



# almond facts

NEWS, VIEWS AND INDUSTRY INSIGHT

MARCH – APRIL 2019



Turlock Facility  
Expansion

Meet Your New  
Regional Manager

Almonds & Fruit  
Launch



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## ▶ BOARD OF DIRECTORS

Dan Cummings, *Chairman of the Board* | Chico

Dale Van Groningen, *Vice Chairman* | Ripon

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Kevin Fondse | Ripon

Stephen Van Duyn | Modesto

Charles Crivelli III | Turlock

Dan Mendenhall | Winton

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Joe Huston | Monterey

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Mark Jansen, *President and CEO*

Dean LaVallee, *Chief Financial Officer*

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Mel Machado, *Contributing Photographer*

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*Blue Diamond*, the world's largest processor and marketer of almonds, exports to 90 countries.

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# Transform Your Orchards with the Power of FBSciences' Programs

## **FBS Transit<sup>®</sup>**

2018 research on our almond crop program confirms what we have seen in the field for years. A complete FBS program can transform your orchards from producing good crops to great crops.

In addition to the Patterson study illustrated in this chart, we conducted three additional replicated trials with both young and established orchards and saw similar results. FBS programs added more than \$1100 of revenue per acre at current almond prices.

With your spring nut fill spray applications, mix the following **FBSciences** products with your crop protection and nutrient products to support peak photosynthetic capacity and nut fill leading to higher nut weight..

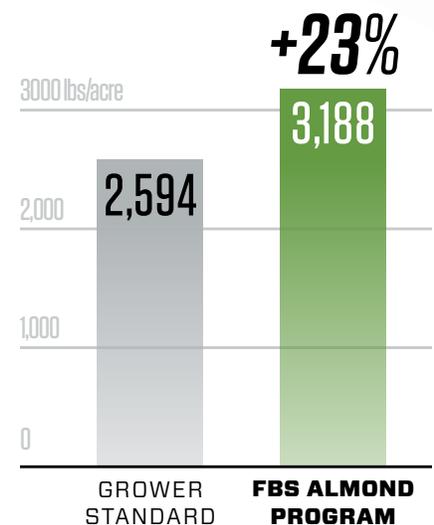
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Have a question?

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Mark Jansen  
President & CEO



## If You Believe It, You Can Achieve It

I continue to be impressed by the perseverance of farmers. Global trade wars, government bureaucracy and especially weather make resilience a defining attribute of every successful farm. This will be my tenth year of experience with the almond crop and I am still waiting for a good weather season. Years of historic drought followed by blooms where university research would suggest limited chances for pollination.

This year, there were numerous challenges during bloom with cold and rainy weather, but there were some reasons for optimism. The cooler weather gave bees more time to pollinate blossoms, an overlap between varieties allowed for plenty of pollen and when bees were able to work they had plenty of open flowers on all varieties to forage. *Blue Diamond* is wishing you have a bountiful crop in the 2019 season.

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*“Always bear in mind that your own resolution to succeed, is more important than any other one thing.”*

— Abraham Lincoln

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While it is too early to determine the size of the coming crop, we anticipate larger supplies of almonds in the coming years. And, *Blue Diamond* has been preparing for them by delivering on innovations at our processing facilities, creating new products, and developing global partnerships.

Our growing investments in manufacturing innovations strengthen our commitment to you.



Blue Diamond's groundbreaking for the Phase II expansion of the Turlock facility will significantly increase our manufacturing capacity and support the success of *Almond Breeze*® growth with an integrated beverage line. We are also building extra room for an additional product line dedicated to future almond product innovations.

The launch of *Almonds & Fruit* expands our branded snack nut line of *Blue Diamond Crafted Gourmet Almonds*. This new product is a perfect example of your cooperative winning over consumers with a snack that is uncompromising in quality and taste. And, thanks to our strong business partnerships, we are also winning with consumers on a global scale. By establishing a partnership with Grupo LALA, a leader in the Mexican market, *Blue Diamond* is able to grow *Almond Breeze*® in Latin America — one of the most relevant for the cooperative's growth. We are also leveraging the successful partnership with Thailand's Heritage Group to

increase *Almond Breeze*® sales and continue building the *Blue Diamond* brand in the Thai market.

As you can see, you and your cooperative are being well-served by an experienced team. Success is something they work towards every day, applying all their resources to help maintain trust in the *Blue Diamond* brand. Our achievements over the last three months have been significant. I am confident it is because of a shared dedication to our mission, vision, and values that we remain steadfast in staying a leader in the industry.

I believe in the long-term success of *Blue Diamond* and farmers supported by the strength of this cooperative. Together, the Best is Yet to Come. ♦



## BLUE DIAMOND INVESTMENT PROGRAMS

### New Investment Rates Available

*Blue Diamond Growers offers members short-term investment program.*

The objective of this program is to serve as a competitive investment alternative for our members and to provide Blue Diamond Growers with a steady source of funds. The interest rates effective January 1, 2019, for the program are listed on the table to the right.

	Short-Term Investment Certificate (STIC)
Initial Investment Required	\$1,000
Interest Rate	3.25%

For more information, contact your local Regional Manager, or Member Services at (209) 545-6225.

*This summary does not constitute an offer to sell or a solicitation to purchase investment certificates. We will provide a package of documents for the programs to those members who are California residents and who express an interest in participating in the program.*

## Regional Managers



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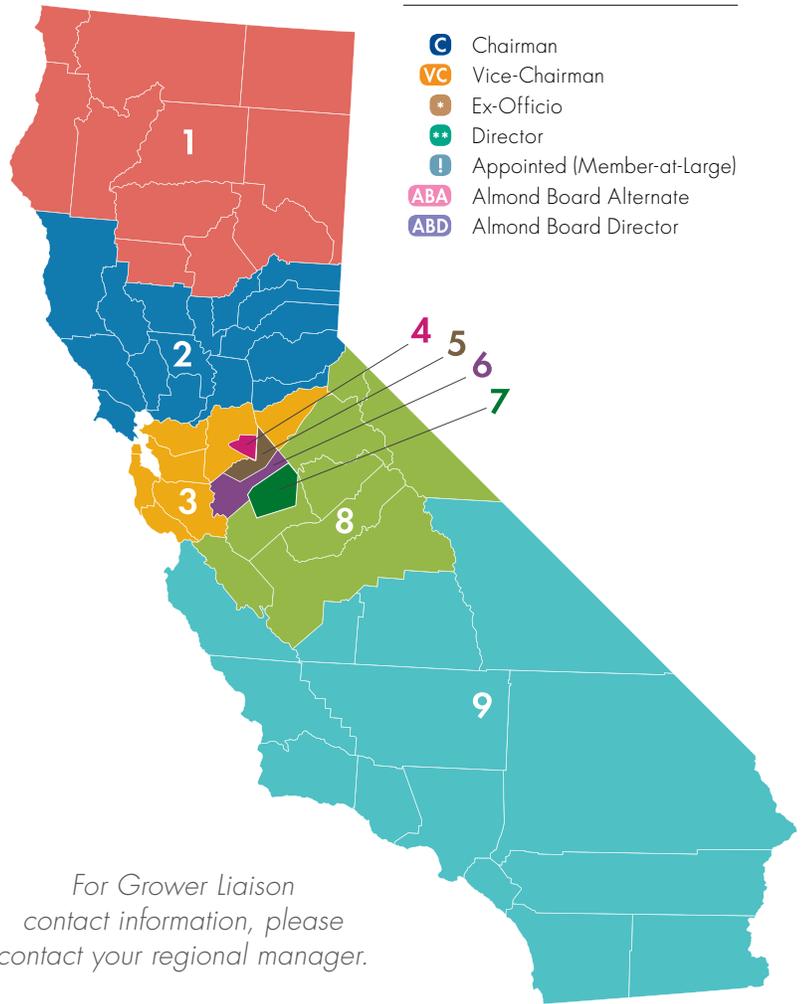
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 Phone: 209.545.6225  
 Fax: 209.545.6215

Sacramento Membership Dept.  
 Phone: 916.446.8368

# 2019 Grower Liaison

## LEGEND

- C** Chairman
- VC** Vice-Chairman
- \*** Ex-Officio
- \*\*** Director
- !** Appointed (Member-at-Large)
- ABA** Almond Board Alternate
- ABD** Almond Board Director



### DISTRICT 1

- Gregory Watts
- Lyle Livingston
- Rick Pittenger
- Brian Erickson **!**
- Fred Montgomery **VC**
- Daniel Varner
- Greg Overton
- Kevin Borrer **!**
- Kevin Davis
- John Nock
- Raymond Antonowich **C**
- Darren Rice **!**
- Dan Cummings **\*\***
- W. Howard Isom **\***
- P. Samantha Lewis

### DISTRICT 2

- Ron Tadlock
- Catherine L. Cain
- Ronald Timothy
- Analee Lauwerussen **!**
- Charlie Marsh **C**
- Zach Dennis
- Leo LaGrande
- Sabrina Blickle **!**
- Michael F. Doherty
- Kelli Evans **VC**
- Jim Peart
- Brook Bachmann **!**
- John Monroe **\*\***
- Elaine Rominger **\***
- Gerald Rominger **\***
- Cathy Marsh

### DISTRICT 3

- Joe Rishwain
- Michael Van Groningen
- Stephen Schmiedt
- Garret Mussi **!**
- Kathy Thomsen **C**
- Steve Stanful
- Clayton Bogetti
- Jim Thoming Jr. **!**
- Michael M. Petz **VC**
- Lloyd Van Dyken
- Bruce Oosterkamp
- Mike Bogetti **!**
- Dale Van Groningen **\*\***
- John Thoming **ABA '09**

### DISTRICT 4

- Lance Ioppini
- Bob Holmes
- Nick Alta
- Paul Adrian **!**
- Herman Doornenbal **C**
- Tom Christensen
- Karen Javete
- Jason Dole **!**
- Will Drost
- Wesley John Eisenga **VC**
- Robin Giuntoli
- Joe Gasper **!**
- Kevin Fondse **\*\***
- Kenneth Roos **\***
- Greg Kamper

*For Grower Liaison contact information, please contact your regional manager.*

### DISTRICT 5

- Nick Blom
- Gordon Heinrich
- Jeff Erickson
- Brum DeVisser **!**
- Brandon Riddle
- Mark Giannini
- Dennis Bowers
- Neil Jolliff **! C**
- Jack Hoekstra
- Sonny Johns **VC**
- Sid Miller
- Gary Darpinian **!**
- Stephen Van Dуйn **\*\***
- Neil Van Dуйn **\***

