

Adding Zinc to the Planting Hole of Peach Trees

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Introduction – After four separate experiments, we have developed a procedure for fertilizing peach, nectarine and plum trees with zinc at the time of planting. The procedure dramatically increases zinc in the trees for at least two seasons. Young trees are often susceptible to zinc deficiency in California.

Procedure – The fertilizer formulation we have had the most experience with is called TIGER MICRONUTRIENTS® Zinc 18% Organic and is a pelletized material derived from zinc oxide and elemental sulfur. Its composition is 18% zinc and 65% sulfur. Other companies have developed similar materials that should give the same results. After holes have been dug for planting new bare-root trees from the nursery, the zinc material is thoroughly mixed with soil removed from each hole. Upon planting, the fertilizer material is distributed throughout the whole root zone and is able to continuously provide zinc to new roots as they grow. It probably acts as a slow release fertilizer. In our original experiment, we used 1.25 lbs of fertilizer per tree. After some follow-up experiments, we have concluded that 0.50 lbs per tree is more optimal (trees were killed by rates of 2.5 to 5.0 lbs per tree). Table 1 shows the results of our original experiment for three years after planting. Notice that the elevation in leaf zinc was dramatic the first year and still statistically greater than the control in the third year. There was no zinc deficiency at this particular site so no differences in tree growth were measured.

We have also experimented with different zinc formulations. Zinc sulfate (36% Zn) is highly soluble and is very dangerous to use on newly planted trees. At high rates, it killed trees outright, sometimes before they leafed out. Even at quite low rates, growth was suppressed. Therefore, we strongly recommend against using any rate of zinc sulfate (36% Zn) in the planting hole. On the other hand, zinc oxide (80% Zn) worked quite well. This material is very insoluble and probably acts as a slow release fertilizer, similar to the pelletized formulations. However, in one experiment it did not maintain elevated zinc into the second year as well as the pelletized material. Generally, 0.25 to 0.50 lb of zinc oxide per tree should be sufficient to increase zinc levels for a few years.

Table 1. Effect on tree zinc loads of adding TIGER MICRONUTRIENTS® Zinc 18% organic (1.25 lbs/tree) to the planting hole of Angelus peach trees. Trees were planted March 21, 2008 and treatments were replicated on six individual trees.

Parameter	Treatment	
	Untreated Control	1.25 lb Tiger Zinc
July 2008 Leaf Zn (ppm)	17.5 b ^z	109.5 a
July 2009 Leaf Zn (ppm)	20.2 b	52.9 a
July 2010 Leaf Zn (ppm)	16.0 b	22.7 a
January 2009 Root Zn (ppm)	10.7 b	66.8 a
January 2009 Shoot Zn (ppm)	35.2 b	197.0 a
October 2010 Trunk Circumference (cm)	26.2 a	25.2 a

^z Values in rows followed by different letters indicates statistical difference by Duncan's Multiple Range Test, p = 0.05.