News, Views & Industry Insights





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CONTENTS MAY | JUNE 2015



Features

14 | Foundation Scholarship

The cooperative's board has awarded a record number of scholarships to applicants wishing to pursue an agricultural education.

26 | Water Reductions

For the first time, state-wide mandatory water reductions are in place throughout California.

18 | Package Redesign

Blue Diamond's Oven Roasted Snack Almond line is now available in a 5-ounce bag and features consumers' favorite flavors.

28 Bulk Storage

Construction of a state-of-the-art warehouse in Salida will increase *Blue Diamond's* receiving capacity by 33 percent.

- **08** FIELD SUPERVISORS
- **10** GROWER LIAISON
- 12 NEWS IN A NUTSHELL
- 34 THE BEE BOX
- **38** TIME TO CONSIDER
- **42** CLASSIFIED ADS

Cover Photo:

This almond orchard south of Firebaugh has received zero water for the last two years due to irrigation cutbacks. Photo by Mel Machado.





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Blue Diamond, the world's largest processor and marketer of almonds, exports to 90 countries. The cooperative marketing corporation also markets hazelnuts.

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President's Corner

Mark Jansen
President and CEO

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- John Adams

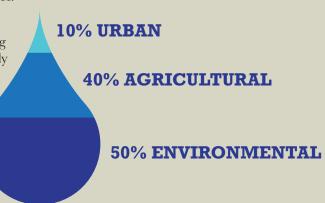
The headlines have been unavoidable. Almonds have been painted as our state's "thirstiest" crop but what these stories lack is context. Your *Blue Diamond* management team has been collaborating with industry experts to communicate the facts about agricultural water use to the media and our urban neighbors.

According to a recent editorial in San Jose Mercury News, "California's dams and reservoirs were never envisioned to release water year-round for environmental objectives such as aiding the delta smelt or reintroducing salmon in the San Joaquin River watershed. A majority of reservoir water once intended for households or farming is simply sent out to sea."

The drought debate continues as we enter the hot, dry summer of the Central Valley, with mandatory water restrictions now in place throughout our state. For many Californians that means the drought will now affect their day-to-day lives. Millions of urban Californians will have to join agriculture in the fight to save water and push for storage to protect our future. Governor Brown's mandate made it clear that all Californians need to do their part to conserve our most precious resource, and yet the media firestorm aimed at agriculture, and almonds specifically, has been fierce.

Our message has been simple: all food takes water to grow.

California's agricultural abilities are second to none. In fact, according to the California Department of Food and Agriculture (CDFA), nearly half of our country's fresh fruits, nuts and vegetables come from California. And CDFA reports that from 1967 to 2010, California agriculture has increased revenue and decreased total applied water use by 20 percent! In order to achieve such an impressive statistic, access to a consistent water supply is key. The amount of water required for California farming to grow our food is only 40 percent of captured water with environmental projects taking the majority at 50 percent. The often-quoted 80 percent ignores any water used for environmental purposes.



I have read suggestions that agriculture has been let off the hook by the governor's mandate. Here are the facts: in 2014 farmers received only 5 percent of their contracted State Water Project allocation and 0 percent from the Federal Central Valley Project. This year, farmers are projected to receive 20 percent of State Water Project allocation and again, 0 percent of Federal Central Valley Project water. Our farmers have been feeling the effects of this drought from the very beginning.

Some have questioned whether agriculture's economic impact justifies the amount of water used by the industry. The media points to agriculture's 2.8 percent GDP, but again, this figure lacks context. It does not tell the whole story. Getting our food from farm to fork involves an interconnected supply chain, undoubtedly contributing significantly more than 2.8 percent to the state's economy. The almond industry alone contributes 104,000 jobs to California, 97,000 of which reside in the Central Valley, and over 37,000 additional jobs throughout the supply chain.





Speaking of almonds, there are 9 million acres of farmland in California and almonds account for 12 percent of that total while only using 8 percent of the water currently used for agriculture. Almond crops produce more than just the kernels humans eat, which provide an efficient source of a heart-healthy, plant-based protein. The almond crop also produces hulls and shells that provide feed and bedding for livestock animals. Almonds rank No. 1 in California for food exports out of the state, with North America consuming four times more almonds than any other country. Our industry is a global driver of \$11 billion in economic activity for California!

In the last 20 years, California almond growers have reduced the amount of water required to grow a pound of almonds by 33 percent. Nearly 70 percent of almond growers use micro-irrigation systems and more than 80 percent use demand-based irrigation scheduling. No one in the world can produce a high-quality almond as efficiently as we can in California!

In times of crisis, there are people who look for someone to blame. Almonds were the first target. Through sharing a few facts about our water stewardship, the media tide has turned to more balanced reporting. As the weather continues to warm into the summer, I expect agriculture will continue to field questions from our urban neighbors about water. Rest assured that your cooperative is committed to collaborating with our industry peers, water and environmental experts, consumer groups, regulatory bodies, and policy makers to establish a water policy that makes sense for all Californians – rural and urban, Central Valley and coastal, producers and consumers.





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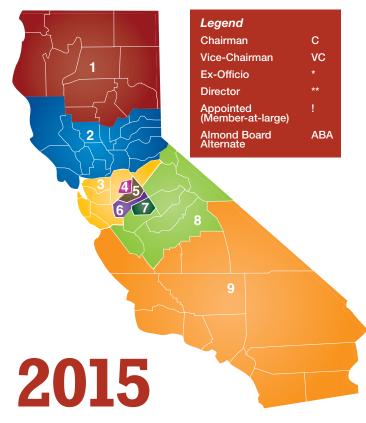
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20th Anniversary Golf Tournament Success Thanks to Sponsors and Donors

Another Huller/Sheller Golf Tournament is in the books thanks to the many sponsors and donors who helped make it a success. New to the program this year was a tie-in with the *Blue Diamond Growers* Foundation Scholarship. Nearly \$9,500 was raised for the Foundation, which will help support students wishing to pursue a degree in agricultural fields.

"It was a great tournament and we had a huge turnout," said Jereme Fromm, Field Supervisor and tournament organizer. "We were able to leverage our tournament to help the Foundation scholarship with support from hullers and shellers around the state. We look forward to continuing the tournament's success in the years to come."

The winning team, from left to right, included board member Charles Crivelli from Turlock, Mike Kinsley, John de Soma, Pardip Singh, Mike Willemse and Frank Lima.