### DISTRICT 6

- Greg Reichmuth
- Rick Alvernaz **C**
- Allen Peterson
- Patrick Romero **! VC**
- Dirk Van Konynenburg
- David Richmond
- John Hack
- Scott Long **!**
- Richard Gemperle
- David M Genzoli
- Paul Lara
- Darryl Starn **!**
- Charles Crivelli III **\*\***
- Steve Vilas **\***
- Bill Brush **ABA '02**
- Tim A. Viera

### DISTRICT 7

- Mario Bandoni
- Scott Abraham
- Galen K. Miyamoto **C**
- Joe Sansoni **!**
- Daniel L. Clendenin
- John Pereira
- Rodney Voumard **VC**
- David Passadori **!**
- Jim Snyder
- Victor Yamamoto
- Bobby Deol
- Kevin Hall **!**
- Dan Mendenhall
- Robert J. Weimer **\*\***
- Rick Scoto

### DISTRICT 8

- George Goshgarian Jr.
- Paramjit Singh
- Joey Biscay
- Norman Pretzer **!**
- Bruce Chapman **VC**
- Gary Thompson
- Baljit Boparai
- Tom Chandler **! C**
- David Massaro
- Jerry Rai
- Anthony Basila
- Dan Wattenbarger **!**
- George Goshgarian **\*\***
- Aldo Sansoni **\***
- Ranbir Grewal

### DISTRICT 9

- Thom Gruber
- Craig Fulwyler **VC**
- Jeff Parsons
- Gurcharan Dhillon **!**
- Ben Wilson
- Karam Guron
- Jason Dhillon
- Ryan Clark **!**
- David Snell
- John Allen
- Don Davis **C**
- Chris Vandborg **!**
- Kent Stenderup **\*\* ABA**
- Clinton Shick **\***
- Kyle Balakian



## Blue Diamond Named Almond Blossom Parade Winner

Team members and their friends and family gathered in Ripon for the 57th Annual Almond Blossom Festival Parade to spread the *Blue Diamond* Proud message. The *Blue Diamond* float, decorated to illustrate the theme “A Century of Memories” was named the parade’s Sweepstakes Winner. Each year this event establishes the ongoing commitment of our team members to the local community. ◆





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## Almond Board of California 2019 Election Results

The Almond Board of California today released election results for the Board of Directors positions whose terms of office are March 1, 2019 through February 29, 2020. The names of the following nominees have been submitted to the U.S. Secretary of Agriculture for selection:

### Independent Grower

- **Position One, Member (One-year term):**  
Brad Klump, Escalon
- **Position One, Alternate:**  
Mike Mason, Wasco
- **Position Two, Member (Three-year term):**  
Brian Wahlbrink, Waterford
- **Position Two, Alternate:**  
Bill Harp, Bakersfield

### Independent Handler

- **Position Three, Member (One-year term):**  
Micah Zeff, Modesto
- **Position Three, Alternate:**  
Jonathan Hoff, Denair

### Cooperative Grower

- **Member (Three-year term):**  
Mel Machado, Modesto
- **Alternate:**  
Mark Jansen, Sacramento

As a governing body for the industry, the ABC Board of Directors is comprised of five handler and five grower representatives who set policy and recommend budgets in several major areas, including production research, public relations and advertising, nutrition research, statistical reporting, quality control and food safety. ♦

*“ I am very pleased to learn of the appointment of Mel Machado to the Almond Board of California Board of Directors. Mel has been central to life at the ABC for years, having served on numerous working groups and committees, in addition to his present role as an ABC Board Member. He lives and breathes the industry every day, and has contributed greatly to the introduction and adoption of the ABC’s California Almond Sustainability Program (CASP), and the Almond Orchard 2025 Goals. Mel is an exemplary member of the California almond community, and I look forward to working with him even more closely as he takes on his new responsibilities.*

*Congratulations Mel! ”*

*— Richard Waycott, President and CEO,  
Almond Board of California (ABC)*

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### Meet Your Newest Regional Manager, Tim Sanchez

Let's give a warm Blue Diamond welcome to your newest Regional Manager, Tim Sanchez. Almond Facts caught up with him to learn a little more about who he is and what he brings to the cooperative.

**Almond Facts (AF): Tell our readers a little about yourself.**

**Tim Sanchez (TS):** Growing up in California's Central Valley, agriculture has always been part of my life. I graduated from Chico State with a degree in Agriculture Business. I also managed various permanent crops in both the Central and Northern regions of the state, including almonds.

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

**TS:** Blue Diamond is the almond industry leader and one of the leading agriculture cooperatives. Having an opportunity to be part of the team is one I couldn't pass up!

**AF: What made you want to become a Regional Manager?**

**TS:** I believe the success of any company increases by building strong relationships. I am excited to work with the grower-owners in my district to strengthen their bond with the co-op and keep it financially strong.

**AF: Have you always been interested in agriculture?**

**TS:** Yes! Farming has been part of my life since I was child. I grew up in a farming family and was driving tractors, irrigating, and helping with harvest as early as age 10. I pursued my interest with an ag degree and, since college graduation, been continuously employed in the industry.



**AF: What do you do in your free time?**

**TS:** I enjoy working outside, traveling, and working out.

**AF: What are you looking forward to the most as you begin your career as a field supervisor?**

**TS:** I look forward to meeting and building strong relationships with the grower-owners.

**AF: Do you have a favorite Blue Diamond product?**

**TS:** My all-time favorite Blue Diamond product are Smokehouse almonds. But recently, I have been indulging in the Sweet Thai Chili bold flavor. ♦



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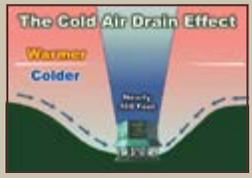
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## Blue Diamond Expanding State-of-the-Art Facility in Turlock

Blue Diamond is delivering on its commitment to manufacturing excellence by expanding its award-winning processing facility in Turlock. The 200,000-square-foot manufacturing plant recognized as the 2014 Plant of the Year by *Engineering Magazine*, will get an additional 52,000 of square feet. This new building continues expansion of the cooperative's value-added product lines and delivers the innovations of new almond products worldwide.

"We are thankful to our growers who own this cooperative for entrusting their almonds to us so we can continue to make valuable investments," said Blue Diamond Chairman of the Board Dan Cummings. "This project gives them a secure future in the almond business."

Officially kicking off this latest construction project was an intimate

groundbreaking ceremony held in late January. The Blue Diamond Board of Directors and team members were joined by guests representing the City of Turlock, Chamber of Commerce and the California Legislature. Local media were also in attendance.

At the ceremony, Turlock Mayor Amy Bublak expressed excitement for the expansion. "We know Blue Diamond has other company locations where they could have

placed this expansion, but we are proud they chose Turlock. We look forward to the additional jobs this expansion will bring." More than one hundred jobs were created after the first phase of the manufacturing plant opened in April 2012.

Blue Diamond also highlighted its growing partnership with the California Future Farmers Association Foundation. For the last two years, the cooperative has supported the mission of the California FFA to



“We are thankful to our growers who own this cooperative for entrusting their almonds to us so we can continue to make valuable investments.”

prepare tomorrow’s agriculture leaders, today, by investing in the organization’s Giving Tuesday jacket drive. *Blue Diamond* also made a donation to the Turlock FFA chapter to further demonstrate its commitment to the future of agriculture in the Central Valley.

The new building will support the growing demand for *Almond Breeze*® with an integrated beverage line and extra room will also be built for an additional production line dedicated to future almond product innovations. *Blue Diamond’s Almond Breeze*® business is growing year over year at 14 percent and this expansion significantly increases our manufacturing capacity and continue.

This second phase is scheduled to be completed in Spring 2020. ♦

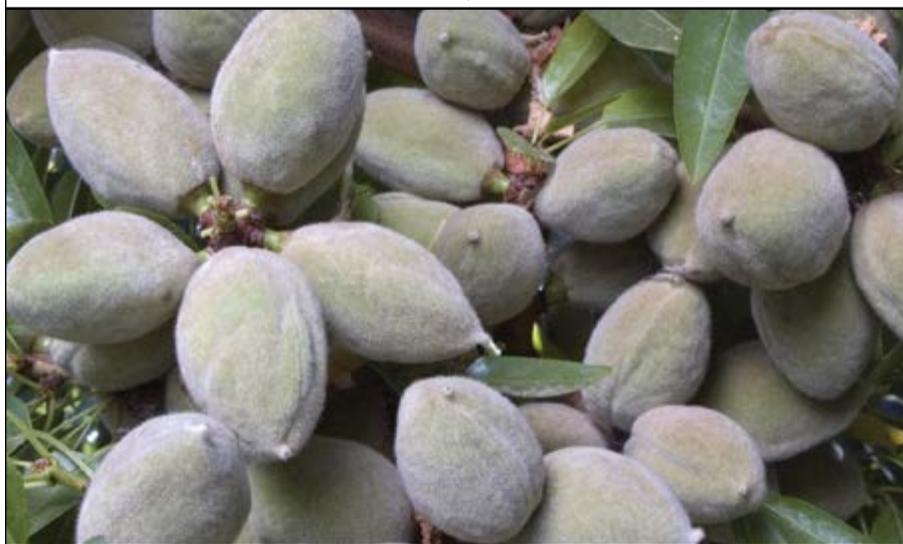
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## Homemade Chocolate Peanut Butter Eggs

Cook Time: 20 minutes

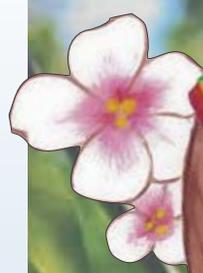
Makes: Up to 7 eggs

### Ingredients

- $\frac{1}{4}$  cup *Almond Breeze*® Unsweetened Vanilla (or for extra creaminess use *Almond Breeze*® Unsweetened Almondmilk Cashewmilk Blend Vanilla)
- $\frac{1}{2}$  cup peanut flour
- $\frac{1}{4}$  teaspoon sea salt
- 3 pitted medjool dates; roughly chopped
- $2\frac{1}{2}$  tablespoons cocoa powder
- $2\frac{1}{2}$  tablespoons virgin coconut oil; melted so it is a liquid
- 8 drops of liquid stevia
- $1\frac{1}{2}$  teaspoons maple syrup

### Directions

1. Place almondmilk, peanut flour, salt and dates into your food processor and process until a ball of dough forms (about 1 minute or so).
2. Remove ball of dough, break off pieces (about 1–2 tablespoons in size) and form into an egg shape. Place on a piece of parchment paper on a plate and freeze for about an hour.
3. Once your peanut butter eggs are frozen, combine cocoa powder, melted coconut oil, stevia and maple syrup to make the chocolate for dipping. Remove frozen peanut butter eggs from freezer, dip each (one by one) into the chocolate to cover. Place each back on the parchment paper and return to the freezer to harden.
4. They'll be ready to enjoy within a few minutes of freezing. Store any leftovers in the freezer and remove a few minutes before eating. They freeze pretty solid but will thaw out quickly and be ready to eat within 1–2 minutes.



