



# POLLINATION: GETTING THE MOST FROM YOUR INVESTMENT

Josette Lewis, *Almond Board of California*





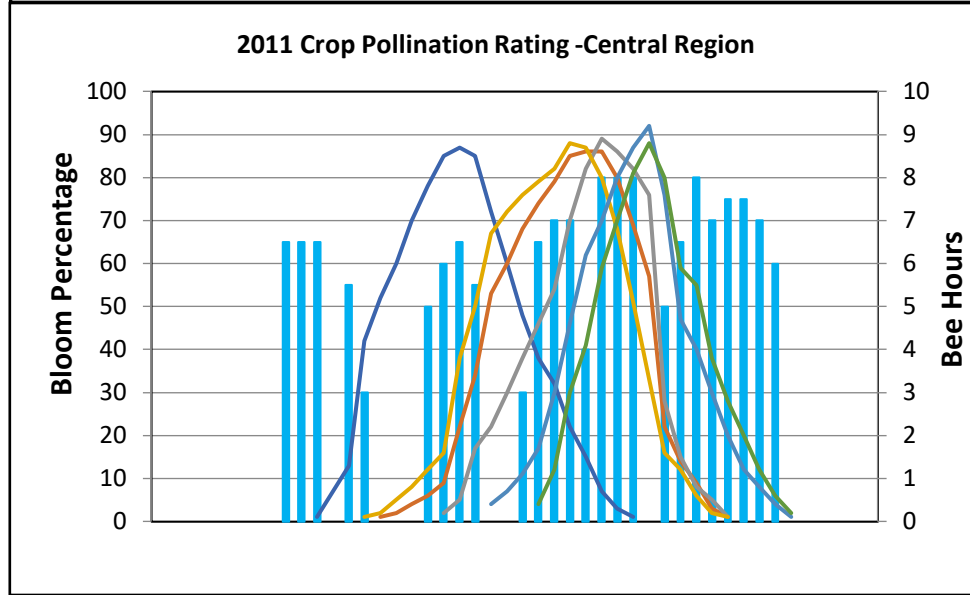
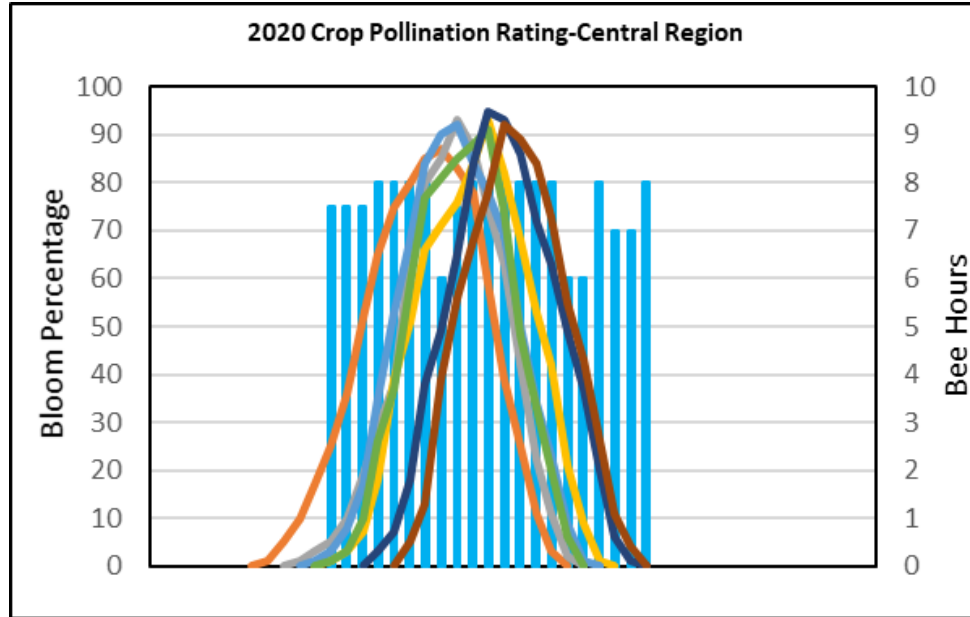
# Pollination: Getting the Most from and for bees

