S-metolachlor. For instance Phenmedipham – when used earlier in the shorter crop cycle markets at a modified rate, growers can still comfortably meet the required PHI."*

AVAILABILITY OF WATER

As growers in the west are well aware, water supplies continue to be a topic of concern. The uncertainty of snow and rainfall, in addition to restrictions and regulations from the California Department of Water Resources, can impact irrigation timing and quantities available for most crops. Moreover, water that is available to plants via irrigation or rainfall does not always get to its intended target, the rootzone. Consequently, chemicals being carried in the water will not get there either. The lack of proper water movement into the soil can impact the ability for plants to thrive. **Integrate**[®] 80+ Soil Surfactant, with active ingredient 83% Tri Block Co Polymer (a blend of three different surfactant types), ensures maximum uptake of water on hydrophobic soils. It provides uniform penetration and lateral movement of water encouraging improved rooting and nutrient uptake leading to greater plant health and uniformity.

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* FIFRA 2(ee) in California offers growers a flexible application window



Playing Catch-Up

Supplying adequate crop nutrition in-season

By Abe Isaak, Agronomist



Ideally, after the stress of harvest, growers can apply adequate postharvest fertility to replenish nutrient reserves which helps ensure the crop has the energy it needs to maximize production when dormancy breaks come spring. However, many factors during the 2022 growing season weren't "ideal." For various reasons, post-harvest fertility may not have been applied, or perhaps not at typical rates. Luckily, there are ways to help ensure your crop has the energy it needs to maximize production when dormancy breaks.

Opportunity lies in focusing on factors we can control to ensure we make the best possible crop, regardless of what challenges are thrown our way. Understanding how phosphorus (P) and potassium (K) fertilizers interact with other inputs and elements in the soil will help guide decision making.

Phosphorus (P)

Phosphorus uptake in almond trees begins to increase at 100 days after bloom and throughout the rest of the growing season, and crop nutrition decisions made now can still affect the outcome of this season. If you didn't apply P post-harvest, a small application at root flush can help you catch up. Studies have shown that an almond crop will remove about 18-20 pounds of P_2O_5 with every 1,000 pounds of kernels removed. For a 4,000-pound crop, that's upwards of 80 pounds of P_2O_5 that the crop requires.

"Tie up" within the soil is the primary concern with phosphorus fertilizers. In acidic soil conditions, P will tend to get tied up by iron, aluminum, and manganese. In basic soil conditions, calcium will be the major component of phosphorus tie up. Phosphorus is most available to the plant in a soil pH range of 6.3-6.8.

Potassium (K)

While supplies of total potassium in soils is often quite large, relatively small amounts are available to the plant at any one time. That's because nearly all this K is in the structural component of soil minerals and isn't available for plant growth. The amount of available potassium in the soil varies due in part to differences in soil parent materials and weathering. Therefore, like all crop nutrients, the need for potassium varies by crop and by region.

Depending on soil type, approximately 90 to 98 percent of total soil K is unavailable to the plant. The minerals, feldspars and micas contain most of the K. Over time, these minerals do break down, and K is released. As these minerals weather, some K becomes available, but typically not enough to supply the full K needs of the crop.

Potassium and sodium have a unique relationship that is many times overlooked. The use of poor-quality, well water for irrigation has caused sodium levels to build up in many California soils. In these situations, the soil solution will contain more sodium ions than potassium ions. These two ions are "look alike" ions and the plant will not discriminate against which one it takes up. An excess of sodium in the soil solution will tend to induce a potassium deficiency in the plant. On a soil test, look at the base saturation, and if the sodium level is higher than the potassium, this is an indicator that there may have some serious problems during the heat of the growing season. This can appear as leaf burn on the edges of the plant, and in severe cases defoliation and crop loss.

There are many factors that influence K availability, sodium being just one of them. High pH, calcium and/or magnesium levels will tie up K in the soil. If some of these limiting factors are in play on your farm, you can get around this problem with foliar applications of potassium throughout the growing season.

Making Good Choices - The Right Source

For a phosphorus source, it is important to choose a fertilizer that is protected from tie up to ensure that you get the most out of your fertilizer investment and that your crop will receive the required amount of phosphorus needed.