# Bennett

Bennett-Hickman  
US PP26,083 P3

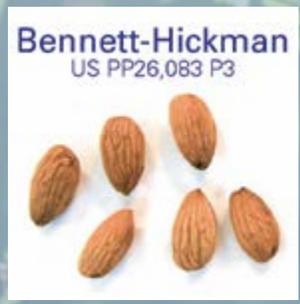


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Peter DeBoer @notahockeycoach - Jan 22  
#almonds bloom is coming! The most beautiful time of the year in the valley is just around the corner. Time to start thinking about that first #fertilizer application.  
#ValisLvs #KnowledgeGrows #agronomy #CAN17 #wearebluediamond



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#wearebluediamondgrowers  
#wearebluediamond #almondgrowers #ag #californiaalmonds #realfarmers #realfamilies #californiaagriculture #roots #cagrown #almonds #northerncalifornia #calpolyalumni #calpolybrae #bluediamondalmonds #bluediamondvalley #getyourgoodgoing #canaveekalilawest  
ksualmondfarmer That quote is also from George Washington. Sorry, forgot  
Liked by goudleben and 25 others  
JANUARY 22

## #WeAreBlueDiamond Snapshots

Every member has a story to tell! During the #WeAreBlueDiamond social media campaign, we'll be sharing posts from social media. Join us to make Blue Diamond become a much more interesting story. ♦



jaschand3 • Follow  
jaschand3 My dad and I made the cover of Almond Breeze. Get it while it lasts!  
#WeAreBlueDiamond  
#wearebluediamond  
consumingthoughtphotography That's mac, days So cool!!  
alileeacarvalho That's so cool!  
ashbweaver So cool!!  
gabeescarcega That's cool Jason!  
mfernand78 You're like famous now!  
lidaJohn Zack of the milk carton!! I was worried you guys went missing.  
Liked by goudleben and 32 others  
FEBRUARY 22



momnamindy5 • Follow  
momnamindy5 Sunset walk in the blossoms last night, it's so beautiful this time of year. If I could bottle blossoms I would!  
Did you know when you smelling their essential & getting free aromatherapy and smell the flowers!  
#breathedeap #almonds #almondtopping #wearebluediamond  
jean\_r\_splies Beautiful pic  
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almondowntown1 • Following  
Innovation Agr-Center  
almondowntown1 We are ready for farmers and friends at the Blue Diamond Booth - World Ag Expo 2019! Grab a hot cup of coffee with our new Almond Breeze Creamer and Kick up your feet rest a bit with a Almond Power snack! #almonds #worldagexpo2019 #wearebluediamond #hotcoffee  
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## *Blue Diamond* Sustainability Program and the California Almond Sustainability Program (CASP)

Interest from consumers about where their food comes from is on the rise, and they are seeking out specific information on the sustainability practices of the brands they choose. In 2018, 59 percent of consumers said it was important that the foods they purchased and consumed be produced in a sustainable way, up from 50 percent in 2017 (IFIC 2018). In addition, global food manufacturers expect suppliers to provide sustainability information so that they can aggregate data and report out on the sustainability of their entire supply chain.

As one of the leading agriculture cooperatives, it is time for *Blue Diamond* to talk about farm sustainability.

The *Blue Diamond* Sustainability Program gives a platform for the cooperative to create positive stories backed by credible information. This information is extremely helpful in communicating to customers and consumers how almonds are produced in our fields and facilities. The program also strengthens *Blue Diamond's* partnerships and continues market access to top customers like Walmart, General Mills, and Kellogg's, who ask for this type of information.

### What is CASP?

The California Almond Sustainability Program (CASP), led by the Almond Board of California, provides grower-owners with the opportunity to voluntarily review or assess the practices they use to produce their crops. The program consists of several modules, covering the major areas of crop production. Grower-owners who complete each module document their practices, providing information that demonstrates the sustainability of the almond industry to buyers, regulators and consumers. At the same time, participating grower-owners can also learn new ways to improve their efficiency.

### Modules Offered

- Irrigation Management
- Nutrient Management
- Energy Efficiency
- Air Quality
- Pest Management
- Financial Management
- Ecosystem Management
- Workplace and Community
- Bee Health

“Interest from consumers about where their food comes from is on the rise, and they are seeking out specific information on the sustainability practices of the brands they choose.”

### How does CASP work?

This service is free and secure. The data you enter is saved for you to update as needed, but never shared on an individual basis. Data from the self-assessments is only reported in aggregate to document industry-wide statistics and as a way for you to compare your practices to other almond growers through a comparison tool.

We are asking members to complete three CASP self-assessment modules that cover our customers most frequently asked questions about our grower-owner practices.

1. Bee Health
2. Irrigation Management
3. Pest Management

- ✓ Go to [sustainablealmondgrowing.org](http://sustainablealmondgrowing.org) to register for an account.
- ✓ In order to ensure we have a *Blue Diamond* specific data set, **please be sure to identify yourself as a Blue Diamond Grower under the adding orchards/processing facilities section.**

### How much time does it take and what is needed to complete the self-assessments?

The combined time of completing all three modules will be about two and half hours. We suggest completing the Bee Health module first. Several of the questions in this assessment will auto populate the Pest Management assessment to help cut down on time. If you are providing information on more than one orchard, a cloning tool is available to document a similar orchard's practices without re-entering all the data or an orchard's practices across years.

To help get you started, your Regional Manager has an Assessment Questions document that contains a list of information that would be helpful to have before sitting down to take any of the three assessments.

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IRRIGATION SYSTEM PERFORMANCE		Your Selection	Answer Choices	Use Statewide
32	Irrigation system infrastructure (e.g., pumps, lines, filters and emitters) was regularly tested and, if necessary, corrected to maintain optimal efficiency.	X	Yes	84.2%
			No	15.8%
			Not applicable	
33	The pH, EC (electroconductivity or salinity), bicarbonate, and/or iron levels of the irrigation water source(s) have been tested at least once in the past year. (Water chemistry testing results should guide system maintenance.)		Yes	86.0%
		X	No	14.0%
34	Irrigation system performance (application rate or pressures) was evaluated at least once during the past 3 years and any diagnosed problems were corrected. <i>If No, then click 'No' and skip to question 39.</i>	X	Yes	79.6%
			No	20.4%
	35. Average application rate was evaluated at least once within the past 3 years.	X	Yes	94.5%
			No	5.5%
	36. Variation in system pressure was evaluated at least once within the past 3 years. <i>If floodfurrow system, then answer 'Not applicable'.</i>	X	Yes	94.4%
			No	5.6%
			Not applicable	
	37. Distribution uniformity based on measured water volume and application rate was evaluated at least once within the past 3 years.	X	Yes	90.4%
			No	9.6%
	38. Distribution uniformity based on measured water volume and application rate was evaluated at least once within the past 2 years		Yes	
		X	No	

Section of a Sample Comparison Report

## What do I get in return?

Growers who have attended recent *Blue Diamond* CASP workshops have commented that the process wasn't as difficult as they expected, and most importantly, that they gained useful knowledge that could help them to be a better grower. Completing the self-assessments helped them to better understand what practices are available and to implement them based on what specifically applies to their on-farm management systems.

You will receive a report comparing your practices to your peers, which shows the percentage of almond growers who use a specific practice (answered yes or no) stacked up against your own response.

Additional tools are offered to help you with meeting the Irrigated Lands Regulatory Program (ILRP) regulatory requirements as well as help with irrigation management:

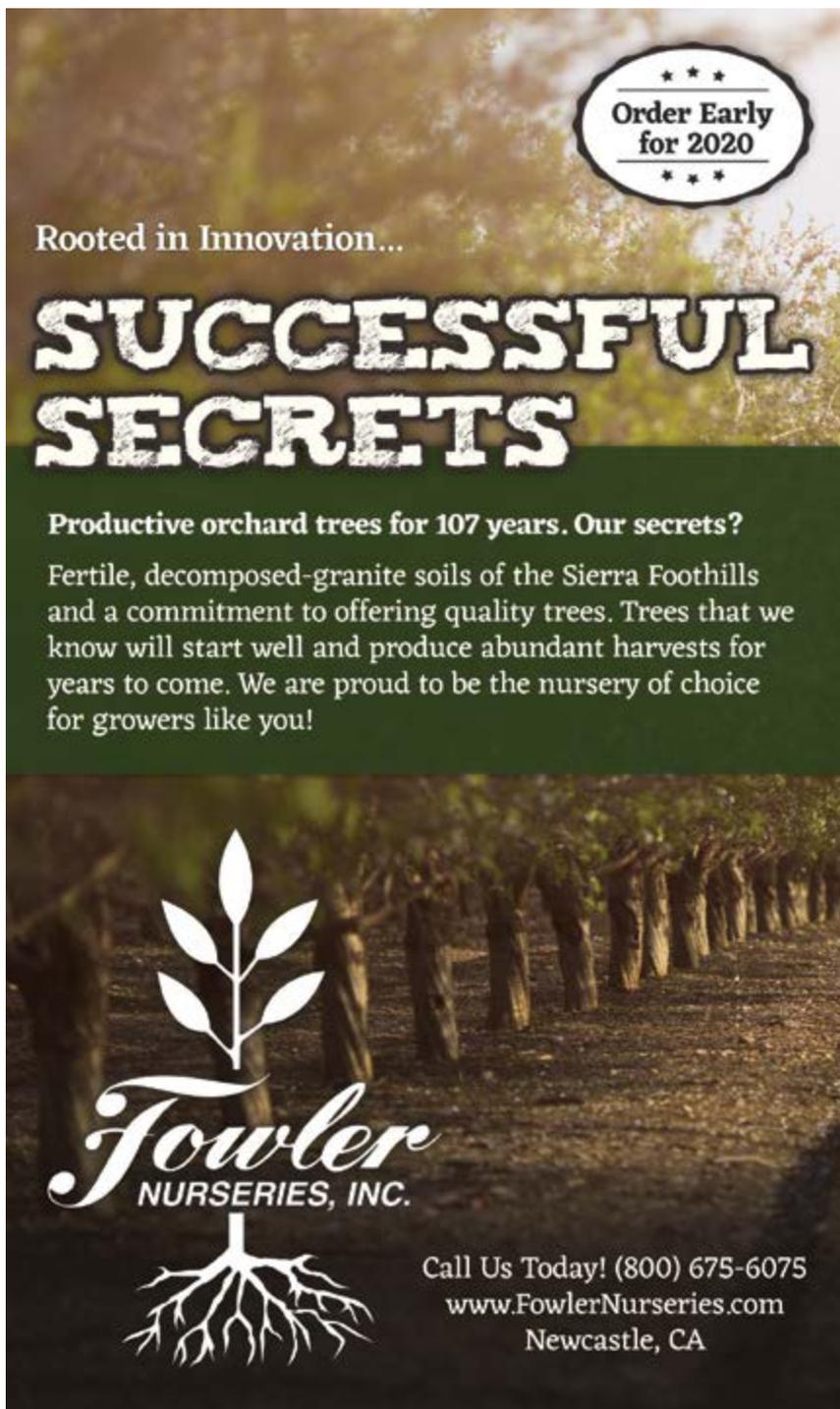
- **Nitrogen Calculator:** Calculate your crop's nitrogen needs with the Nitrogen calculator and input orchard boundaries with the Mapping tool to automatically meet regulatory reporting requirements for the ILRP.
- **Irrigation Calculator:** Calculate your orchard's irrigation schedules with the Irrigation calculator.