Josette Lewis, Ph.D.  
Chief Scientific Officer





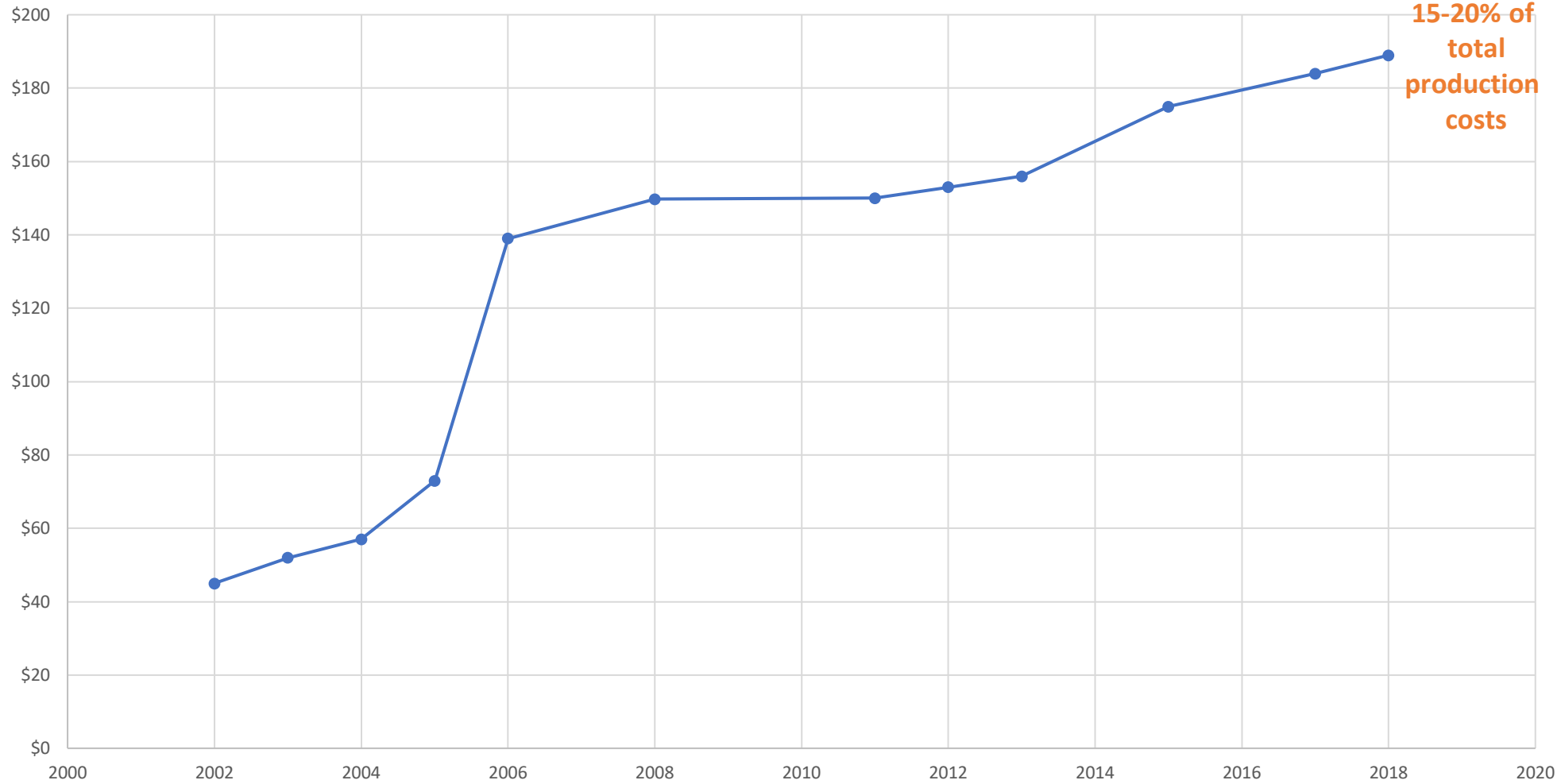
# 2020 Crop Dynamics





# Pollination on par with irrigation & harvest costs

Avg Almond Bee Hive Fee



15-20% of total production costs





# BMPs: Good for bees & good for almonds



## HONEY BEE BEST MANAGEMENT PRACTICES FOR CALIFORNIA ALMONDS

A GUIDE FOR ALMOND GROWERS



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### HONEY BEE BEST MANAGEMENT PRACTICES QUICK GUIDE

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All parties involved in honey bee pollination and pesticide applications in the orchard should follow these precautions to ensure California almonds continue to be a good, safe place for bees and to make certain that optimal pollination takes place.

**BEFORE BLOOM**

- AGREEMENTS/ CONTRACTS MADE AHEAD OF BLOOM SHOULD INCLUDE A PESTICIDE PLAN THAT OUTLINES WHICH PEST CONTROL MATERIALS MAY BE USED.**  
Growers, beekeepers and PCAs should agree on which pesticides may be applied, if deemed necessary. Beekeepers and growers should also agree on hive placement and removal timing at the end of bloom.
- BEESKEEPERS SHOULD REGISTER THEIR HIVES.**  
Hives can be registered through the Bee Where program at [BeeWhereCalifornia.com](http://BeeWhereCalifornia.com) by Jan. 1 of each year or upon arrival in California and update locations with any hive movement.
- AVOID APPLYING INSECTICIDES DURING BLOOM.**  
They can impact bee adults and brood (young developing bees in the hive). The one exception for application is insecticidal fungicides (IF), for which the safety of adult and immature bees is documented. If treatment is necessary, only apply fungicides and avoid tank-mixing insecticides with fungicides.
