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# Incorporating Archived Data to Define Bloom Periods and Validate Predictions from the ALMOPOL Pollination and Nut Set Prediction Model

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**Project No.:** 09-POLL1-DeGrandi

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## **Objectives:**

- 1) Derive equations to express the progression of bloom as a function of accumulated heat units using data on open blossoms throughout the bloom period collected from different orchard sites and under different weather conditions.
- 2) Compare predictions on foraging activity generated by the ALMOPOL program with actual numbers of foraging bees from previously collected data sets.
- 3) Test the accuracy of nut set predictions generated by the ALMOPOL model with previously collected data of actual set in orchards.

## **Interpretive Summary:**

The programming for ALMOPOL is completed. An initial version of the program is available on the internet at <http://gears.tucson.ars.ag.gov/almopol/>. We do not have equations based on field data to predict the progression of bloom for many commonly grown almond cultivars. Equations that will predict the progression of bloom for the cultivars are being derived from data provided by Blue Diamond Growers. The data sets include nine years of bloom period counts from three almond growing regions in California. Predictions of bloom progression are based on temperature. The bloom period lasts for fewer days when temperatures are high compared with when they are low. Temperature data from CIMIS weather stations is being used to derive the bloom period equations. CIMIS weather also is used in the ALMOPOL program for cross-pollination and nut set predictions. When the bloom equations are derived, we will obtain archived foraging activity and nutset data. Actual nut set will be compared with predictions to test their accuracy under a range of weather and orchard conditions.