Blue Diamond's Vice President of Sales, Warren Cohen, reminds us about the importance of sustainability programs to *Blue Diamond*:

"As consumer demand for transparency grows, global food manufacturers are looking to their suppliers to establish sustainability programs. Providing this type of information and data can be a prerequisite for doing business and allows us to differentiate our company by shaping the *Blue Diamond* story for our consumers. Key ingredient customers already recognize the value in working with *Blue Diamond* by contracting with us for their almond requirements, and the investment *Blue Diamond* and its grower-owners make in developing a sustainability program will enhance our partnerships and allow for premium grower return."

**Register at:**  
[sustainablealmondgrowing.org](http://sustainablealmondgrowing.org)

*We look forward to your participation in the program! Contact your Regional Manager to learn more. ◆*



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## New Partnership Brings *Almond Breeze*® to Mexico

*Blue Diamond entered into a partnership with Grupo LALA, a Mexican company focused on healthy and nutritious foods, to bring the sales and distribution of Almond Breeze® beverages in Mexico.*

As the number one almondmilk brand globally, *Blue Diamond* will be utilizing the strength and leadership of Grupo LALA in the Mexican market to grow *Almond Breeze*® Almondmilk in the country. Mexico is a key market for the cooperative in Latin America and one of the most relevant for the company's growth. There's been significant investment in developing international business and the *Blue Diamond Almond Breeze*® brand globally.

As part of this partnership, Grupo LALA will provide local and regional market knowledge while leveraging its production and distribution capabilities. The initial product launch is expected in the first quarter of 2019. ◆

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*“ I am confident that partnering with the global almond leader, complemented by our LALA’s strong commercializing capabilities, will result in a successful long-term relationship that could continue to expand into other categories in the future. ”*

—Mauricio Leyva, CEO of Grupo LALA

---

## Almond Breeze® is “Alive in Almond Land” in Thailand

The success of the *Almond Breeze*® brand in Thailand was celebrated at the event, “Alive in Almond Land.” Consumers in Thailand have embraced the six flavors offered in the market — Original, Unsweetened, Vanilla, Chocolate, Matcha and Latte — for its health benefits as a drink and cooking ingredient.

*Blue Diamond* and Thailand partner for *Almond Breeze*®, Heritage Snacks and Foods, collaborated to promote a brand that is at the forefront of a global trend for quality, health-focused and convenient consumer products. At the event, Mark Jansen, President and CEO at *Blue Diamond*, Raj Joshi, Senior Vice President of Global Consumer at *Blue Diamond*, and Vittavat Phonphaisan, Vice President of Heritage Group discussed the success and future direction of the almondmilk market in Thailand and other countries. Also spotlighted was the success of *Blue Diamond*’s integrated marketing strategies utilized to penetrate the Thai market, under the campaign theme of “Quality of life starts with a real quality drink.”



“*Almond Breeze*® has all the right ingredients, made from quality almonds from *Blue Diamond Growers*, the world’s number one almond supplier in California,” said Vittavat Phonphaisan. “Added to this has been the global standards met by Heritage Group in producing this renowned international brand in Thailand for the Press Release Thai market and we look forward to expanding in the country throughout 2019 and beyond.”

*Almond Breeze*® launched in Thailand in 2016 and has become a leading almondmilk brand in the country, where it is currently in the number one position in both volume and value sales. ♦

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## New *Almonds & Fruit* Elevates Snacking

With unique and delicious flavor combinations, *Blue Diamond* expanded its snack almonds portfolio with the launch of *Almonds & Fruit*, a distinctive take on traditional trail mix.

*Almonds & Fruit* follows closely on the launch of last year's *Crafted* line, featuring *Gourmet Almonds*. The cooperative is continuing to indulge the insatiable snack food trend with *Almonds & Fruit*, which serves as an everyday snacking option. From classic flavor combinations like Sea Salt and Whole Blueberry or Dark Chocolate and Toasted Coconut, to trending favorites like Sweet Cardamom and Honeycrisp Apple or Fiery Ghost Pepper and Tart Cherry, each pairing in this latest lineup harmonizes *Blue Diamond's* quality almonds with gourmet fruits for compelling flavors certain to entertain even the most discriminating palates.

"We created *Almonds & Fruit* in response to a growing demand for premium snacks that offer both unparalleled quality and flavor," said Michael Burdeny, Global Head of Marketing at *Blue Diamond*. "We took time to consciously source real, whole fruit pieces and we pair them with our almonds, creating a product that is

“*Blue Diamond continues to transform snacking from the routine to celebrated moments.*”

uncompromising in taste and quality. With this launch, *Blue Diamond* continues to transform snacking from the routine or mundane to celebrated moments.”

Our ability to innovate is leading us to create new and exciting snacking solutions that are simple

and delicious, without sacrificing quality or nutrition. With *Blue Diamond's* line of gourmet snacks in hand, consumers can effortlessly elevate snack time day in and day out. ♦



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## Energetic Start to 2019

*Almond Alliance has hit the ground running in 2019 and has no intention of slowing down. Below is a snapshot of the work Almond Alliance is doing on behalf of the almond industry.*



### State

In February, leaders of the California ag community had the opportunity to sit down with Governor Newsom, Secretary Karen Ross and three newly-elected members of the California State Senate and Assembly to provide them with an overview of important industry issues. We expressed our concerns regarding unimpaired water flows, SGMA implementation, the need for clean drinking water, the importance of steady labor, innovative methods of handling our co-products, standards of identity, integrated pest management, pesticide use, good practices around bee health and border stations, and worker health and safety.

We requested to meet regularly with the administration and have the opportunity to provide feedback on inspections and regulatory oversight. The recent appointment of Almond Alliance member and almond grower Bill Lyons as the Agriculture and Water Liaison to Governor Newsom will be extremely beneficial to our organization and industry.

### Federal

Recently, I returned from Washington, D.C. While there I met with our California delegation and key members of the Ag Committee. The USDA briefed us on the current trade negotiations, and we articulated how the almond industry has been impacted. We continue to communicate the importance of international trade to the California almond industry. As the U.S. and China negotiations are ongoing, we expressed our support of the United State Mexico Canada Agreement and the need for strong trade agreements to access customers around the world; while reiterating the importance of stable and reliable markets for continued industry growth.

We were advised that India and Turkey will no longer qualify as beneficiary developing countries under GSP which has provided emerging economies with duty-free access to the U.S. market for certain exports. Seeing these countries are two very important markets for our industry, we expressed that the impacts of this decision will likely be significant. We also reported to the Administration that, as promised, we made sure that the California almond industry applied for the Market Facilitation Program. To date, approximately 2,280 growers have applied and received \$17.2 million, and another 700 applications are expected to be funded for around \$25 million in direct payments. Almond Alliance is advocating for the balance of mitigation funds to be awarded to a direct marketing program specific to almonds. Overall, the clear takeaway is that the California almond industry needs a strong presence in D.C., and needs your help to make our presence strong.

While Almond Alliance continues its advocacy efforts on the State and Federal front, it is essential that we show Congress our value and overall impact. There are approximately 45 bills that we are closely watching that

are likely to have an impact on our industry. Therefore, being part of coalitions and partnerships is essential this year. Almond Alliance will continue to work in partnership to:

- Educate key U.S. congressional members and California representatives about the economic, environmental and nutritional value of almonds.
- Increase funding for sustainable practices including orchard recycling programs.
- Advocate for increased funding in ATP and MAP marketing programs at the federal level.
- Push for Free Trade Agreements with key almond importing markets.
- Resist overburdensome regulations while promoting our industries best practices and sustainability goals.

Sadly, we had to say goodbye to one of our valued team members at Almond Alliance — Ms. Andrea York. She was a valued member of our team that returned to Sacramento

to serve as an advocate for secondary education. Andrea will be missed, but she assures us that she will forever be a California almond advocate. Join us in wishing Andrea well.

