

How we manage soil fertility at Clear Brook Farm

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Our farm has been growing veggies and fruits at the present location since 1995. We started with 1 acre and now have around 45 acres under cultivation. Of that, 25-30 acres are in veggies every year and the remainder is cover cropped/fallow... we do take about 4-6 acres of those acres specifically for straw production too. Our home farm has about 7 acres of cropland (plus almost 20,000+ sqft for in ground greenhouse growing and 15,000 sqft for bedding plant and field start production) We lease 15 acres of cropland and own another 25 acres that we bought about 6 years ago and farmed for the 4 before that. We did not have all this land enter production at once, but rather as our business grew we added more and more land under cultivation.

Pretty much all the fields that we brought under cultivation were either very neglected or recently under very poor conventional production. One observation i've made over the years is that no matter what fertility scheme we might have employed as we started farming a particular piece of land, it seemed to take until the 7th season for a piece of land to "kick-in" to being productive in a consistent way, year to year. I imagine it takes a bit for the microbes to get going and the nutrient levels to be such that they are readily available to plants no matter the weather.

As far as greenhouse fertility we take soil tests most years before planting tomatoes, I send the results to Vern Grubinger or use his online paper to help me figure out needs. Most years it seems we need to build organic matter, lower PH (our irrigation water is high buffer and PH), add a little K and N and things seem to work. So we often use soy or alfalfa meal for N sulfate of potash for K and peat for PH and organic matter.

In the field we have not been as rigorous in testing our soils, but this year we are participating in a study and so have had a number of our soils tested for us, and seeing how easy it was for the person doing the test with a soil probe, we will be purchasing one of those at some point soon. In any case when we initially start farming a field we do a soil test to get the PH corrected and then will often start with a year or two of cover crops and fallow to get rid of the quack grass. We will mostly use rye over the first winter plow that under; use a fallow period discing every 2 weeks to kill weeds and then either plant a pea/oat mix or vetch/oat mix for that winter to build up some N. Also if we are in a compost "phase" we might spread either in the late summer after the fallow or the following spring.

For ease of discussion I will break our fertility management into two categories: cover crops and compost/fertilizer. I will first cover our use of cover crops. The first area of cover cropping is the main winter cover time. What we plant for a winter cover is often determined by the next year's use. So if a piece of land is going to be used early for spring crops we will plant a winter killed cover. The last few years pea/oats has been the "go-to" for this. We plant these any time after August 10 and until early September. Generally we plant around 200Lb of mixed seed per acre. We used to inoculate the peas, but I think we have so much innoculent in the soil now that we rarely use it. Most years these plantings put on a lot of growth. Sometimes we will lay plastic for

our garlic planting and then seed over it with this mix and so have a nice cover between the beds that dies down over winter...it can grow so much it is hard to see the plastic to plant!

Now with winter growing eating up some acreage it can be hard to cover crop some land in the fall. If this is the case, in the spring we will often plant pea/oat mix to turn under in June and plant mid and late summer plantings after that. Another spring cover crop we have come to favor is intercropping annual rye between rows of plastic or in roadways between blocks of crops. These plantings do require mowing periodically through the summer but I think it really benefits the soil to have a cover on it and not just be bare ground having to get disced or tilled every 2 weeks. The annual rye easily out-competes weeds. **A couple tips for planting:** we have an old McCormick #10 box seeder a friend gave us. IT looks like it should be in a museum but does a great job seeding roadways. For between plastic, we use a Scotts drop grass seeder, and then lightly run some tines over it. In order to make it easier to pull that plastic we have some hilling discs pointed out from the plastic and run along the edges.

On the compost and fertilizer end of things, we started growing by just using aged manure back in the 90s. As regulations made using those materials more cumbersome time wise with harvest windows we moved to both a wet chicken manure compost (Giroux's) and then when we realized how far we were trucking all that "water", we switched to pelletized chicken compost (Krehers). We have been using Krehers pretty exclusively the last 6 years, but have recently started back with spreading fall compost. However after talking with Vern G. about phosphorous regulations coming down the pike we are being a bit hesitant about that.

Our Krehers use looks like this: We broadcast 1 ton/acre over most fields about a week or more before we plant (sometimes just 1 day if we are busy). For certain crops such as sweet potatoes and carrots we may mix in some sulfate of potash at a 150-200Lb/acre. On heavy feeding crops or crops in the ground a long time we may side or top-dress a field. For side-dressing we use a **Clampco side dresser** (a great piece of equipment for side dressing pelleted chicken). On most of our corn we will side-dress and mix in some Chilean Nitrate at about 150Lb/acre. WE find our corn really responds well to the Chilean. Other crops we side-dress such as some brassicas and winter squash we only side dress with Krehers. Our side dresser is set up to drop 400# of Krehers/downspout/acre. This really seems to help a lot with those crops.

AS stated above, it really has taken us a good 7 years of growing on a piece of land for it to "bank" the nutrients and microbes needed for sustained veggie growth year to year. One other observation is that after turning in a nice, lush cover crop whether a fall seeded hairy vetch or a spring seeded pea/oat the following crops always look dynamite. I think this is more so than when we just "pump" the chicken compost. The mix of both a nice cover and some Krehers seems to be really effective in growing crops for us in southwest VT.