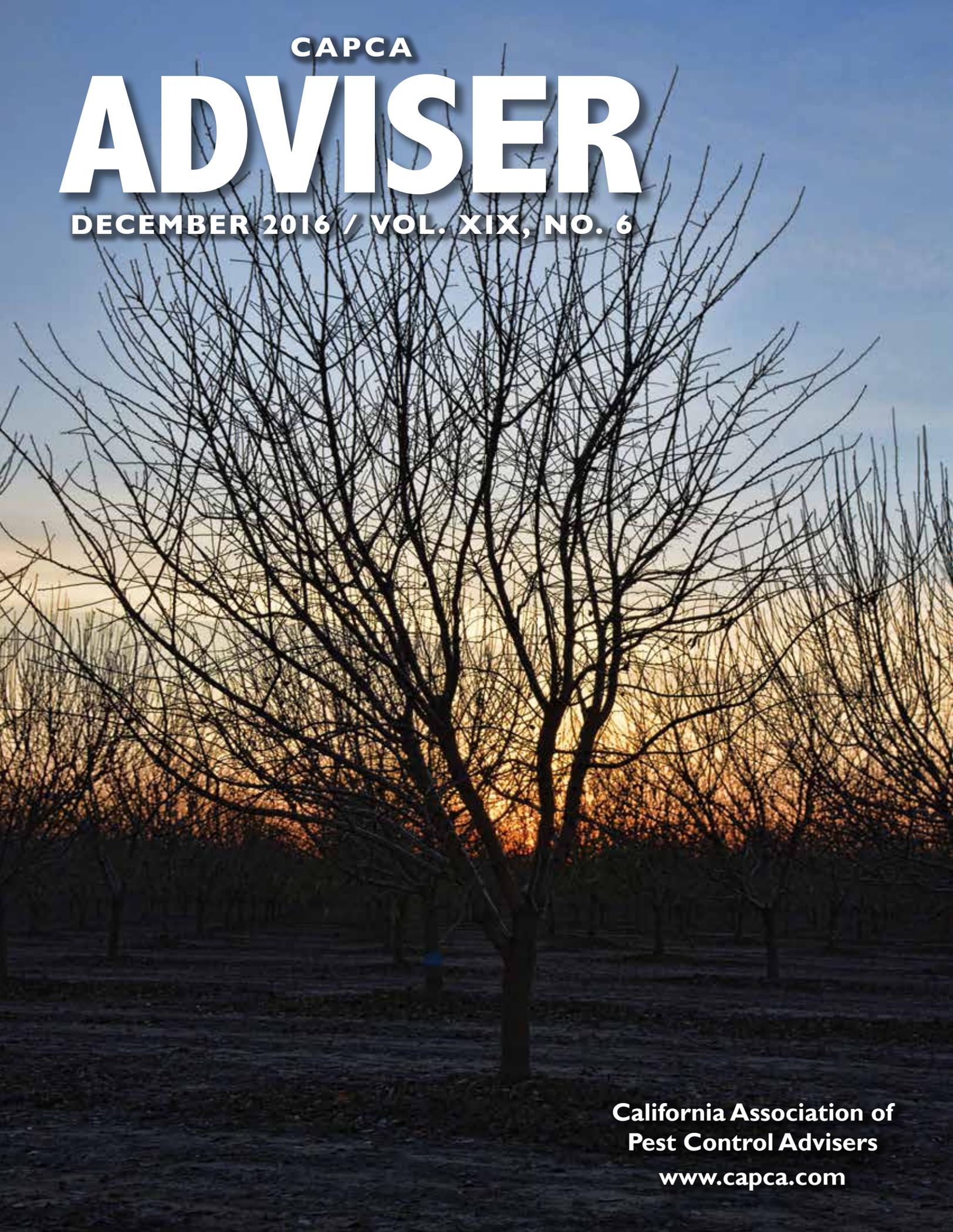


CAPCA

ADVISER

DECEMBER 2016 / VOL. XIX, NO. 6



California Association of
Pest Control Advisers

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Holiday Hours for CAPCA State Office

The CAPCA State office will be closed
December 23, 2016 through January 2, 2017
in observance of the Christmas and New Years holidays.

All requests for Continuing Education (CE) Hours
printouts must be received no later than

Noon on Thursday, December 22, 2016
to allow for processing and mailing.



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From the Editor

The Fight Continues

Even after Conference, I'm again reminded of how relevant our theme was this year: *Feeding a Nation, Fighting the Fear*.

In late September, DPR released a proposed state-wide regulation to establish a ¼ mile notification buffer zone around schools and licensed daycares. The proponents and activists pushing for this neglect the reality that Pest Control Advisers (PCAs) work as close advisers to growers to help feed the nation safely. Much of the “pesticides around schools” messaging villainizes the PCA for recommending the use of pesticides, and the grower for using them. In light of CAPCA's focus on fighting the fear, fighting misperceptions, I see a great opportunity for CAPCA Members to start a conversation with their neighbors, and local politicians.

The CAPCA Government Relations Committee continues to work closely with other ag industry groups here in Sacramento, various Ag Commissioners across the state and political influencers to ensure an accurate message and a strong voice from the Agricultural community.

Members who are interested in representing their professional license at the hearings in November and December might find the following talking points provided by the CAPCA Government Relations Committee helpful:

Talking Points

1. Pest Control Advisers (PCAs) are highly educated professionals, licensed by the State of California. PCAs are required to attend continued education courses to maintain their level of knowledge and learn about the most innovative practices being utilized in pest management. PCA recommendations follow EPA's label guidelines, similar to a physician who follows pharmaceutical labeling before writing a prescription.
2. This license empowers a PCA to practice Integrated Pest Management. IPM is an ecosystem-based strategy monitoring disease and pests, recommending treatment when other IPM methods have been considered, and only when needed with the least toxic pesticides available.
3. Permit conditions and avenues of communication between PCAs, growers, schools and local enforcement already exist. Ag Commissioners have the authority to impose localized permit conditions in situations that warrant additional protections – such as around schools and daycare facilities.
4. This proposed regulation sites data from 2005 to 2014 and does not accurately depict exposure incidences. Ag Commissioners enforce permit conditions, since 2009 exposure incidences have occurred almost entirely from within school grounds, as opposed to agricultural land within a ¼ mile of the school. This proposed regulation fails to address the root cause of pesticide exposure within the schools.

CAPCA is encouraging members to comment. You can find hearing dates and full text of the proposed regulation at http://www.cdpr.ca.gov/docs/legbills/rulepkgs/16-004/16-004_text.pdf. Contact Henry Buckwalter, henry.buckwalter@fmc.com, CAPCA Government Relations Chair to coordinate comments with other PCAs and stakeholders in your area.



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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.

PUBLISHING INFORMATION

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CAPCA Leadership Update



John McClenahan, CAPCA Chair

We just completed our 42nd Annual Conference, “Fighting the Fear-Feeding a Nation,” which appears to have been one of our biggest ever! I would like to express my gratitude to the CAPCA Staff: Ruthann Anderson, Joyce Basan, Dee Strowbridge, Jackie Tabarez, Arianna Zamora, Lien Banh, Rachel Kihlthau, Sylvia Stark and Mindy DeRohan. Our staff displayed an ability to work together and perform at a very high level to make Conference successful. Co-chairs Larry Fisk and Rick Foell also did a great job displaying their dramatic skills and engaging the committee. Our staff has also worked with three CEOs since my two-year term as chair commenced and has found a way to make the transition seem seamless.

Congratulations to the new incoming officers on the state board: Chairman Rick Wescott, Vice Chair Rick Harrison, Secretary Leanne Becker and Treasurer Gerald Martin. This group will lead our board and CAPCA forward in 2017-2018. We will also continue with a strong push in Government Relations regarding several issues, including the buffer zones notification around schools.

We are moving forward with the CAPCA rebranding project and soon all will see a new face for CAPCA - brace yourselves.



John McClenahan
CAPCA Chair
john@spmcclenahan.com

“Volunteering at CAPCA is a rewarding experience for me. Being involved with PR, Government Relations and the Executive committees allowed me to better understand how California legislators and regulators work.”

Volunteering at CAPCA is a rewarding experience for me. Being involved with PR, Government Relations and the Executive committees allowed me to better understand how California legislators and regulators work. We met with legislators during the AB 2122 to help push a bill that went through every level of the legislature unopposed. Some bills just make sense.

Remember our mission is to facilitate the success of the licensed Pest Control Adviser. Our purpose is to be the leader in the pest management industry through the communication of reliable information. These words show up on the website and in the magazine; they have meaning. I am an arborist, working in a 105-year-old family business, and the PCA license raises my level of professionalism and allows me to use the title Plant Doctor.

The next two years will allow plenty of opportunities for volunteering. Our PR Committee is ready to move, Government Relations engages on regulatory issues, and the Conference Committees are looking for new volunteers for annual conference, as well as the new Spring Summit planned in Temecula next May. Volunteering will help CAPCA and you grow, increase your networking opportunities and raise your level of professionalism. 🌱





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2016 CONFERENCE RECAP

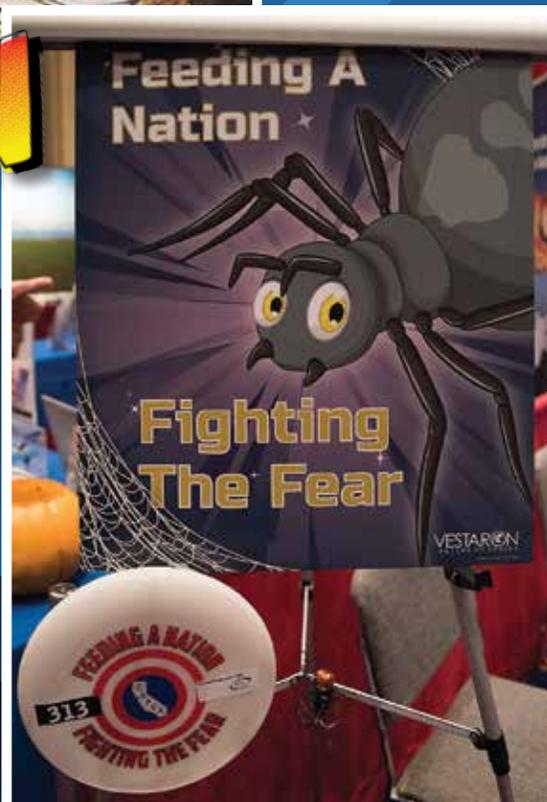
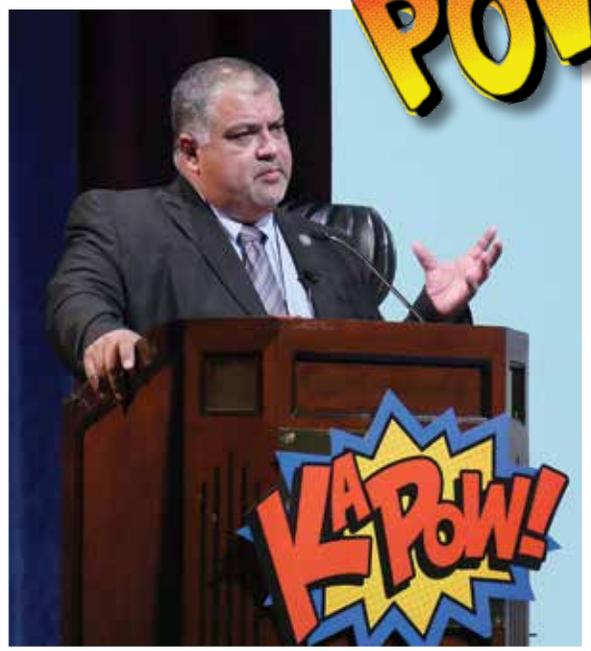


CAPCA wishes to thank the 1,600 PCAs and guests who attended the 42nd Annual CAPCA Conference & Agri-Expo held at Disneyland Resort in Anaheim, CA for their support and participation. This year's record numbers are a confirmation that CAPCA continues to be an important entity and resource within the Industry.

CAPCA is proud to represent Pest Control Advisers. PCAs protect the largest, most varied agricultural industry in the world. The efforts and professionalism of the PCAs provide the safest food supply too, and that is something to be proud of.

CAPCA looks forward to seeing everyone next year at CAPCA's 43rd Annual Conference & Agri-Expo, October 15-17, 2017 at Grand Sierra Resort in Reno, NV!





Check out the Conference Recap video on YouTube:





POW

2015-2016 CAPCA State Executive Board

(L-R) Rick Harrison, Treasurer;
Larry Fisk, Secretary;
Jeremy Briscoe, Ex-Officio;
John McClenahan, Chairman;
David Goodrich, Vice Chairman



2017-2018 CAPCA State Executive Board

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Rick Wescott, Chair;
Leanne Becker, Secretary;
John McClenahan, Ex-officio;
Gerald Martin, Treasurer



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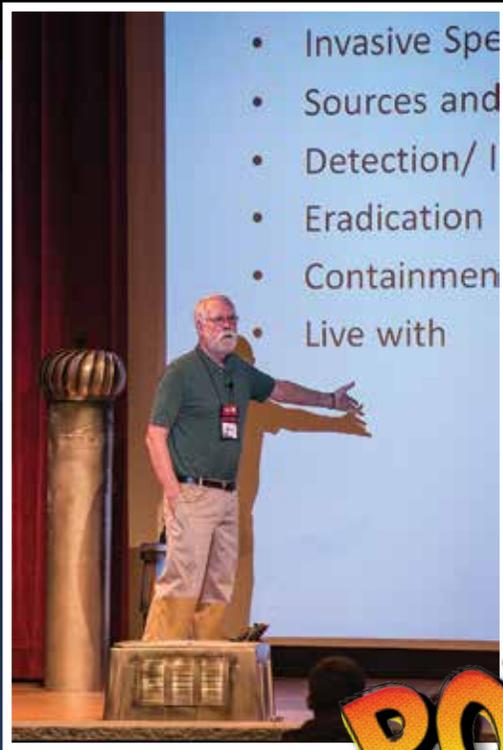


to Dow AgroSciences for the membership luncheon sponsorship & the donation of t-shirt sales of \$1,952.⁰⁰ to the Stanley W. Strew Educational Fund for scholarships!

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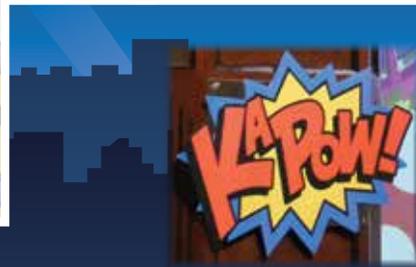
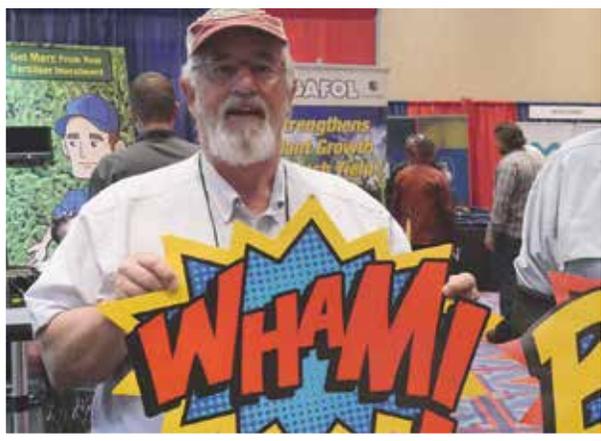
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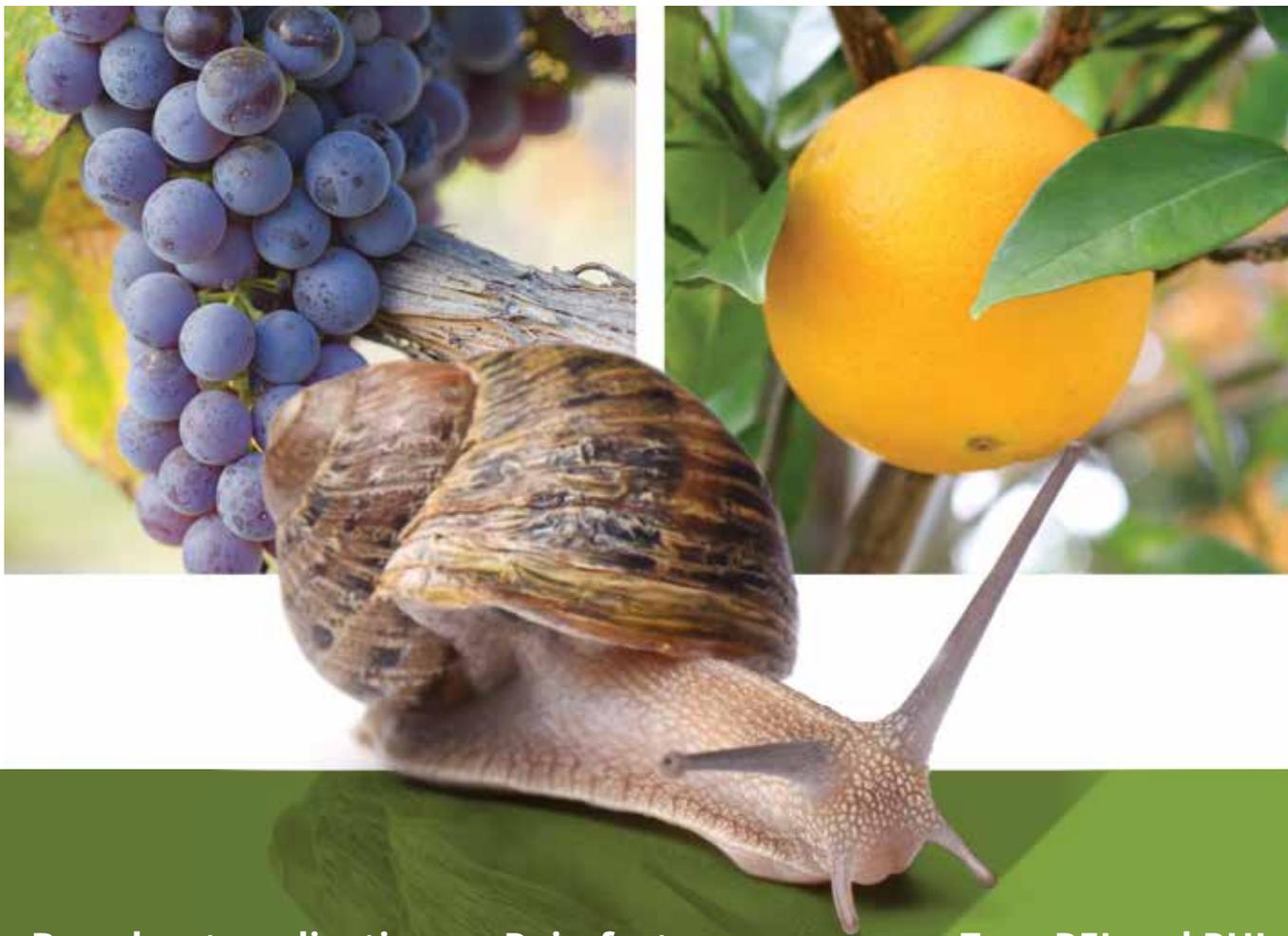
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\$375 ag teacher kit

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Student Network Success

The Student Network event at CAPCA conference was a great success!