2015 Huller Sheller Golf Tournament

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Nut*Thins Honored By Gluten-Free Living Magazine

Blue Diamond's Almond Nut*Thins received the "Best Overall" and "Best Flavor and Texture" award in Gluten-Free Living magazine's "Cracking the Code on Gluten-Free Snacks" feature. The cooperative's popular crackers scored well with judges in nearly every category and the panel voted them the best candidate in the line-up for dips.

Recipe of the Month:



Triple Berry Blast

2 Servings

1 cup (8 oz.) Unsweetened Vanilla Almond Breeze® Almondmilk

1 cup halved strawberries

1 packet no-calorie sweetener (such as stevia), optional

1 cup frozen, unsweetened raspberries, partially thawed

1 cup frozen, unsweetened blueberries, partially thawed

Blend Almond Breeze with strawberries and no-calorie sweetener (if using) until smooth. **Add** raspberries and blueberries; blend until smooth. **Top** with additional berries, if desired.



In season, freeze fresh berries for a fabulous flavor.

Per serving Calories 118; Fat 2g; Cholesterol 0mg; Sugars 14g; Fiber 8g



Almondmilk. From The Almond People.™

Blue Diamond Growers Foundation Awards Record Number of Scholarships

The *Blue Diamond Growers* Foundation received a record number of applications and awarded a record number of scholarships to the incoming freshman class of 2015. The students all hail from California's almond growing regions of the Central Valley and plan to pursue an agriculture-related degree. The board members who comprise the scholarship committee hope that with the Foundation's assistance to complete their agricultural education, these students will give back to the industry in the future.

Here are profiles of this year's *Blue Diamond Growers* Foundation scholarship recipients, with an excerpt from their essay in which they were asked to describe a key problem in agriculture today.



Phillip Agusto – Lemoore
Fall 2015 School: Cal Poly,
San Luis Obispo

Major: BioResource & Agricultural
Engineering

"Water is one item that everybody needs. Proper water management benefits everybody, as water is such a precious commodity. The more we can conserve water the more water there will be to go around for everyone whether you live on a farm or in the city."



Kayla Copus - Merced

Fall 2015 School: Cal Poly, San Luis Obispo

Major: Agricultural Communications

"Without knowledge, the public will not be able to support or understand the struggles that farmers, ranchers and everyone involved with the industry are facing. With the terrible drought California is facing currently, we need as much help and support as we can get to bring water to the farmers."



Rachel Coelho - Turlock

Fall 2015 School: California State University, Fresno

Major: Agricultural Business

"Seeing personally the toll the water shortage is having on farmers and agriculture production has been scary. Suggestions, ideas and game plans for what to do and how to manage the issue have come out of the woodwork. All that can truly be done that is in our control is to conserve fresh water as best as we can."



Hannah Friesen – *Livingston*

Fall 2015 School: Cal Poly, San Luis Obispo

Major: Agricultural Education

"A trend I see throughout agriculture education is that students are not incredibly passionate and motivated to learn and experience more with the ag industry. I want to change this. I want students to understand the true value in pursuing a career in agriculture."

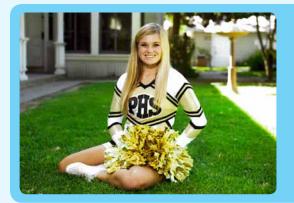


Christine Fry - Chowchilla

Fall 2015 School: California State University, Fresno

Major: Agriculture Business

"Some concerns in agriculture I see today are the lack of groundwater and the resources to manage it. Immigration, labor and the increase of minimum wage in California are also challenges I see."



Alexandra Peart - Arbuckle

Fall 2015 School: Cal Poly, San Luis Obispo

Major: BioResource and Agricultural Engineering

"The main issue concerning agriculture at the moment is the extreme lack of water. California is in a great drought, which greatly affects agriculture. In order to grow crops, farmers need to have access to a great deal of water. Different precautions need to be made to preserve the little amount of water we do have."

Jennifer Moran - Williams

Fall 2015 School: California State

Major: Business

"It is clearly evident that a huge problem in the agricultural field at the present is the water situation that has arisen in California. This situation produces a setback in the manufacturing of any crop."



Shannon Muzio – Fresno

Fall 2015 School: California State University, Fresno

Major: Agricultural Business

"California is in a terrible drought. All around me I see the marks this drought is making on my community: hay prices are rising, new and deeper wells are being dug, crops have lesser yields, and worse of all, long-time farmers are forced to sell their land because of their inability to maintain their land without water."







Brooke Henriksen – Kingsburg

Fall 2015 School: Cal Poly, San Luis Obispo

Major: Agriculture Business

"The biggest issue currently happening in the agriculture world is the water shortage in California. Here in the Central Valley we are in a major drought. I believe that by obtaining a career in the agricultural world I will have the opportunity to improve the water situation and other issues that occur in agriculture."



Kristen Voss – Hughson

Fall 2015 School: California State University, Chico

Major: Agricultural Science and

"I believe that one of our main problems in agriculture at present is the high speed rail. This ride is claimed to go hundreds of miles at a quick rate. Where are they going to put this rail though? It is proposed that the right-of-way for this train will go right through our agricultural land, seizing thousands of acres of prime farmland while hundreds of farms will be cut in half by train tracks."



Tristan Vos – Ripon

Fall 2015 School: Dordt College, Sioux Center, Iowa

Major: Agri-business & Crop Science

"With the world population expected to reach over 9 billion by 2050 the demand to feed this population will mandate higher vields on smaller amounts of productive farmland. Loss of farmland to urban growth has increased the urgency for the agriculture community to find better and more efficient means of production. This 'production' includes many of the issues/ problems faced by today's farmer ... The problems faced by the agriculture community are many and varied. I believe educating yourself in all aspects of agriculture and committing yourself to proper stewardship of all our resources is of utmost importance."



Laine LaGrande - Maxwell

Fall 2015 School: California State University, Fresno

Major: Plant Science – Crop Production Management

"Without water, farmers are limited in what and how much of a product they can produce and sell. People will begin seeing a shortage in commodities and a high increase in prices. Since not as many crops could be produced, this could lead to a shortage of jobs in the agriculture production workforce, which is where I am pursuing to work. If the drought does not end soon, more and more problems are going to arise."