In summary, this year will be full of changes, challenges and opportunities for the California almond industry as the U.S. resolves trade disputes and will continue to voice the industries perspective of moving toward resolution. I look forward to working alongside you as we address the challenges and opportunities of 2019 and make this a year of accomplishments. ♦



**Elaine Trevino, President,  
Almond Alliance of California**



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## Thank you, *Blue Diamond Growers* for Helping Build the Future Leaders of Agriculture

*The FFA blue corduroy jacket is not just any ordinary jacket. That jacket is the most important part of many FFA members' valued memories that are shared throughout their FFA membership. It symbolizes leadership, dedication, responsibility, and faith that we all have a chance to experience. When we put*

*that jacket on and zip it up, we become a part of something much larger than ourselves. Members from all over the state of California, the nation, and now the world are presented with numerous possibilities, thanks to a blue corduroy jacket.*

In the FFA motto it states that members throughout the organization are "Living to Serve." That is exactly what *Blue Diamond Growers* are instilling in FFA members like myself. When I received my jacket through the Giving Tuesday jacket program, I could not express how excited and appreciative I was. I put it on, and instantly knew that I was going to achieve great things. Over the years in this jacket, I have built friendships, gained leadership skills, and grown as an individual in several ways. *Blue Diamond Growers* provided me with access to these experiences, due to the fact that they provided me with my first FFA jacket as a part of the matching funds they provide the California FFA Foundation on Giving Tuesday. On Giving Tuesday, the California FFA Foundation aims to provide FFA members with their very own blue corduroy FFA jacket. Two years ago, *Blue Diamond Growers* joined the California FFA Foundation in giving the gift of blue by matching every donation that came in. Through *Blue Diamond Growers'* participation in our Giving Tuesday efforts, they have helped to provide more than 1,500 jackets to promising members, like myself, that represent the California Association, FFA.

*Blue Diamond Growers* believes in building meaningful relationships with organizations in our local communities, such as the Future Farmers of America. I had the opportunity to provide a few remarks on the value of the FFA jacket at the groundbreaking ceremony for the expansion of the *Blue Diamond* facility in Turlock. It was at this event that I came to realize that if it was not for the

support of companies like *Blue Diamond Growers*, there would be hundreds of members across the state without the opportunities that an FFA jacket can provide them. The jacket that I received has allowed me to develop new skills throughout my high school career, and I'm grateful to *Blue Diamond Growers* for allowing me to demonstrate those skills at this very special event.

---

*“When we put that jacket on and zip it up, we become a part of something much larger than ourselves.”*

---

During my FFA career, I personally have had the chance to compete in state-wide field days, attend State and National Conventions and leadership development conferences, exhibit my dairy animals at fairs, and compete in public speaking competitions. When I open my jacket and see the pins representing my achievements, I feel a great sense of pride in what I have

accomplished, just as other members of FFA do everywhere. As my days in this FFA jacket come to an end, I know that when I zip up my jacket for the very last time and look upon my accomplishments, I will reflect upon how it all began, when I received my FFA jacket. On behalf of all the

members of the California Association, FFA, I would like to thank *Blue Diamond Growers* for their generous donation which has made possible a lifetime of personal growth and career success. ♦



**Amelia Silva**  
**Turlock FFA Chapter**

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## THE BEE BOX

### Almond Arithmetic

Since it is almond season, the Bee Informed Partnership thought it would be fun to run some numbers on the age old question of approximately how many almonds does a honey bee help produce? There are plenty of quick stats you come across working around bees: At peak population, a strong colony can have over 60,000 individual bees. A queen is capable of laying more eggs in a day (up to 2,000) than there are minutes in a day (1,440). A single bee can produce one-twelfth of a teaspoon of honey in its lifespan and may cumulatively travel 500 miles during the several weeks it spends as a forager. Despite annual losses in the 30 to 40 percent range, the total managed colony numbers remains fairly constant at about three million.

The American bee industry is inextricably linked to the almond industry. Every year, about three-quarters of the national herd migrates from various wintering locations to the central valley of California for the almond bloom in February. The almond industry also has some eye-opening statistics: The 117 million almond-producing trees in California are responsible for more than 80 percent of global almond production.

The Almond Board of California does a fantastic job summarizing and quantifying the industry in the annual Almond Almanac available at [www.almonds.com](http://www.almonds.com).

Given the link between almond and bee industries and the eye-opening numbers in both, it got me wondering how many almonds each bee produces, or how many bees it takes to produce a single kernel. Do you think a single bee accounts for hundreds of almonds? Does it

take dozens of bees to produce each almond? Pick a number and we'll work through some estimates to see how close you come.

The population of honey bee colonies is often estimated in a unit called frames of bees (FOBs). A frame of bees is defined as a deep frame (approximately 19 inches by 8.5 inches) well-covered with adult bees on both sides. Estimates range between 2,000 and 3,000 individual bees per frame. For the sake of this exercise we'll use the 2,400 bees per FOB estimate from a 2011 report by Oregon State University.

Beekeepers that rent their colonies for almond pollination typically do so under a contract that specifies both a minimum acceptable size and an average colony size that must be met. A commonly used contract may specify a four FOB minimum and an overall average of at least eight FOB with potential bonus payments for colonies exceeding standards. During the month of February 2018 alone, Bee Informed Partnership Tech Transfer Teams inspected over 1,100 colonies from 38 different operations with the overall mean frame count being 8.96 FOB per colony, so we'll

use that number as an estimate for colony strength. It is worth noting that not all bees in a colony are foragers and the percentage of individual bees that forage increases with colony strength. Considering the difficulty of accounting for variable percentage of foragers and also the fact that a colony could not function with foragers alone, we will consider the total number of bees present to all be needed in order to provide pollination.



*Each almond starts with a bee in a blossom. Photo courtesy of the Bee Informed Partnership.*

It is estimated that in recent years approximately 1.9 colonies per bearing acre have been required to meet almond pollination demand. For the 2017-18 almond crop year, there were an estimated one million bearing acres that produced an average yield of 2,270 almond pounds per acre. This resulted in a total crop of 2.27 billion pounds. It is estimated that there are 368 almond kernels per pound.

*Having accumulated the numbers above, we can now go about calculating the total number of bees pollinating almonds:*

2,400 bees/FOB \* 8.96 FOB/colony = 21,504 bees/colony

1,000,000 acres \* 1.9 colonies/acre = 1,900,000 colonies

1,900,000 colonies \* 21,504 bees/colony = **40,857,600,000 bees pollinating almonds**

*How many almonds do those 40 billion bees produce?*

2.27 billion pounds \* 368 almonds/pound = **835,360,000,000 almonds**

835,360,000,000 almonds/40,857,600,000 bees = **20.45 almonds per bee**

So there we are, each bee that gets set in California almonds accounts for about 20 almonds. Our guess before gathering any of the numbers was about 10 per bee; how close did your guess come to the estimate here?



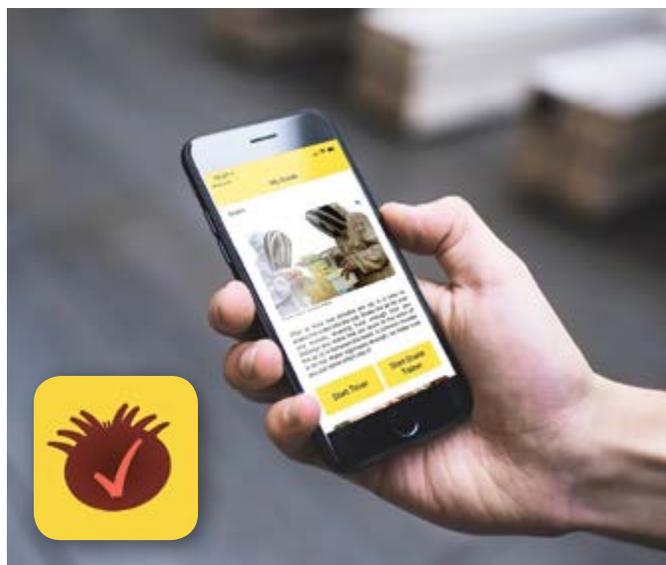
*Each of the approximately 40 billion individual bees rented for pollination is responsible for producing a handful of almonds. Photo courtesy of the Bee Informed Partnership.*

## Rollout of MiteCheck App

If you are a frequent reader of these articles, you know that a large part of what we do and what our Tech Teams help do is to keep Varroa mites in honey bee colonies at a manageable level. Losses at this time of year are commonly caused by Varroa-associated viruses and BIP wants to encourage frequent monitoring of these deadly parasites.

To help combat the monitoring of mites in colonies both in the beekeeper's yard and in adjacent yards, the Bee Informed Partnership, in collaboration with the University of Minnesota and Michigan State University, has developed a free app for iPhone and Android users. This app has a three-fold mission:

1. Education/community awareness tool: helps beekeepers learn how to properly monitor for Varroa mites and stay abreast of current mite infestations levels in their area.



*The MiteCheck app (left) logo which includes step-by-step instructions, training and data entry for monitoring Varroa mites on your phone. Photo courtesy of the Bee Informed Partnership.*

2. Data collection tool: make it easy for beekeepers to submit their mite counts, when monitoring their colonies.
3. Motivational tool: encourage beekeepers to monitor for and manage mites consistently over the beekeeping season.

Results from the entry of local mite populations lead to a heat map that beekeepers can view to see if mites are above threshold in their area. Future improvements may later yield personal text alerts to monitor or treat colonies that are in areas where mites are above threshold for that time of year. We are excited to see this valuable tool in the hands of beekeepers for the first time and are eager to put the data to use. ◆



**Dan Wyns, Bee Informed Partnership Technical Transfer Team and Karen Rennich, Bee Informed Partnership Executive Director**

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## Project *Apis m.*

### When Should Hives be Released from Almond Orchards?

Every year in California’s Central Valley, during the months of January and February, the world’s greatest pollination event takes place. Over two million hives from around the U.S. are put on flatbeds and trucked out to pollinate more than one million acres of almond orchards. The hives stay in almonds until growers release them, usually mid to late March, when they journey homeward or to pollinate another crop. Pollination is an important part of growing almonds. Releasing hives too early could result in reduced yields. Keeping them too long can delay beekeeper’s other commitments and could result in risks for honey bees to find alternative food sources when almond bloom is over. The details and timing of releasing bees from orchards should be discussed between beekeeper and grower before bloom starts. This article will help clarify some of the questions surrounding factors that determine the ideal time to release hives from orchards and explain a simple way anyone can determine if flowers are receptive to pollination or are no longer able to set nuts.



*Photo 1: This flower is newly open and without pollen.  
Photo courtesy of Randy Oliver.*

The official University of California recommendation, which matches the Almond Board of California BMPs, is to release hives when 90 percent of the flowers on the latest blooming variety are at petal fall stage.<sup>1,2</sup> However, knowing whether a variety is at this stage can be tricky because there is no tool or test that unequivocally determines a particular variety has reached 90 percent petal fall. Growers double check their visual observations by reading the flower’s anthers if they think an orchard has reached 90 percent petal fall. This “guess and check” method will be conducted repeatedly until the grower and beekeeper decide on the best day to release hives.

