

# Post-harvest Boron Applications Can Increase Almond Yields

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Boron deficiency is very common in orchards and vineyards planted on the eastern side of our county. This nutrient is essential in pollen tube growth and fertilization of the flowers. Moderate boron deficiency does not produce recognizable foliar symptoms but trees do not set their full potential of fruit.

Boron tends to accumulate in almond hulls and thus hull samples provide a better indication of boron status than do leaf samples. Harvest is an easy time to sample hulls. If samples are collected much earlier than harvest, a false reading may be obtained because boron may continue to accumulate in the hulls as long as they remain green on the tree.

**The current boron guidelines for hulls are as follows:**

**80 ppm or lower = deficient**

**80-150 ppm = adequate**

**Over 200 ppm = may be toxic**

Soil applications are the best way to correct a deficiency. Be very careful when applying boron—a little boron fertilizer goes a long way and will last for a few years. Soil applied boron fertilizers should be broadcast, not banded.

Research has shown that even orchards with up to 120 ppm benefit from a post-harvest foliar application of boron. In University of California trials in Stanislaus and other counties, ***post-harvest boron sprays often increased nut set and yield 20-30% the following year compared to nontreated trees.***

**Timing:** The goal of the foliar application is to get the boron into the flower buds (actually pollen tube mother cells) that are developing for the next year. Therefore, timing of application is very important. During the growing season (March through July), large quantities of boron go into the developing hulls. If foliar boron is applied at this time, most of the boron will go into the hulls and is wasted. We want to target the period when the trees are funneling boron into next year's developing flower buds. This occurs in late summer through early fall. Therefore ***optimal timing of foliar boron application is from well after hull split until the leaves become inactive in the fall (late October).*** Applications at bud swell work also, but not as well as post-harvest.

**Rate:** The best results have been obtained with 1-2 lb. of Solubor® or a similar product (20% B) per 100 gallons of water. More than two pounds per 100 gallons often reduces the effectiveness or even results in lower fruit set than untreated areas. It appears that rate (amount of boron per 100 gallons), not amount of boron per acre, is important. In other words, you still put 5-10 lb. of a 20% B product in your 500 gallon spray rig whether you plan to spray 50 gallons, 100 gallons or 200 gallons of solution per acre.