- PROVIDE CLEAN WATER FOR THE BEES TO DRINK TO ENSURE THEY SPEND MORE TIME POLLINATING THE CROP THAN SEARCHING FOR WATER.**  
Beekeepers and growers should decide who will provide clean water, a practice that includes covering or removing water sources for bees before a pest control treatment or emptying and refilling water after a treatment is made. The responsible individual should also check water levels throughout bloom and refresh as necessary.

**DURING BLOOM**

- CONTACT BEEKEEPERS 48 HOURS BEFORE PESTICIDE APPLICATION.**  
The responsible individual (i.e., applicator) should notify contracted beekeepers and any beekeepers within 1 mile of the application site. That individual should also use crop management programs, such as AgriNet or COMS, or contact their local county agricultural commissioner directly, to locate hives within a 1-mile radius of the spray site. This information is available in the label for products with "toxic to bees" on the label statement and recommended for all other applications, particularly during bloom.
- ANY FUNGICIDE APPLICATION DEEMED NECESSARY DURING BLOOM SHOULD OCCUR IN THE LATE AFTERNOON OR EVENING, WHEN BEES AND POLLEN ARE NOT PRESENT.**  
This timing avoids contaminating pollen with spray materials. Be cautious about adjuvants. The University of California recommends adjuvants should not be used with fungicides during bloom unless stated on the label.

### HONEY BEE BEST MANAGEMENT PRACTICES QUICK GUIDE FOR APPLICATORS

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Pesticide applicators should follow these precautions to ensure California almonds continue to be a good, safe place for bees and to make certain that optimal pollination takes place.