A total of 71 students registered, representing a wide geography of schools from Chico State and Butte College in the north to Mira Costa in the south. We had nine educators, eight sponsors, recruiters and numerous chapter representatives all attending to help encourage students to continue on the path to becoming a PCA.

We began the day with a roundtable discussion session just for educators and recruiters. The discussions were so active that we had to cut it off to move to the student event. Recruiters provided some excellent feedback to the educators to help the students be better prepared to enter the workforce.

The student session began with a welcome by Chairman John McClenahan and lunch. Students and educators were seated with CAPCA chapter leaders, event sponsors and recruiters to get the networking started early.

The first part of the student program included Fred Strauss, Danilu Ramirez and Leanne Becker participating on a panel of current CAPCA leaders, each articulating the benefit of getting involved with CAPCA. They each spoke candidly about their career path and leadership experience within CAPCA. The panel's suggestions for the next generation included getting engaged early in CAPCA, not being afraid to ask for more work, and stretching themselves in their careers.

Shannon Douglass then provided tips on how to get started in the internship search and encouraged students not to be shy about dropping off resumes in person. CAPCA's own Jackie Tabarez spoke about her recent licensing experience and best practice recommendations. Her suggestions to students included applying as early as possible and taking the exams while their classroom experiences are still fresh in their minds.

Next students heard from experienced professionals who see many resumes and cover letters – our recruiter panel: Renee Hammond of Wilbur-Ellis, Jeena Andrews of Helena, Breanna Lee of CPS and Krista Tavares of Syngenta all shared their tips for how students can improve their job and internship search experience. Resumes, cover letters, interviews and dressing for success were all covered. Students heard some great real-life examples of what to do and – maybe more importantly – what not to do.



Shannon Douglass
 shannonrdouglass@gmail.com
 Pathway to PCA Consultant



As the day wrapped we had a Speed Networking opportunity for students to quickly interact with recruiters at their company tables. We had a full house as students waited to visit with the companies they were most excited about. Our recruiters stayed very busy talking to students until it was time to pack up.

For students and educators who came just for the Sunday event, they got the opportunity to spend the last part of their Sunday in the Exhibit Hall. Those of you in attendance may have noticed all the youthful faces navigating the hall. Nearly all the students had never been to conference before and were impressed to see the variety of companies and products represented in the Exhibit Hall.

Thank you to all the sponsors and supporters who helped make this event possible. To date we have received nothing but positive feedback from students and industry alike. If you missed the event this year, be sure to encourage your HR department to book their tables early for the 2017 event. Coming off a successful first year event, we expect next year to grow!





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More than 40 teachers attended an extensive training to receive and learn more about the kits during the California Agricultural Teachers' Association Conference in June. Training covered the kit's contents and best practices for successfully utilizing the kit.

CalAgPlate Funds Strengthen Industry Partnerships

Katie Otto, California FFA Foundation

Nearly seven years ago, the California FFA set out on a mission to make the California Agriculture Special Interest License Plate (CalAgPlate) Program become a reality. The program required 7,500 paid pledges submitted to the California Department of Motor Vehicles before they would begin printing the themed plate. Despite efforts by many well-known groups, no other specialty license plates had achieved the 7,500 threshold since 1997 when the Whale Tail officially went to print. Understanding the long term return on investment for agricultural education, the California FFA made a significant financial investment in the program, giving away nearly 5,000 plates, and as a result of the persistent efforts of FFA members and agricultural organizations, plates went to print in early 2013.

Annual revenue generated from the purchase and renewal of the plates support the CalAgPlate Grant Program. As we get ready to close out 2016 and the second grant cycle for CalAgPlate funds, the California FFA has been able to use CalAgPlate funding to revitalize programs that were previously cut due to budget constraints. CalAgPlate grants have also further enhanced and highlighted the need for partnerships with industry, including CAPCA and

the Stanley W. Strew Education Fund.

For the second year in a row, the Stanley W. Strew Education fund has also received a CalAgPlate grant. The initial grant provided teachers with tours to local Northern California farms and agribusinesses. Speakers emphasized the diversity and abundance of career opportunities in agriculture. Based on the feedback from the tours, additional CalAgPlate money was awarded in 2016 for the development of 35 classroom resource kits and training related to crops and plant science. The 35 kits covered 10% of FFA chapters and, due to high demand, every kit was claimed within hours.

This fall, teachers started utilizing and implementing the kits in their classroom. "We were very excited to receive a kit," said Sarah Huss from Serrano FFA in Phelan, Calif. "The training was particularly helpful, and I appreciated learning some tricks of the trade, like keeping the kits with the students when they travel so they can collect more samples to process and study."

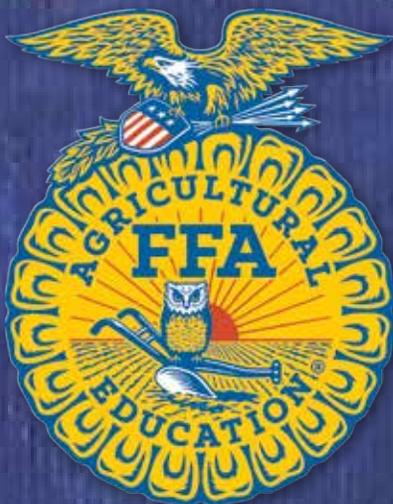
The training and kits have proven to be a resource for teachers just as much as their students. "This year we will have a Citrus Judging and Vegetable Crop Team and both are better prepared. The kit has definitely allowed students to be more hands-on. We now go out and collect samples

and make our own ID cards," added Michelle Evans of El Capitan FFA in Merced, Calif.

Moving forward, it is a shared vision of CAPCA & FFA that we can continue to connect FFA chapters and members with CAPCA chapters and members who can serve as mentors both in the classroom and the field. In addition, we hope to see CAPCA members continuing to serve as judges and assist teachers in coaching teams. There is tremendous value in collaborating to provide kits, curriculum and other resources to teachers while exposing students to career opportunities and the pathway to successfully achieving them.

Purchasing a new CalAgPlate will certainly aid the California FFA in providing additional resources to members, as well as CAPCA and the Stanley W. Strew Education Fund, as they strive to provide resources and opportunities to the next generation of agriculturalists. For more information on the CalAgPlate program, please visit www.CalAgPlate.com. For more information on how you can support the Classroom Kit Program, please contact Rachel Kihlthau at rachel@capca.com or (916) 928-1625 x202. 🌱





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CAPCA ED: Gearing Up for 2017

Ariana Zamora, So. CA CAPCA ED Coordinator

The CAPCA ED team is excited to announce our 2017 seminar schedule! The schedule is now online and programs will be updated as we complete the agendas throughout the year. CAPCA ED hosted 41 seminars in 2016 and that number is increasing in 2017. We've made every effort to schedule seminars in locations and for the times of year that work for our members.

We ask for your feedback after each seminar and use this information to build future agendas and schedule seminars when and where you want them. One of the most requested subjects we receive is soil and nutrient management. We understand this is a crucial component in this profession, however, we are still experiencing difficulty in receiving full credit for DPR accreditation for these topics. For this reason, you may see 7-hour seminars approved for 6+ hours. CAPCA is making every effort to work with DPR to get this issue resolved.

The CAPCA ED team would like to thank you for your support in 2016 and we look forward to seeing you at our seminars in 2017! 🌱



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CAPCA ED – 2017 Schedule

Mark your calendars now for these valuable training events.

- January 19, 2017 – **Fresno** – CAPCA ED
- January 24, 2017 – **Yuba City** – CAPCA ED
- January 26, 2017 – **Tracy** – CAPCA ED
- February 28, 2017 – **Chico** – CAPCA ED
- March 2, 2017 – **Santa Ana** – CAPCA ED
- March 14, 2017 – **San Ramon** – CAPCA ED
- March 21, 2017 – **Redlands** – CAPCA ED
- March 23, 2017 – **Modesto** – CAPCA ED
- March 23, 2017 – **San Luis Obispo** – CAPCA ED
- March 29, 2017 – **Exeter** – CCA Nutrient Management
- April 11, 2017 – **Escondido** – OFAC
- April 26, 2017 – **Carson** – CAPCA ED
- April 27, 2017 – **Simi Valley** – CAPCA ED
- May 3, 2017 – **San Jose** – CAPCA ED
- May 23-24, 2017 – **Temecula** – CAPCA Spring Summit
- June 13, 2017 – **Palm Desert** – CAPCA ED
- June 22, 2017 – **Sacramento** – CAPCA ED
- June 28, 2017 – **Oxnard** – OFAC
- July 11, 2017 – **Lodi** – CCA Nutrient Management
- July 26, 2017 – **Fresno** – Nutrient Management
- August 2, 2017 – **San Mateo** – CAPCA ED
- August 2, 2017 – **Ontario** – CAPCA ED
- August 10, 2017 – **Tulare** – OFAC
- August 15, 2017 – **Carlsbad** – CAPCA ED
- August 17, 2017 – **Simi Valley** – CAPCA ED
- August 24, 2017 – **San Luis Obispo** – CAPCA ED
- September 12, 2017 – **San Jose** – CAPCA ED
- September 13, 2017 – **Santa Paula** – CAPCA ED
- September 14, 2017 – **Bakersfield** – CAPCA ED
- September 21, 2017 – **Modesto** – CAPCA ED
- September 27, 2017 – **Chico** – CAPCA ED
- October 15- 17, 2017 – **Reno, NV** – CAPCA Conference
- November 1, 2017 – **Sacramento** – CAPCA ED
- November 9, 2017 – **Tulare** – CAPCA ED
- November 14, 2017 – **Napa** – CAPCA ED
- November 15, 2017 – **Modesto** – CCA Nutrient Management
- November 15, 2017 – **Arcadia** – CAPCA ED
- November 16, 2017 – **Santa Ana** – CAPCA ED
- November 29, 2017 – **Bakersfield** – Nutrient Management
- November 30, 2017 – **Gilroy** – Nutrient Management
- December 14, 2017 – **Calistoga** - OFAC

Watch our website for registration information: <https://capcaed.com/>

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CAPCA ED 2017 SAVE THE DATES



Outstanding Contribution to Agriculture Award: Martin Reid

CAPCA's highest award is given to those individuals, companies or organizations that have gone far beyond others in the support of agriculture. The 2016 recipient of the Outstanding Contribution to Agriculture Award is Martin Reid.

He was a PCA in the coastal areas of Ventura and Camarillo, California before beginning his career with DuPont in North Carolina, working with crops such as soybeans, tobacco, cotton and corn. Martin arrived in the Southern California and Western Arizona area in 1996 as the DuPont Sales Representative.

In the 20 years Martin has worked in the Yuma area, he has been an example to others in the industry of dedicated service to his company, his community and the grower. In the words of one CAPCA member: "As a sales representative, he has been a steward of his company's products to a level not often reached by his peers. He always takes the high road on label instructions, worker safety and best economic practices for the grower. This is what we have come to expect from Martin Reid."



In addition to his professional work ethic, Martin has invested in agriculture through long-standing involvement in university dinners and as a contributing presenter and educator to facilitate students' transition into PCA careers. He has also contributed quality ideas and speakers to the Southwest Ag Summit for over ten years, and served in various roles within CAPCA for many years. From President of the Desert Valley Chapter, as well as their State Director, and Chair of the Government Relations Committee to State Secretary in 2005 & 2006. In the words of former CAPCA CEO Terry Stark: "Mr. Reid was active in developing future goals and strategy for the Association ... and served as a mentor and confidant to the CAPCA CEO/President during his 10 years of service."

Martin's contribution to agriculture has simply been exemplary. It is with much honor and respect that CAPCA recognizes Martin Reid as our 2016 Outstanding Contribution to Agriculture Award recipient. 🌱

Fight fungal disease with one of nature's own. Fracture® fungicide from FMC, whose active ingredient is derived from germinating sweet lupine plants, can play an important role in your resistance management strategy. An application of Fracture fungicide **following an application of Rhyme™ fungicide or Rovral® brand 4 flowable fungicide** from FMC hits brown rot blossom blight with a powerful one-two punch. And because its mode of action is so unique, Fracture fungicide stands alone in FRAC Group M12. Talk to your FMC Star Retailer or visit FMCcrop.com to learn more.



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Investing in farming's future.™



2016 CAPCA Member of the Year: Henry Buckwalter - Woodland Chapter

The CAPCA Member of the Year award is given to a member who is a licensed PCA and who excels in their contribution to the profession through CAPCA activities and their leadership above and beyond the norm. The 2016 recipient of CAPCA Member of the Year Award is Henry Buckwalter.

Continuing in the family production ag tradition, Buck worked on the family dairy farm before moving to New Mexico to gain a Bachelor's Degree in Agronomy. Next he enlisted in the U.S. Marine Corps as an Officer Candidate in aviation, then managed a 3,000 head cow/calf operation in Deming, NM, and later hung up his chaps to become sales representative with Ciba-Geigy. He earned a Master's Degree in Agronomy from New Mexico State University and was a Technical Representative for BASF, and Sr. Scientist for Uniroyal Chemical Company. He is currently with FMC as the State Regulatory and Government Affairs Manager.

Buck's first contact with CAPCA was back in 1976 and since then has come to serve as Chair of the Government Relations Committee. Buck is dedicated to improving the professionalism of the PCA and has worked extensively to extend CAPCA's working relationship in the ever-increasing regulatory environment with CDPR, Agricultural Commissioners, Cal EPA, allied organizations and several key legislators.

His nomination was overwhelmingly supported by the CAPCA Chapters and in the words of one member, "He was instrumental in the pursuit of the CEQA functional equivalency for a new Category H, the new bee labeling and regulations, the vast water issues, and presently the school buffer dilemma."

Buck is married to Cheryl, his wife of over 30 years.

Buck is committed to raising the professionalism of the PCA and is most deserving of recognition as the 2016 CAPCA Member of the year. 🐝



THE CASE AGAINST CHLORIDE

Why Almond Growers Are Using Low-Chloride Protassium+

Growers know that potassium applications are essential in almond production. Since almond trees are extremely chloride-sensitive, it is paramount to apply the right K source for tree health, yield and quality.

Protassium+™ premium sulfate of potash (0-0-50-17S) has less than 1% chloride and the lowest salt index per unit of K_2O of all major potassium sources, helping ensure proper root function and nutrient uptake. Nourish your almond orchards with Protassium+, a premium K source that helps almond trees reach their full yield potential.

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THE NEED FOR POTASSIUM

Almonds remove 90 lbs. of K_2O per 1,000 lbs. of nuts produced¹, so replenishment is vital. Once trees have a potassium deficiency, it can take years to rebuild K concentrations for optimum tree health.



TWO ESSENTIAL NUTRIENTS

Protassium+ provides almond trees with readily available sulfate sulfur. Without the 17% sulfate sulfur found in Protassium+, orchards will lack the sulfur needed to produce top yields².



MORE TO OFFER

Protassium+ is available in a wide variety of grades to provide application flexibility to any almond operation:

- Granular
- Soluble Powders
- Certified Organic Powders
- Premixed Liquid



THE PROTASSIUM+ DIFFERENCE

Protassium+ nourishes almond orchards with high potassium and sulfate sulfur to promote greater nutrient uptake and better nut setting.



CAPCA Attends Yamaha Demo in Napa



by CAPCA Staff

What has a dozen PCAs and industry professionals enthusiastically lined up in a field in early October with their smart phones out taking pictures and video? It's not a bird or a plane – it's the high-performance remotely piloted helicopter RMAX being demonstrated for use as a means of aerial pesticide application in California. Hosted by Brad Anderson with Yamaha, several CAPCA staff and members were present, along with CDPR Chief Deputy Director Teresa Marks, County Ag Commissioners Greg Clark and Ruben Arroyo, and other industry representatives for the demonstration.

Dr. Ken Giles from UC Davis shared that since 2012, UC Davis and Yamaha have been testing the remote helicopter and this year collaborated with Silverado Farming Co. to trial with active ingredients on two nearby Napa vineyards.

Brittany Pederson with Silverado Farming Co. also shared initial findings that the remote helicopter provided a more even application than backpack sprayer application, and could present a possible cost savings in labor and better calibration when used on

sloped terrain difficult to reach by ground or with aerial application from larger aircraft.

At approximately 200 lbs. and 10 feet long, the unit carries two 4.2 gal tanks, has a 4-minute payload, and runs for 1-hour flight time before refueling. Only one licensed pilot is



“The technology is sparking new ideas for applications in California agriculture.”

needed to operate the RMAX. A visual observer also acts as a spotter standing at the other end of the field. The FAA does not require the visual observer to have any FAA training or licenses; he only needs to be certified and trained by Yamaha.