When temperatures reach above 55 degrees Fahrenheit, pollen is released by the flower’s “male” parts called anthers, this is referred to as dehiscing. The stigma, or “female” part of the flower, is viable and receptive to pollination for only five days after dehiscing.<sup>3</sup> In most cases, petals remain on flowers past the receptive period. Without a close inspection, one might incorrectly assume that all open flowers visited by bees are still viable, accepting pollen, and getting fertilized.

Even bee activity on flowers does not necessarily mean pollination is taking place, because there can be nectar but no pollen. Nectar collecting bees are foragers with the sole purpose of harvesting the sugary carbohydrates from the flowers. These bees descend on the petals and only target the nectar at the base of the flower, rarely picking up or transferring pollen. Pollen collecting bees are foragers that seek out the protein in pollen. They land directly on the anther thus completing the process of pollination.





On the left (Photo 2) is a mature flower with anthers and pollen, and on the right (Photo 3) is a spent flower with dried up anthers and no pollen. Although they both have petals, only one is still receptive for pollination. Photos courtesy of Randy Oliver.

If pollen is not being produced, whether there are petals or not, bees are no longer serving a purpose for growers. Checking if the flower's anthers have pollen involves conducting one simple test. In newly opened flowers, anthers will be plump and yellow but not fuzzy (see Photo 1). Anthers eventually release pollen and then look yellow and fuzzy. Rub these anthers across a white piece of paper or roll them between two fingers. If viable pollen is present a smear of yellow will easily appear (see Photo 2). Older flowers have brown and dry anthers with no pollen (see Photo 3). Growers and beekeepers can use this test in each orchard to determine when the bees' work is done. ♦

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<sup>1</sup> Mussen, Eric. 2014. When to leave almond orchards. UC Apiaries newsletter, Mar./Apr. 2014

<sup>2</sup> Almond Board of California. 2018. Honey Bee Best Management Practices for California Almonds. [almonds.com/beebmps](http://almonds.com/beebmps)

<sup>3</sup> Ortega, Encarnación, José Egea, and Federico Dicenta. "Effective pollination period in almond cultivars." HortScience 39.1 (2004): 19–22

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<sup>2</sup> Velum One applied at 6.5 oz./A, spring 2017, via drip irrigation. Trees planted in January 2017. Increase in green canopy pixels based on an average of two rows of untreated trees compared to an average of two rows of Velum One-treated trees.

# Catching up with the Almond Board of California's Spencer Cooper, host of "The Irrigation Station"

Spencer Cooper wants to meet every almond grower in California.

Since joining the Almond Board of California (ABC) in 2016, Cooper has been on a mission to personally visit as many growers as he possibly can, crisscrossing the state from Orland to Bakersfield to discuss, as he puts it, "the number one applied nutrient for almonds: water."

Through in-orchard workshops and one-on-one visits, Cooper has met with hundreds of growers about their individual irrigation practices. He provides consultation and informational resources based on current best practices, which are backed by nearly 30 years of ABC-funded research. Eager to share information to help growers, Cooper realized that it would take too many years and miles to reach everyone the old-fashioned way. That's when he and ABC's Global Communications team had an idea: *Rather than talking to growers on the phone to schedule an orchard visit, why not just appear on their phone to directly share timely information?*

This idea became the basis for the "The Irrigation Station," a digital video series for growers that offers relevant, real-world information to help them better meet orchard water requirements, promote tree health and improve efficiency.



Since joining ABC in 2016, Cooper has been on a mission to visit as many growers in person as he possibly can and discuss individual irrigation practices. Image courtesy of the Almond Board of California.

In addition to being senior manager of Field Outreach and Education at ABC, Cooper recently added "YouTube host" to his job description. The Almond Board caught up with the host of "The Irrigation Station" to learn more about the goals and philosophy of the video series and what viewers can expect.

### **Tell us more about the idea behind "The Irrigation Station."**

**Cooper:** The idea is really simple. We have so much great information at ABC about efficient irrigation practices and we want to get that information in front of every grower and orchard manager; not as many as possible — every single one. Now I realize that's a lofty goal, but it's good to have lofty, intentional

goals! That's what we want to work towards. We want to meet growers and their employees with timely information based on conditions and management activities in the orchard. We know they deal with a wide range of issues throughout the irrigation season, so meeting them online with relevant, applicable information makes sense. It would take us years to do an in-orchard visit with every grower, but we can meet them online through our series, so they get the front row experience of a field visit.

### **What can viewers expect when they watch an episode?**

**Cooper:** Clarity and focus. Each episode is about three-to-four minutes in length and we concentrate on a

single topic each episode. One might be about how to use a pressure chamber, with the next one being about how to estimate soil moisture by using the hand-feel method, and another may focus on calculating evapotranspiration. These topics are also timed to what's happening in the orchard at that time of year. For example, we focus on using the pressure chamber in April — not in December — because that's when growers will start using it.

**What's the philosophy behind reaching growers this way?**

**Cooper:** Our approach is to demonstrate how to use tools in the orchard. Our philosophy is "showing is better than telling" and that excites me about this series. It's not three minutes of a talking head telling a grower how to ground truth. Rather, you are going to see me ground truthing and sharing some tricks of the trade or "irrigation hacks," as some may call them. Growers will also see some other faces during the series, including UC Cooperative Extension specialists, irrigation technology providers and other growers. We also have some fun while making these videos and, inevitably, we end up with some outtakes that we like to share with our audience.

**ABC published the Almond Irrigation Improvement Continuum last year. How does that fit with "The Irrigation Station?"**

**Cooper:** They go hand-in-hand. Everything we bring growers in these

videos is based on the Continuum. It's the approved script, if you will, and it has been reviewed and vetted by leading irrigation experts, from the University of California to the private sector. It includes 30 years

of research by ABC in partnership with these experts. At 149 pages, it's an incredible resource, with a level of detail that can't be matched. We're trying to add value by bringing its practices from the page





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In “The Irrigation Station” video series, Cooper demonstrates how to properly use irrigation tools and equipment in the orchard. Image courtesy of the Almond Board of California.

into the orchard at the time that growers can use them.

### What do you hope growers get out of this series?

**Cooper:** I hope it helps growers thrive both economically and environmentally. We know our almond growers have made tremendous progress in water use efficiency, reducing the amount of water it takes to grow a pound of almonds by 33 percent over the past 20 years<sup>1</sup>. That’s impressive, and as an industry we are challenging ourselves to reduce the amount of water needed to grow that same pound of almonds by another 20

percent by 2025. This is one of the four Almond Orchard 2025 goals set by ABC’s Board of Directors in June 2018. Through the video series, we’re here to support growers in achieving that goal by showcasing technologies and practices that can influence water use efficiency and tree health.

### Where can people see “The Irrigation Station?”

**Cooper:** Monthly episodes are featured in ABC’s “In The Orchard” e-newsletter and posted on ABC’s Facebook page and YouTube Channel. If folks want to binge-watch, they can see all the episodes at [youtube.com/almondboardofca](https://youtube.com/almondboardofca)

under “The Irrigation Station” playlist. Growers can also check out [almonds.com/irrigation](https://almonds.com/irrigation) to download the full Continuum and access other irrigation tools.

Growers interested in learning more about the Almond Irrigation Improvement Continuum can contact Spencer Cooper, senior manager of Field Outreach and Education at the Almond Board of California, at [scooper@almondboard.com](mailto:scooper@almondboard.com) or (209) 604-3727. For more information, visit the Almond Board of California’s website at [almonds.com/irrigation](https://almonds.com/irrigation). ♦

*Article contributed by the Almond Board of California*

<sup>1</sup> University of California, 2010. Food and Agriculture Organization of the United Nations, 2012. Almond Board of California, 1990-94, 2000-14

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### TIME TO CONSIDER

*Despite the cooler than normal, rainy weather since the end of January and forecast through March, experienced growers with good bees and timely fungicide sprays out are pretty optimistic about the chances of a decent crop – as long as the postbloom weather warms up and there is more sun. However, no one is certain and more will be known in a month or two. For right now, careful attention to the present with an eye to the future, playing the short and the long game, is needed to grow whatever crop is set and maintain orchard health through the spring and into the summer.*

#### Nutrition

“Feed the crop” is the basic plan for mature almond orchard nutrition. Nitrogen (N) and potassium (K) are needed in large amounts to feed large crops and can cost hundreds of dollars per acre, and are worth every cent when needed. If the crop is lighter than average, fertilizer and money can be saved and disease risk (hull rot, rust, etc.) reduced by backing off on N inputs.

In a wet year like this where the crop picture may not be clear until later spring, it’s best to make fertilizer decisions one step at a time. The UC recommendation is 20 percent of an orchard’s annual N budget (based on 68 pounds of N per 1,000-pound kernel crop) to go out by full spur leaf out followed by a spring leaf sample (42 ± 6 days after Nonpareil full bloom) to check overall orchard N status.

If orchard soils are wet, the first “shot” of N could go on as a dry material application ahead of rain or a quick fertigation to reduce additional water applied to the orchard. Once the early leaf sample results are in, then the next application rates can be determined. Overall, multiple applications, delivering 80 percent of the annual N budget between March and early June, is the recommended approach.

For young trees, one ounce of N per tree per application in the first leaf should allow good growth potential without root burn. A total of three to four ounces of N per tree at regular intervals in the first leaf should be applied. In subsequent years, two ounces of N per tree per application delivers nutrition without root damage.



Potassium (K) is the essential nutrient used in the largest amount by almond crop (90 pounds K<sub>2</sub>O per 1,000-pound kernel crop). It’s expensive and needed in only limited amounts for vegetative growth. In a light crop year, reducing K fertilizer can save growers money as the orchard has a history of adequate to good K nutrition. When a good crop is set, nut K use is steady from March to hull split. Multiple fertigation applications are an efficient option to supply this needed nutrient.

#### Irrigation

In a wet spring with saturated or recently saturated soil, irrigating too early is, like the old song says, “pouring water on a drowning man.” Wait to irrigate until orchard water use has dried the soil at least enough to hold any added water without saturating the soil. Extra water,

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early, keeps soil temps cool and damages fine roots, producing yellow trees now and a weakened root system. A root system that limps into summer can't function well when it really needs to, in the summer heat.