- CONTACT BEEKEEPERS 48 HOURS BEFORE PESTICIDE APPLICATION.**  
The responsible party (i.e., applicator) should notify both beekeepers pollinating the orchard and any beekeepers within 1 mile of the application site. That individual should also use crop management programs, such as AgriNet or COMS, or contact their local county agricultural commissioner directly, to locate hives.
- READ LABELS CAREFULLY AND FOLLOW DIRECTIONS.**  
Do not use pesticides at bloom with label cautions that read "highly toxic to bees," "toxic to bees," "reticulate label" or "reticulate residual toxicity."
- DO NOT DIRECTLY SPRAY HIVES WITH ANY PESTICIDE APPLICATION.**  
Ensures that the spraying of other forms of nozzles when near hives. If a spray application comes in contact with bee hives, it could adversely affect bee health and overall pollination of the crop.
- REPORT SUSPECTED PESTICIDE-RELATED BEE INCIDENTS.**  
Report incidents to the grower, beekeeper and county agricultural commissioner as soon as possible. Bee health concerns cannot be addressed without the data from these incidents.
- WATER SOURCES FOR BEES SHOULD EITHER BE COVERED OR REMOVED BEFORE A PEST CONTROL TREATMENT IS MADE, OR EMPTIED AND REFILLED AFTER THE TREATMENT IS MADE.**  
Providing clean water for bees to drink will ensure that they spend more time pollinating the crop than searching for water.
- DO NOT HIT FLYING BEES WITH ANY SPRAY APPLICATION MATERIALS.**  
Bees that come in contact with agricultural sprays will not be able to fly due to the weight of spray droplets on their wings.

Here at [Almonds.com/BeeBMPs](http://Almonds.com/BeeBMPs)

### BUENAS PRÁCTICAS PARA EL MANEJO DE ABEJAS MELÍFERAS (BMP), GUÍA RÁPIDA PARA APLICADORES

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Los aplicadores de pesticidas deberán tomar estas precauciones para garantizar que la producción de almendras en California siga siendo un lugar protegido y seguro para las abejas y asegurar que se realice una óptima polinización.

- CONTACTE A LOS APLICADORES 48 HORAS ANTES DE APLICAR EL PESTICIDA.**  
El aplicador debe notificar tanto a los aplicadores que polinizan el huerto como a todo aplicador que estar en el radio de una milla del sitio donde se realiza la aplicación. La persona responsable también debe usar programas de manejo de cultivos como AgriNet o COMS, o comunicarse directamente con la Comisión de Agricultura de la zona, a fin de localizar las colmenas.
- LEA LAS ETIQUETAS ATENTAMENTE Y SIGA LAS INSTRUCCIONES.**  
Durante la floración, no utilice pesticidas con etiquetas que digan "altamente tóxico para las abejas," "tóxicos para las abejas," "etiquetas reticadas" o "reticadas residualmente".
- SE RECOMIENDA TAPAR O RETIRAR LAS FUENTES DE AGUA PARA ABEJAS ANTES DE REALIZAR UN TRATAMIENTO DE CONTROL DE PLAGAS, O BEM VACIARLAS Y VOLVERLAS A RELLENAR UNA VEZ FINALIZADO EL TRATAMIENTO.**  
Al proveer agua de beber limpia para las abejas, se asegura que estas dedicarán más tiempo polinizando el cultivo que buscando agua.
- EVITE ARROJAR PESTICIDAS DIRECTAMENTE SOBRE LAS COLMENAS.**  
Recuerde cerrar las boquillas de la nebulizadora cuando está pasando cerca de las colmenas. Si la aplicación se va en contacto con las colmenas, esta podría tener un efecto adverso sobre la salud de las abejas y la polinización del cultivo.
- EVITE QUE LAS ABEJAS EN VUELO SEAN ALCANZADAS POR LOS MATERIALES APLICADOS.**  
Las abejas que son molidas por los productos aplicados no podrán volar debido al peso de las gotas sobre sus alas.
- COMUNIQUE CON LOS APLICADORES 48 HORAS ANTES DE APLICAR EL PESTICIDA.**  
El aplicador debe notificar tanto a los aplicadores que polinizan el huerto como a todo aplicador que estar en el radio de una milla del sitio donde se realiza la aplicación. La persona responsable también debe usar programas de manejo de cultivos como AgriNet o COMS, o comunicarse directamente con la Comisión de Agricultura de la zona, a fin de localizar las colmenas.
- INFORME LOS INCIDENTES SOBRESOROSOS (QUE INVOLUCRAN ABEJAS) RELACIONADOS CON PESTICIDAS.**  
Al aplicador, al aplicador y a la comisión de agricultura del condado les permite como sea posible. Los problemas concernientes a la salud de las abejas no se pueden resolver sin los datos de estos incidentes.