As for a potassium fertilizer, one that is highly soluble and free of chlorides and other salts will ensure healthier plants to achieve 2023 yield goals, and make the best use of your fertilizer budget.

As always, when selecting fertilizer products and application placement, it is important to use the best agronomic practices for the product and crop. Always consider what crops, application methods, tank mix partners, and environmental conditions are present when making fertilizer decisions. There is much more to share on this subject, so above all, find a trusted agronomist or crop nutrition expert to help identify your crop nutrition needs.

University Research Confirms CheckMate® CRS Mating Disruption Reduces Pest Damage

Leading University experts recently published results from research conducted from 2015 to 2019 in commercial citrus orchards in central California (Grafton-Cardwell et al. 2021). Through these studies, the researchers demonstrated that CheckMate® CRS can be extremely effective at reducing California Red Scale (CRS) pest populations and damage.

The research concluded with several key findings demonstrating how truly effective mating disruption can be at reducing the impact of CRS:

- *Mating disruption using CheckMate® CRS was effective in reducing California Red Scale populations in every generation and can potentially reduce or even eliminate pesticide applications altogether, depending on pest density.*
- *Significant trap suppression, population and damage reductions were observed in blocks treated with CheckMate® CRS dispensers.*
- *In CheckMate® CRS treated blocks, cumulative male trap capture was reduced by an average of 90%, twig and leaf infestations by 95%, and highly scale-infested fruit by 75%.*
- *The percentage of highly infested fruit was less than 0.5% in 9 of the 10 mating disruption blocks in 2018 and 2019.*



Keeping CRS populations under control is imperative for growers looking to produce high-quality, cosmetically appealing fruit. CRS affects the marketability of citrus fruit and can be difficult to manage with conventional pesticides alone. Growers and PCAs can't control certain factors that drive pest populations such as weather, but they can minimize CRS damage by using CheckMate® CRS.

CheckMate® CRS is Suterra's season-long mating disruption dispenser solution for control of California red scale (CRS) in citrus and other crops where CRS is present. This product utilizes Suterra's proprietary technology for continuous release throughout the season. Easy to deploy, the dispensers penetrate inside the canopy and are compatible with all integrated pest management (IPM) tools and are suitable for organic production.

PCAs are encouraged to take advantage of the most effective tools available to them to remain competitive in today's market. CheckMate® CRS dispensers are proven to be effective and are the most trusted CRS mating disruption solution in the industry.

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Brandon Koch
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Case Study: Wonderful Citrus

Wonderful Citrus is famous for delivering nutritious, premium fresh fruit including Halo mandarins, Wonderful seedless lemons, and Red Scarlett grapefruit. The Halo mandarin brand is a favorite of parents and children for being a delicious, easy snack. The visual appeal of the fruit must be colorful and immaculate, which makes the cosmetic damage caused by California red scale (CRS) a massive economic problem. "The pests for us are cosmetic for you as the consumer. You want a clean piece of fruit. You want something that looks good because we all eat with our eyes first and then we taste," explains Brandon Koch, PCA at Wonderful Citrus.

"We've not had to go back and do re-applications with other pesticides, and our chemical usage and our chemical procurement has dropped exponentially over the years... We started with probably 3,000 acres out of a certain region that we sprayed. We've gone down to roughly 4-600 acres now that we're spraying," says Brandon Koch. "I would recommend Suterra to anyone in California and around the world."

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Citrus mealybugs in the San Joaquin Valley: An update on ongoing research and upcoming activities

Sandipa Gautam, Area Citrus IPM Advisor, University of California Statewide IPM Program

Introduction

Citrus mealybug, *Planococcus citri*, is a soft-bodied, oval, flat, and distinctly segmented insect covered with white mealy wax (Fig. 1). Infestation by this polyphagous sap-sucking insect causes chlorosis, leaf drop, and stunted growth, while direct feeding damage results in tissue discoloration around feeding spots, fruit deformity, and contamination of foliage and fruit with honeydew and sooty mold. The first reports of citrus mealybug in the San Joaquin Valley date back to the early 1900s, yet, they have not been a concern in citrus systems until recently.