Makala Navarro – Atwater
Fall 2015 School: Texas A&M University
Major: Agriculture Science

"Perhaps the most complex challenge we see in the agriculture industry is lack of knowledge. Most of the general public is unaware of the realties that occur in agriculture. This gap between producer and consumer – between public and farmer – is what allows for antiagriculture campaigns to be so powerful. This problem specifically is what drives me to my future."



Saul Navarro – Arbuckle

Fall 2015 School: Cal Poly, San Luis Obispo Major: Agricultural Environmental Science

"Our area, like other areas in California has been greatly impacted by the drought and the lack of water. When our area built the Butte Tehama Canal, it was a joint area to provide water to all the farmers. Now, farmers in our area are having to dig wells and are using groundwater, a situation that is dire. Our wells are running dry. I am not sure how to resolve this situation. We all need to pray for rain."



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Every week more and more handlers are paying the Nonpareil price for Supareil. You can potentially earn more dollars per

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Oven Roasted Line Gets Package Makeover

Blue Diamond's most popular Oven Roasted Snack Almonds have gotten a makeover with the introduction of new 5-ounce packages. The new line will consist of four consumer-loved flavors – Blueberry, Café Mocha, Dark Chocolate and Sea Salt – and is currently on the shelves in grocery stores in the northeastern U.S. and Texas.

Exciting Fruit and Coffee Flavors Entice Consumers

The streamlining of the fruit and coffee product lines brings great potential for bringing in new snack almond buyers. The flavors chosen represent the most popular in each product line based on a consumer poll where shoppers were asked which item they would purchase if it was the only flavor available.

"Blueberry and Mocha are our strongest performers and have led their respective lines in dollar and volume sales, as well as movement on the shelf," said Maya Erwin, Group Marketing Manager for *Blue Diamond Snacks*.

The two flavors also combine two of the cooperative's target demographics. The fruit line appeals to female shoppers who like to follow healthy diets and seek out healthy snacks that satisfy a "sweet tooth." The coffee line attracts both male and female consumers looking for low-carbohydrate, high-protein foods that offer quick energy boosts.

Classic Oven Roasted Flavors Aim to Please

Rounding out the 5-ounce product line are Dark Chocolate and Sea Salt, two fan favorites that consistently outperform the other oven roasted options, leading the line in shelf movement, distribution and sales figures. These two are so well-loved that the marketing team eventually approved packaging extensions to 14 and 16-ounce bags.

"Not only do we expect to bring in new consumers with this line, but we are also excited for shoppers to come back to purchase more of these flavors," Erwin said. That's thanks to the combined power of consumer-loved Dark Chocolate and Sea Salt with the distinct demographic pull of the Blueberry and Mocha is sure to set the new 5-ounce line apart.

"We chose the 5-ounce packaging for this line because it is 'just right' for our consumers," she explained. "These bags have a larger shelf presence than our 4-ounce bags and 8-ounce jar line. The gusseted, stand-up design of the pouch sits well on the shelf. And best of all, they're resealable! We're confident that we will see incremental sales from this launch."

Look for the 5-ounce snack line to gain distribution as the year progresses.





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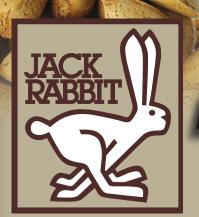
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Often Imitated... Never Duplicated

Global Ingredients Sales Expertise Expands with New Hires

The sales team responsible for selling almond ingredients to the world's major food companies has expanded to include two new members – Jennifer Bardin and Christopher Cromwell. Each brings a unique skill set and background to the team, complementing the already extensive product and market knowledge employed by the cooperative.

Almond Facts sat down with Jennifer and Christopher to learn more about them and learn more about their role at *Blue Diamond*.

Almond Facts (**AF**): Could you tell our readers where you're from and where you went to school?

Jennifer Bardin (**JB**): I grew up in Latch, Texas, a small community in East Texas where I attended Harmony High School. I attended LeTourneau University in Longview, Texas where I earned a bachelor's in business administration and my MBA in marketing.

Christopher Cromwell (**CC**): I was born and raised in Eden Prairie, Minnesota. I went to Purdue University and the University



Jennifer Bardin ∧

of Minnesota. I currently live in Washington, D.C. with my wife and two young kids and our golden retriever, Kevin!

AF: What were you doing prior to joining *Blue Diamond Growers*?

JB: Prior to *Blue Diamond*, I worked in specialty food ingredient sales into the food, nutraceutical and personal care industries in the Dallas/Ft. Worth region.

CC: I worked at John B. Sanfilippo & Son managing their operations in Europe, Middle East and Africa. Prior to that I had a similar role at Ocean Spray Cranberries – a cranberry and grapefruit cooperative.

AF: What attracted you to *Blue Diamond Growers*?

JB: I love almonds and I knew *Blue Diamond* was the leader in the almond industry. It was an opportunity that I couldn't pass on.

CC: I have always had an affinity towards almonds and working within cooperatives. *Blue Diamond's* brand is well-known throughout the world and really has so many tremendous opportunities – I just had to come.

AF: What geographic areas do you cover?

IB: I cover the Central United States.

CC: I am responsible for all of Europe.

AF: What does a typical work day look like for you?

JB: My day includes lots of phone calls and emails with customers discussing the industry, their current business and potential products. I meet frequently with my customers in the field to discuss the market, our expansive product lines and new almond products such as our almond flour.

CC: I spend a lot of time on the road (in the air) throughout my region - 1 to 2 weeks a month during the busy season. The face-to-face interaction outside of large industry events is a huge benefit for *Blue Diamond*. When I am at home, I spend a lot of time on the phone and Skype updating agents, customers and potential customers on the market. I'm also always researching and monitoring trends in the market to present to current and new customers.

AF: How do your customers perceive the *Blue Diamond* brand?

JB: They see us as the leader in safety, quality and innovation in the almond industry.

CC: *Blue Diamond* is thought of as the most innovative and highest quality processor by my customers.

AF: What do you like best about *Blue Diamond*?

JB: The people – my coworkers and my customers.

CC: *Blue Diamond*'s distinct advantage in quality, consistency, food safety and innovation.

AF: What are the biggest challenges you face in your role?

JB: With a tighter almond supply, we have to look out into the market to identify where we can get the greatest return for our growers. It requires a bit of strategy as a salesperson.

CC: Today it's a toss-up between our local European Union competition, current currency markets and our duty disadvantage.

