



## ULTRA GRO

### **Post-Harvest nutrition: “Can’t we just wait until Spring?”**

We’ve been going over different aspects of post-harvest nutrition in the last couple articles. I’d like to tie it all together and drive home the nail that seals the importance of this period in plant physiology. In an attempt to avoid beating the proverbial ‘non-living’ horse, I’m hoping this last swing gets him moving. This is such a critical time in the cyclical events that make up farming that neglect can seriously hinder next year’s yields.

First and foremost, during this dramatic change in events that happen after harvest, tree crops need the spectrum of essential nutrients to reset themselves. Going from the fruit bearing stage to recovery is a very energy intensive process. That requires phosphorus. Phosphorus moves in a plant very well with the help of potassium. It attaches itself to chlorophyll molecules with magnesium. The energy we have spoken of before, (Adenosine triphosphate or ATP) is the byproduct of a derivative of carbohydrate, fat and protein oxidizing acetyl-coenzyme A. That also takes a pinch of Sulfur as well. So, what in God’s green earth does that mean to me as a farmer?! In very simple terms, “There is a lot of stuff in that stew!” The good news is, many of those nutrients that drive enzyme and catalyst production are very dilute in their consumption. The bad news is, by October and November, worsening irrigation water, fertilizers (or in simple terms, salts), and the plethora of cocktails we have had to spray to keep our trees healthy have greatly diminished the roots ability to absorb some of these nutrients.

Let’s move to timing. After running that marathon for 7-8 months, we have 3 months to recover. Think about those Grizzly bears eating their weight several times over on the fall salmon runs to store fat for winter. Our trees do the same thing, but in the form of carbohydrates. How do we make carbohydrates? Photosynthesis. Driving this is a massive root flush in our trees right after we shake our crops. Those root hairs are foraging for nutrition to enhance photosynthesis and gain mass for carbohydrate storage. Building structure in those root hairs requires a lot of calcium. If our irrigation water is loaded with carbonates, bicarbonates and at high pH that calcium gets tied up. Applying big loads of phosphorus in forms that aren’t plant ready will tie up more of our available calcium. Which in turn will make the phosphorus that has been applied even more insoluble! Sounds like a vicious cycle doesn’t it? That’s exactly what it is.

So, we’ve beat a dead horse, fed Grizzly bears, given our trees cocktails, and you’re scratching your head thinking I just said, “It won’t work’. Well, not exactly, but it can work better. My growers that make the biggest yields year after year don’t neglect their post-harvest nutrition. They also don’t just throw on big slugs of it and call it good. We take a systematic approach to nutrition and hit it from all sides. I equate those large slugs of less soluble or non-plant ready nutrition to a human analogy. If you’re hungry now, would you rather have a nice, 12 oz. medium rare rib-eye or a frozen side of beef?! You’d devour the ribeye, but the frozen side of beef would have to be thawed, cut, cooked and hopefully you’d get to it all in the next month or two before it was ruined.

As soon as those nuts are off and the pumps go back on, think about fertigating a few gallons of a soluble calcium source mixed with some organic acids. This will hopefully open your ground back up a bit and release some of that dreaded sodium below the root zone. The organic acids will help chelate some of the nutrition that was previously applied and hold it in the soil solution. That thick black mass of carbon will also help the soil biology as it flourishes again and mines more of the stored nutrients. As soon as you can get back in your fields with your spray rigs, go upstairs with focused micronutrient blends of the nutrients you were deficient in this year. This will accomplish 3 things. (1) The water applied will clean off those solar panels we call leaves. (2) Hungry plants will still be able to assimilate nutrition through the leaves especially while it's still warm. (3) Studies have shown that micronutrients applied foliarly can be assimilated in amounts as high as 7-1 over amounts applied to a buffering soil. Please don't neglect magnesium if you were deficient on your in-season tissues. Photosynthesis will be at a premium now and magnesium is the key element in a chlorophyll molecule.

In the next irrigation, apply a soluble, plant ready orthophosphate solution in with your potassium and nitrogen. The smaller amounts of soluble calcium should already be taken up by the roots. As the soluble plant ready form of P washes over the roots in solution a good amount should be taken up in this next wave. Phosphorus is typically 10% of your nitrogen percentage in tissues if your adequate. It doesn't take much but it has to be absorbable. Smaller, fertigated shots of P will leave less in the soil than bigger slugs that may not be assimilated. Those organic acids still in your root zone will help keep any additional calcium and phosphorus apart. Get some plant ready nutrition into them first and then deal with trying to move the needle in your soil. It's much easier to first get assimilation into a tree through the roots and foliarly than trying to increase ppm on millions of pounds of soil per acre. Additional, less soluble calcium, sulfur and potassium soil amendment blends can be applied later to soils that are severely deficient. If you can't incorporate them into the soil, let mother nature take them in later with cleaner water as rainfall. This would also be a great time to add some organic matter and biology in the form of compost, manure or planting your winter cover crops. A good post-harvest program may seem a bit expensive, but an increase in production and orchard health can greatly increase that return on investment! Making sure you don't put those trees to bed hungry will greatly enhance their ability to produce higher yields next year.