The technology is sparking new ideas for applications in California agriculture. The implications for use are still being studied, along with spray drift and operator exposure, and still to be explored are issues with current regulations, modeled around manned aerial application, compared to differences and realities in unmanned operation.

CAPCA greatly appreciates the opportunity afforded by Yamaha and wishes to thank all involved for their time and expertise. 🐛



L-to-R: Ruthann Anderson (CAPCA President/CEO), Ruben Arroyo (Kern County Agricultural Commissioner), and Teresa Marks (CDPR Chief Deputy Director)

SAVE THE DATES

AVOCADO / PSHB SEMINARS

January 25, 2017

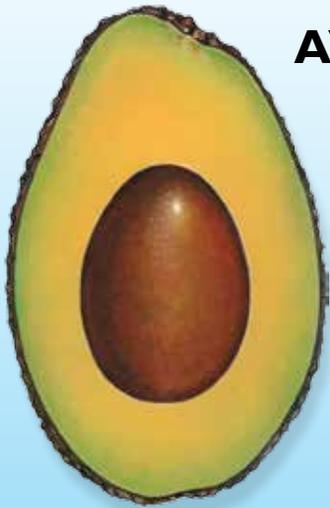
Museum of Ventura County
100 E. Main St., Ventura, CA 93001

January 26, 2017

Temecula Conference Center
41000 Main St., Temecula, CA 92590

Watch our website for more information:

<https://capcaed.com/>



For more information, contact Ariana Zamora at ariana@capca.com or (805) 704-3255

2016 State Senate and Assembly Election Results

The 2016 election has just concluded and newly-elected state legislators will be sworn into office on December 5, 2016 during the convening of the 2017-2018 Organizational Session. As of November 10, 2016, it was estimated there were over 4.3 million absentee and provisional votes yet to be counted statewide. No county had finalized its vote count due to provisional and absentee votes that needed to be counted, so there may be some changes once election results are officially certified. Below are brief biographies of the candidates who were leading in the vote count.

Twenty Senate seats were up for election, with eleven incumbent senators being re-elected: Senators Jim Beall (D - San Jose), Ted Gaines (R - Roseville), Cathleen Galgiani (D - Tracy), Steve Glazer (D - Orinda), Jerry Hill (D - San Mateo), Hannah-Beth Jackson (D - Santa Barbara), Ricardo Lara (D - Bell Gardens), Bill Monning (D - Carmel), John Moorlach (R - Costa Mesa), Mike Morrell (R - Rancho Cucamonga), and Richard Roth (D - Riverside).

The Senate will welcome seven "new" members who previously served in the Assembly: Senators-elect Toni Atkins (D - San Diego), Steve Bradford (D - Gardena), Ling Ling Chang (R - Diamond Bar), Bill Dodd (D - Napa), Anthony Portantino (D - La Cañada-Flintridge), Nancy Skinner (D - Berkeley) and Scott Wilk (R - Santa Clarita).

There will be two senators who have not previously served in the Legislature: Senators-elect Henry Stern (D - Thousand Oaks) and Scott Wiener (D - San Francisco).

Following is a brief descriptive listing of the newly-elected senators who previously served in the Assembly with their political affiliations and district numbers.

CAPCA LOBBYISTS



Jackson R. Gualco



Kendra Daijogo

Former Speaker of the Assembly 2014-2016, **Toni Atkins (D - 39)** from San Diego transitions from the Assembly directly to the Senate.

Steve Bradford (D - 35) of Gardena returns to Sacramento after last serving in the Assembly from 2009-2014.

After serving on the Diamond Bar City Council and one term in the Assembly, **Ling Ling Chang (R - 29)** will move to the Senate.

Another single term Assembly Member, **Bill Dodd (D - 3)** will now represent parts of Contra Costa, Sacramento, Sonoma, Yolo and all of Napa and Solano counties.

Anthony Portantino (D - 25) served in the Assembly from 2006-2012 and takes over this seat from Carol Liu who was termed out.

Nancy Skinner (D - 9) returns to the Legislature after a two-year absence, she served in the Assembly from 2008-2014.

Scott Wilk (R - 38) was elected to the California State Assembly in 2012 and was re-elected in 2014. He will continue to represent the 38th Assembly District until being sworn into the Senate this December.

Senators-elect who come to Sacramento without having experienced life under the Dome as an elected official include the following members:

Henry Stern (D - 27) was most recently a senior policy advisor to California State Senator Fran Pavley. A graduate of Harvard University and UC Berkeley Law, Henry has public and private sector experience in education, the environment and infrastructure investment. Prior to serving the 27th Senate District, he helped businesses construct clean energy projects, taught civics, investigated juvenile crime, and co-founded a technology incubator.

Scott Wiener (D - 11) has served on the San Francisco Board of Supervisors since 2010. Wiener serves on the Board's Land Use and Economic Development Committee and Budget and Finance Committee. Wiener is a leader on local and regional transportation, housing, and environmental policy. Prior to being elected to the Board of Supervisors, Wiener served as a Deputy City Attorney in the San Francisco City Attorney's Office.

The 80-seat lower house has 18 brand new Assembly Members-elect, and four members who were re-elected after absences. Following is a brief descriptive listing of those four members, and then a more detailed listing of the newly-elected Members with their political affiliations and district numbers.

Raul Bocanegra (D - 39) returns to the Assembly after serving one term after being first elected in 2012. An urban planner by training, Raul has worked as a college instructor at Cal State Long Beach and Cal State Northridge.

Anna Caballero (D - 30) was first elected to the State Assembly in 2006 and served two terms. Most recently, Anna joined the administration of Governor Edmund G. Brown as a cabinet Secretary of the Business, Consumer Services and Housing Agency.

Al Muratsuchi (D - 66) is a prosecutor and Deputy Attorney General with the California

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- *Healthier crops and stress mitigation*
- *Enhanced quality and yield*

BRANDT SMART SYSTEM FORMULATIONS:

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BRANDT Smart Trio® - #1 selling micronutrient supplement containing zinc, manganese, boron and sulfur. Excellent for use with most post-emergent herbicides for stress mitigation.

BRANDT Smart Quatro® - this formulation combines zinc, manganese, molybdenum and a highly efficient form of foliar boron. An excellent option for aerial foliar nutrient application.

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Department of Justice and a former Torrance School Board member who represented California's 66th Assembly District from 2012 to 2014.

Sharon Quirk-Silva (D - 65) is a mother, teacher, former Mayor of Fullerton and served one term in the State Assembly after being elected in 2012.

Dante Acosta (R - 38) worked during his high school and college years in auto parts shops and car dealerships, eventually rising to General Sales Manager of a San Fernando Valley Chevrolet dealership. His success led him to a career in finance with senior leadership positions at Wells Fargo, Prudential Financial, and ING. Dante serves as the mayor pro tem for the Santa Clarita City Council, he was elected as a councilman in 2014.

Cecelia Aguiar-Curry (D - 4) is a businesswoman, Planning Commissioner, City Councilmember, the first woman to be elected the Mayor of Winters, and a regional leader on issues ranging from water to transportation. Cecilia earned degrees in business administration and accounting from San Jose State University. Her education and experience with agriculture inspired her to launch a consulting firm specializing in water, public policy and community outreach.

Marc Berman (D - 24) is a council member for the City of Palo Alto. He has been a leader on the City Council on issues such as infrastructure improvements and financial transparency. A lawyer by training, Marc is the former Development Director at the Silicon Valley Education Foundation, a non-profit focused on STEM education and closing the achievement gap in public schools in Silicon Valley. Marc graduated from Georgetown University with a degree in Political Science.

Phillip Chen (R - 55) is a successful small business owner and educator. He owns and operates a property management company overseeing commercial and residential properties. A former

Reserve Sheriff's Deputy, Phillip earned his B.A. in Communications from California State University, Fullerton; and both a Master's in Public Administration and Doctorate of Educational Psychology from the University of Southern California. Currently, he teaches urban politics at California State University Los Angeles. He also served as an Adjunct Faculty Professor at the USC Sol Price School of Public Policy.

Sabrina Cervantes (D - 60) is a lifelong Riverside County resident and most recently served as the district director for a current Assembly Member. Prior to that, Sabrina served as a Director for the California Voter Registration Project, where she spearheaded strategic planning for field operations to register new voters and increase civic engagement throughout the state. Sabrina holds a Bachelor of Arts Degree in Political Science with a minor in Public Policy from the University of California, Riverside

Steven Choi (R - 68) was elected Mayor of Irvine in 2012 and re-elected in 2014. He served on the Irvine City Council 2004 to 2012. Previously, he was elected as a Trustee of the Irvine Unified School District. Steven earned his bachelor's degree from Kyung Hee University in Seoul, South Korea, and immigrated to the United States as a Peace Corps language instructor for the State Department in August, 1968. He earned a Master's degree in Library Science from Louisiana State University, and his Ph.D. in Library and Information Science at the University of Pittsburgh. Steven has taught at USC, UCI, California State University, Los Angeles, Henderson State University in Arkansas, Saddleback College, and most recently, Coastline Community College.

Jordan Cunningham (R - 35) attended Point Loma Nazarene University, receiving his bachelor's in physics with honors. He then served as a Senate Fellow in the California Legislature, working for the Senate Minority Leader

on policy and legislation. Jordan obtained his law degree from the University of California, then worked in Washington D.C. as an attorney in private practice, a federal law clerk, and an attorney for the U.S. Department of Justice. Jordan returned to California and became a Deputy District Attorney in the San Luis Obispo County District Attorney's Office. He now represents individuals, families, and local businesses as the owner and founder of Cunningham Law Group.

Heath Flora (R - 12) was raised on a farm and had been a small business owner and volunteer firefighter for 15 years. A life-long farmer, Heath serves as a Director for International Sales at a family-owned business that manufactures products for both nut harvesting and forcible entry equipment for firefighting. Heath is a business owner and sells used agricultural equipment. Prior to entering the business world, Heath received training as a paramedic and worked for Cal Fire for three summers.

Vince Fong (R - 34) was born and raised in Bakersfield. He attended public schools, and went on to earn a bachelor's degree from UCLA and Master's degree from Princeton University. Vince began his career in Washington, DC working for a member of Congress. For nearly a decade, he has served as the district director to House Majority Leader and Congressman Kevin McCarthy.

Laura Friedman (D - 43) served on the Glendale City Council from 2009 to 2015 and was the Mayor of Glendale from 2011 to 2012. She also served on the Board of Directors of the Metropolitan Water District of Southern California and is the Immediate Past-President of the Independent Cities Association. Laura also served as a board member of the Southern California Association of Governments, Energy and Environment Committee. Since 2001 she has owned and run a small business specializing in vintage jewelry and fine and decorative arts.

New Boron-Molybdenum Molecule Improves Mobility and Mixability with Foliar Applied Chemicals and Fertilizers

California Field Trials Show Significant Increases in Harvest Weight and Yield

Smarter Nutrient Delivery

Over the past couple of years, BRANDT has been developing and testing a new proprietary boron-molybdenum formulation that was designed to improve mobility and increase compatibility with calcium, zinc and many of the pesticides that are sensitive to alkaline hydrolysis.



"Foliar boron applications typically become fixed and have limited mobility; so to be able to protect this boron molecule when it comes in contact with other chemicals is a huge accomplishment. The benefits of this are two-fold in that we get better mobility and improved tank mixability"

said Brian Haschemeyer, Director of Discovery and Innovation at BRANDT.

The new boron molybdenum formulation allows growers to get more products into one tank mix, which saves a lot of time and money on applications. Adding BRANDT® SMART B-MO™ to tank mixes can be highly beneficial as boron (B) it is critical in development of cell wall strength, cell division, fruit and seed development and sugar transport. Molybdenum (Mo) is essential for nitrogen fixation, which allows plants to process nitrate nitrogen more efficiently.

BRANDT's proprietary boron and molybdenum formulation is part of the BRANDT Smart System product line and will be marketed under the name BRANDT® SMART B-MO™.

BRANDT® SMART B-MO™ Trials on Kale

June, 2016, CA.

Harvestable Weight per 8 Plants (lb)

BRANDT® SMART B-MO™ (8 fl/oz)	15.8
Grower Standard	13.7

Estimated Yield (lb/ac)

BRANDT® SMART B-MO™ (8 fl/oz)	6,3965.4
Grower Standard	5,6404.1

CA Field Trials: June, 2016



Earlier this spring, BRANDT conducted field trials to test BRANDT® SMART B-MO™ on lettuce and kale in California. *"The results were outstanding. We saw a significant increase in harvestable weight and estimated yield in the crops treated with BRANDT SMART*

B-MO," said Research Associate, Andrew Pederson.

"We also conducted tissue tests that allowed us to evaluate the efficacy and mobility of the BRANDT® SMART B-MO™ application. Our conclusion is that BRANDT® SMART B-MO™ was able to deliver more boron to the plant, than other forms of boron" said Pederson.



BRANDT® SMART B-MO™ Trials on Lettuce

June, 2016, CA.

Harvestable Weight per 8 Plants (lb)

GS + BRANDT® SMART B-MO™ (8 fl/oz)	18.3
Grower Standard	16.4

Estimated Yield (lb/ac)

GS + BRANDT® SMART B-MO™ (8 fl/oz)	7,1049.8
Grower Standard	6,0722.4

Tissue Test at Harvest

GS + BRANDT® SMART B-MO™ (8 fl/oz)	38
Grower Standard	31

Todd Gloria (D - 78) was elected to the San Diego City Council in 2008. He is a board member of the Metropolitan Transit System and the San Diego Association of Governments. Todd has been a District Director to U.S. Congresswoman Susan A. Davis. He also previously served as a San Diego Housing Commissioner and as a member of the Mid-City Prostitution Impact Panel. Todd graduated from the University of San Diego and is an enrolled member of the Tlingit Haida Indian Tribes of Alaska.

Tim Grayson (D - 14) has served as the Mayor of Concord, City Councilman and a Police Chaplain. Tim co-founded the region's Family Justice Center to support victims of domestic violence, child and elderly abuse, and human trafficking.

Ash Kalra (D - 27) made history by becoming the first Indian-American to be elected to the San Jose City Council. Since 1999, Ash has been a law professor at Lincoln Law School of San Jose. Previously, he also taught at San Jose State University and at inner city Washington, DC high schools. Prior to serving on the City Council, Ash was an attorney for the Santa Clara County Public Defender's Office for 11 years. Ash earned his undergraduate degree in Communications from the University of California, Santa Barbara and a Law Degree from Georgetown University.

Kevin Kiley (R - 6) is most recently a Former Deputy Attorney General. After graduating college, Kevin followed in his mother's footsteps to become a teacher. He taught 10th-grade English at a high school in South Central Los Angeles. Kevin earned a bachelor's degree from Harvard, a law degree from Yale, and a Master's in secondary education from Loyola Marymount. He has served as an Adjunct Professor of Law at University of Pacific, McGeorge School of Law.

Monique Limón (D - 37) is currently serving her second-term as Santa Barbara Unified School Board Member and serves as Assistant

Director for the McNair Scholars Program at UCSB. Prior to her work at UCSB, she served as the Student Program Advisor for California Student Opportunity and Access Program at Santa Barbara City College. Monique holds a Master's degree in Education from Columbia University and a Bachelors of Arts degree from UC Berkeley. Monique and her husband, Michael Medel (Director of Admissions and Records at Santa Barbara City College and Vice President of the 19th Agricultural District Association) were both raised in the Santa Barbara area.

Eloise Reyes (D - 47) grew up in south Colton. After high school, Eloise worked to put herself through San Bernardino Valley College and the University of Southern California, after which she earned a law degree from Loyola Law School. She was the first Latina in the Inland Empire to open her own law firm, starting in San Bernardino and then in Colton. Eloise's passion for teaching young people found a new venue recently when she became an adjunct professor at Cal Poly Pomona.

Blanca Rubio (D - 48) is a classroom teacher, local school board member, and mother. Blanca graduated from Azusa Pacific University where she earned a Bachelors Degree in Business Administration and later earned a Master's Degree in Education with a Multiple Subject Teaching Credential. In 1997, Blanca was elected to the Valley County Water District, becoming the youngest person ever elected to that seat, where she served two terms. In 2003, she was elected to the Baldwin Park Unified School District Board of Education, serving as President and Vice President of the board twice.

Randy Voepel (R - 71) was elected to the Santee City Council in November 1996 and elected Mayor in December 2000 a post he currently holds. Voepel is a U.S. Navy veteran with two combat tours of duty in Vietnam. He is also a member of the Santee Veterans of Foreign Wars Post 9327. A graduate from Saint

Leo University, he is a businessman in financial services specializing in corporate benefits.

With the Assembly welcoming 22 new members and the election of 9 "new" and "semi-new" senators, The Gualco Group, Inc. anticipates a very busy and challenging 2017-2018 Legislative Session. We look forward to meeting and working with the new Members as well as those we have worked closely with in previous years. CAPCA members are encouraged to learn more about their representatives by researching legislative information that can be accessed through The Gualco Group Inc.'s webpage found at www.gualcogroup.com. Biographical information in this article was found on candidate websites or related news. 🌱

TOTAL OPERATIONAL EFFICIENCY

Achieve Superior Product Homogeneity and Reduce Costly Product Returns and Rework.

A number of options for mixing products in IBCs and drums are available, but all have shortcomings. Methods that require an open system often creates spills, stains, exposure to workers loss of product and generation of rinsate. This is not only because of the process of putting in and taking out the mixer from a container, but also from the procedure of using an open system on a container. The user of the product may also be required to use this methodology creating unwanted headaches and strains in customer relations due to costly product returns and rework.

For over 25 years, Micro Matic (the recognized leader in Closed System Solutions) has been providing the Agro-Chemical market with Closed Systems. These systems allow the transfer of liquid chemistries to and from containers with no exposure to the product, worker and environment. The newly added benefit of Micro Matic's Closed System is in complete liquid suspension – the mixing and remixing of chemistries with pressurized air or gas. It's filling, mixing and dispensing product without having to open the container.