Situation: The *UC IPM Pest Management Guidelines* and other literature available on mealybugs in citrus strongly suggest that natural enemies keep the citrus mealybug populations in check in Southern California and in the San Joaquin Valley (Ebeling 1959, Grafton-Cardwell et al. 2020). However, recent mealybug outbreaks in citrus orchards in several counties in the San Joaquin Valley suggest otherwise. Although what led to the shift in conditions is not fully understood, the loss of chlorpyrifos as an ant control tool and the use of broad-spectrum insecticides and their effect on natural enemies are likely the two key reasons. Since the summer of 2020 citrus mealybugs have become a recurring issue in Navel and Valencia oranges and lemon orchards, forcing growers to apply pesticide treatments. And citrus mealybug issues are expanding in acreage. Because citrus mealybug is understudied as a pest in the California citrus systems, we lack the essential information on its seasonal phenology for scouting and monitoring, and timing applications for its effective management under California conditions.

Research Methods: We monitored citrus mealybug males using male trap cards and pheromone lures in four 10-acre blocks in four locations in the San Joaquin Valley. Trap cards were replaced weekly, and lures were replaced every 5 weeks. The numbers of males caught on the traps were counted. We also monitored citrus mealybug crawler/adult populations in 13 trees in a block known to have mealybug infestations in 2021 in Ivanhoe (Ivanhoe-1). Double-sided sticky tape was wrapped around the trunk and four main inner branches to



FIG. 1. Citrus mealybug female with eggs loosely held in an egg sac. Photo credit: Sandipa Gautam, UC IPM.

trap any mealybugs moving up or into the tree canopy from leaves (Fig. 2). Sticky tape traps were replaced weekly, and the number of mealybugs caught on the tape was counted every week from February to November. In addition to this, observations were made to look for mealybugs on leaves, young fruit, mature fruit, branches, and trunks.

Information on the basic biology and seasonal ecology, for example, the number of generations per season, the timing of major developmental stages, and movement within and between plants, is essential for effective pest management. As an advisor working on citrus integrated pest management, I see this as a first step in working towards the integrated management of citrus mealybug. The 2022 studies and the outcomes will further inform future research to better understand seasonal phenology, number of generations, pest monitoring, and trap optimization for trapping males in the coming seasons.

2022 findings

Based on male trap data collected this year from different blocks, it is likely that there are six or more generations of citrus mealybug (Fig. 3). Activity of males started in April for blocks in Orange Cove and Ivanhoe-1, whereas for Maricopa and Ivanhoe-2 activity started in June—latter blocks is likely a new infestation. When we overlay male trap count data with the citrus mealybugs caught on sticky tape traps for Ivanhoe-1 (Fig. 4), we observed that the first-generation crawler emergence and male flight happened in the first two weeks of April. During this time mealybugs were found on leaves showing signs of sooty mold, usually inside the tree canopy (there was no fruit). The second generation male flight was in the last week of June followed by the highest numbered counts on the sticky tape traps towards the end of June. This indicates that second generation crawlers/immatures moved to fruit and infested fruit, where they remained for the rest of the season as shown by very



FIG. 2. Two-inch-wide double sided sticky tape was wrapped around the tree trunk and four inner branches to trap mealybugs movement. Photo credit: Sandipa Gautam, UC IPM.

