



soil vs leaf tests

Posted by [Molly DellaRoman](#)

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[Molly DellaRoman](#)

[soil vs leaf tests](#)

February 17, 2022 12:55AM

Registered: 5 years ago

Posts: 38

This past summer was our first time taking leaf sample tests in addition to soil sample tests. We came back deficient in Boron, which we were aware from soil tests. Ok, no problem - we can work on that with either ground or foliar applications. Next up is Ca and Mg - they both test optimum or above optimum in soil tests, optimum for peach leaf tests, but deficient for apple leaf tests. I can understand peaches and apples needing varying amounts but struggling to rectify the huge discrepancy between soil and leaf tests results for the apples. I know there can be different absorption rates but is there no relationship between the two tests? So clearly we would just go with foliar instead of ground applications for these nutrients next year? Then there is P - tests low in soil tests, optimum in leaf analysis. Along with that is Zn, which tests optimum in soil tests but deficient in apple leaves. Which is also affecting the P/Zn ratio. So the leaf analysis is calling for us to also Zn spray next year, which we would not have know from soil tests. Is the moral of the story to just use leaf analysis for nutrient testing or to rely on both and how can they inform each other? Or maybe one year of leaf analysis is not enough data? I know there is value in both - just trying to sort out when to rely on what data.

Thanks!

5 Star Nursery and Orchard

Zone 5, Brooklin, ME

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[Molly DellaRoman](#)

[Re: soil vs leaf tests](#)

March 09, 2022 12:56AM

Registered: 5 years ago

Posts: 38

Replying to my own question here since I have some updates, which is what I feel Michael would like us to do - keep educating ourselves and each other. This seems like fairly basic questions that I asked, but I think we fell down the rabbit hole of making sure disease and pests were taken care of first when we first acquired the orchard 5 years ago, since as organic commercial growers, we need to have "good looking" fruit. Now that we feel a little more confident in that area, it's time to make sure there are no underlying issues. I know this sounds backwards, but those are the pressures of selling a piece of fruit when you are new to the game. Going forward, we will be using a combination of soil and leaf analysis, as we now know each of their values better, Anyway, I digress...

I spoke to the lab that we sent our soil and leaf tests to (U Maine) and they were able to clarify that Ca and Mg absorption can be low for perennial crops, especially in times of drought, which we have had quite a bit of. So that makes since as to why we saw such a discrepancy between the two types of tests.

He also explained that our Boron deficiency can also be leading to the deficiency in Ca uptake. We are opting to work on correcting our Boron deficiency first. He recommended using kelp meal instead of a Borax product since Boron is hard to control and more Boron is actually more detrimental than not enough, especially to stone fruit. Anyone have experience with kelp meal for Boron or kelp emulsion?

Michael had answered my Zn question in another thread if you are interested in checking that answer out.

Hope this helps some other newbies out!

5 Star Nursery and Orchard

Zone 5, Brooklin, ME

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[Mike Biltonen](#)

[Re: soil vs leaf tests](#)

March 09, 2022 03:47PM

Registered: 11 years ago

Posts: 298

Hi Molly,

I do not have any experience using kelp vs borax (Solubor) in comparison. I do know that boron is essential for fine root hair growth and that encourages denser contact with soil solution and particles to pick up calcium and other nutrients. It also feed soil microbes and encourages Michaelryzal connections. However, while boron can be toxic to stone fruit (and grapes) it is still an essential nutrient. Anything at a high enough level can be toxic to something. Can you clarify what they mean by "boron is hard to control"? Soil moisture does play a role in the availability of any nutrients, but also the relatively immobile ones. That said, roots do have an amazing capacity to be active in relatively "dry" soils as soils - esp those rich with clay that can hold on to water. More to come....

[Mike Biltonen, Know Your Roots](#)

Zone 5b in New York

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[Brittany Kordick](#)

[Re: soil vs leaf tests](#)

March 09, 2022 04:03PM

First documented use of 'Michaelryzal' in the wider lexicon! So let it be written, so let it be done!

Registered: 4 years ago
Posts: 211

[Kordick Family Farm](#)

Westfield, NC

Zone 7a

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[Josh Willis](#)

[Re: soil vs leaf tests](#)

April 26, 2022 06:24PM

Molly, thank you for posting this Q., as I've had the same thought looking at our leaf and soil tests. I wish there was a central reference table of sorts with all the ins and outs of what each nutritional value may or may not mean.

Registered: 6 years ago
Posts: 134

Your extension agent's comment on the low Boron makes sense given that old agricultural 'law of least', which I had to look up the actual name of: "Liebig's Law", i.e., "growth is dictated by the scarcest resource / nutrient." (thanks Wikipedia.)

FWIW, our extension agent thought our very low P was not a problem -- apparently fruit trees mostly need P when establishing their connections to the soil in the first few years of planting. So perhaps, if your fruit trees are already established, this explains why your soil was low P but your leaf P was optimum?

(That said, we decided to amend with rock phosphate b/c the extension agent had less of a holistic biologic perspective on amendments, our young trees are mixed in with the older ones, and even our 40 y/o trees could use some TLC).

Another perspective on the topic: I asked an agricultural/blueberry professor re: Blueberry soil and leaf tests. He said blueberry leaf tests were mostly (and I quote) "BS", and it is all pH pH pH. Ha! So there you go.

Mike and Brittany: ha! that is perfect. :)

Earthworks

Zone 7a in West-Central MD

Non-commercial, ~100 fruit trees, dwarf to MM106

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[Josh Willis](#)

[Re: soil vs leaf tests](#)

April 26, 2022 06:57PM

I was curious to look again at our tests from last year. And indeed, we showed:

Registered: 6 years ago
Posts: 134

-low P in soil, but ok in leaves. (similar to Molly's)

-very low Mn in soil, but ok in leaves. This I'm really curious about, given Mn's relationship to Ca, which we have as low across the board.

-low Mg in soil, but ok in leaves.

-and interestingly, OK Boron in soil, but low in leaves. So the uptake is not happening ideally, it seems.

For us, we took all this with grain of salt, since we are still nudging our pH into the good range.

Earthworks

Zone 7a in West-Central MD

Non-commercial, ~100 fruit trees, dwarf to MM106

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[Mike Biltonen](#)

[Re: soil vs leaf tests](#)

April 26, 2022 08:51PM

It would be good to see or know the actual levels before commenting. I've found most extension agents (based on ivory tower research) focus on baseline nutrition and not optimal nutrition. Also, very rarely do they consider the ratios of nutrients to another, much less the interactions or quantum functionality. Many labs do not even test for the full spectrum of micronutrients. Not to discount the fact that what you've said may be right, I've spent a lot of time extracting my self from the secular school of nutritional thought and thinking about it at a different more functional and interactive level. None of which helps here - but if we/I knew the actual levels it would help. Also, have you tested (in fashion) the soil biological activity in the soil?

Registered: 11 years ago
Posts: 298

[Mike Biltonen, Know Your Roots](#)

Zone 5b in New York

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