The Pro-Blend Closed Mixing System

Micro Matic has recently released the Pro-Blend Closed Mixing System that connects to its 3-Key Closed System. The Pro-Blend Mixer is an



innovative mixing system that utilizes timed pulses of pressurized air to mix and remix multiple ingredient formulations in liquid suspension. This includes and is ideal for suspension concentrates, seed treatments and emulsions.

Complete Mixing Without The Mess

As the illustration on the right shows, the pulsed air technology of the Pro-Blend Mixer provides optimum container circulation—reaching the corners for complete mixing. Pulses of air are released through the bottom of the down tube and forced along the bottom of the container. Large flat bubbles are then formed and rise; forcing heavier particles to the surface creating a vertical mixing action. As each bubble breaks the surface, they push liquids across the top of the container and down the sides to the bottom completing the circulation.

The Pro-Blend Closed Drum Mixer, which is used for 15, 30 and 55 gallon drums, has been timed at 5 minutes or less to completely mix most products. For 275 and 330 Gallon IBCs, the Pro-Blend Closed IBC Mixer is used and has been timed at 20 minutes or less for most products. With the dry-break connection of the Pro-Blend Mixer to a Micro Matic 3-Key or equivalent container valve, the container always remains closed ensuring no spills, no stains, no mess and most important, no worker exposure. The mixer connects to the 3-key system and is fully supported by it. This means the worker does not have to hold the equipment in an uncomfortable and awkward position while the mixing is taking place.

One Pro-Blend Mixer For Multiple Containers Equals Cost Savings

Connecting the Pro-Blend to the container valve is simple as turn, click and go. This simple connection and the use of 3-key closed system containers allow for a single container-designated Pro-Blend Mixer to connect and mix multiple drums or IBCs with different products. Because air is only being transferred, there is no concern for cross contamination. This increases efficiencies allowing for faster mixing times, no parts to clean, and no loss of product. There are no moving parts in the system. The only things that move are air and product in the container. Because there are no moving parts, the Pro-Blend system will provide more years of service than equipment that must be repaired or replaced as it wears out.

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Crop Protection Products,
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Time to Renew Your CCA Certification (Maybe)

Mike Huffman, Board Member, CA CCA

It's time for some of us to renew our CCA certification, it depends on the year that you were certified. It could be the same year as your PCA license or not. The ICCA staff will be sending out notifications soon, but it's your responsibility to keep track. There is no longer a grace period if you fail to earn all your CEUs during the two-year period. There is an appeal process if there are extenuating circumstances, such as military service or illness.

Go online and check your CEUs:
<https://www.certifiedcropadviser.org/login/links>
 It should look sort of like this:

You currently have the following certification(s):		Certification Date		
Certified Crop Adviser-California		8/1/2008		
CEU Category - Summary	Reported	Minimum	Maximum	
Board Approved	55.5	20.0	0.0	
Self-Reported	0.0	0.0	0.0	
Self-Study	0.0	0.0	0.0	
CEU Category - Detail		Reported	Minimum	Maximum
Nutrient Management		5.0	5.0	0.0
Soil & Water Management		5.0	5.0	0.0
Integrated Pest Management		32.0	5.0	0.0
Crop Management		10.0	5.0	0.0
Professional Development		3.5	0.0	0.0
	Total CEUs Reported:	55.5	40.0	
	Adjustment:	0.0		
	Total CEUs Accepted:	55.5		

The reported number needs to be higher than the Minimum, if not, you need to get busy. There are meetings to go to, online classes, self-study and self-reporting that can get you to the required Minimum. As PCAs, we are credited 12.5 hours in Integrated Pest Management for our license. All hours must be completed by December 31st.

Fun Facts

CAPCA staff can't look up your CEUs; only you and ICCA staff have that ability. If you have questions, call ICCA at (866) 359-9161. Remember, they're in Wisconsin with a two-hour time difference; when it's 3:00 pm here, it's 5:00 pm there.

When you sign in to a CE meeting you do not need to sign out if you stay the entire time, only if you leave early. We sign a code of ethics that hold us to a high level honesty - be honest with your hours.

If you use the CCA app to record CEUs, **do not sign in or out**. Scan the QR and make sure the meeting is confirmed. Some venues are in basements of large buildings with no phone or internet service and the app will not work. If there is no confirmation when the app scans the QR, there will be no record that you attended the meeting and you need to sign in.

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Do you have a smart phone? If so, we have a new app which quickly and easily gets the CEUs from the meeting onto your CEU report! Just follow these easy instructions:

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1. Access the app (from the URLs or by scanning the QR codes below):

iPhone app: <https://itunes.apple.com/app/id541038641>

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iTunes



Android

If you don't have the direct link above, you can search for the app through the appropriate app store on your device using the term: Certified Crop Adviser

2. Download the free app and log in with your CCA log in information (email address and password we have on file for you) - you will only need to do this once.

Using the App

1. When you are at any meeting that has pre-approved CCA CEUs, you'll see a QR code on the sign-in sheet.

2. Just launch the app, Click on **Scan Course Code** and hover over the QR code.

3. Once the QR code is recognized, click **Sign-In** and you will receive a message that says "Thank you for signing in to the session." There is a blue bar to sign into the meeting that comes up after the QR is read for the meeting. You must sign in to get credit for the meeting by clicking the blue sign in bar.

4. When you receive that message, simply return home to the start of the app.

Please note that a course will not scan more than one time. If you accidentally scan a second time, you will receive a message: "This course has already been processed into your education history, duplicate entries are not permitted."

If you do not have a smart phone, that is OK - traditional sign-in sheets will be provided at the meeting.

Stay current on your CEUs. Retesting isn't easy, approximately 50% fail the tests. 🐸

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Joyce Basan
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CA CCA Nitrogen Management Training Returns in 2017

Joyce A Basan, CAPCA Programs/Communications Director

The University of California Agriculture and Natural Resources (UC ANR) will be joining with the California Department of Food & Agriculture (CDFA) FREP to offer nitrogen management training once again to CA CCAs. Additionally, CCA candidates who have passed both the International and State CCA exams and are in the CCA credential process will also be eligible for this training in 2017 (**Note: Those CCAs who completed the certification in 2014, 2015, or 2016 do not have to take the certification training again.**)

The CA CCA program has been identified as an ideal resource to assist growers with developing nitrogen management plans and implementing best management practices. The main goal of the training program is to facilitate CA CCAs' understanding of sound nitrogen management practices and make informed recommendations to growers.

The course will cover 1-½ days, with the first day being a general session focused on identifying the key objectives, nitrogen cycle in crop production systems, nitrogen sources, irrigation & nitrogen management, nitrogen budgeting and future resources. The second morning will have concurrent sessions with emphasis on annual and permanent crops and will include nitrogen planning practices. **CDFA is offering just one opportunity in 2017 to attend this training: March 7-8, 2017 at the Radisson in Fresno, CA.**

Registration will be online only - no on-site sign ups. Seminar fee will be \$160.00 covering lunch on Day 1 and 11 CCA CEU hours. No refunds. **Attendance is mandatory for both days of the seminar to be authorized to consult on nitrogen mitigation planning for water board regulatory purposes.** Those CCAs who have already received their CDFA Nitrogen Management training in 2014 or 2015 may attend (depending on space availability) but will not receive any additional certification of attendance.

CAPCA is providing the registration and administrative services for the nitrogen management seminars. If you have questions, please contact Mindy DeRohan at mindy@capca.com, (916) 928-1625 x207 or Jackie Tabarez at jackie@capca.com, (916) 928-1625 x205. ↩

2017 CDFA/UC Nitrogen Management Training Program

Workshop Dates & Location for Certified Crop Advisers (CCAs) and CCA Candidates in the credential process (must have passed both the International and State exams) ONLY

Administered by CAPCA ED
Registration available online only
(no on-site registration accepted)

March 7-8, 2017 FRESNO

Radisson
1055 Van Ness Ave.
Fresno, CA 93721

CCA CE credit only.

Online registration will be available by
December 1, 2016:

<https://capcaed.com/>

Pre-registration and payment required.

No on-site registration accepted. No refunds.

Cost \$160.00 for each 1-1/2 day seminar.

Must attend both days to be certified.

Start times for seminar:

9:00 a.m. Day 1 / 8:00 a.m. Day 2



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2017 CCA Exam Information:

The next CCA exam will be: Friday, February 3, 2017

Registration will be available online from Oct. 3 - Dec. 9, 2016

<https://www.certifiedcropadviser.org/exams>

CA CCA Exam Prep Workshop:

Date: Friday, December 2, 2016

Time: 8:30 am – 4:45 pm

Location: Sacramento, CA

Fee: \$100.⁰⁰

Contact: Lien Banh: (916) 928-1625 x200 or email: lien@capca.com

Registration: <https://capcaed.com/december-2,-2016-ca-cca-exam-preparatory-workshop/>





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4 Steps to Season-Long Weed Control

Fall is the best time to launch a more proactive plan for your orchard.

The last few years have made seasonal weather patterns less predictable on the West Coast. But one thing you can count on when fall or winter rains arrive is that weeds will quickly follow.

Avoid the challenges of controlling late-winter and early spring weed flushes in your orchard by taking a more proactive approach to weed control starting this fall, recommends Jeff Pacheco, technical sales agronomist, DuPont Crop Protection. “Stopping weeds before they emerge is key to staying ahead of weeds throughout the year.”

He offers these strategies for effective season-long weed control in orchards.

1. Start clean after harvest.

Removing leaves, trash, large weeds or large weed carcasses from under trees is a good post harvest practice for many reasons. For one, it lets you spot late-germinating weeds while they’re still small. A fall burndown application with a postemergence herbicide might be a necessary late summer or early fall cleanup step.

Two weeds that often germinate again in the fall, marestalk and fleabane, are becoming more challenging to control because of increased resistance development to contact herbicides such as glyphosate and paraquat, notes Pacheco. “DuPont™ Matrix® SG herbicide is a good alternative for control of these two tough broadleaf weeds, and it can be tank mixed with a variety of other herbicide modes of action to achieve customized weed control with resistance management.”

Matrix® SG can be applied as a single broadcast application in fall or early winter, or as sequential applications in fall and spring, depending on weed pressures and moisture patterns, he adds.

2. Get ahead of winter weed growth cycle.

Most orchards are plagued by a healthy crop of young weeds when fall or winter moisture is plentiful and soils begin to warm in the spring. A preemergence, residual herbicide applied in late fall, prior to a rain event, can provide effective control through the winter and early spring months, says Pacheco. “Following that with a sequential herbicide treatment in the spring, usually in mid to late March, will allow growers to get consistent and extended weed control while taking advantage of California’s typical rainfall patterns.”

In field studies, sequential applications in the fall and spring that included Matrix® SG as the foundational residual herbicide achieved

excellent preemergence weed control in those seasons, and extended residual control into late spring and summer, he says. “Applying Matrix® SG in a sequential treatment program — one 50 percent or less banded treatment in the fall and a second 50 percent or less banded treatment in the spring — will reduce the need to use multiple applications of burndown herbicides during the busy late spring and summer months.”

3. Aim for broad spectrum control.

Choosing a foundational herbicide that controls a wide range of broadleaf and grass weeds will save you time and money, adds Pacheco. Matrix® SG controls 10 tough grass species and 37 common broadleaf weeds, including fleabane and marestalk.

“A sequential program also allows for tailoring a tank mix to control the orchard’s most important weed problems in the late fall, winter, spring and early summer months,” he says. “Using Matrix® SG in a tank mix with DNA herbicides, such as Prowl and Surflan or Alion, have provided the most effective and extended summer grass control when applied in the spring,” he says.

4. Maintain flexibility.

A herbicide that offers both preemergence and early postemergence control of difficult weeds can also provide application flexibility. Matrix® SG delivers several key benefits:

- Commercially proven crop tolerance
- No application restrictions during dormant or nondormant periods
- No soil restrictions
- Low labeled use rate
- Water-soluble granule formulation that dissolves faster and goes into complete solution for more consistent weed control

A well-planned preemergence weed control program is more effective and provides a good return on a grower’s investment, says Pacheco. “By achieving more consistent control, it helps avoid the cost and hassle of follow-up or rescue treatments and working around unpredictable weather conditions during the fall and winter season. It’s the best way to stay ahead of weeds and improve orchard productivity.” ■

For more information on how Matrix® SG can help you prepare for next year, please visit matrix.dupont.com.

Status of IPM for Walnut Husk Fly

Emily J. Symmes, Sacramento Valley Area IPM Advisor,
UC Statewide IPM Program and UCCE Butte, Colusa, Glenn, Sutter-Yuba, and Tehama counties

Walnut husk fly continues to be a difficult pest to manage within the context of an integrated pest management (IPM) program. IPM in practice can be viewed as a process involving five key elements (Fig. 1). Although seemingly simplified, these broad elements encompass the requirements for developing an IPM program at any level. This article seeks to take a step-by-step approach to this process and present the status of each of these components as it relates to current management for walnut husk fly (WHF) in California walnuts.

Knowledge base for WHF. The life cycle and basic biology of walnut husk fly is fairly well understood. There is a single generation per year, with adult emergence historically beginning in early to mid-June and lasting through September in the Central Valley. In coastal areas, and recently some inland valley locations, emergence can be detected earlier, in mid- to late-May. Peak emergence is generally observed July through mid-August in most locations. Females must mate and develop eggs prior to the initiation of oviposition into the walnut husk, a period which averages approximately two weeks after emergence. Once eggs are laid, maggots emerge within approximately five days, and feed on the husk for three to five weeks. After this period, mature maggots drop to the ground and pupate in the soil, emerging as adults the following year (Fig. 2).

WHF damage early in the season will cause shriveled and darkened kernels, increased mold growth, and lower yields. Later season infestations result in little kernel damage, but may stain the shells and make husk removal difficult. All commercial English walnut cultivars are susceptible to WHF infestation, although they differ in their relative degrees of susceptibility and thus damage potential. These differences have been correlated to factors including color, husk hardness, size, trichome density, and plant volatiles secreted by trichomes.

Biological control agents for walnut husk fly in California walnuts are virtually non-existent. The pest in general appears to have few natural enemies. Some reports from the state of Washington indicate that a predatory mite and anthocorid bug species have been observed feeding on WHF eggs, and some spiders and ants may feed on larvae and adults. In addition, chickens and other birds are said to be among the natural enemies of WHF. However, any naturally-occurring WHF biological control agents that may be found in walnut orchards are not known to provide any significant level of population reduction. Other mortality factors, particularly those that may impact the overwintering pupal stage in the soil (e.g., intentionally augmenting soil moisture, various cultivation practices, effects or augmentation of insect-

Figure 1. Five key elements comprising the integrated pest management (IPM) process.

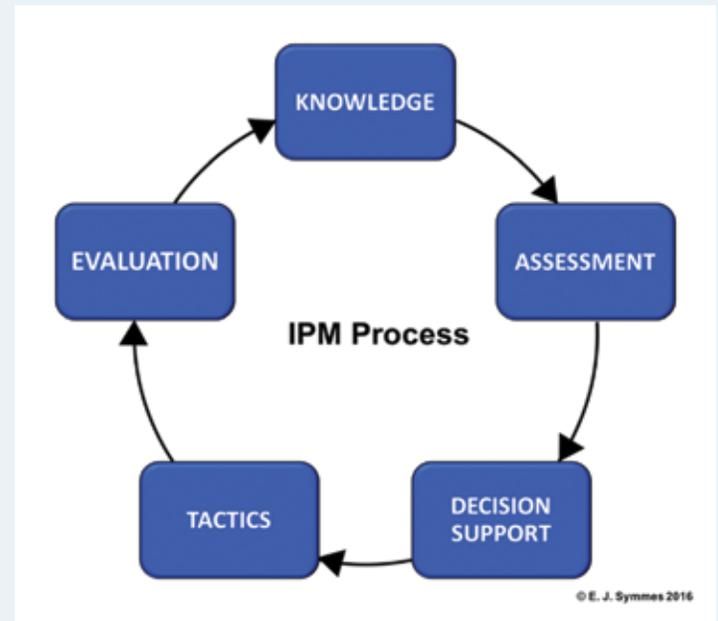


Figure 2. Walnut husk fly life cycle.





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Knowledge grows

Helping to solve nutritional challenges facing nut farmers

The tree nut crop is of tremendous value to California. As the largest producer of almonds in the world, California accounted for nearly all of the U.S. production of almonds, pistachios and walnuts, with a 2014 value of over \$10 billion*. Almonds are grown on about 1 million acres here and are the number one valued fruit or nut crop in the state. To further the growth and value of this industry, Yara recently coordinated meetings with almond growers in California and hazelnut growers in Oregon to identify and better understand the nutritional challenges facing them.

Attendees of both meetings were asked to talk about their views on how to improve the nutrient management of their crops. They were also asked to discuss which environmental stresses (salinity, sodicity, pests, etc.) were limiting production so research and marketing programs could be designed to address those issues. The most appropriate and agronomically sound approaches to deal with these topics will be part of the upcoming Nut Tree Plantmaster™, developed and distributed by Yara.

A Plantmaster encompasses Yara's extensive global knowledge of the optimal nutrition required by a crop. The Nut Tree Plantmaster will make available the combined learnings of Yara's research and agronomic experts, made even more applicable by the input from these West Coast nut farmer meetings.

The main challenges facing almond and hazelnut farmers

Almonds

- Nitrogen management, especially as it is related to regulations in California
- Potassium fertilizer timing, source and placement
- Proper micronutrient fertilization, especially zinc
- Boron toxicity
- Appropriate use of gypsum
- Water management to increase water use efficiency, leach salts and minimize nitrate leaching

* Ref: California Agricultural Statistics Review 2014-2015

Hazelnuts

- Greater understanding of tree nutrient uptake and utilization
- Nitrogen management, including optimum source, rate and timing
- Potassium fertilizer timing, source and placement
- Appropriate use of foliar nutrients, especially micronutrients
- Irrigation management, including how much water to apply and when to apply it

Register to Win with Yara's 9-acre Challenge

The 9-acre Challenge is a Yara North America initiative to promote better crop nutrition for California nut orchards. As a crop nutrition expert, Yara believes there is a healthier and more profitable way to feed California nut orchards than the standard practice.