FIGURE 3

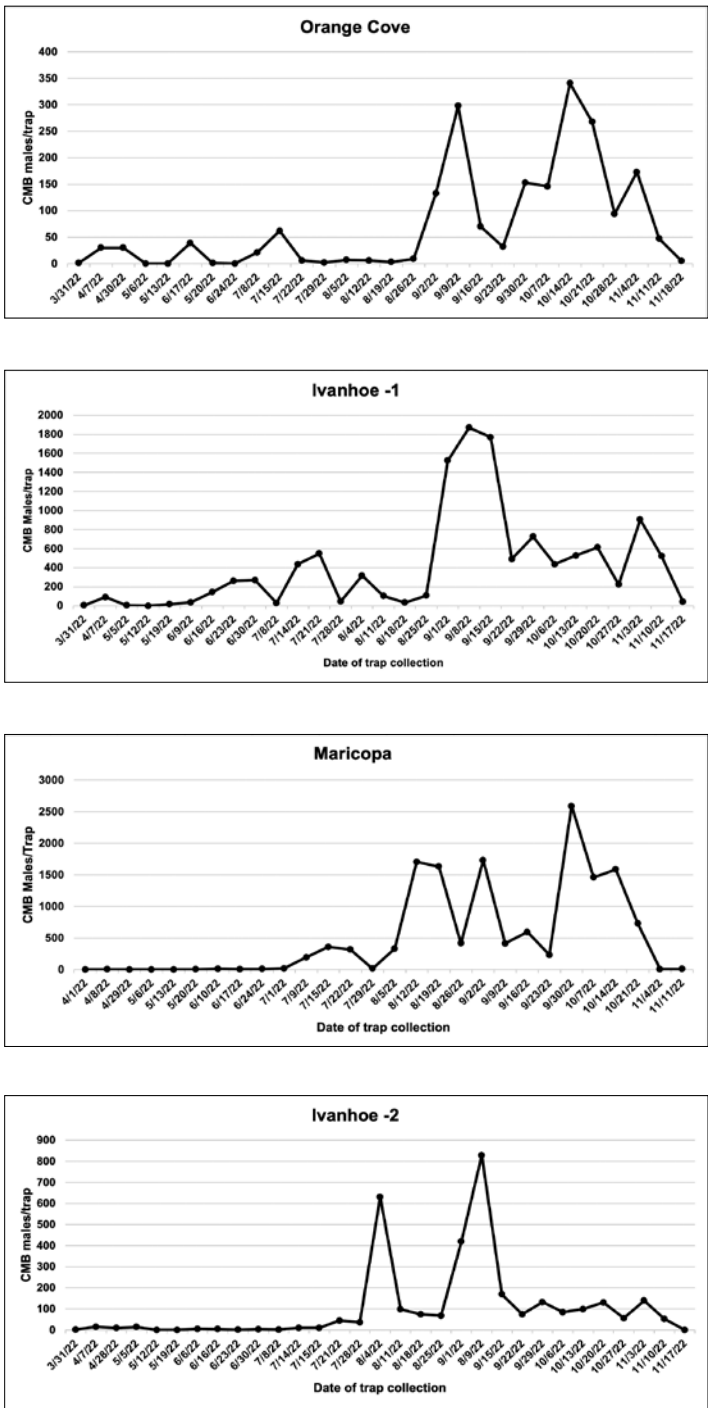


FIG. 3. Number of citrus mealybug (CMB) males on trap cards at four locations in San Joaquin Valley citrus orchards.

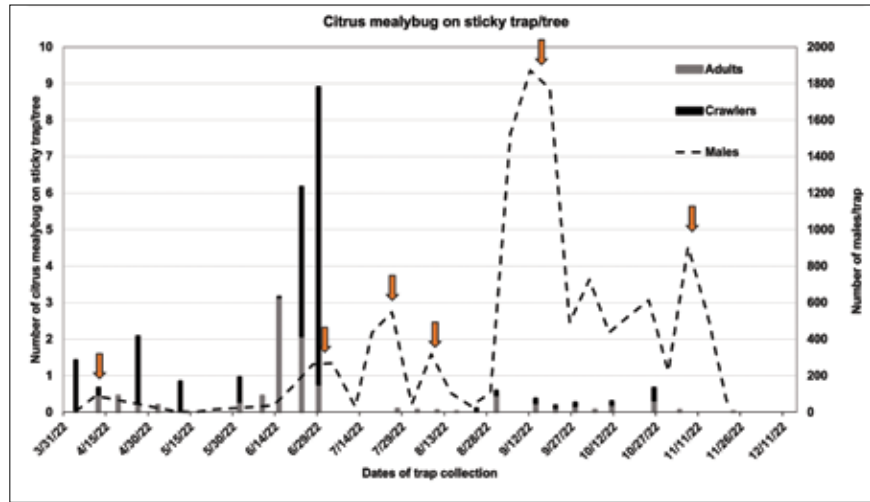


FIG. 4. Citrus mealybug (CMB) population in Ivanhoe. CMB sticky tape trap count (left Y axis) overlaid on CMB males/trap (right Y axis). Flight peaks at the arrowheads suggests a new generation.