AF: What is your favorite *Blue Diamond* product or your favorite way to use almonds as an ingredient?

JB: *Honey Chipotle* – I love the sweet and

spicy combo!

CC: Wasabi & Soy almonds have always been a favorite. Also, our new extra-fine almond flour is great!

AF: What are your hobbies outside of work?

JB: I enjoy hiking, reading, yoga and spinning.

CC: As a Minnesotan, I am an avid ice hockey player and fan, having played since I was 2-years-old – Go Rangers! I also enjoy going to as many baseball games as I can – Go Nationals!







Almond Breeze Expands Global Footprint into South Korea

The international taste for *Blue Diamond's Almond Breeze* is continually expanding, most recently into South Korea with the April launch of Original and Unsweetened flavors. The launch, which was first publically announced at the 2014 Annual Meeting, was made possible through a partnership with Maeil Dairies, the No. 2 Korean dairy company.

"With our strong production partner in Maeil and a great consumer opportunity, we expect South Korea to become one of *Almond Breeze*'s best markets yet!" said Nick Dehnert, Senior Marketing Manager for International Retail at *Blue Diamond*.

"Korean consumers are known for being trendsetters and are quite health conscious," said Dehnert. "Our focus is on delivering the key health benefits of *Almond Breeze* – low calories, Vitamin E and calcium – in a product that also tastes great!" Check back for continued coverage of this exciting new market for *Almond Breeze*.

Both flavors of Almond Breeze will be available in both 950 ml and 190 ml sizes (or approximately 32 ounces and 6 ounces, respectively), making them perfect for families or individuals on the go. The marketing strategy for the launch is anchored by a strong media plan, including television advertising that kicked off in May. Blue Diamond's target demographic in Korea is women in their 30s and 40s who lead healthy lifestyles and are trendsetters in their social circles.







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As *Blue Diamond Growers* are well aware, California is in the fourth year of a historic drought. In April, after a year of pleas for voluntary water cuts from the state's urban and suburban users, California Governor Jerry Brown issued a first-of-its-kind mandatory water restriction ordering state agencies to cut usage by 25 percent over 2013 levels. Agricultural water use was spared additional cuts; the only requirements of agriculture are increased reporting of drought management plans to the state.

As California Farm Bureau Federation (CFBF) President Paul Wenger wrote in AgAlert, "The drought just became real for millions of our fellow Californians ... We'll need to make sure urban and suburban Californians understand how the water system works: that farmers are always the first to be cut back – always – and that those cuts go deeper and deeper until the water planners can no longer ignore the need to cut urban uses, too. That day has come."

As Wenger alluded to, urban and suburban water users have taken issue with the supposed lack of mandatory restrictions on agriculture. But as growers can attest, agriculture has long been on the front lines of this drought. Almond growers and the rest of the state's agriculture industry have been in the trenches for four long years, fighting to make the most of the available water to protect our food supply for generations to come.

California agriculture is a big deal. According to the U.S. Department of Agriculture, California produces nearly a third of the country's food supply, including one-third of the nation's vegetables and two-thirds of its nuts and fruits. And water is the key to keeping that production afloat. "Water is the lifeblood of our work, which provides not only jobs but the food security our state and nation rely on," Wenger said to the CFBF members.

Growers Sacrifice to Stay Alive

Agriculture has taken blow after blow as the drought wears on. In 2015, nearly 30 percent of California's irrigated farmland will receive absolutely no surface water this year, compounding on two years of zero percent water allocation from the State Water Project and the announcement of the federal Central Valley Project's initial 2015 water supply allocation of zero percent for most agricultural customers. To date, the drought has cost agriculture 17,000 jobs and \$1.5 billion, resulting in \$7.5 billion in economic damage to the state.

Almond growers, like all farmers, have been making cuts through sacrifice for the past four years due to the drought. "In addition to having to lay off workers, almond growers have been removing orchards ahead

of schedule in an effort to conserve water," said Mel Machado, *Blue Diamond*'s Director of Member Relations. "We're talking about low-yielding orchards that would make economic sense to keep in place at the current pricing, but are being removed to consolidate water onto younger plantings."

Additionally, through decades of innovation, California almond growers have reduced the amount of water it takes to produce a pound of almonds by 33 percent. More broadly,

California farmers have invested more than \$3 billion to develop smarter irrigation systems and reduce water use by 14 percent in the process. In the same time frame, yields per acre have increased nearly fourfold, meaning today's crops are using water with greater efficiency than ever before. "Growers do all they can to be good stewards of natural resources like water because it's smart business and smart farming," Machado said.

Finding a Viable Solution for All

The water shortage in California is the result of two things: four consecutive years of drought and

limited storage that hasn't kept up with the needs of California's population, environmental goals and food production. While it's too late to lament these variables, it is not too late to come together to work toward a water policy that makes sense for everyone.

Blue Diamond Growers is committed to collaborating with industry peers, water and environmental experts, consumer groups, regulatory bodies and policy-makers to address several key factors to combat the water shortage. Those factors include:

- Increasing political will to ensure smarter, longer-term thinking about the way the state manages its water supply;
- Expanding and modernizing water storage systems;
- Fixing a literally leaking infrastructure;
- Capturing more usable water from environmental flows;
- Continuing innovation in irrigation systems, water reclamation and recycling, desalination, and any other promising solutions.

"This is a wake up call," Governor Brown said on ABC's "This Week" shortly after issuing the executive order. It "requires action and changes in behavior from the Oregon border all the way to the Mexican border. It affects lawns, it affects how long people stay in the shower and how businesses use water... In a drought of this magnitude, you have to change that behavior and you have to change it substantially."

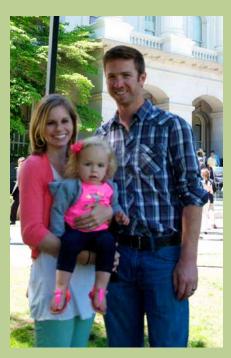
Farmers know this. It's time for the rest of the state to follow suit.

Members Show Support for State Water Storage Bill

Several Blue Diamond families participated in a water storage rally at the California State Capitol on April 27 in support of AB 311. The bill, authored by Assembly Member James Gallagher (R – Yuba City) and supported by Assembly Republican Leader Kristin Olsen of Modesto, would have streamlined environmental reviews of water storage projects specifically Sites Reservoir in the Sacramento Valley and Temperance Flat Dam on the San Joaquin River. Supporters of the bill held signs that read "We Need Water" and "Water = Food," and chanted this call to action: "We need water, build storage now!"