Check orchard moisture to decide on first irrigation timing using an auger/shovel, soil moisture sensors and/or pressure chamber. In the March/April 2018 Time to Consider column, David Doll suggested, based on his experience, holding irrigation until the pressure chamber reading was one-and-a-half to two bars less than (more negative) than the baseline.

Holding spring irrigation is especially important for growers, mostly in the north, with Monterey on Krymsk 86 (K86). I expect there will be a lot of yellow Monterey/K86 with the wet spring, but too early or too much irrigation water will make things worse and last longer.

Finally, consider tuning up your irrigation system before the summer crunch. Lack of maintenance reduces water (and nutrient!) distribution uniformity, adding stress to parts of the orchard you can't see until it's too late. This can reduce yield in many ways. For example, seemingly random, unplanned stress from a poorly maintained irrigation system can produce early hull split in some trees in a block before sprays are planned, increasing NOW damage. Visit [www.micromaintain.ucanr.edu](http://www.micromaintain.ucanr.edu) for information on evaluating/maintaining your irrigation system.

### Disease Control

Wet springs bring more disease pressure. This can mean fungicide sprays ahead of forecast rain through the spring and possibly into the summer, but the added cost and effort pays off. A raging rust infection producing a mostly defoliated orchard at harvest can reduce yield by hundreds of pounds per acre the next year due to reduced bloom.

Protect the crop and foliage in the orchard from shothole, anthracnose, jacket rot, and bacterial spot by spraying ahead of the rain. Rotate between effective materials by FRAC group and use multi-site materials (captan, mancozeb, and sulfur) where they fit (pest, efficacy, and PHI) to help with resistance management. If a high disease level develops in an orchard, the recommendation is to not use a single-site material or even a pre-mixture of two single-site materials as the risk for resistance development is too strong. Instead, use a multi-site material such as one of those listed above.

To control rust in blocks with a history of rust, Dr. Jim Adaskaveg, UC Riverside, recommends a sulfur spray at five weeks after petal fall (WAPF) and a second spray at four to five weeks later using a FRAC 3 or 11 material. An additional spray(s) could be needed ahead of rain in late spring or summer. Scab sprays should be applied ahead of rain once stem lesion sporulation starts, which can be as early as petal fall to two WAPF in blocks without a dormant treatment. Blocks treated with chlorothalonil+oil before bud swell should show delayed sporulation into the five WAPF window and not require a scab treatment before that time.

Look for fungicide efficacy/timing tables in the January/February 2019 Time to Consider column or at UC IPM ([ipm.ucanr.edu](http://ipm.ucanr.edu)).

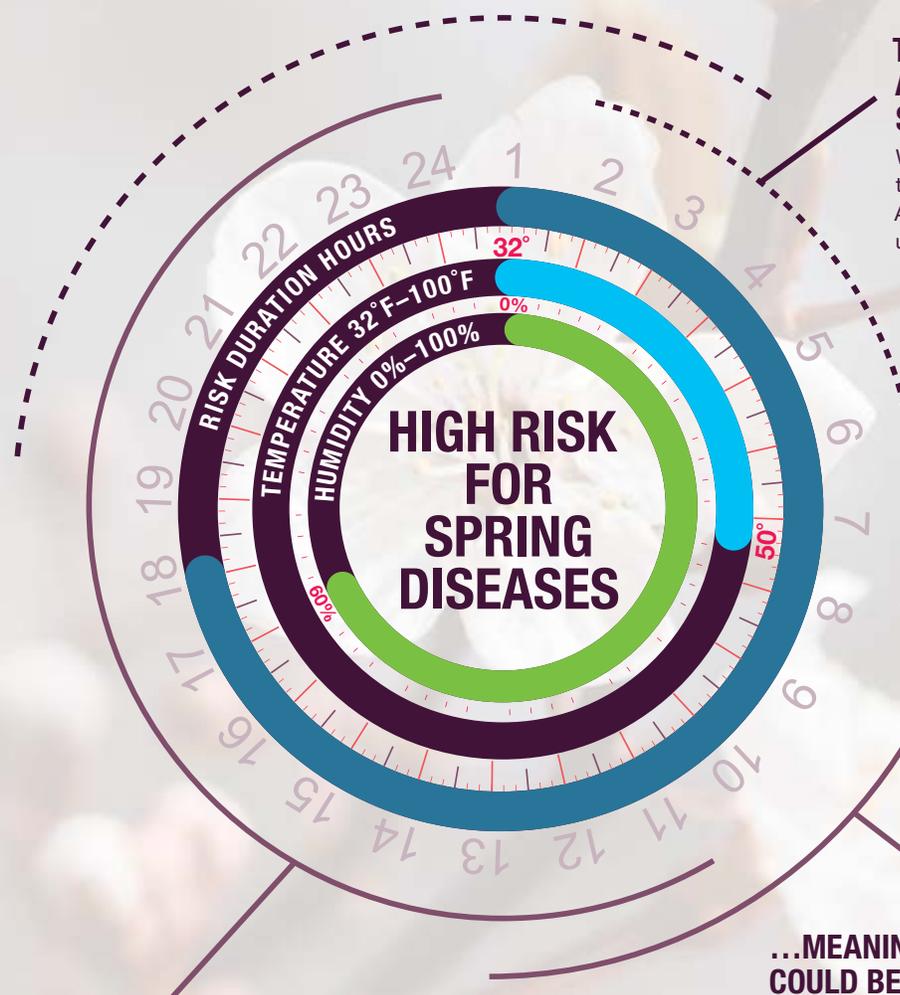
### Spring Insect Control

Pheromone traps for navel orangeworm (NOW), San Jose Scale (SJS), and Peach twig borer (PTB) should be up by the middle of March, along with NOW egg traps. If you have more mummies in a block than you would like, a "mummy spray" timed at 100 DD NOW can offer some population suppression of NOW along with some PTB control if the control timings overlap. Softer materials such as Altacor® or Intrepid® are effective on NOW and PTB, don't flare mites and provide longer lasting control

# Risk conditions are in full bloom this year.

It's not just the rain, it's the risk. Spring almond diseases can occur under a variety of conditions, and the humid, warm weather this year will bring them out whether it rains or not.

Find out your risk factors at [LunaScalaCombo.com](http://LunaScalaCombo.com).



## THIS YEAR COULD BE A BAD YEAR FOR SPRING DISEASE RISK...

Weather forecasts<sup>1</sup> are suggesting that this year could be wetter and warmer. Almond spring diseases can occur under a variety of conditions, such as:



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<sup>1</sup>WARM WEATHER FORECASTS ARE BASED ON THE 2019 PREDICTION CENTER OUTLOOK. WET WEATHER FORECASTS ARE BASED ON 2019 ACCUWEATHER OUTLOOK.

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than pyrethroids (Asana®, Brigade®, Warrior®, etc.). Both NOW and PTB are strong flyers (at least a quarter-mile range), so neighboring moths can move into your orchard when hull split occurs. Growers and their PCAs should weigh their options when planning NOW and PTB control through the season. A good question to consider before May is; will a mummy spray give your orchard more benefit than an additional hull split application?

Leaf-footed bug (LFB) can do significant damage in certain years, feeding directly on young nuts and causing clear gumming, abortion and drop. More susceptible varieties to LFB damage include Fritz, Sonora, Aldrich, Livingston, Monterey, and Peerless. Adults overwinter in evergreen plants near orchards and move into orchards in March or early April. Scout orchards at least once a week beginning in March looking for signs of LFB activity — adult bugs (one

inch long!), egg strands, or gummy aborted nuts. If you find signs of LFB, treatment could be needed, although gummy, aborted nuts were damaged seven to ten days before and the strong flying pest may have moved on. The best LFB control pesticides are pyrethroids (Asana®, Brigade®, Warrior®, etc.).

Growers and PCAs should be on the look out for Brown marmorated stink bug (BMSB) when scouting for LFB. This pest is a significant problem in some orchards in Stanislaus County and has been found in residential areas up and down the state. For more info and pictures on BMSB, visit [www.stopbmsb.org](http://www.stopbmsb.org).

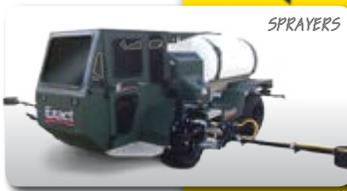
### Weed Control

Wet springs may give growers an opportunity to use a second shot of pre-emergent herbicide targeting summer grasses (jungle rice, etc.) to extend weed control further into the summer. See information on this “sequential herbicide program” strategy at [wric.ucdavis.edu](http://wric.ucdavis.edu).

Post-emergent herbicide applications are often an important bridge from pre-emergent control to pre-harvest clean up. However, they should be

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carefully applied and may accidentally harm young almonds if attention isn't made to a number of key steps. Nozzles producing mostly large droplets (low drift, venturi nozzles marketed as TeeJet® AI, Turbodrop®, etc.) reduce drift up into tree canopies, but may require 20-plus gallons per acre for good control with contact materials such as glufosinate (Rely®) and paraquat (Gramoxone®). Protect trunks of young trees with nursery "boxes" as long as possible and then paint the trees with white, interior house paint as soon as the boxes come off. Calibrate the sprayer, [read the label](#) and don't apply in the wind or during an inversion.

### Vertebrate Control

Gophers can kill trees. Gopher control is a never-ending program for tree crop growers. Females usually have two litters of young a year, with an average of five young per litter, with a late winter/spring peak. Gophers are very territorial, so weaned youngsters have to find their own spot, often moving into abandoned tunnel systems. Young

gophers from outside your orchard can move into tunnels you thought had just been "cleaned up." To keep gopher numbers from sudden spikes, monitor monthly in the spring for fresh mound activity with special attention paid to the field edges, where gophers may be "moving in." Baiting, trapping or fumigation are preferred control practices with two or more practices recommended in a combined campaign for best results. Don't stop looking for gophers (and controlling them). They won't stop coming.

In the spring, ground squirrels are feeding on green vegetation, not nuts, so baiting is not an effective option. At that time, when the ground is still moist and will hold gases, burrow fumigation is an effective practice.

In young orchards in wet springs, vole (meadow mouse) damage can be a real problem. Following the wet winter of 2016-17, I got several calls from growers who couldn't get into young orchards to control weeds after planting, got behind on weed control and had tree loss to voles that fall. These small pests use vegetative cover down

the orchard rows to move about and avoid predators (hawks, owls, etc.). Voles can girdle young trees just below the soil level. If the wet winter has kept you out of your young orchard(s), so that weed control is poor, voles should be a major concern.