Feb-Mar: leaves and branches



June-Nov: young and mature fruit – usually found at calyx end, navel end, and between clusters

FIG. 5. Mealybugs on different plant parts in citrus. Feb = February; Mar = March; Nov = November. Photo credits: Georgina Reyes (top right, branches); Sandipa Guatam, UC IPM (others).

low numbers of sticky tape trap catches since July. Our observation showed that mealybug is present on citrus trees year-round and the active period of citrus mealybug starts from April and lasts till November.

Summary

- Citrus mealybug activity in the San Joaquin Valley starts in April and lasts through November.
- The overwintering population serves as an inoculum for infestation. All life stages—eggs, immatures, and adult females—were found throughout the year.
- Mealybugs were found on all plant parts, but the population moved to different plant parts as the season progressed.
 - o February/March: found on leaves with signs of sooty mold, on fruit if fruit is present.
 - o April–June: crawlers/immatures move to new flush/young fruit and establish there.
 - o June–November: mealybugs feed, develop, multiply on fruit (Fig. 5).
 - o November–February: on mature fruit.

- For scouting: When fruit is present, look between the clusters, on the calyx or navel end for mealybugs. When fruit is not present look for immatures/egg sacs on leaves with signs of sooty mold, and the trunk and inner branches.
- Management: Manage when the population pressure is low and before mealybugs move to the fruit.

Future research will focus on trap optimization studies, biology and seasonal ecology, and early and mid-season control using pesticides and natural enemies. ■

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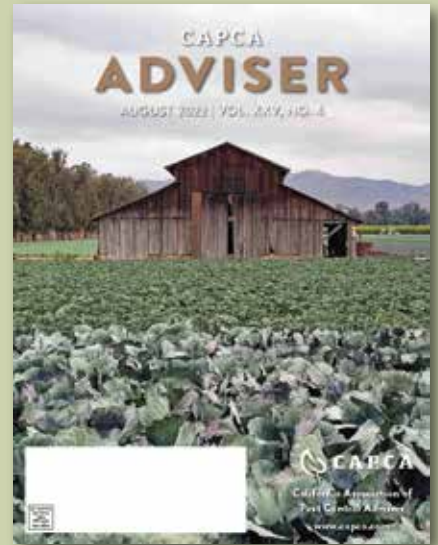
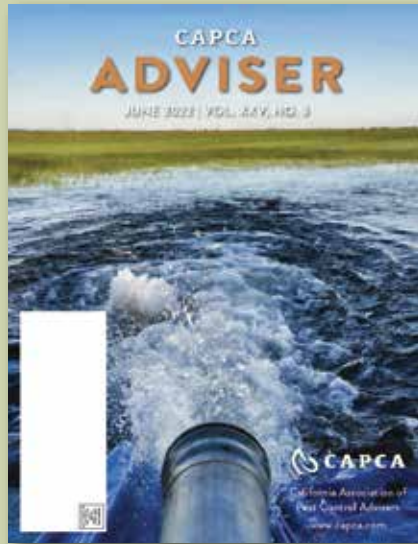
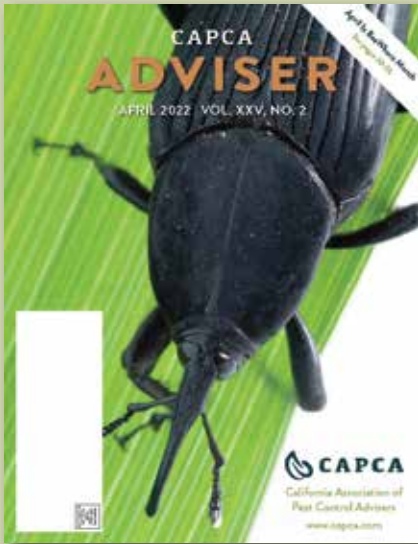
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DON'T LET MEALYBUGS GET A HEAD START ON GRAPES THIS SEASON