The winner of the 9-acre Challenge drawing will receive a full nutrition program to feed 9 acres of nut orchard, as well as other tools and agronomical support from Yara's nut experts. The intention is to assess the differences in crop quality and quantity between these 9 acres and the rest of the orchard.

The winner of the Challenge will receive the following from Yara North America:

- YaraLiva® CN-9®, up to 9 tons
- YaraVita® Powerbor™ Ca, 3 quarts/ac, up to 7.5 gallons
- YaraVita® Bud Builder™, 8.8 lbs per acre, up to 88 lbs
- Yara SOPG, up to 2000 lbs
- 3 soil/leaf analyses during the 2017 season
- 2 farm visits from a Yara crop expert during the 2017 season

This Yara Nutritional Program is valued at more than \$3,500.

Register easily at The Almond Conference in Sacramento, December 6-8, 2016, or simply email to yaraus@yara.com with "9-acre Challenge" in the subject line. An entry form will be emailed to you. No purchase is necessary to enter.

parasitic nematodes or other microorganism populations) have been explored to some degree with no specific recommendations or guidelines emerging as a result. However, future research should continue to investigate all potential factors that may impact WHF mortality, despite the lack of traditional biological control agents (predators and parasitoids).

Population assessment. Monitoring guidelines for WHF are fairly well-established, despite the lack of established degree day models, such as those that exist for codling moth in walnuts. Yellow sticky traps with ammonium carbonate lures attract adult flies and provide the basis for population assessment within the orchard. Traps should be hung no later than June 1 in the Central Valley. Some reports of late May catches in 2016 further support the “earlier-is-better” practice, even if counting zeroes for a few weeks. Traps should be hung high in the canopy (minimum two traps per ten acres) in dense foliage on the north side of trees and checked two to three times per week. Past damage and hot spots may help determine trap placement within an orchard or block; thus keeping site-specific records for historical reference is a key component of an IPM program. Each orchard or block should be monitored individually, as WHF will not likely stay confined to a single orchard if there are other walnuts within a half-mile. In addition, remember that black walnuts are also a significant source of WHF in addition to nearby commercial English walnuts.

Decision support. Guidelines regarding treatment timing and options are available, and when employed properly tend to provide adequate control of WHF in most situations. Treatment timing can be based on one of three monitoring methods (the first two have typically been most effective).

(1) Detection of eggs in trapped females. This is a simple process that requires slightly more time than

counting overall trap catches and can increase the efficacy of treatments by timing applications to specifically target female oviposition activity. Females can be distinguished from males by the shape of the abdomen (pointier in females) and color of the front leg (female leg is entirely yellow, male leg is black close to the body; Fig. 3). After females are identified, gently squishing the female abdomen will squeeze out eggs if they are present. Eggs resemble small grains of rice (Fig. 4). Previous guidelines indicated that the treatment window is one week after egg detection. However, recent modifications suggest that treatments should be considered as soon as the first female with eggs is found because in practice there is often a lag time in getting the treatments out and trap checks (even two to three checks per week) may not be frequent enough to represent initial egg development in the female population. [Note that this is the preferred method unless using the pre-mixed spinosad and fruit fly bait product – see below].

(2) Overall trap catches. In low to moderate populations, consider treatment when a sharp increase occurs in trap counts. In high pressure orchards or if using the pre-mixed spinosad and fruit fly bait product, treatment should be considered when any flies are detected rather than waiting for a sharp increase.

(3) Stings on nuts. This is the least preferred method, as damage has already occurred. However, examining nuts for stings can provide indication of efficacy of your management program when using one of the first two methods. If using this method to time treatments, consider treating when the first sting is observed using full cover neonicotinoid materials that have some ovicidal activity mixed with an adulticide.

Continue monitoring throughout the season. Short-residual insecticides plus bait will generally kill WHF for seven to ten days. Target subsequent applications at two

to four week intervals based on the efficacy of the previous spray. Clean traps the day after application and check three to four days later. If the number of flies drops to near zero, the spray was highly effective and a longer treatment interval may be used. If post-treatment catches increase or eggs are detected in trapped females, and the residual period of the previous treatment has elapsed, additional treatments may be required if harvest is more than three weeks away.



Figure 3. Adult male and female walnut husk fly. Photo by M. L. Poe

Management tactics. The opportunity to integrate management tactics for walnut husk fly is the most limiting factor in an IPM program for this pest. If we broadly classify the different management tactic categories as biological, cultural, physical, mechanical, genetic, behavioral, and chemical control, we see that for WHF there are relatively few (if any) that provide effective population suppression aside from the chemical option. In addition, due to the nature of the life cycle of WHF, multiple applications each season may be necessary.

There are several materials effective against WHF, both for conventional and organic orchards. All materials should be applied with a bait (except the pre-mixed spinosad and fruit fly bait product which contains its own bait), except in high population orchards with extensive previous damage. In this case, full coverage sprays may be required to achieve adequate suppression. Keep in mind that rotation of chemistries is critical to minimize resistance development for pests that are treated multiple times each season. Proper aphid management can also help limit movement of WHF within and between orchards by reducing honeydew accumulation (a food source for adult WHF).

The UC IPM Pest Management Guidelines (ipm.ucanr.edu/PMG/r881301211.html) lists insecticides, baits, and rates for WHF. A summary of efficacy data for selected materials can be found in the Walnut Research Reports online database (ucanr.edu/sites/cawalnut/) and are summarized at (www.sacvalleyorchards.com/walnuts/insects-mites-walnuts/walnut-husk-fly-biology-monitoring-and-spray-timing/).

Figure 4. Adult female walnut husk fly with eggs.
Photo by L. Strand



Evaluation and follow-up. A critical component of an effective IPM program is evaluating the efficacy of any management activities and timings. Keeping site-specific records of population assessments, management activities and timings, efficacy, and harvest damage allows for evaluation of the current season's management program and are invaluable for future planning and determining what adjustments might need to be made to the IPM program. 🌱

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Weed Control Strategies for Fresh Market Spinach

Richard Smith, Vegetable Crop and Weed Science Farm Advisor, Monterey, Santa Cruz and San Benito Counties

Spinach is a healthy leafy green vegetable that provides important vitamins and minerals to our diets. It is popular among health-conscious consumers because it helps the body to fight cancer, promotes heart health and protects the brain from some symptoms of aging. In 2014, California produced 70% of the spinach grown in the United States on 26,000 acres worth \$189,280 million. California produces spinach year-round and the leading spinach producing counties include (in order of economic value): Monterey, Imperial, San Benito, Santa Barbara, Ventura, Riverside and Santa Clara. The spinach industry has grown in recent years in response to increased consumer demand, as well as innovations in packaging making it convenient to use. Spinach is marketed as fresh bagged, bunched and frozen products. Mechanically harvested spinach for washed and bagged product has the largest share of production. It is produced on high-density 80-inch wide beds with seeding rates that

vary from 1.5 - 4.0 million live seeds per acre; bunched spinach which is grown to a larger size is sown at lower seeding rates, whereas clipped spinach which is harvested at a smaller size, is sown at higher seeding rates.

Weed control in spinach is challenging for a variety of reasons. High density 80-inch wide beds typically have from 18 to 42 seedlines which precludes the ability to mechanically cultivate the bed top. As a result, growers rely on cultural practices, herbicides and hand labor to provide weed control. Clipped and freezer spinach are both mechanically harvested and excellent weed control is necessary because it is not practical to remove weeds from the spinach once it is clipped, placed in bins and transferred to the washing and bagging facilities. Furthermore, weeds such as nightshade and groundsel contain toxins and are unacceptable in the bagged product from a food safety perspective.

Given that there is no cultivation of the bed top,

Photo 1. 2.0 pints/A phenmedipham morning application



VINTRE The Adjuvant for Your Oil

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Dormant oil can do a good job in controlling pests but only if it spreads into all the hiding places where insects and disease overwinter. But dormant oil is not a particularly good spreader or penetrant so many areas on the trees, particularly the cracks and crevices, go untreated by the dormant oil application.

Unfortunately, even close inspection of the oil application coverage with the naked eye will fail to reveal the untreated areas on the bark. So while it may appear the oil has provided the complete coverage that is necessary to achieve good control there will be plenty of places for overwintering pests to survive.

Oro Agri studied this challenge of achieving complete coverage with a dormant oil application and found a simple and economical solution to help growers receive the full benefit of their sprays. Using phosphorescent dye and a black light it demonstrated that VINTRE® adjuvant, at just 1 quart per 100 gallons of dormant oil spray solution, can significantly improve the coverage of an application.

VINTRE, specially formulated to be compatible with oil-based pesticides and containing patented OROWET® technology, is a superior wetter and penetrant that flows the dormant oil into the cracks and crevices on the bark surface to improve coverage and boost pest control.

In addition, just like proverbial oil and water, crop oil does not mix well with water and other contents of a spray tank. VINTRE adjuvant contains a high percentage of surfactants that will help the crop oil mix thoroughly with other spray materials. The homogenized spray covers more uniformly and helps avoid an over/under concentration of the dormant oil application.

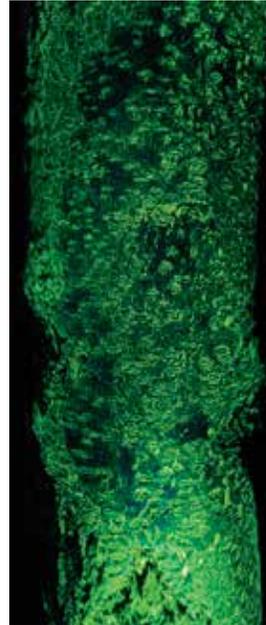
BARK COVERAGE STUDY

OIL ALONE

440 Crop Oil
(1.5 g/a)
+
Phosphorescent Dye

Spray Volume
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RESULTS
Incomplete coverage allows hiding places for pests



ALMOND BARK

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VINTRE + OIL

440 Crop Oil
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+
VINTRE
(1qt/100g)
+
Phosphorescent Dye

Spray Volume
(100g/a)

RESULTS
Complete coverage gives superior pest control



“Hand weeding costs in spinach vary considerably depending on the level of weed pressure.”

all weeds that emerge following seeding have to be manually removed. Hand weeding costs in spinach vary considerably depending on the level of weed pressure. In the recent UC publication, *Sample costs to produce and harvest organic spinach* (Tourte et al, 2015 <http://coststudies.ucdavis.edu/current/>) hand weeding costs in spinach averaged \$440 per acre. However, weeding costs can easily exceed \$1,000 per acre in weedy fields. In extreme cases, growers may decide to disc a field if weeding cost are expected to exceed returns.

Grower use a number of tools and strategies to manage weeds. Ideally, they try to locate spinach fields on “clean” ground in order to minimize weeding issues in the crop. The level of weed pressure in prior crop rotations may affect weed pressure in subsequent spinach crops. Growers in the intensive coastal production districts may be able to minimize weed seed set in fast maturing crops such as lettuce due to good weed control programs that include the use of hand weeding, herbicides and frequent cultivation. Hand removal of weeds is the final safeguard in minimizing weed seed set, but some crops tend to allow more weed seed production in spite of best efforts at weed control. Crops with long growing seasons or with canopies that hide weed plants such as pepper, annual artichokes and leeks tend to allow more weed seed set and make effective weeding in subsequent crops more challenging. One strategy used by some growers is to dedicate ranches exclusively to the production of fast growing high-density crops such as spinach, baby lettuces and spring mix crops. These types of crops mature and are harvested before most species of weeds set seed, thereby reducing the weed seed bank with each rotation. In general, prior rotations and cultural practices provide a significant measure of weed control or aggravate weed pressure for subsequent spinach crops.

Conventional growers frequently utilize herbicides, and occasionally fumigants to help manage weeds. Fumigants such as metam sodium/potassium can be used to clean up weedy fields. However, the use of fumigants by spinach producers on the Central Coast has been dampened due to high costs, buffer zone issues and the length of the waiting period following their use.

Herbicides that can be used prior to planting to burn off a flush of weeds on shaped beds include glyphosate, pelargonic acid and paraquat. Cycloate and s-metolachlor are registered preemergent herbicides for use on spinach. Cycloate is also registered on sugar and table beets and is a broadleaf and grass herbicide. It is volatile and must be quickly incorporated into the soil for best efficacy. It is commonly applied post planting and incorporated with sprinkler irrigation, but it can also be mechanically incorporated prior to planting. It has a 48 hour reentry interval following application which necessitates careful management of the application and subsequent irrigation of the field. Cycloate is particularly effective on problematic weeds such as malva, purslane, lambsquarters and pigweed.

Application Timing	Herbicide
Preplant	metam glyphosate pelargonic acid paraquat
Post plant preemergence	cycloate s-metolachlor
Postemergence	phenmedipham carfentrazone sethoxydim clethodim

Figure 1. Phytotoxicity rating (scale 0=no crop damage to 10=crop dead) four days after treatment

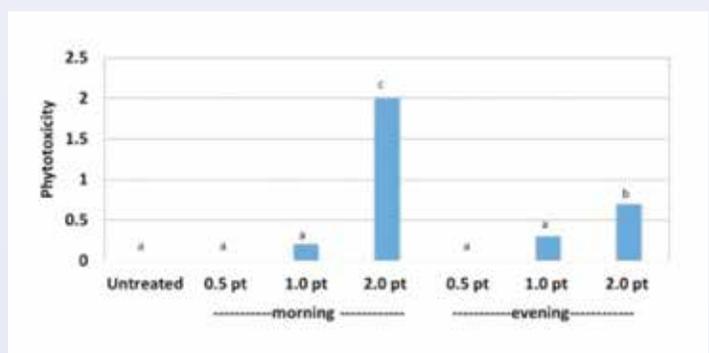


Photo 2. 2.0 pints/A phenmedipham evening application



BURNDOWN + LONG-LASTING FLEABANE, MARESTAIL, FILAREE, MALVA



Pindar® GT herbicide is a pre- and post-emergence herbicide for tree nuts and many stone/pome fruits. It is an excellent fit in “residual” weed control programs that provide up to six months of clean strips in orchards and minimize the number of contact herbicide applications needed for clean-up sprays.

Burndown Activity

Both active ingredients in Pindar GT – penoxsulam and oxyfluorfen – provide post-emergence activity on the same 51 broadleaf weeds labeled for pre-emergence control. That “burndown” activity is a significant attribute. Ideal timing of residual herbicide applications is often in the fall before rains occur and before new weeds emerge. However, these “spray the dirt” applications aren’t always feasible. By the time residual herbicides are applied, some weeds have already emerged or have germinated but remain under the soil surface. The burndown activity of Pindar GT will control those emerged weeds.



Fleabane before Pindar GT application Fleabane after Pindar GT application

Weeds Controlled

Pindar GT controls more than 50 weed species, including:

- Fleabane
- Willowherb
- Pigweed
- Maretail
- Chickweed
- Purslane
- Malva
- Spurge
- Sowthistle
- Filaree
- Groundsel
- London rocket
- Burclover
- Lambsquarters
- Shepherd’s-purse

Now Registered in Stone/Pome Fruit

Pindar GT has received registration for use in certain stone and pome fruits, olives and pomegranates. Pindar GT will provide the same high-level of weed control in stone/pome fruits as it does in tree nuts.



Pindar GT + indaziflam + glyphosate (6+ months after application)



Pindar GT – Fresno County – 145 days after application

Dow Dow AgroSciences



S-metolachlor also provides good weed control and provides control of weeds such as burning nettle. One difficulty with the use of this material is that it has a 50 day preharvest interval (PHI). This PHI often necessitates making applications prior to planting clipped spinach which typically matures in 25-35 days during the summer production season. In spite of this issue, growers and PCAs have worked out systems to use this material in weedy situations where this material can provide additional levels of weed control.

Recently we have been reevaluating the use of phenmedipham for control of broadleaf weeds in clipped spinach. Research conducted a number of years ago indicated that phytotoxicity by phenmedipham was made worse under warm conditions. As a result, the label stipulates that temperatures $>75^{\circ}\text{F}$ can cause crop injury. However, recent work carried out by Ran Lati in Steve Fennimore's lab indicated that high light conditions reduced the tolerance of phenmedipham more than temperature in the coastal production district. Given this observation we have been evaluating the impact of nighttime vs daytime applications of low rates of phenmedipham (0.5, 1.0 and 2.0 pints/A) for use on clipped spinach. A small-plot trial was conducted in 2016 in a commercial spinach field. The field was treated with 2 pints/A cycloate preemergence (a standard practice). Morning (high light) and evening (low light) applications of phenmedipham were applied 9 days after seeding when the 1st true leaves were $<1/4$ inch in size. We observed less phytotoxicity from evening than morning applications (Figure 1). Damage to the spinach was most significant in morning applications of 2 pint/A phenmedipham and consisted of necrosis on the tips of some cotyledons (Photo 1); these symptoms were not seen in the 2.0 pint/A evening applications (Photo 2). The 0.5 and 1.0 pint/A rates had acceptable levels of phytotoxicity regardless of application timing. Phenmedipham did not significantly reduce the population of malva, but it did stunt the malva (Photo 3) which was less prone to extending into the canopy of spinach as was seen in the standard treatment (Photo 4). Nettleleaf goosefoot is susceptible to phenmedipham and all rates significantly reduced the population of this weed. There were no significant differences in yield among treatments, but a trend indicated lower yield in the phenmedipham treatments.

A commercial-scale trial was carried out in a field of spinach (Photo 5). A preemergent application of 2.5 pints/A of cycloate was applied, but a large population of weeds emerged anyway (Photo 6). 1.0 pints of phenmedipham was applied in a nighttime application. Weeds at this site included purslane, shepherd's purse and hairy nightshade; phenmedipham reduced the number of all these weeds by half. The yield of the standard treatment was 10.873 tons/A and the phenmedipham treatment was 10.259 tons/A, indicating a reduction in yield in the phenmedipham treated spinach.