↑ Supporters of AB 311 gather on the steps of the Capitol amid dead almond trees.



★ Former Blue Diamond young leaders
 Jason and Misty Bayer of Modesto brought their daughter to the rally.

"Water is absolutely critical to the strength of our economy, to our ability to grow economically in all of our regions, and our ability to continue to be the breadbasket of the world. No civilized society seeks to destroy its own food supply...and that is exactly where government policies are headed in California if we don't do something about it," Olsen said from the steps of the Capitol.

The bill was rejected by the Assembly Natural Resources Committee in March and again failed on the April revote that followed the rally.





♠ Donovan and Sandy Dunlop, Blue Diamond members from Modesto, show their support for the bill.



♠ Assembly Republican Leader Kristin Olsen addresses the crowd and media.



Blue Diamond Growers broke ground on a new almond-receiving warehouse at its Salida facility this spring, expanding the footprint of the world's largest almond receiving station. Upon completion of Bulk Warehouse 7 in the fall, the cooperative expects it will reduce wait times for growers delivering their product to the facility through improved mechanical features, an additional truck scale, a new receiving pit and expanded box dumping capabilities.

"We expect 20 percent growth in our business in the coming years and as such, we needed more storage to accommodate the additional almonds. Bulk Warehouse 7 will give us 33 percent more receiving capacity," said Darrell Nelson, Salida Plant Manager. "The design and construction features were carefully selected to maintain optimum product quality and enhance our grower delivery speeds."

The state-of-the-art warehouse features innovative design elements, including:

- Prefabrication construction for concrete, structural steel, conveyance support structures, conveyors and catwalks to expedite the construction process;
- Roof-mounted in-feed conveyors to gently transport almonds into storage;
- Spirals to guide the almonds from roof conveyors to the ground;
- Floors sloped at 26-degrees to allow product to naturally flow into underground outbound conveyors;
- Floor openings with integrated chutes and adjustable gates automate the outbound conveyance of product into processing plant.

"We are preserving product quality to meet expectations of customers who source Extra # 1 and Supreme grade almonds. This warehouse will be state of the art in design, providing gentle handling, food safety and added flexibility in order to meet the needs of our grower-owners as well as customers," said Nelson.

Growers who deliver to Salida will notice a redesigned traffic flow to enhance the overall experience. The new route will operate clockwise only, will not require trucks to circulate around the receiving area and emphasize safer traffic patterns overall. Specifically, there will be improved staging areas and the elimination of the lower conveyor that blocked access to receiving, making better use of the property.

As the largest of *Blue Diamond*'s receiving stations throughout the Central Valley, these enhancements, coupled with the new warehouse, will make Salida capable of efficiently tackling more business in the years to come.





A Blue Diamond's board and management break ground on the new warehouse.

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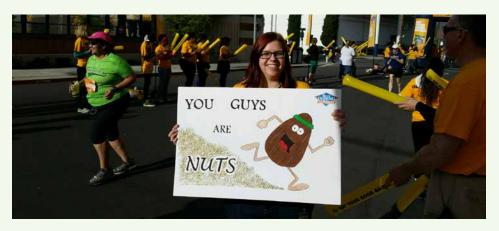


Employees and their families joined thousands of runners in one of Sacramento's largest running events, the *Blue Diamond Almonds* Shamrock'n race weekend!





Blue Diamond employees not only participated in the half marathon, they came out to support their coworkers and the rest of the runners as they charged through Blue Diamond Alley. Sporting yellow "Get Your Good Going" shirts and clapping thunder sticks, these employees proved that "Get Your Good Going" is more than just a motto, it's a way of life!













Agricultural Council of California

EMILY ROONEY, President

Full Speed Ahead: Brown Administration Picks Up the Pace on Regulations

"Fasten your seat belt. It will be a very exciting ride."

- Governor Brown

Governor Brown used this quote in the beginning of 2015, when highlighting his objectives for the coming year. While the Legislature and the Governor now focus their efforts again on the state budget, the Administration is very active within its agencies specifically in regards to water, air and climate change. Ag Council's team is engaged with staff in the regulatory agencies on these fronts and continues to work to improve outcomes for *Blue Diamond Growers* and all of our members.

Emergency Regulation Mandating Water Reductions to go into Effect on June 1

With continued focus on the drought, Governor Brown issued an Executive Order on April 1 requiring the Board to issue a mandatory statewide 25 percent reduction of water usage in urban areas. Implementation of this program begins June 1.

When the State Water Resources Control Board (the Board) considered the emergency regulation mandating water reductions in urban areas, I testified to express concerns at the Board meeting in mid-May about the potential impact on some of our members. While many think agriculture does not participate in this program, some of Ag Council's food processing members utilize water from municipal sources.

Additionally, as an example, farmers in certain areas utilize municipal water for agricultural production. I highlighted the need for water for food safety purposes and emphasized a willingness to work with the Board in order to address those needs.

CalRecycle Releases Revised Composting Regulations

In April, California's Department of Resources Recycling and Recovery (CalRecycle) released a revised proposal for the Compostable Materials, Transfer/Processing Regulations.

In a May 6 comment letter, Ag Council expressed appreciation that CalRecycle addressed some of our members' concerns, including those raised by the almond industry, with a revised definition of land application and the inclusion of the agricultural by-product material definition.

Ag Council remains concerned about the proposal adding another layer of regulation where there is already adequate environmental oversight from another authority. In particular, Ag Council urged CalRecycle staff to provide more clarity regarding the need for the proposed regulations as they pertain to dairy farms and to include our recommendations.

Gov. Brown Announces Aggressive Emissions Targets

On April 29, Governor Brown issued an executive order establishing an aggressive target for California to reduce greenhouse gas emissions to 40 percent below 1990 levels by the year 2030. The Governor views this action as an interim step toward later attaining an 80 percent greenhouse gas emissions reduction by 2050.

The state is currently working toward reducing greenhouse gas emissions to 1990 levels by the year 2020 under the existing cap and trade program established by the Air Resources Board (ARB) to implement the California Global Warming Solutions Act, which was signed into law in 2006.