[www.Almonds.com/BeeBMPs](http://www.Almonds.com/BeeBMPs)



## » Cover crop: benefit bees and your crop



- + Bee health: extend forage
- + Access orchard in rainy season
- + Reduce soil compaction
- + Increase soil water holding
- + Improve beneficial microbes





# Bee + Scholarship: \$ Incentives + Technical Assistance



+ Billy Synk  
[billy@projectapism.org](mailto:billy@projectapism.org)

+ Miles Dakin  
[miles@pollinator.org](mailto:miles@pollinator.org)





# On-line now to address questions

## Type questions in the “chat” box

Standing by live to address your questions are

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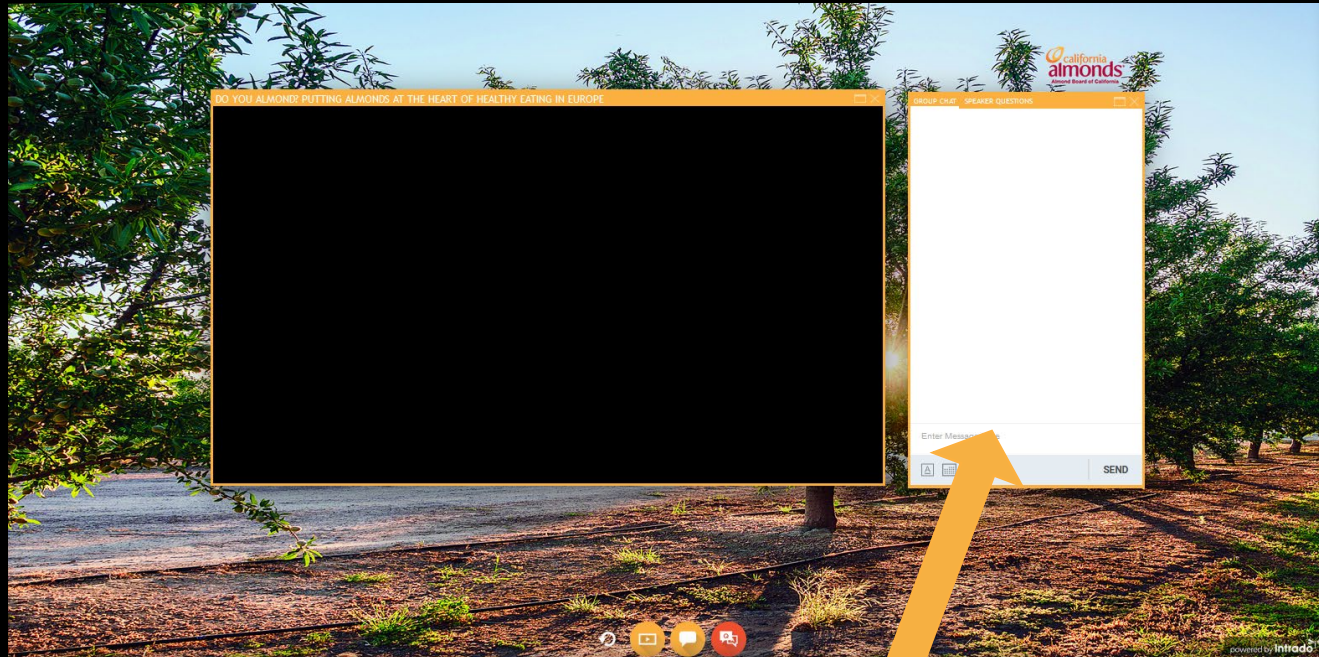


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Thank  
You!