Albaugh “Innovation” makes old chemistry new again...

December 2016

Copper has been used successfully in Agriculture for many years

Today not all copper offers are created equal

Kem Cunningham

Regional Manager, Albaugh, LLC

Copper has been used in agriculture to control fungal and bacterial diseases since the mid to late 1800's. Copper still provides growers with a very strong management tool today, but things have changed. As you can imagine there have been great advancements in copper formulations and Albaugh has lead that charge with introductions of a new HiBIO™ formulation of copper. The HiBIO™ technology delivers higher Bio-availability of copper ions, improved crop safety in superior quality and formulations

Making a commitment to the industry

Albaugh made a commitment to the agricultural industry many years ago to support and drive a robust copper portfolio and they are still delivering on that promise today. Albaugh's current copper portfolio is one of the most broad and robust with offers to help address growers and the industry needs. The focus by Albaugh is to provide a copper portfolio that is driven by innovation, performance and value.



Albaugh HiBIO™ technology delivers advancements in Copper offers with enhanced performance and value

HiBIO™ Technology leads the industry

Eddie Allen

Regional Manager, Albaugh, LLC

The newest HiBIO™ copper offers to be added to the expansive Albaugh portfolio include NuCop® 30HB and NuCop® XLR. These two new formulations will help address the needs in the industry with a dry and liquid option both developed with the HiBIO™ technology.

Providing copper tools to growers and the industry

Tools in the grower's tool box are important to help the grower manage and run an efficient operation. This is true for the tools in the industries tool box for managing and addressing pests in crops as well. Copper products and specifically copper with HiBIO™ technology can help growers address and manage key diseases in their crops.



The new NuCop® 30 HB provides the industry with an OMRI certified formulation with a warning label

HiBIO™ technology has proven performance and has been tested with key university researchers and independent consultants. The use of HiBIO™ technology early in the disease and bacteria management cycle helps build a solid best management platform for season long control of key

Photo 5. Commercial scale evaluation



Phenmedipham is currently registered for use on processing spinach. It has a 21-day preharvest interval which makes its use for summer-grown clipped spinach (harvested in 25-30 days) very challenging. These studies were conducted to test if there were strategies to make phenmedipham safe enough for use on clipped spinach which has a zero tolerance for cosmetic defects. The results from these and other trials look promising, but modifications to the current label will be necessary. It will be necessary to work with the manufacturer to modify the label to allow its use on clipped spinach. If successful, this will provide a powerful tool to reduce weed pressure in fresh market spinach fields.

In summary, growers and PCAs use a variety of techniques to keep weeding costs in spinach at a manageable levels. Given new changes in California labor laws, this will become increasingly challenging. It underscores the need to explore all old and new options for weed control in spinach in order to achieve the high-quality and healthy product that consumers have grown accustomed to. 🌱

Photo 6. Weed pressure in commercial scale evaluation



Sample Soil to Stay Ahead of *Phytophthora*

California soils are naturally infested with various species of *Phytophthora*, which thrive in cool, wet conditions and overwinter in soil. With many areas seeing record rains earlier this year, tree fruit and nut growers are in a high-risk situation for this disease as the 2017 season approaches.

Because strong, healthy root systems are essential to overall tree health and productivity, it is important that growers establish an aggressive management plan for *Phytophthora*. Symptoms are commonly mistaken for drought, nutrient deficiency and salt burn, so soil sampling is key to detecting and controlling this pathogen.

The free **Soil Pathogen Assessment (SPA) program** from Syngenta helps make soil sampling easy and efficient. Syngenta supports an integrated management system that includes cultural practices and a soil-applied fungicide during root flush in the spring and fall. Soil sampling and testing can be done beforehand to confirm presence if not previously known.

Ridomil Gold® SL fungicide offers long-lasting disease protection against various rots caused by several *Phytophthora* species. Syngenta conducted a trial in association with Dr. Jim Adaskaveg at the University of California Riverside that showed larger root mass, tree weight and tree diameter when using Ridomil Gold SL in a *Phytophthora* management program.

Improve Root Health with Ridomil Gold SL



More fibrous and longer roots with Ridomil Gold SL (left) vs. untreated (right)

Ridomil Gold SL Helps Enhance Tree Health

Root Weight				Tree Above Graft Weight		Total Tree Weight	
Treated (wet)	Untreated (wet)	Treated (dry)	Untreated (dry)	Treated	Untreated	Treated	Untreated
808.91 g avg weight	272.2 g avg weight	211.7 g avg weight	105.8 g avg weight	377.99 g avg weight	173.88 g avg weight	1194.46 g avg weight	453.92 g avg weight
2.9 times greater Root Weight				2.17 times greater Tree Above Graft Weight		2.6 times greater Total Tree Weight	

Collaboration between Syngenta and Dr. Jim Adaskaveg, University of California-Riverside. Two applications of Ridomil Gold SL in September 2014 and April 2015. Trial had three replicates with measurements taken in September 2015. All irrigation and fertility were equal across treatments.

For more information about Ridomil Gold SL, visit www.SyngentaCropProtection.com. Contact your Syngenta representative to learn more about soil sampling through the SPA program: www.Syngenta-US.com/rep-finder.



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Investigating the Cause of Shoot and Twig Dieback of Clementine, Mandarin and Navel Orange in California



Figure 1. Shoot dieback symptoms on Clementine (A.Eskalen)

Joey S. Mayorquin¹, Mohamed T. Nouri², Florent P. Trouillas², Greg Douhan³ and Akif Eskalen¹

¹ Department of Plant Pathology and Microbiology, University of California, Riverside, CA

² Department of Plant Pathology, University of California, Davis, Kearney Agricultural Research and Extension Center, Parlier, CA. ³UCCE Farm Advisor, Tulare County.

Recently, an outbreak of shoot and twig dieback disease of citrus has been occurring in the main citrus growing regions of the Central Valley of California (Fig 1). The causal agents of this disease were identified as species of *Colletotrichum*, which are well-known pathogens of citrus and other crops causing anthracnose diseases. At this time, it is unclear how wide-spread the disease is in California citrus orchards, but surveys are being conducted to evaluate the spread of this disease in orchards.

The disease was first noticed in 2012 by several growers and nurserymen in various orchards in the Central Valley. Symptoms included leaf chlorosis,

“At this time, it is unclear how wide-spread the disease is in California citrus orchards, but surveys are being conducted to evaluate the spread of this disease in orchards.”

crown thinning, gumming on twigs and shoots dieback, and in severe cases, branch dieback of trees (Fig.2). The most characteristic symptoms of this disease are the gum pockets which appear on young shoots either alone or in clusters and the dieback of twigs and shoots (Fig.3). These symptoms were primarily reported from clementine, mandarin, and navel orange varieties. In order to determine the main cause of this disease, field surveys were conducted in several orchards throughout the Central Valley. Isolations from symptomatic plant samples frequently yielded *Colletotrichum* species.

Field observations indicate that symptoms initially appear during the early summer months and continue to express until the early fall. Trees showing dieback and gumming symptoms characteristic of this disease are usually sporadic within an orchard and generally only a few twigs or shoots are affected within a tree. Morphological and molecular phylogenetic studies allowed the identification of two distinct species of *Colletotrichum* (*Colletotrichum karstii* and *Colletotrichum gloeosporioides*) associated with twig and shoot dieback. Interestingly, these *Colletotrichum* species were also isolated from cankers in larger branches. Although *C. gloeosporioides*



SEASONAL MAINTENANCE KEEPS DRIPLINES PERFORMING

Like most farm machinery, drip irrigation systems also require annual maintenance to ensure that they continue to perform at peak efficiency during each growing season. An end-of-season dripline maintenance program to keep driplines free of sediment and debris is strongly recommended.

One of the first keys in determining the type of maintenance schedule needed is understanding the water source and water quality. This will help identify the type of maintenance required to obtain the best results.

In some cases, growers may need to put in extra work and resources to improve their water quality to keep driplines and emitters clean so that they can deliver water and nutrients at the specified design flows.

Beyond initial water quality concerns or seasonal/annual upkeep, determining what type of maintenance begins with identifying potential causes of system degradation. These factors, which can be responsible for reducing water flow, may include suspended material, chemical precipitation, biological growth, root intrusion, soil ingestion, and the crimping of lines.

Every brand-new system starts with a performance index of 100, meaning it's operating to design specifications and uniformity. Once irrigation starts, that index begins to drop due to a number of possible reasons. There's a direct relationship between decreased uniformity and reduced yield. Precisely why we recommend that every grower with a drip irrigation system perform a system flush in between growing seasons.

While drip systems have a primary filter, it's important to remember that for Agricultural applications no filter exists that is capable of removing 100 percent of particulates from the water.

Mainline flushing is recommended to reduce sediment build up, and submains that service smaller field blocks should also be flushed to eliminate any build-up. When the water changes from cloudy to clear while running, it's a good indication that the lines are properly flushed. In orchards or vineyards where lines are usually above ground, it's important to open the end of the drip tubing for additional flushing, similar to what was done for the mainlines and

submains. In alfalfa systems, where the drip is buried 12 inches below the surface, flushing manifolds are installed so each dripline doesn't need individual cleaning.

Regular 'in-season' maintenance, inspection, and flushing will also help prevent emitters from becoming clogged. Chemical treatment is often required to prevent emitter plugging due to either microbial growth or mineral deposits. This option may be necessary when inorganic particles attach to biological slimes, which can be a significant source of plugging. Chlorination can be an effective measure in managing against biological slimes. If scale deposits become problematic, an acid injection may be used to remove them.

Several acids can be used effectively to lower the pH of irrigation water to reduce the potential for chemical precipitation and to improve the effectiveness of chlorine injection. Acid can be injected in much the same way as fertilizer; however, it's important to use extreme caution and understand how to properly apply it.

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Figure 2. Branch Dieback symptoms on Clementine (A.Eskalen)

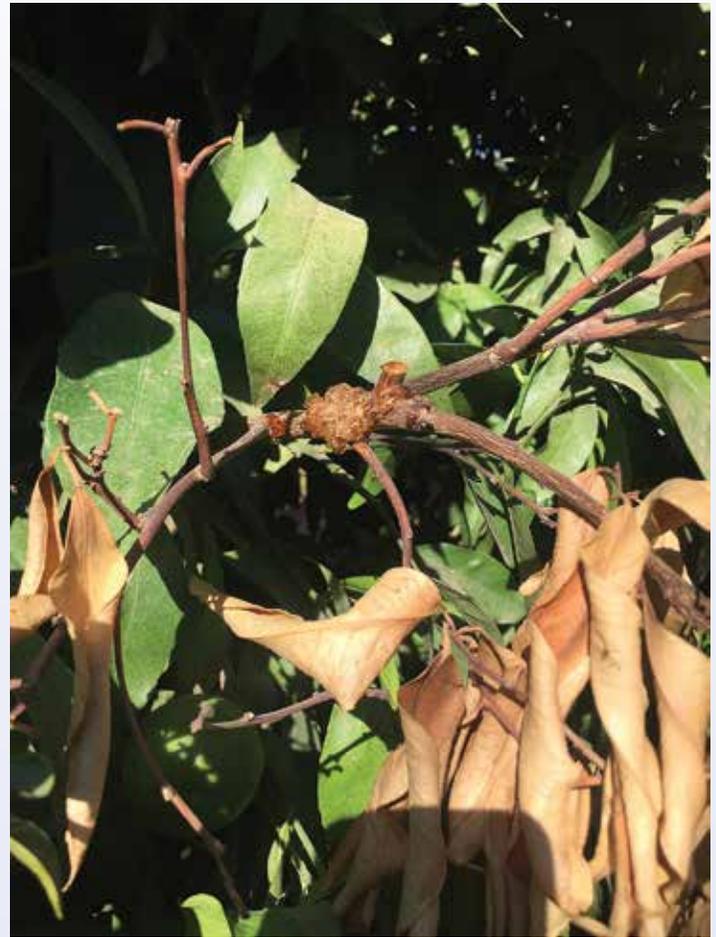


Figure 3. Gumming symptoms on Clementine shoot (A.Eskalen)

is known to cause anthracnose on citrus, a post-harvest disease causing fruit decay, it has not been reported to cause shoot dieback of citrus. *C. karstii* however has not been reported previously from citrus in California and our laboratory is currently conducting field and green house studies to determine the pathogenicity of this species in citrus.

At present, it is unclear how widespread this disease is in California orchards or how many citrus varieties are susceptible to this disease. Pest Control Advisers are advised to remain alert and monitor citrus trees for the

presence of the disease in the Central Valley (particularly clementine, mandarin, and navel varieties) during the early summer months. Continuing research lead by Dr. Akif Eskalen (UC Riverside) in collaboration with Dr. Florent Trouillas (Kearney Agricultural Research and Extension Center), Dr. Greg Douhan (UCCE Farm Advisor Tulare County), and Craig Kallsen (UCCE Farm Advisor in Kern County) is focused on further understanding the biology of the fungal pathogens as well as factors influencing disease expression in order to develop management strategies against this emerging disease. 🌿

“Trees showing dieback and gumming symptoms characteristic of this disease are usually sporadic within an orchard and generally only a few twigs or shoots are affected within a tree.”

Double Nickel® Biofungicide Efficacy on Root Health for Young Grape in the San Joaquin Valley

Eric Flora¹, Oscar Cuevas¹, David Klopper¹ and Scott Ockey²

¹ Pacific Ag Research, San Luis Obispo, CA

² Certis USA, LLC, Yakima, WA

Abstract: Double Nickel® LC, a broad spectrum biofungicide containing *Bacillus amyloliquifaciens* D747, was tested in a three-year longitudinal study on newly planted Primitivo variety wine grapes. Root Knot Nematode (*Meloidogyne* sp.) related damage did negatively affect newly established vines that were untreated when planted into medium textured soil artificially infested above threshold. Double Nickel injected into drip irrigation at 1qt/a in spring and 2qt/a in fall resulted in significantly lower Root Knot Nematode populations in soil compared to the untreated plots. A reproduction factor was calculated for the population increase between spring and fall counts, and control based on this population response to treatment was 74% compared to the untreated in year 3, and 30% improvement over standard of Telone II® applied PPI.

Trunk girth, soluble sugar in juice and canopy senescence were all positively affected by Double Nickel treatments. Trunk diameters were nearly 2mm wider on treated vines compared to the untreated, and after three years, Double Nickel treated vines had 15% larger diameter trunks than untreated.

Leaf senescence was significantly more advanced in Double Nickel treated vines in year 1 and 2, but juice had a lower sugar content compared to other treatments. When fruit was produced in years 2 and 3, fruit production trended higher from vines treated with Double Nickel compared to the untreated and standard.

In the spring and fall of each year the trial was conducted, 100g soil samples were taken from each plot and analyzed for the number of nematodes present. In the first year soil samples were collected, spring counts were extremely high following planting.

To review the entire poster, please visit:
www.CertisUSA.com

Nematode Counts:

Table 1. Root-Knot Nematode (*Meloidogyne* sp.) Population Counts from 100g Soil Samples

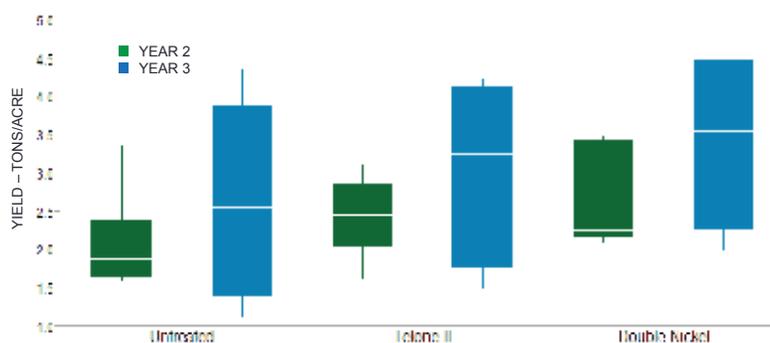
Treatment	Population Counts					
	07/23/13 59 DA-B	11/15/13 98 DA-C	05/06/14 29 DA-D	11/20/14 64 DA-E	05/15/15 35 DA-F	09/29/15 40 DA-G
1 Untreated	1.1 a	756.7 a	10.0 a	1020.8 a	216.7 a	121.7 a
2 Telone II ¹	0.3 b	1055.0 a	5.0 a	125.0 a	11.7 a	90.0 a
3 Double Nickel ²	0.1 b	376.7 a	0.0 a	804.2 a	98.3 a	38.3 a

Table 2. Root-Knot Nematode Reproduction Factors and Percent Control

Treatment	Reproduction Factors			Abbott's Percent Control		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
1 Untreated	579.9 a	26.3 a	4.1 a	0.0% b	0.0% a	0.0% b
2 Telone II ¹				66.7% a	32.4% a	47.0% a
3 Double Nickel ²				80.5% a	33.3% a	73.8% a

¹Telone II treatment = 12 gal/a (A), ²Double Nickel treatment = 1 qt/a (BDF) LSD, $\alpha=0.05$

Yield:



First year yields were not collected as the vines were too young, but yields were highest in both the second and third year for the vines treated with Double Nickel, with as much as 0.5 ton/acre more expected on average in the second year and 0.8 ton/acre more in the third year.



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Conference Exhibit Booth Discount (Limit 4)				\$100	\$200	\$300
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Invitation to Sustaining Member Council***					1	1
Pathway to PCA Outreach - Logo Acknowledgement						✓
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* October issue fills quickly, first come, first served

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*** Sustaining Member Council for Middle to Senior Management or Owner as representative. Quarterly Meetings; consistent representative for the year requested.

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PCAs*



Mission & Purpose

CAPCA's mission is to facilitate the success of the PCA and to represent our 3,000 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.