Some Ag Council members are required to participate in the existing cap and trade program, and we are concerned about this goal outlined by Governor Brown as we are still learning about the impacts of the existing climate change regulatory program. In the Legislature, Ag Council opposes SB 32 by Senator Pavley (D-Agoura Hills) to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050. SB 32 was approved by the Senate Environmental Quality Committee on April 29 and is under consideration in the Committee on Appropriations.

Ag Council supports AB 21 by Assemblyman Perea (D-Fresno) directing the ARB to recommend a 2030 target for cost-effective statewide greenhouse gas (GHG) emissions reductions to the Legislature and the Governor by Jan. 1, 2018 and consult with other state agencies regarding energy efficiency and electrification of the transportation system. AB 21 passed the Assembly Natural Resources Committee on April 28 and is awaiting a hearing in the Committee on Appropriations.

To read more about our work on policy issues, please go to www.agcouncil.org.

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The Bee Box
CHRISTI HEINTZ
& TARA McCALL

A January 2014 article in Bee Culture by Dr. A. Gary Shilling discussed funding for honey bee research and the importance of investing in our honey bees in a significant way. He compared the total amount annually spent on honey bee health research (approximately \$25 million), with the amount spent on human health research (\$147 billion). Let's do the math — this is less than .02 percent of the amount spent on human health research!

Perhaps it is unfair to compare the health research of the lowly honey bee with that of human health, so let's look at other agricultural areas. Take beef/diary — \$120 million on research; nearly five times that spent on honey bees. Compare pork — \$80 million on research; more than three times the research invested compared to honey bees. Poultry? At \$60 million

in research, the poultry industry spends well over twice what is spent annually on honey bee research.

The honey bee industry sits in the unenviable position of possessing a lack of adequate investment in research funding on the one hand, and, on the other hand, a surplus of maladies that lead to declines in honey bee health and shortages of available strong,

healthy colonies for honey production and crop pollination. Unfortunately, there is no simple answer for what ails the honey bee. USDA scientists say the cause of Colony Collapse Disorder (CCD) is multifactorial. Many honey bee health challenges are complex and remain unsolved.

Current topics in honey bee research can be divided into five major categories: diagnostics, pests, pathogens, pesticides and nutrition. Simple, cost-effective and efficient diagnostics — both field and laboratory — will help tremendously in characterizing the status of bee and colony health.

Varroa remains the major pest issue, and Varroa's ability to quickly build resistance to control measures keeps the total removal of this mite elusive. Various pathogens, including Nosema, likewise have limited options when it comes to control without impacting the health of the colony. Pesticides offer an additional challenge and an area where information on the honey bee impact is only partially understood. Only in the last few years have scientists gathered large data sets on the pesticides found in hives and begun in earnest to study the impact of pesticides on the various life stages of the bee. Nutrition concerns center upon finding enough high quality and diverse natural forage to sustain bee health. But little is known about just how much natural forage and of what specific quality is sufficient to meet the needs for honey bees.



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Blue Diamond Growers

Despite all the questions, there are several organizations that have a big stake in the success of honey bees, and they plug away at spearheading and funding research projects. *Blue Diamond Growers*, via the "BeeCause We Care" program, is one of those entities. *Blue Diamond*'s funding of \$100,000 was entrusted to Project Apis m. and is targeting in-field diagnostics to assess

bee strength and bee health. These projects were covered in depth in the November/December issue of Almond Facts "Bee Box."

Almond Board of California

Blue Diamond further invests in honey bee research through its participation in the Almond Board of California (ABC). The ABC's current slate of pollination research projects for the 2014-2015 fiscal year total \$276,175 and include three projects targeting Varroa control strategies, support for the long-term stock improvement program at Washington State University in Pullman, WA, funding to build a Pacific Northwest Tech Transfer Team, and two studies assessing the value of supplemental diverse natural forage to the health status of honey bees.



National Honey Board

Other industry partners are making important research investments in honey bee health. The National Honey Board recently approved 10 projects, committing over \$230,000 towards honey bee health research in 2015. Four of the projects are looking for new sources of nutrition to benefit honey bees and increase honey production. Four projects target pathogens or pests, and two are seeking more data on pesticide exposure and interactions. More information on completed and ongoing projects can be found on the Honey Board's website, www.honey.com.



California State Beekeepers Association

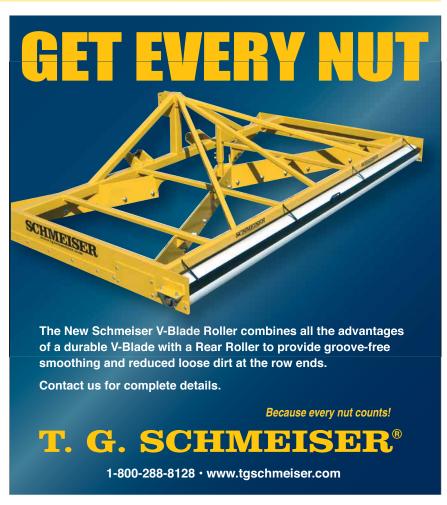
The CSBA is advancing research that is beneficial to beekeeping practices by funding five research projects totaling nearly \$94,000. Three are assessing various pesticide effects, with two specific to queen health and pesticide interaction. Because more than half of all queens come from California, the CSBA is funding a free queen diagnostics service for CA beekeepers, which will greatly benefit queen health

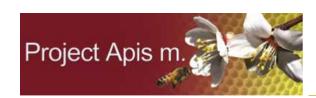
and quality. A final funded research project will analyze environmental conditions on Varroa mite infestation.

Project Apis m.

PAm currently has invested \$409,446 in research towards enhancing honey bee health. Three of the projects focus on in-field diagnostics to better assess colony strength during pollination (Blue Diamond funded projects). Two projects focus on crop protection tools applied during crop pollination. Of these two pesticiderelated studies, one is examining the impact of fungicide applications during blueberry pollination and another is studying the effect of Insect Growth Regulators (IGRs) on larval and adult bees. One study is assessing a predatory mite for use in control of Varroa, and four research studies seek to understand more about the viruses vectored by Varroa. One study focuses on pathogens and one on nutrition.

Continued on next page »





Even more research projects will be announced soon that specifically target Varroa (see the March/April Almond Facts "Bee Box"). To date, over \$180,000 has been raised for this Varroa specific research, thanks to CoBank, American AgCredit and generous contributions from the Johnston bee broker families.

"An investment in knowledge pays the best interest."