### Tree Planting

In a wet spring, tree planting may be delayed. Make sure bare root trees are “gravity tanked” the day they are planted, even if the ground is moist already. This will provide the best soil/root contact and help with growth and establishment.

Potted trees need special irrigation consideration. Water doesn’t move readily from the potted media to natural soil and vice versa. At planting, water needs to go directly on the potted media for the first 30 days or so, until the roots grow out into the native soil. Once the roots are out into the soil, moving the hose or micro sprinkler away from the trunk reduces the risk of Phytophthora crown rot and band canker.

### Final Thought

In a late bloom, cool spring, regular tasks fall later in the season, too. Adjust timings of what you do based on what you and your PCA/CCA see in the orchard. In a year like this, it may be what you don’t do — like easing up on early irrigation — that helps the trees as much as anything you do.

Best wishes for a good nut set and growing weather this spring. ◆



**Franz Niederholzer,**  
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## Multi-Target Navel Orangeworm Monitoring Systems for California conventional and organic tree nuts

# EXCEPTIONAL FOURSOME OPTIMUM DETECTION/NAVEL ORANGEWORM IPM

**PHEROCON**  
MONITORING SYSTEMS

### Male Attractant System: PHEROCON® NOW L<sup>2</sup>



- Male NOW Attractant High/Low-Release Pheromone Lures

### Female Attractant System: PHEROCON® IV NOW



- Female NOW – Oviposition – Attractant, Concentrated, Stabilized lures

### NEW! Predator Detection System: PHEROCON® P<sup>2</sup>



- Detect mite predators, such as the Six-spotted thrips and Stethorus beetles
- Based on the Great Lakes IPM trap
- Used in recent university trials
- May be used as a treatment threshold indicator
- Contains easy hanger

Note: Apply miticides based on UC-IPM Guidelines

### NEW! Multi-Gender Attractant System: PHEROCON® PPO™ Lure

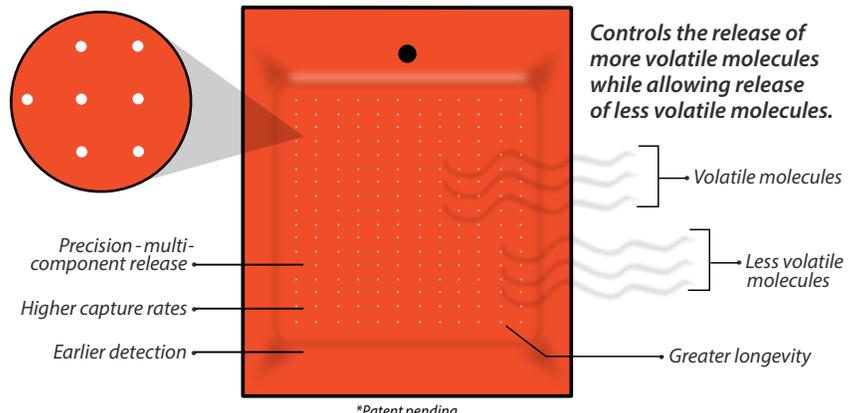


- Male/Female NOW Attractant, High-Release PPO Microporous™ Gel L<sup>2</sup> peelable Kairomone Lure

More information below

### NEW! Multi-Gender Attractant System: PHEROCON® PPO™ Lure

- Male/Female NOW Attractant, High-Release PPO Microporous™ Gel L<sup>2</sup> peelable Kairomone Lure
- Duplicates USDA release rate standard vial at 100 mgs per day
- 4 to 6 week field longevity
- Easy to use; ready-to-use barrier pack



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INSECT PHEROMONE & KAIROMONE SYSTEMS

Your Edge – And Ours – Is Knowledge.

## WANTED

3-axle Dump truck with steel sides (diesel)

Call (209) 614-2632

## WANTED

Used walnut chain for Johnson pickup machine

Call (209) 838-2108

## WANTED

1930-36 cars or pickups and 1932 Ford pines winterfront grille insert also 1930-1934 Ford running chassis.

Call (925) 872-0980

## FOR SALE

- Bottom dump almond carts, \$400 each
- Johnson pickup machine, \$2,500
- 3 point ripper, \$200

Call (209) 838-2108

## FOR SALE

Vermeer RT450 trencher. Will trench 5 feet deep. Deutz Diesel. Ready to work.

Contact Larry at (209) 404-6700

## FOR SALE

- Flory 850 with Flory transfer cart \$40,000.
- 2 Weimer super carts \$750 ea.
- 1 Weimer Elevator \$500.

All field ready. Contact Robert Chad at (209) 761-2690 or robertchad421@gmail.com

## FOR SALE

Walnut stakes, 3/4", 10' long, used sucker rod, pallets of 10 or 200 up to 5600 available. \$2.50 each, Escalon area. Contact (209) 652-5164

## FOR SALE

Almond and Peach trailers, Almond Roller, Brush fork, Lift for Bins, Levee Maker, Ridger, Windmill top 6 ft diameter, Propane tank, Model B Case Tractor circa 46-50, Long Camper shell, and hose pull with sled. Call Ann (209) 632-4346

## FOR SALE

Tree Stakes for Almonds. 1000's of used steel stakes to keep your almond trees growing straight:

- 3' @ 75 cents each
- 4' @ \$1.00 each
- 5' @ \$1.25 each

Please call (209) 969-0526

## FOR SALE

Flory sweeper model 7630 hours 1377

Please call Howard Martin at (209) 522-7858

## FOR SALE

(2) Johnson's pickup machines, \$5,500 each or reasonable offer

Call (559) 485-9496

## FOR SALE

Amarillo Gear Head with PTO shaft — rated 60 hp

\$1,500. Used very little.

Call (209) 620-4924

## FOR SALE

- R & L Easy lift Elevator. 10' Height 12" cups. In pieces. FREE!
- Jessee 500 Air leg 32" belt, no motor. FREE!
- 11ft. Orchard float w/ Hydraulic wheels CALL for pictures and pricing.
- 4 Stage sizer, good condition. \$4,000

- 60 H.P. Shell Fan with motor. Complete. \$1,500

Contact Ron Piazza at (209) 678-0788

## FOR SALE

Vrisimo Mower. Good condition. Offset or center hitch. 7 ft. \$3,800. Ceres.

Call (209) 537-9491

## FOR SALE

OMC Shaker Mono Boom Walnut Pattern \$350

Raymaker Almond Elevator Chain fits 3 models 9500, B36, 318 series like new \$3,250

For more information call (559) 779-4888 or (559) 485-9496

## FOR SALE

2008 8 Channel Satake Ultrascan. \$60,000

- Includes platform, Infeed dump hopper, Anex C-style bucket elevator with 50/50 split buckets
- Stainless steel hopper over chutes has been modified to prevent plugging and bridging of product
- Machine is currently set for 2 passes (4 channels each) and can be run as a single pass (8 channels)
- Walnut Setting (can be converted to Almonds)

Please contact Nina at (209) 609-6689

## FOR SALE

2004 Wiess Bankout Cart w/bump valve.

New tail chain. Good condition. \$12,500

For more information, call Don at (209) 202-4184

### FOR SALE

- Springtooth 4 feet long, 8 feet width
- Offset Disc 7 feet length, 6 feet width

Excellent shape. \$600 each or best offer. Please call Arby in Turlock at (209) 505-0555

### FOR SALE

2200 lb./hr. almond hulling plant. Two lines, Fadie huller and separator deck with three air-legs. Pre-cleaner 15 ton/hr. with midstate pre-cleaner, H8 Foresberg de-stoner, and Agsco de-twigger. Complete with pit, elevators, cyclones, and 190 ft. hull auger. Sell all or part. Open to offers. Contact Gale Langum at (209) 612-4830.

### FOR SALE

- KCI bank out cart - \$13,000
- KCI drive over elevator - \$8,500
- KCI dump cart - \$5,000

Contact Ian at (559) 286-5709

### FOR SALE

Beautifully restored to original 1931 Ford Roadster Pickup, \$18,000 or best offer.

Call (925) 872-0980

### FOR SALE

Almond Orchard — Stanislaus County: \$1,950,000

43-acre Oakdale Ranch. Desirable young almond orchard planted in 2014 NP/Carmel/Aldrich

Oakdale Irrigation District Water + Ag Well. Multiple parcels with 2,361 sq. ft. ranch home.

Contact Century 21 MM Jeff Titus at (209) 844-1759. List #18052742.

### FOR SALE

Almond Orchard — San Joaquin County: \$1,200,000

24-acre Multi-Family Almond Ranch in Escalon. 22-acre planted in almonds 10-30 yrs. old NP/Carmel/Price/Monterey. 3 homes, 1 mobile home + outbuildings SSJID Irrigation water + Ag well. Contact Century 21 MM Jeff Titus at (209) 844-1759. List #18061002.

### FOR SALE

Complete walnut hulling plant. 5 ton live bottom pit. 50 tons of drying. Contact (209) 810-4440.

### FOR SALE

2004 John Deere Backhoe, Model 310G, Ext. hoe, 4 in 1 front bucket, aux hydraulics, 1432 hrs, light use, ready to work. \$24,000. Call (209) 482-7769.

### FOR SALE

- 1997 Case 4230 (72hp) diesel tractor, \$9900
- Flory 7656 almond sweeper, diesel 369 hrs \$47,000
- Field Loader, new belt 18 hp Kohler engine \$2200
- Northwest rototiller 8ft \$1600
- Two bottom dump trailers with augers \$200 each
- Spring tooth \$250

Call Chuck at (209) 658-4521

### FOR SALE

1 x 4 x 8' DF tree props bundles of 200. \$50.00 ea.

1 x 4 x 10' bundles of 200. \$60.00 ea.

Barn stored in Merced. Call Dan at (209) 777-3292

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**Editor: Blue Diamond Growers  
P.O. Box 1768, Sacramento, CA  
95812**

**Or contact Samantha DeMelo at:  
Phone: (916) 446-8353**

**Email: [sdemelo@bdgrowers.com](mailto:sdemelo@bdgrowers.com)**

Unless advised otherwise, ads will run two consecutive issues. To guarantee placement, classified listings must be submitted by the 10th of: January, March, May, July, September & November.



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