



## Fine-Tuning Your Post-Bloom Grape Program

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Grapes, like other crops, require adequate supplies of all essential plant nutrients for optimum growth and yield. Grapes grow best in lighter, sandy soils, but these soils also tend to be low in available micronutrients. Micronutrients are most efficiently added as foliar sprays around bloom. Based upon leaf analysis in vineyards this year, Manganese, Zinc, and Boron deficiencies were most common, *occurring in 30% of varieties sampled*. A foliar spray of Zinc, Boron, and Manganese applied two weeks prior to and two weeks after bloom can go a long way toward fixing this problem.

Research has pointed out the multiple benefits in taking a “foliar feeding” approach of spraying base and micronutrients to keep the vine in balance. Advantages such as a significant increase in bunch weight, with an overall significant increase in crop yield. One noted Viticulturist, Frank Wisheart, considers foliar feeding to be the “Holy Grail” of vine nourishment and has turned numerous vineyards on to the program with success. Specifically speaking of potassium formulations, Frank has commented, “it increases anthocyanins and really punches up all the characteristics needed in grapes”.

A proactive approach to nutrition management requires understanding of crop dynamics. As flowering subsides and berry set takes place, we need to anticipate the deficiencies that may arise. Here are some of the factors:

- Nitrogen and Potassium are required in almost equal amounts with a peak demand mid-season.
- Calcium, on the other hand, is immobile and requires timely supplementation through the growing season. Calcium is involved in nitrogen uptake and is essential during early season cell division and growth, resulting in a distinct effect on vegetation and fruit set. It is important for forming cell walls, rigid structure, enhancing pollen germination and growth. Calcium increases flavor and storage capability; prevents or controls many disorders in plants.
- Magnesium is often overlooked. Magnesium, at berry set, at adequate levels, can support photosynthesis and reduce bunch stem necrosis. Mg stress in grapes can be a problem. This should be expected because many varieties are grown on acid soils, low in Magnesium. Also, the high Potassium rates that are typically needed can reduce Magnesium uptake. It has been our experience that when the soil Potassium to Magnesium ratio (K/Mg, ppm) is higher than 1.5/1 you can expect Magnesium uptake to be reduced. Magnesium forms part of the chlorophyll molecule. The leaf of the grape vine is where the carbohydrates are manufactured and transported to the rest of the grape vine. These carbohydrates are necessary for optimum growth and for the proper development of the berries.
- Zinc and Boron provide support for cell division and strengthening of cell walls and membranes, respectively. Zinc also controls the synthesis of indoleacetic acid, an



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important plant growth regulator that promotes cell division, directs the flow of food and other plant auxins. Additionally, Zinc promotes growth hormones, starch formation and seed development/maturation.

- Manganese is essential in the “Hill” reaction of photosynthesis – the splitting of water to yield electrons and Oxygen.
- Boron improves pollen viability and therefore contributes to increased fruit set. Boron also contributes to the differentiation of meristematic cells, assists in calcium uptake, and the movement of starch to the roots. The best time for Boron applications is 2 weeks before bloom in vineyards and then as 2 weeks following pollination or fruit set.

As you can see, producing high quality grapes is not an easy task. Those utilizing the best information are the ones that consistently grow the best crops. A fine-tuned foliar grape program will yield tasty, high-color, firm textured fruit that minimizes shrink in storage.