Get Ahead of Mealybug Infestations with Delayed-Dormant/Post-Budbreak Applications

By: Pedro Hernandez, Product Development Senior Project Manager

Planococcus ficus (vine mealybug) is a key insect pest of grapes in California due to the direct feeding and contamination damage it causes to grape clusters. Vine mealybug is the primary vector of Grapevine Leafroll Virus which has proven to be devastating in infected vineyards. To limit the spread of the virus, it is critical to keep the vector under control. Vine mealybug can be managed with well-timed insecticide application programs.

Vine mealybug overwinters under the bark, on the trunk, or underground on the roots of the vine. As temperatures increase in the spring (65 degrees F) and vines begin to send carbohydrates to the growing points to break dormancy, vine mealybug awakens and begins moving up the vine to feed on the buds. During this period, a major hatching of eggs that were laid in the fall or during the winter months will occur. This is the time to get ahead of mealybug infestations with delayed dormant/post-budbreak spray applications.

Even though budbreak applications for vine mealybug control are ideal, many spray programs do not begin until April or May. By waiting until April or May to treat, the mealybug population continues to feed and reproduce for the first few months of the year without impediment, and the mealybugs get a head start on infesting the vines and transmitting disease.

Fortunately, treating earlier in the season for vine mealybug has been adopted by many growers in the Central Valley. They used chlorpyrifos for years at delayed dormant timing in raisin, table, and wine grapes to reduce the vine mealybug population. Chlorpyrifos, however, is no longer an option for vine mealybug control. Applaud has taken the place of this material for this application window. Applaud Insect Growth Regulator (IRAC Group 16) is very effective against the overwintering nymphal stages of vine mealybug, has long residual protection, and has fumigant action that allows product to reach between crevices in the bark where the mealybug may be hiding or moving up the vine. It is not necessary for Applaud to make direct contact with the insect to be effective. Once Applaud is applied to the trunk, cordon, and arms of the vine, the material will remain in place and the insect will pick it up as it moves up the vine to feed on the spurs.

In 2007, Walt Bentley (UCCE in Parlier, CA), a pioneer in vine mealybug research in grapes, was the first researcher to evaluate Applaud applied from delayed dormant up to 26.5 cm of cane growth to control vine mealybug in grapes. His research demonstrated the effectiveness and flexibility of the product applied very early in the season. More recently in 2019, Dr. Kent Daane (UC Berkely) conducted a similar study in Tulare County evaluating Applaud applied post-budbreak (at 8 inches of shoot growth) in wine grapes to control vine mealybug. His results confirmed the 2007 findings of Walt Bentley. Applaud was shown to be effective against vine mealybug when applied early in the season compared to the untreated control, and furthermore, there were no buprofezin residues detected at harvest from these early applications of Applaud.

Applaud can be applied at budbreak or shortly after to reduce vine mealybug populations and to make the infestation more manageable in-season. Decreased mealybug numbers can also help reduce the transmission of Grape Leafroll Virus. This strategy can be especially useful in vineyards with moderate to heavy infestations. In-season applications of imidacloprid or spirotetramat will be necessary in the spray program to provide season-long control. Rotation of chemistry with different modes of action is crucial to prevent the development of insecticide resistance and to deliver a high-quality crop.

Mealybug Nymphs on Spur



San Lucas, CA – March 30, 2022



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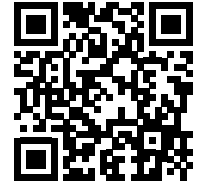
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North Coast	Lake, Marin, Mendocino, Napa, Sonoma, Del Norte
San Francisco Bay	Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara
Monterey Bay	San Benito, Santa Cruz, Monterey
Central Valley	Mariposa, Merced, San Joaquin, Stanislaus, Tuolumne
Tulare-Kings	Tulare, Kings
Central Coast	San Luis Obispo, Santa Barbara
Ventura	Ventura
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