Photo: Fred Rehrman, Elysian Fields

SAVE THE DATES FOR THESE 2017 SPRAY SAFE EVENTS:

Yuba-Sutter Spray Safe

Wednesday, January 18, 2017

Yuba-Sutter Fairgrounds, Franklin Hall

Yuba City, CA 95991

8:30 a.m. – 1:00 p.m.

Admission - Free

Lunch provided

Info: Claudia Street, Yuba-Sutter Farm Bureau (530) 673-6550

Yolo County Spray Safe

Wednesday, February 1, 2017

Yolo County Fairgrounds, Waite Hall

Woodland, CA 95776

7:45 a.m. – 1:00 p.m.

Admission - \$10 Pre-registration;

\$15 at-the-door

(Lunch is not guaranteed if you do not register in advance)

Info: Gretchen Schauer, Yolo Co. Farm Bureau (530) 662-6316

Kern County Spray Safe

Friday, February 3, 2017

Kern County Fairgrounds

Bakersfield, CA 93307

9:00 a.m. – 1:00 p.m.

(Trade Show 7:00 a.m. – 9:00 a.m.)

Admission – Free

Lunch provided

Info: Jeff Rasmussen (661) 978-8076,

Terra Laverty (661) 742-3842



San Joaquin Spray Safe

Thursday, February 23, 2017

Robert Cabral Ag Center

Stockton, CA 95206

Registration 7:30 a.m.; meeting 8:00 a.m.

Admission - Free

Lunch provided

Info: Larry Fisk (209) 814-4406

or Dennis Duda (209) 983-4294

Santa Barbara County Spray Safe

Tuesday, March 7, 2017

Santa Barbara County Fair Grounds

Santa Maria, CA

7:00 a.m. – 2:00 p.m.

CE hours will be offered

Admission - Free

Lunch provided

DPR speaker scheduled

Breakout sessions

Held in English and translated/broadcasted into Spanish

Info: Teri, Santa Barbara Farm Bureau (805) 688-7479

or Lotti Martin, SB Ag Comm office (805) 934-6200



Convenient Online Accredited California CEUs

Since 2004 California PCAs have turned to the Penton Agriculture online continuing education courses to earn professional certification credits. Program courses are accredited by the California Department of Pesticide Regulation. The courses, which take 1 to 2 hours, cover a wide range of categories including plant disease management, weed management, production best practices, law and regulations. The interactive platform is fast, modern and easy to navigate across all mobile devices as well as the desktop.

Currently 18 courses are offered, with 12 being completely free through the generous support of sponsors. More than 80,000 courses have already been completed. The eLearning platform was created for licensed Pest Control Advisers, Certified Crop Advisers, consultants, license applicators and producers.

The platform enables agriculture professionals to access continuing education and training courses with interactive material including embedded videos, quizzes, photos and graphics. The courses have been designed to provide high-quality continuing education in a convenient and user-friendly format.

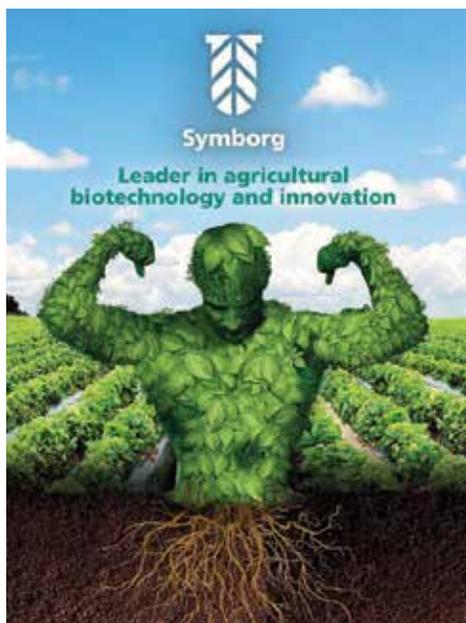
Penton Agriculture offers the following eLearning courses:

- ❑ Ant and Broadleaf Weed Control at Almond Harvest
- ❑ Biopesticides: Effective Use in Pest Management Programs
- ❑ California Groundwater Protection Regulations
- ❑ Current Status of Herbicide Resistance in Weeds
- ❑ Disease Management for California Almond Production
- ❑ Estado Actual de la Resistencia a Herbicidas en Malezas
- ❑ Grape Powdery Mildew Control in California Vineyards
- ❑ Lepidopterous Pest Management/Pesticide Safety Review
- ❑ Managing Key Insects in California Almond Orchards/Principles of IPM
- ❑ Managing Spray Drift to Minimize Problems
- ❑ Mite Control and Integrated Pest Management: Treenut, Pome, Grape, and Strawberry Crops
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Symborg, global paradigm in the use of mycorrhizae as biostimulants

Symborg has patented a fungus that increases plant roots, production and health



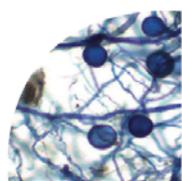
Jesus Juárez and Felix Fernández were fully aware of the multiple benefits of using microorganisms in crops. Felix Fernández, PhD in Agronomy with a long career as a researcher, had completed several studies on the enormous potential of arbuscular mycorrhizae for fortifying plants. With his partner Jesus Juarez, he set out to find, in arid and semi-desert soils of their region in Spain, species having particular potential, helping crops withstand the difficult conditions in the area.

They found it in 2009 : The new variety of mycorrhiza discovered and patented by Symborg is *Glomus iranicum var. tenuihypharum* which, in symbiosis with plants, strengthens its roots, improves its physical, chemical and microbiological activity and increases the production and quality of the fruits.

This mycorrhizal forming fungus has superb symbiotic properties when associated with plant roots; however, **to get it there and how to achieve it to form symbiosis with the roots in a quick and economical way as required by the modern agriculture?** It was essential to develop products capable of inoculating the *Glomus iranicum var. tenuihypharum* through irrigation systems and in the seeds for rain fed crops. This was the crux of the laboratory research that Symborg founders had to overcome before they started the company.

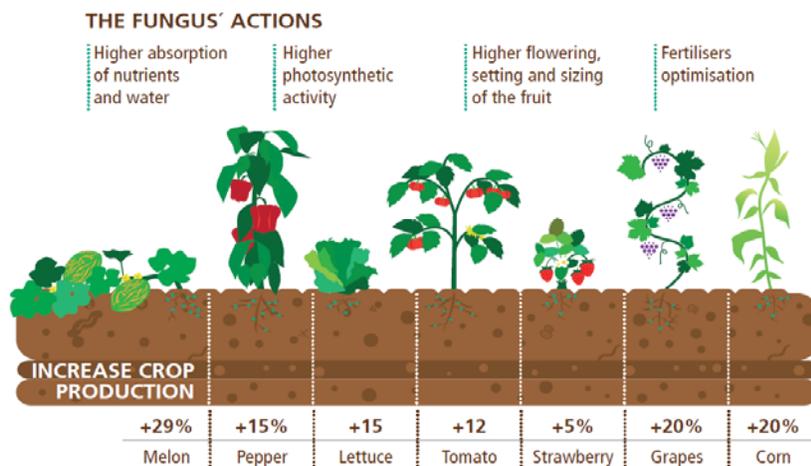
Jesus Juarez, CEO of the company, explains that in most cases the spores of fungus are larger than 120 microns, and therefore cannot pass through the filters of traditional systems of drip irrigation, however, Symborg managed to isolate a variety of fungus that produces smaller spores! As a result, **Symborg’s patented MycoUp (OMRI certified organic bio stimulant)**, passes through a sieve of 80 microns, ensuring its passage through the filters of irrigation systems. Moreover, thanks to its R&D department, Symborg has ensured that its product’s has the ability to remain viable to inoculate roots even after the harsh conditions of transporting and storing. Based on a microorganism, MycoUp is 100% sustainable and improves overall plant health, quality and production.

The Fungus *Glomus iranicum var tenuihypharum*



Fungus *Glomus iranicum var tenuihypharum*

Glomus iranicum var. tenuihypharum founded and patented by Symborg promotes a penetrating mycorrhizal colonization, stimulating increased root growth, improving the efficiency of water use and nutrients absorption thereby achieving greater physiological activity, increasing crop yields and fruit quality.



The effects of *Glomus iranicum var. tenuihypharum* on crops are truly striking. While explaining its product MycoUp, Jesus Juarez specifies it’s a bio stimulant rather than a bio fertilizer. “Bio fertilizers do not act directly on crops, but on the soil whereas MycoUp causes a direct action on plants. “MycoUp generates a stimulating effect that helps increase the absorption capacity of the plant”, he says. The mycorrhizal forming fungus makes crops develop a more prolific rooting system, improving water use efficiency, nutrient absorption and significant production increases.

Numerous tests performed demonstrate greater productive capacity of plants in a variety of crops. It’s common for Symborg to produce a 20% increases in corn and melons, more than 15% in lettuce and peppers and more than 12% in tomatoes. For the biological characteristics of *Glomus iranicum var. tenuihypharum* Symborg has achieved an international patent that protects the species of arbuscular mycorrhizal fungi, HMA.

NOTE: The following job opportunities are abbreviated postings. To view the complete posting, please see the **MEMBERS ONLY** section of our website and click on the **JOBS** tile. <http://capca.com/members/>

Product Development & Field Agronomist

Miller Chemical & Fertilizer, LLC

Description: Product Development & Field Technical Agronomist with excellent follow-through for domestic sales efforts. Our ideal candidate will have 5+ years' experience in agricultural products support. This position will be responsible for the technical support to sales of new and ongoing business and represent our Company as the expert in non-hazardous crop protection products and nutritional agro chemicals. The successful candidate will have a proven track record of building grower relationships as a vehicle to drive product development and collect local data, possess demonstrated public speaking skills to conduct group meetings and answer questions--and effectively communicate product, market, competitive and customer data, serve as agronomic resource to domestic sales reps to resolve customer product and crop concerns, make sound agronomic recommendations to customers by presenting products and solutions in order to maximize customer outcomes.

Requirements: Our ideal candidate will possess a Bachelor's degree in Agronomy or equivalent; and a current PCA and CCA license, if located in CA; No relocation required as this position operates out of our chosen candidate's home office hub. Ability to travel up to 50% of the time to entire territory region. Clean driving record required. Excellent communication skills in English required (bilingual skills in Spanish a plus). Solid computer skills with proficiency in Microsoft Office Suite, including Word and PowerPoint a must.

Apply: Send salary history with resume to: recruiteba@comcast.net and reference AGRONOMIST-PRODUCT DEV. EOE

Territory Sales Representative

Amvac Chemical Corporation

Job Summary: Manage product sales and service activities involving external customers within the geographic area of California encompassing the counties of Kerns, King and Tulare that will achieve budgeted sales and profit objectives in alignment with company objectives.

Requirements: B.S College degree required with a preferred focus in Agricultural Science or Business. A strong background in the Agricultural Chemical or related Agriculture Industry is required. Knowledge of citrus and vegetable production and experience in the soil fumigation market is desired but is not a mandatory requirement. A valid California Pest Control Adviser (PCA) License is required.

Apply: Please email your resume to: Kim Bohlander – Western Region Sales Manager, KimB@amvac-chemical.com

In-House Pest Control Adviser

Capay Farms, Inc.

Description: We are looking for someone who may be tired of the Ag Chem wholesale or retail game and wants to practice their chosen profession in a stable position without the pressures of having to sell goods and services. The ideal candidate will be licensed in invertebrates, pathogens, and weeds at the minimum. Being a CCA, and or having their QAL would be of benefit to the position, but is not a requirement for consideration. Having a working knowledge of Spanish would also be beneficial, but is also not required. This position will have two reports and will be supervised by the two Field Managers. This position comes with housing on one of our ranches. Housing and relocation assistance provided.

Knowledge/Experience: Pest ID and management on Nut Crops (almonds, walnuts), Wine Grapes; Nutritional requirements and management on Nut Crops and Wine Grapes; Geo-referenced information systems; Chemical & Nutrient application methods: orchard sprayers, herbicide applicators, chemigation, etc.; Minimum PCA License categories: A, B, E; CCA certification desired, but not required; QAL desired, but not required; Computer programs: MS Office, Agrian.

Apply: Please submit your resume and cover letter with desired salary to: Tina Bicknell, tbicknell@capayfarms.com

Personal Assistant / Project Coordinator

JH Biotech, Inc.

Description: We are seeking a qualified person to fill a non-supervisory, personal assistant and project coordinator position in our growing team. The work requires providing clerical support to the president, handle special project independently from the standpoint of coordination, support and documentation development from start to finish. In addition to performing duties such as coordination of meetings and conferences, answers non-routine correspondence and assembles highly confidential and sensitive information, also deals with a diverse group of important external callers and visitors as well as internal contacts at all levels of the organization. Independent judgment is required to plan, prioritize and organize diversified workload; internet research on special topics related to projects. Qualified candidates should possess experience in office administration, problem solving, analysis, basic knowledge of biology, chemistry, collaboration skills and communication proficiency. Applicant should be dependable, inquisitive, self-motivated, detail oriented, thorough and flexible. Salary DOE.

Requirements: B.A. or B.S degree in Business Management, Chemistry, Biology or related fields. Position is based out of Ventura, California. Local candidates preferred.

Apply: Please send resume and cover letter to JH Biotech, Inc., Human Resources Department, Fax: (805) 650-8942, Mail address: P.O. Box 3538, Ventura, CA 93006, Email: hr@jhbiotech.com



GAR TOOTELIAN, INC. WINS TITLE FOR BEST AG RETAILER IN THE U.S.

Reedley Based Family Owned Business honored for innovation, community & industry leadership

Reedley, CA – Gar Tootelian, Inc. (GAR) has been crowned by industry peers as the *2016 Ag Retailer of the year* throughout the whole United States.

The award, sponsored by Monsanto, Ag Retailers Association (ARA) and *AgProfessional* magazine, honors retailers who represent the best in the industry. The companies nominated for the award are evaluated based on innovative business practices, community and industry leadership, environmental stewardship, reliability, technology utilization, customer service and effective employee development programs. ARA has about 160 retail members which represents 4500 retail facilities and approximately 90 percent of gross farm retail sales.

“We are grateful to be honored by our industry peers,” said Greg Musson, GAR President/CEO. “Agriculture is always evolving and we realize that our job is to fulfill the grower’s need so that they can produce the best food possible.”

GAR was recently named 2015 Ag Retailer of the year for all of North America for its stewardship, safety and philanthropy efforts among the world’s leading Ag retailers and distributors. Over 150 companies throughout the U.S, Canada and Mexico competed for that award.

Established in 1949, GAR’s ownership is 100% female and is a leading philanthropic leader in the Central Valley. GAR works to promote Ag education and awareness with the Fresno Grizzlies’ *Farm Grown Program*, the *Valley Farm* at the Fresno Chaffee Zoo and Valley PBS’ *Valley’s Gold Education through Agriculture*. Its partnership with Clovis Community Hospital raised \$1.65 Million to expand emergency services dedicated to *Central Valley Farmers and their Families*. And, GAR raised more than \$375,000 in the *Feeding Families Food Drive* for the Community Food Bank in the last three years.

GAR’s sensitivity to stewardship and safety includes a \$7.5 million facility upgrade with a new 55,000 square foot warehouse, a 7,100 square foot office complex and a state-of-the-art liquid fertilizer and blending facility with one million gallons of storage capacity. The company provides water, nutrition, regulatory and crop care advice and products to more than 1,500 growers throughout the Central Valley.

If you would like more information, please contact Ralph Rendon at rrendon@gtipros.com or go to gtipros.com.

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Sales Representative – Southern California

JH Biotech, Inc.

Description: This position works directly with growers and distributors to sell agricultural chemicals, fertilizers, and biological products. Plan and implement sales and marketing plans for the assigned territory. Must be knowledgeable in vegetable, fruit, nut, and grape crops plus have experience working in a farm environment. Candidate must be able to stay 2-8 nights away from home per month. Bilingual is helpful, but not required. Territories include Southern California (south of Hwy 80 to the Mexico border) and Arizona. Position pays salary in addition to commissions. Salary DOE.

Requirements: Position requires a B.S. degree in an agricultural related field such as agronomy, soil science, crop production, agricultural business, or horticulture. Current PCA license required.

Apply: Please send resume and cover letter to JH Biotech, Inc., Human Resources Department, Fax: (805) 650-8942, Mail address: P.O. Box 3538, Ventura, CA 93006, Email: hr@jhbiotech.com

Chemist

JH Biotech, Inc.

Description: We are seeking a qualified person to fill a non-supervisory, technical support CHEMIST position in our growing team. Qualified candidates should possess experience in research, development, design, operation, evaluation and improvement of processes, equipment, methods or products. The work requires primarily application of the principles and practices of chemistry, preparing technical reports, summaries, and presentation materials plus provide technical support to production department and customers. Applicant should be dependable, inquisitive, self-motivated, detail oriented and work independently. Salary DOE.

Requirements: MS or Ph.D. in Organic Chemistry or related fields. Position is based out of Ventura, California. Local candidates preferred.

Apply: Please send resume and cover letter to JH Biotech, Inc., Human Resources Department, Fax: (805) 650-8942, Mail address: P.O. Box 3538, Ventura, CA 93006, Email: hr@jhbiotech.com

Grower Relations Manager

Description: A progressive grapevine nursery is seeking a Grower Relations Manager representative in the Central Coast region. Dynamic, grower friendly environment with competitive compensation. An energetic, knowledgeable candidate will be a great fit.

Requirements: Bachelor's degree in Plant Science or related field with 3-5 years of experience in production and valid driver's license.

Apply: Send resume in confidence to topagtalent@gmail.com

Retail Market Manager – California

FMC

Description: Responsible for the management of customer accounts, identify and develop new prospects to sell APG products; Focus on sales targets, business development, building customer relationships and resolving customer issues; Develop and execute account plan, negotiating to meet sales targets; Build customer business relationships; Prepare sales presentations, call plans, proposals, and reports for internal and external communication; Obtain and communicate market information related to sales volumes; Forecast customer business plans/needs; Obtain and communicate; competitive practices and assist in the assessment of competitive information; Identify and develop new business opportunities for increased sales to existing accounts or acquiring new accounts; Coordinate interface between customer and other company resources (technical, supply chain) to provide value added service to accounts.

