



Calculating acreage for soil amendments

Posted by [Doug Newman](#)

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[Doug Newman](#)

[Calculating acreage for soil amendments](#)

January 28, 2015 07:28AM

Registered: 10 years ago

Posts: 6

I took my soil subsamples near the driplines of my trees. Now I have the test results and the recommendations for amendments are in pounds per acre.

But I want to amend only the area within the root reach of the trees, or maybe a bit farther, but not lanes and aisles.

So, should I:

a) Calculate the acreage under the anticipated canopy of each tree. For example, if the trees are 12 feet apart in the row, and the anticipated radius of a tree's canopy is 6 feet, then the area under each tree would be $3.1416(36)=113$ square feet or 0.00260 acres. Then multiply the pounds per acre by 0.0026 to get the pounds to be applied under each tree.

or

b) Figure the average number of trees per acre (in my case about 200). Then divide the recommended pounds per acre by 200 to get the pounds to be applied under each tree.

Of course the amount of amendment spread under each tree greatly depends on whether I do a) or b).

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[Todd Parlo](#)

[Re: Calculating acreage for soil amendments](#)

January 29, 2015 06:26PM

Registered: 10 years ago

Posts: 301

I have done the latter, since the math is pretty straightforward. I do wonder how they calculate those initial figures. Seeing that we are placing most of the material in those several feet (width) of banding in the dripline zone, it would be more concentrated on a per tree basis (most folks are not dumping much in the inner zone or isles in most orchards usually). Those published figures are for every square inch of orchard broadcasted. As a contrast, however, I am of the opinion that most of that soil matrix is going to be filled with roots (disregarding concentrations of feeder roots for the moment), so particularly those isles may find benefit. In a babied (dripline irrigated and fertilized) high density system the root reach is greatly limited, so indeed fertilizing those outlying areas may be wasteful, but with more vigorous systems the roots are going to colonize the entire orchard, and some of the neighbors as well. In fact, we do most of our "fertilizing" in the median space between the trees (a good deal of which is in that dripline sweet spot), and more concentrated. Perhaps, however, fertilizing areas like pathways and other tangents, adds to a robust overall system, useful in reducing erosion, keeping nutrients cycling (dynamic accumulators and the like), and producing a crop of mulch material. These need to eat as well. As an aside, we have bent the farm toward coarse organic materials (mostly generated onsite), and away from traditional granulated fertilizers (in large part) since the former is a slow release, sustainable approach and the latter is a continual spoon feeding cycle we are trying to avoid. So, an initial or very occasional big slug of nutrients is very useful in depleted landscapes, they should be used to usher in or maintain a more natural and self supporting ecology.

[Walden Heights Nursery & Orchard](#)

Zone 3 in Vermont

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[Michael Phillips](#)

[Re: Calculating acreage for soil amendments](#)

January 30, 2015 02:36PM

Moderator

Registered: 11 years ago

Posts: 621

The middle ground here lies with an "extended radius" so as to include the area somewhat beyond the dripline as well. The spacing of trees in the row here is 12 feet ... thus a 6 foot radius ... doing the "pi r² thing" gets the circle area ... but let's plug in 8 feet for the radius. That way you are reaching a couple feet into the aisleway, and yes, perhaps going a bit heavy between trees. I do apply granular amendments into the inner zone (compost not so much) though it's fair to say my throw (doing this by hand) arcs more across the dripline.

Say there's a recommendation for 600 lbs per acre of rock phosphate ... the extended surface area per tree works out ~200 square feet in Doug's case ... which at 200 trees per acre ... is an acre. Interesting. Apparently this conservative approach applies more to larger tree

spacings than intensive plantings. Consider trees on MM.111 at a 16 foot spacing ... the extended surface area per tree works out 314 square feet ... which at 110 trees per acre ... is more like 7/8 of an acre ... meaning you spread more like 500 lbs per acre, or 5# per tree.

Growers might find the tree radius approach more relevant in the early years when trees have yet to fill the allotted spacing. Say you have trees in third leaf, you want to boost phosphorous as the biology is still not quite up to speed, thus a four foot radius (based on 200 trees per acre) requires 1.5# per tree in this example. That in turn amounts to 300 lbs per "adjusted acre" of rock phosphate in the early years, saving some money initially.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

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[Doug Newman](#)

[Re: Calculating acreage for soil amendments](#)

January 30, 2015 06:51PM

Registered: 10 years ago

Posts: 6

Thanks guys for taking the time to share your thoughts. One more thing: some of my recommendations are for micronutrients (borax, copper sulfate, manganese sulfate) and I'm thinking I should take a conservative approach with those. Are you adding these in your orchards or do you rely on azomite, seaweed, etc.?

Doug Newman

Buried Treasures Organic Farm

Groton, New York

Zone 5b

[<http://www.buriedtreasuresorganicfarm.com>]

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[Michael Phillips](#)

[Re: Calculating acreage for soil amendments](#)

February 02, 2015 06:46PM

Moderator

Registered: 11 years ago

Posts: 621

Specific recommendations are sometimes best heeded. Boron is a great case in point, as this trace element affects pollen viability and thus pollination and promotes flowering and the setting of seed. (And much more.) Other trace minerals seriously coming up short in a soil test should be economically applied to the expanding tree radius in the early years. Such a nudge may prove sufficient for many years to come.

Any use of organic mineral fungicides ties in here as well. A fixed copper app to "smash the staging areas of fire blight" certainly adds copper to the soil profile and helps with bark flexibility. Sulfur is interesting as well as S is vital to complete protein synthesis ... I need to keep this in mind now that I no longer spray sulfur for fungal disease. Spreading gypsum to boost calcium levels in early spring helps as calcium sulfate (aka gypsum) contributes both. I have also applied granular sulfur around young trees in one block because the soil test indicated an up-front deficiency.

Dusting azomite clay across compost piles-in-process is good practice. Feeding kelp meal to livestock gets untold trace minerals into manure (even if it wasn't so valuable for animal health). Seaweed extract and occasional use of sea minerals in holistic sprays isn't just a foliar boost but gets a huge array of trace minerals down to the ground as well. Another thread on [investing in micronutrients](#) was an attempt to get growers to share about the economics of all this.

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