Benjamin Franklin

Honey bees pollinate over 90 different crops and are responsible for providing about one-third of our food supply. Honey bees contribute nearly \$20 billion in farm income. One percent of the total value to our food supply, or \$200 million annually, might be a target annual investment in bee research and honey bee health, and to guarantee our food supply. As Benjamin Franklin said, "An investment in knowledge pays the best interest," and there certainly are many more things we need to know to more thoroughly understand honey bee pests, diseases, nutritional needs and management techniques.

Costco Wholesale Corporation also provides funding for honey bee research. At a recent bee meeting, their "donation" to honey bee research was applauded, yet Costco representatives quickly corrected the "donation" term to "investment." Costco recognizes the importance of investing in honey bee research, not only for the honey



they sell, but for the many pollinated crops in their warehouses.

There are no doubt many other untapped resources available for honey bee research funding. Efforts are underway to solicit funding from honey users and others who benefit from pollination services — such as food and beverage companies that use honey bee products or sell honey beepollinated products. Funding has also been made available by corporations not involved directly in honey bee products or services, but simply think helping the honey bee can be part of an overall conscientious environmental or sustainability program. A sustainable supply of bees equates to a sustainable food supply. All we need now is sustainable and adequate research funding.

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DAVID DOLL

Almond kernel development is ahead of schedule. Kernel fill for Nonpareil was completed in many locations of the northern San Joaquin Valley around mid-May, suggesting that the season is progressing two to three weeks weeks ahead of "normal." This means that hull-split and harvest will occur earlier than normal, impacting nutrient, irrigation, and insecticide timings. Every orchard will progress differently depending on location and varieties, so it is important to monitor the progression on an orchard basis.

Irrigation Prior to Hull-Split

Research has shown that a mild to moderate water stress applied just prior to and maintained through the first week of hull-split may help with harvesting and reduce hull rot. This practice is known as regulated deficit irrigation (RDI). Irrigation durations should be reduced and plant stress should be monitored using the pressure chamber until a stem water potential of -15 bars is achieved. Depending on soil and irrigation practices, this may take a few days to several weeks and may require a 10 to 15 percent reduction in water applied. The stress should be maintained for two to three weeks. Once hull-split is progressing, then full irrigation should resume until the pre-harvest programs begin.



Be careful not to over-stress the trees. Too much stress during the hull-split period can decrease kernel weights and cause "textured" kernels. If trees have been deficit irrigated through the season due to drought conditions, RDI is not advised. More information can be found in Publication #8515 "Drought Management for California Almonds" available for free at http://anrcatalog.ucdavis.edu/.

Hull-Rot Management

Hull rot is a fungal infection of the splitting hull by either Rhizopus stolonifer or Monilinia spp. Toxins produced by these fungi move into the tree, killing spurs and wood within the canopy, impacting future production. Trees that are over-fertilized and -irrigated tend to have increased hull-rot. Nitrogen applications should be minimized after kernel fill and, if possible, RDI should be applied. Fungicides have been shown to be effective in reducing strikes by Rhizopus, but must be timed to the initial splitting of the almond hull. This usually coincides with NOW sprays. Hull split fungicide sprays do not reduce hull rot by Monilinia spp. Data indicates that fungicides for Monilinia need to be applied in early to mid June to reduce latent infections of the hull.

Managing Navel Orangeworm

If navel orangeworm (NOW) populations are high, hull-split sprays should be made to protect the crop from infestation. Sprays should be made at the onset of hull-split (e.g. 1 to 5 percent). Often at this time, blanks begin to split in the interior of the orchard. Most reduced-risk pesticides need

to be applied prior to egg laying or hatching, supporting this earlier timing. Pyrethroids (e.g. Brigade, Warrior), organophosphates (e.g. Lorsban), and chlorantraniliprole (e.g. Altacor) have shown adult activity and may be suitable for later timed hull-split sprays. Although lower in cost, pyrethroids have been shown to impact spider mite predators for at least 6 months after the hull-split application. Second sprays for 'Nonpareils' and coverage for later splitting pollinators may be needed, especially in areas with higher temperatures and NOW populations. Work with your pest control advisor to determine the best strategy for timings and pesticide selection.

Webspinning Spider Mite Management in Almonds

As summer approaches almond growers need to be monitoring for webspinning spider mites. The most common species during the summer are Pacific and twospotted spider mite, though on occasion strawberry spider mite can be found. As adults, all three mites look and behave similarly, even though control of Pacific spider mite is more difficult to control.

Webspinning spider mites overwinter in the orchard under rough bark and ground litter. During the spring, usually in March and April, migration will occur from these places into the lower areas of the tree. These early-season populations are typically small, do not reproduce quickly, and often become prey to early-season natural enemies. However, as temperatures warm in late May through September, the populations increase rapidly, particularly if natural enemies are absent. In favorable conditions, a lifecycle can be completed in seven to 10 days, with eight to 10 generations a year.

Spider mites damage leaves by sucking cell contents and damage initially appears as a light stippling. As populations increase, mites and their eggs become more visible, and eventually "webs" will appear around spurs and leaves. Leaves with high populations will fall from the tree, reducing carbohydrate production. If leaf loss becomes severe there is a potential for crop loss the following year. Spider mites are most problematic in orchards that are dusty or where the trees are stressed. Stressing factors can include insufficient irrigation, nutrient deficiencies, or excessive crop load.

The most important factor in spider mite management is biological control. When natural enemies are abundant, miticides are not needed. When natural enemies are absent, control with even the best miticides can be shortlived. The goal is to find a balance that relies primarily on natural enemies supplemented by miticides as needed.

The most important predators of spider mites are sixspotted thrips, western predatory mite, and the spider mite destroyer. Sixspotted thrips are highly migratory and can quickly control spider mite populations. Over the past few years it has become the predominant mite predator in California almonds. The western predatory mite- although similar in size as spider mites- is whitish in color and often moves quickly across leaves. The spider mite destroyer is a small black ladybug that feeds exclusively on spider mites. It is found primarily during the second half of the season.



These predators are very effective in controlling mite populations, and in orchards with high predator-to-prey ratios, treatment may not be required. Growers who want to conserve and promote predators should avoid broad spectrum insecticides, particularly early in the season, and avoid prophylactic and preventative miticide applications that do not provide enough food for mite predators to become established in the spring.

In determining when to time the first mite spray application, a presence/absence monitoring protocol has been developed. Monitoring should occur weekly, and prior to mid-June should focus on hot-spots within the orchards. After mid-June, the whole orchard should be randomly sampled.

