

Best Management Practices Using Insecticides During Bloom and Honey Bee Brood

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The almond industry recognizes the essential role bees play in sustaining the global food supply and has invested more money in bee research than any other U.S. commodity. This research is being used on an ongoing basis in the improvement of Best Management Practices for both growers and beekeepers.

This memo outlines new information and provides an overview of Best Management Practices for insecticide applications during bloom to minimize possible impact on honey bee brood.

New information and data suggest some insecticides may impact honey bee brood (developing larvae).

In a move away from dormant sprays that can have negative environmental impacts, almond growers and pest control advisors have been using alternate application timings with softer bio-rational insecticides. These have been tank mixed with fungicides during bloom to control peach twig borer and obliquebanded leaf roller.

Insecticide residues may be picked up in the almond pollen, which is taken back to the hive by foraging bees and fed to bee larvae. The impact on larvae is not fully known. Therefore as a guide, applications of insecticides during bloom should be avoided until more is known about the impact on bee larvae. Future studies will help clarify the impact of insecticides on bee larvae under field conditions. Based on several studies, the one exception to this noted below is Bacillus thuringiensis (B.t.) Kurstaki. Fortunately, there are several alternative options and these are covered [by UC IPM Online](#). These include:

1. Delayed dormant –Insecticides like Dimilin (diflubenzuron), Intrepid (methoxyfenozide) and Altacor (chlorantraniliprole - rynaxypyr)
2. Bloom* - Bacillus thuringiensis (B.t.) Kurstaki applied twice during bloom between popcorn and full bloom and at petal fall. The Kurstaki strain is selective for Lepidoptera like peach twig borer and is safe for honey bees.

However, application of any pesticide when pollen is available and bees are foraging **should** be avoided.

3. Spring sprays – Numerous insecticide options

If you have any questions or comments, please contact us: Bob Curtis (rcurtis@almondboard.com, 209.604.0385) or Gabriele Ludwig (gludwig@almondboard.com, 209.765.0578).

- * Disease protection during bloom is important and fungicide applications are needed in many growing situations. Nevertheless, minimizing exposure of bees and pollen to any spray by avoiding applications when pollen is available and bees are foraging. This normally is best accomplished by spraying after mid-afternoon and at night. Information and guidelines can be found in the booklet "[2012 Efficacy and Timing of Fungicides, Bactericides and Biologicals for Deciduous Tree Fruit, Nut, Strawberry, and Vine Crops](#)" on the UC IPM website, and "[Honey Bees and Agricultural Sprays](#)" on the Almond Board website.