

## Do Honey Bees Increase Set and Yield of Self-Fertile Almond Varieties?

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**Background:** Pollen of self-fertile almond varieties can fertilize the ovule of the same blossom, eliminating the need for a pollinizer variety to set a commercially acceptable crop. However, questions remain about whether the addition of honeybees might increase the transfer of pollen from the anthers to the stigmas, improve fertilization and increase yield.

**Objective:** Determine if the addition of honeybees increases nut set and yield of a self-fruitful almond variety.

**Method:** The trial was conducted in a commercial, 3<sup>rd</sup> leaf orchard consisting of only the 'Independence' self-fertile almond variety. Prior to bloom, ten shoots on each of twelve, consecutive trees were tagged and the number of flower buds on each tagged shoot was counted. Screened structures were then erected around six of the trees individually in a randomized complete block design. Two hives of honeybees were placed outside of the structures in an adjacent row. Structures remained in place until petal fall was nearly complete. Due to wind gusts exceeding 40 MPH on March 6, three of the six structures blew over and were destroyed when the trees were at about 50% petal fall.

Percent nut set was determined on screened and unscreened trees by counting flower buds on tagged limbs prior to bloom and later comparing those data to the number of nuts formed on the same limbs. After the trees were shaken at harvest, nuts were collected from each tree and weighed. Samples were taken to determine kernel quality and final yield.



**Results and Conclusions:** Trees enclosed by screen structures from pre-bloom through petal fall had 63% lower nut set and 51% lower yield than unscreened trees. Trees enclosed only until 40-50% petal fall had 35% less nut set and 10% lower yield. Although these data suggest that honeybees increased set and yield, it is unclear if the screen structures created “unnatural” conditions that might have reduced nut set even if pollination was similar to unscreened trees. Minimum / maximum thermometers placed within tree canopies showed that maximum temperatures were reduced by 1.0 – 1.7 degrees F within screened structures and minimum temperatures were 0.5 - 2.7 degrees warmer. Air movement and ambient light was clearly reduced within screened structures. In summary, these conclusions should be tested using another method to validate the assumption that honeybees increase nut set and yield of self-fertile almond varieties.

	Yield (lb / acre)	Reduction in Yield (%)	Nut Set (%)	Reduction in Set (%)
Within screened structures	364 b	51	10.5 b	63
Screened until 50% petal fall	672 a	10	18.3 ab	35
Trees outside of screen structures	743 a	--	28.1 a	--