When sampling trees, 15 leaves from a minimum of five trees should be selected. Leaves should be randomly chosen from the inside and outside of the canopy. Examine both sides of the leaves looking for pest mites and predators. Note the number of leaves on each tree with pest mites and their eggs, and the number of leaves with predators. There is no need to count the mites. Once completed, compare the numbers with the guidelines provided in the "Don't

Continued on next page »



Treat" and "Treat" columns on the sampling form provided at the webspinning spider mite link of the UC Almond Pest Management Guidelines (http://ucipm.ucanr.edu/PMG/selectnewpest.almonds.html)

Many miticide options exist for cases where a treatment is required. Each miticide has its strengths and weaknesses, and for that reason options should be discussed with a pest control advisor. For almond growers in the San Joaquin Valley that plan on using miticides containing abamectin, keep in mind that new regulations require that only low-VOC formulations be used between May 1 and 31 October 2015 and 2016. More details on this new regulation and all miticide options can be found in the UC Almond Pest Management Guidelines (http://ucipm.ucanr.edu/PMG/selectnewpest.almonds.html).

Spray Rig Speed

Spray coverage for almond trees is based on the height and density of the tree. If the height of the tree is under 10 feet, adequate spray coverage can be attained at almost any reasonable speed. For taller orchards, however, slower speeds have been shown to increase coverage. Research trials have shown that a difference of a 1/2 mph (2.0 mph v/s 2.5 mph) can reduce the coverage by 30 percent for trees 18' or higher. Traveling at 3.25 MPH, less than 2 percent coverage was achieved at a height of 20 feet. This reduction makes reduces

the concentration of the pesticide deposited, increasing the chance of resistance formation, loss of crop due to disease/insect damage, and tractor/rig damage. For maximum coverage and pesticide efficacy, spray rig speeds should be operated no faster than 2 MPH.

Ants

Ants are a serious problem where they are present. If in high populations, they can consume between 1 to 2 percent of the crop within four days. Fields should be scouted and, if needed, baits should be applied. Baits - since they are growth regulators- must be applied 1 month prior to harvest for maximum effectiveness. If bait wasn't applied, and fire or pavement ants are present, a broadcast spray of organophosphate should be applied as close to harvest as allowed to reduce foragers. Nuts should also be picked up as soon as possible after shaking. Be mindful that not all ants present within the orchard feed on almonds. A quick trick to distinguish "good ants" from "bad ants" is to throw potato chips or a hot dog near the mound. If consumed, it can be assumed that the colony will also feed on almond kernels. Another trick is to stomp near the mound to bring ants to the surface. If they swarm out of the mound, are red in color with a black butt and bite, they are mostly likely fire ants. Monitoring and treatment information can be found at (http://ucipm.ucanr.edu/PMG/selectnewpest.almonds.html).

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Final Thoughts

As we prepare for an earlier than normal harvest, remind your work crews to be careful with the heat and around machinery. Long, hot days - especially when short on sleep - slow our reflexes and reduce the ability to make decisions. Work with the crews and contractors to ensure that there is adequate shade and water, and rules regarding pesticide usage are being followed. If personally spraying or harvesting late, have somebody check in every few hours to make sure you are safe.

"My frequent flyer miles are piling up."



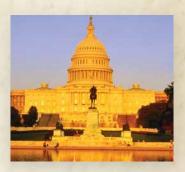
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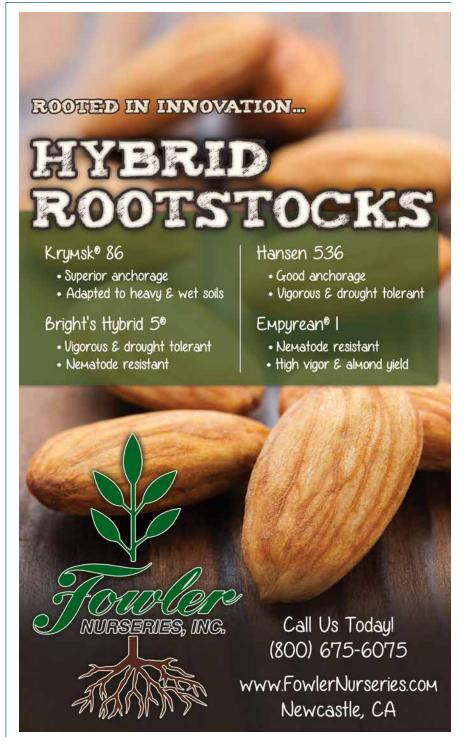
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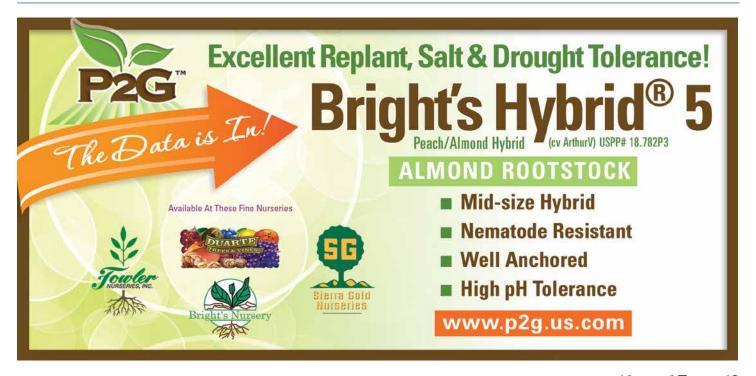
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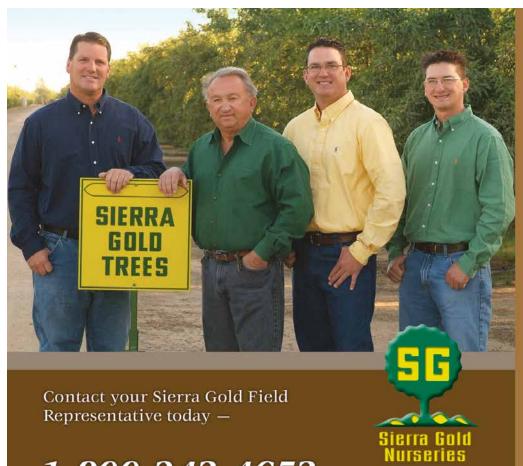
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