Requirements: Bachelor of Science degree with major in Weed Science, Agronomy, Pest Management or related field. Bachelor of Science (BS) degree or similar in Agriculture. California Pest Control Adviser (PCA) license; 5 – 12 years sales experience.

Apply: Apply online at <https://jobs-fmc.icims.com/jobs/> Job ID 2016-7683

Safety Officer - Five Points, CA

Crop Production Services

Description: Performs clerical and training tasks in a wide range of safety and security disciplines to achieve compliance with Crop Production Services safety and security standards, as well as federal, state, and regulatory requirements. Assists in the implementation and maintenance of safety programs, systems and procedures necessary to ensure the overall safety and security of employees. Participates in employee safety training, and conducts contractor hazard training. Facilitates and participates in emergency preparedness training, and maintains and updates various documentation, databases and spreadsheets.

Requirements: Must be bilingual; Knowledge of fumigants helpful; QAL or QAC a plus; Associate's Degree (A.A. or equivalent) preferred; 4+ years related experience in a safety, operations or agricultural environment (Combination of education and experience may be considered); Supervisory experience is a plus; Working knowledge of Microsoft Office application including, but not limited to the following: Word, Excel, PowerPoint, etc.; Valid driver's license.

Apply: Visit www.cpsagu.com and click the **Careers** tab.



Mar Vista Resources™

Providing **Resources** for Value Creation™

NPK Blends • Micronutrients • Surfactants

Mar Vista Business Focus

Mar Vista Resources helps our customers create value by being a provider of raw materials, finished products, manufacturing resources, and sales support in the crop nutrients and adjuvant products markets. Mar Vista Resources does this through its global supplier partnerships, employment of strategic manufacturing capabilities, and by utilizing the experience, technical and marketing knowledge of its employees.

Custom and Specialty Formulation

Mar Vista Resources has capabilities to manufacture and formulate liquid specialty nutrients and adjuvant products to meet customer's needs, formulation specifications, and agronomics challenges in changing market environments.

Mar Vista Resources currently has 80,000 square feet of warehouse space for storing raw materials and finished products that are sold into crop nutrient and agriculture surfactant markets. In addition to the warehousing facility, Mar Vista Resources has manufacturing, mixing and product filtration equipment to make liquid fertilizer micronutrient surfactants. It currently consists of product reactors, multiple blenders, filtration systems and finished liquid product storage. Mar Vista Resources also has small container filling and packaging capabilities.

Sales and Technical Support

Mar Vista Resources is supported by a technical team in agronomy, process engineering and product chemistry formulation. Our manufacturing, sourcing, and marketing team can support our suppliers in reaching markets, and create value for our customers and end users of our products.

Call today to receive info for custom blended liquid fertilizer formulations for your business and your grower's needs.



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Warehouse Location: 745 North Ave. • Corcoran, CA • Mail Address: P.O. Box 218 • Corcoran, CA 93212

www.marvistaresources.com

Territory Sales Manager – Southwest

Marrone Bio Innovations

Description: The Territory Sales Manager conducts full cycle sales activities, from lead generation through close, in an assigned territory. Develops and implements agreed upon Marketing Plan which will meet business goals of expanding customer base in the marketing area. The Territory Sales Manager partners with the sales and support teams to achieve revenue goals, long-term account goals, and enhanced customer satisfaction consistent with our culture of ethics.

Requirements: Meet or exceed quarterly and annual revenue goals. Develop a territory sales plan that includes all target agricultural markets. Monitor sales versus forecast and channel inventory on a monthly basis. Manage channel and end user relationships effectively to maximize sales and market share. Execute a Pull Through strategy at the end user level. Train Distributor/Dealer/PCAs on the proper use of MBI products. Develop strong internal working relationships with key MBI colleagues in Sales, Product Management, Product Development and key admin and R&D personnel. Implement grower demos where appropriate. Manage the sales process via a CRM system. Participate, present, and/or display at key industry meetings. Travel 50-60% overnight. Education - B.S. degree in Life Sciences or an agriculture-related field. A minimum of 3-5 years of sales experience with pesticide products.

Apply: Please submit cover letter and CV to jobs@marronebio.com referencing the job title: Territory Sales Manager.

Research Agronomist

QualiTech

Description: The Research Agronomist position is a key member of the Research, Quality and Innovation (RQI) team and works closely with the RQI Director and division leaders (Sales, Marketing, Research, Development, and Manufacturing) to develop and execute activities in his area of influence. Among others, the position supervises the design, implementation and supervision of research trials, provides support to enhance existing product offerings; identify new product opportunities; develop, execute and/or supervise field research program to support existing and new offerings; provide technical support, training and further education to the field sales teams, distributors and end users; and provide input and participate in marketing, market planning and technical written documents for our products that will support our strategic growth/expansion plans.

Requirements: To perform this job successfully, employee must be able to perform each essential duty satisfactorily. The requirements listed below for this position are representative of the knowledge, skill and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Education & Experience: Minimum education requirement: PhD in Plant Science or related field, Plant Nutrition preferred. Chemistry-related minor preferred; 3+ years of field Pest Control/Agronomic experience; Current CCA certification is highly desirable.

Apply: Apply online at www.qualitechco.com

PCA Trainee - Modesto, CA; Vernalis, CA; Stockton, CA

Crop Production Services

Description: Crop Production Services in Modesto, CA Vernalis, CA and Stockton, CA have an opening for a PCA trainee. Reporting to the facility manager, the successful candidate will work under an established PCA, inspecting farmers' fields and records weed, insect, disease and other observations. learning agronomy, and sales skills. The trainee plays an important role in field scouting services offered to help make timely informed and economical field crop decisions. There may also be an opportunity to provide location support and special events support during the growing season. The PCA Trainee will transition to a PCA role once the facility manager feels the trainee has skill set.

Job Qualifications: Ag-based degree, ability to test and obtain PCA license within 8 months of date of hire; Preference given to individuals with experience with vines and/or field scouting experience; Valid driver's license and clean driving record; Ability to work outdoors for extended periods of time under all weather conditions; Above average organizational skills, ability to understand new concepts and learn quickly, complete work targets with little or no supervision in a timely manner, self-motivated; Ability to pass drug and alcohol screening.

Apply: Send your resume with references to breanna.lee@cpsagu.com Subject: (Location) PCA Trainee

2016 DPR ACCREDITED COURSE REPORT

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Date	Title	Location	Sponsor	Contact	Phone	Hrs
11/28/2016	Madera Co CE Session 3	Madera	Madera Co Ag	Mcneill, Stevie	(559)675-7876	2
11/30/2016	CTN CE Courses	Buda, Tx	CTN	Kezar, Tommy	(512)829-5114	6
11/30/2016	Butte County Ag Dept CE Class	Chico	Butte Co Ag Dept	Pittman, Eric	(530)891-2754	3.5
11/30/2016	Red Mountain Ranch - 1	Phoenix, Az	Pesticide Training	Pfeiffer, Michael	(520)323-3135	6
11/30/2016	Sustain/Org Prodctn Vineyards	Cloverdale	OFAC	Beckley, Steve	(916)539-4107	5
12/1/2016	Nutrition/Adjuvants/Food Safety	Tulare	Miller Chem	Ruedas, Salome	(559)586-0955	2
12/1/2016	Pest Safety Instr Traing Wrkshps	Bakersfield	UCCE	Blecker, Lisa	(530)750-1251	6
12/1/2016	PAPA CE Seminar	San Jose	PAPA	Hoffman, Shayla	(831)455-8068	7
12/1/2016	Napa Co CE Class	Napa	Napa Co Ag	Greeson, Naomi	(707)253-4357	2
12/1/2016	Headquarter Compliance	Modesto	AgSafe	Genasci, Anna	(209)526-4400	1
12/1/2016	Pest App Compl & Empl Safety	Modesto	AgSafe	Genasci, Anna	(209)526-4400	1
12/1/2016	Red Mountain Ranch - 2	Phoenix, Az	Pesticide Training	Pfeiffer, Michael	(520)323-3135	6
12/1/2016	Pesticide Haz Com	Bakersfield	CSTC	Wafford, Jennifer	(661)377-8300	6
12/1/2016	Pesticide Safety	San Andreas	Calaveras Co Ag	Talbot, Catherine	(209)754-6504	2
12/2/2016	Tuolumne Co Dec CE Workshop	Sonora	Tuol Co Ag Comm	Shutler, Greta	(209)533-5691	3
12/2/2016	Respiratory Compliance	Modesto	AgSafe	Genasci, Anna	(209)526-4400	1
12/2/2016	Rodent Control	Modesto	AgSafe	Genasci, Anna	(209)526-4400	1
12/2/2016	Pesticide Handler Safety	Orland	SST	Bruce, Richard	(530)385-1841	4
12/5/2016	Bionatural Healing College	Pomona	BHC	Sidiqi, Nadir	(909)568-4150	6.5
12/6/2016	Pesticide Use Montly Update	Merrill, Or	Siskiyou Co Ag	Smith, Jim	(530)667-5310	2
12/6/2016	CTN CE Courses	San Antonio, Tx	CTN	Kezar, Tommy	(512)829-5114	6
12/6/2016	PAPA QAL/QAC Test Prep	Sacramento	PAPA	Letterman, Judy	(831)229-1498	7
12/6/2016	PAPA CE Seminar	Sacramento	PAPA	Hoffman, Shayla	(831)455-8068	8
12/6/2016	The Almond Conference	Sacramento	Almond Board	Nicolau, Jenny	(209)343-3248	2.5
12/6/2016	Ag Commissioner's Reg Update	Santa Barbara	Santa Barbara Co Ag	Cangelosi, Alma	(805)934-6200	2
12/7/2016	Vertebrate Pest Control	Hanford	Kings Co Ag	Gutierrez, Mario	(559)852-2830	2
12/7/2016	Achieving Profitability...	San Jose	Ewing Irrigation	Sullivan, Angie	(602)437-9530	5
12/7/2016	San Joaq Co Priv Applicat CE Mtg	Stockton	San Joaquin Co Ag	Huecksteadt, Barbara	(209)953-6000	2
12/7/2016	The Almond Conference	Sacramento	Almond Board	Nicolau, Jenny	(209)343-3248	1
12/7/2016	Colusa Co Ag Dept Grower Mtg	Colusa	Colusa Co Ag	Azevedo, Mary Anne	(530)458-0580	4
12/7/2016	Ag Commissioner's Reg Update	Santa Maria	Santa Barbara Co Ag	Cangelosi, Alma	(805)934-6200	2
12/8/2016	CTN CE Courses	Allen, Tx	CTN	Kezar, Tommy	(512)829-5114	6
12/8/2016	Achieving Profitability...	San Carlos	Ewing Irrigation	Sullivan, Angie	(602)437-9530	5
12/8/2016	PAPA CE Seminar	Indio	PAPA	Creath, Teri	(805)934-1056	7
12/8/2016	PAPA CE Seminar	Chico	PAPA	Hoffman, Shayla	(831)455-8068	7
12/8/2016	Worker Safety Seminar	Woodland	Yolo Ag Comm	King, Jenni	(530)666-8140	2
12/8/2016	Common Violations & Solutions	Modesto	AgSafe	Genasci, Anna	(209)526-4400	1
12/8/2016	Drift Minimization	Modesto	AgSafe	Genasci, Anna	(209)526-4400	1
12/8/2016	Pesticide Laws & Regs Update	Watsonville	Santa Cruz Ag Comm	Sanford, David	(831)763-8080	2
12/8/2016	The Almond Conference	Sacramento	Almond Board	Nicolau, Jenny	(209)343-3248	4
12/9/2016	CTN CE Courses	Fort Worth, Tx	CTN	Kezar, Tommy	(512)829-5114	6
12/10/2016	CCC Grower CE Class	Knightsen	CCC Ag Dept	Slate, Beth	(925)646-5250	3
12/13/2016	CTN CE Courses	Las Vegas, Nv	CTN	Kezar, Tommy	(512)829-5114	6
12/13/2016	FWAA Dec Winter Conf - Day 1	Kennewick, Wa	FWAA	Nelson, Errin	(509)465-5055	4
12/13/2016	San Joaq Co Priv Applicat CE Mtg	Stockton	San Joaquin Co Ag	Huecksteadt, Barbara	(209)953-6000	2
12/14/2016	CTN CE Courses	Stafford, Tx	CTN	Kezar, Tommy	(512)829-5114	6
12/14/2016	Pesticide Handler Requirements	Hanford	Kings Co Ag	Gutierrez, Mario	(559)852-2830	2
12/14/2016	FWAA Dec Winter Conf - Day 2	Kennewick, Wa	FWAA	Nelson, Errin	(509)465-5055	3
12/15/2016	Dirft Prevention & Storage	Modesto	Stanislaus Co Ag	Genasci, Anna	(209)525-4730	2
12/15/2016	CTN CE Courses	Buda, Tx	CTN	Kezar, Tommy	(512)829-5114	6
12/16/2016	CTN CE Courses	Fort Worth, Tx	CTN	Kezar, Tommy	(512)829-5114	6
12/19/2016	Bionatural Healing College	Pomona	BHC	Sidiqi, Nadir	(909)568-4150	6.5
12/20/2016	Pesticide Haz Com	Arvin	CSTC	Wafford, Jennifer	(661)377-8300	6

Damage Reduction by up to 50% Proven Possible Using Patented Sunburn and Heat Stress Protection Products

Field studies show ongoing success using Surround® and Purshade® Protectants

By Kurt Volker, Ph.D.

You can't control sunlight and high temperatures, but a pair of patented products from NovaSource can help make your plants more productive by minimizing UV damage from sunlight and heat stress that can rob both quality and yield.

Growers in California and throughout the west are managing fruit, nut, and vegetable crops to deliver optimum quality and yields by using SURROUND Crop Protectant and PURSHADE Solar Protectant.

SURROUND is a wettable powder formulation made from a highly engineered natural mineral – calcined kaolin clay.

PURSHADE – a flowable formulation – is made from natural calcium carbonate.

Both have superior light-reflective properties that shield plants from harmful solar radiation.

When sprayed on plants, both SURROUND and PURSHADE lower leaf temperatures, enhancing plant photosynthesis and boosting overall plant health by enabling plants to remain more photosynthetically active during periods of intense light and heat.

Both products help plants use water more effectively – which is not the same as saving water – during periods of intense heat and light because cooler plants make better use of water.

Numerous field studies indicate that a coating of SURROUND or PURSHADE – applied directly to sunburn-susceptible fruits, nuts and vegetables – protects them from excessive heat and UV radiation, reducing sunburn damage by up to 50 percent.

Proven Sunburn & Heat Stress Protection Products		
Benefit	Surround®	PurShade®
Composition	Wettable Powder	Flowable
Patented	✓	✓
Engineered from Minerals	Kaolin	Calcium Carbonate
Sunburn Protection	✓	✓
Heat Stress Protection	✓	✓
Effective Water Use	✓	✓
Sustains Photosynthesis	✓	✓
Easy to Use	✓	✓
Non-toxic	✓	✓
Organic	Certified by OMRI	---
EPA-registered Insecticide	✓	---
Healthier Crops	✓	✓
Improved Quality	✓	✓
Higher Yields	✓	✓

Another benefit among the unique properties of calcined kaolin in SURROUND is it delivers the added protection of suppressing some insects. Additionally, SURROUND is OMRI approved and recommended for use in certified organic production operations for many crops. Surround was developed in conjunction with the U.S. Department of Agriculture.

Both products are non-toxic. If a visible film is present at harvest, removal may be necessary for cosmetic reasons.

In California and throughout the west, growers are increasing their yields of heat sensitive varieties by spraying the products two to three times during growing periods with the most intense sun and heat.



Send your questions to info-novasource@tkinet.com.

Or, for more information, to download the label and field study results or to watch informational videos, visit novasource.com.



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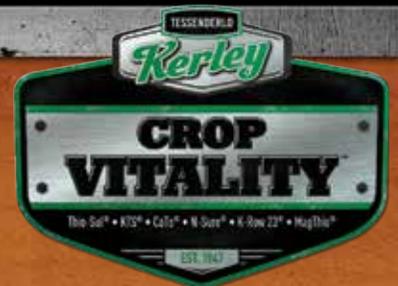


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2017 CAPCA Chapter Events

Kern County

January 26, 2017 - Label Update - Hodel's Dining

Ventura

March 8, 2017 - CE Meeting - Santa Paula

June 14, 2017 - CE Meeting - Santa Paula

San Diego

June 7, 2017 - San Diego CAPCA Nursery Greenhouse Seminar - Escondido

December 7, 2017 - San Diego CAPCA Laws & Regs Seminar - Escondido

Desert Valleys

April 13, 2017 - Label Update & Golf Tournament - Brawley

May 18, 2017 - CE Meeting - Imperial

June 8, 2017 - CE Meeting - Blythe

August 3, 2017 - CE Meeting - La Quinta

November 9, 2017 - CE Mtg & Member Appreciation Lunch - Imperial

Tulare-Kings

February 2, 2017 - Label Update

Fresno-Madera

March 2017 - Date TBA - CE Meeting

September 2017 - Date TBA - CE Meeting

November 2017 - Date TBA - Label Update

North Coast

April 2017 - Date TBA - CE Meeting



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Resources & Features:

- ★ Access your CE hours
(PCA members only)
- ★ Access a CE Meeting List
- ★ Request an Official CE Printout
(PCA members only)
- ★ Access our Legislation Link
- ★ Access Job Postings

Also available:

- ★ Insurance Information
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- ★ And Other Resources



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Holiday Hours for CAPCA State Office

The CAPCA State office will be closed
December 23, 2016 through January 2, 2017
in observance of the Christmas and New Years holidays.

*To allow for processing and mailing, all requests for Continuing Education (CE) Hours printouts must be received no later than
Noon on Thursday, December 22, 2016*

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