**Avoiding My Mistakes**

Infrastructure, Irrigation, Fertilizers

“Hey, what happened to the specific practices article?” As I read over what I've previously written I came to the conclusion that I've already shared quite a bit of what and how we do things. I feel an article on specific practices would be redundant at this point. If you feel like you are getting short changed, hammer me in the comments and I'll do my best to get as specific as you want.

With the above out of the way I need to state right off the get go that this article is highly subjective. It is not intended to tell you that you have to do something our way; that your way is wrong; or that what we do/have learned will work for you in your area. Basically this is some of what we've learned the hard way and perhaps it will help you avoid some of the pitfalls and traps we've run into over the years.

Also, due to the nature of the material covered this article kind of runs all over the place. Some things may be covered more than once from different perspectives. Just remember, you get what you pay for and this was free.

Infrastructure Layout and Maintenance

The first thing you need to do when you start gardening in earnest on a 'feed yourself for a whole year from your garden perspective' is think about what you are intending to do, and then do it in the most efficient and replicable manner possible. It will wear you out and cost you a lot more to get started and continue year after year if you don't do this because you will have to keep changing things that don't work.

To illustrate, if you are going to utilize raised beds you want to make sure you have them where you want them because it's a lot of effort to tear them out and put them somewhere else when you realize they don't meet your needs where you put them last year. On this topic, consider the materials you use when building semi-permanent constructs for your garden. I built my wife twelve raised beds out of wood. I didn't want to use treated material because of growing organically. Even after staining the interior side of the wood and lining it with plastic to keep the soil away from the wood we started having maintenance problems in only a few years. I ended up replacing the wood with free stack native stone. It ties in nicely with some other edging and beds I put in out of native stone and I don't have to worry about maintenance other than some weed pulling in the stone gaps once or twice a season.

A problem we suffered early on and it still hits from time to time is standardizing what we do in regards to plant spacing. We would build an irrigation manifold that had a particular spacing one year, then the next year change our planting spacing which necessitated revamping the manifold or perhaps even tossing it and starting over. This could be quite a project if it was something like corn where we have four headers of various row counts for a total of forty one rows.

Once you standardize what you are doing, it doesn't matter where you do it, which is a real benefit as you rotate your crops through your garden space. We can move our corn blocks (and any other crop) from one end of the garden to the other with ease because we just move the irrigation headers to the new spot and layout the soaker hoses.

Figure out the largest dimensions of your plants and use this spacing for them year in and year out.

Our pole bean trellis went from forty inch row spacing to thirty inch spacing to its current thirty six inch spacing. It was a lot of effort to keep rebuilding the trellis. Some of this was from trial and error in determining what worked best and variations in plant growth as we improved our soil. On the topic of pole beans we also adjusted our in-row plant spacing several times. Kind of like Goldilocks and the Three Bears porridge, twelve inches was too far apart, six inches was too close together and for us eight inches was just right. It gives us a maximum yield for area and seed.

For plants like tomatoes get or make some substantial cages to help support the plants and fruit. It's no fun to have a bumper crop and then loose a bunch of it because they are laying on the ground and you can't get through all the vegetative growth to get to the fruit. Here is another area where it is easy to plant too close together and then when the plants are mature you can't get between them to weed or harvest.

Don't forget to give yourself working room as well when you calculate the space. I would rather plant my row type crops thirty inches apart even though they only need twenty two inches to grow well. This allows me to run my walk behind tiller between them to speed up tedious chores like weeding.

Semi static tasks such as composting can benefit from having a defined area where it is done, making sure you have the working room you need to accomplish the task. On assigning areas for tasks locate your beehives where you don't need to run a lawn mower right in front of active hives (or plan on wearing your bee suit to mow the field, don't ask me how I know this).

Have a dedicated storage area for your tools and infrastructure. On tools, if they have wooden handles, paint the handles. It will make the handles last longer and you will reduce the chance of slivers or splinters wrecking your hands. Put your tools up each day, they will last longer if you do. Fill a five gallon bucket three quarters full of dry sand, pour in a quart of transmission fluid or ten weight motor oil, when you clean your metal bladed tools, stick them in the bucket of sand several times. This will finish cleaning the metal and help a prevent rust. Having an area to store items such as irrigation headers and hoses will keep you from running over them when the snow is two feet deep and rising. Drain your hoses each fall before you put them away and you won't be splicing nearly as many breaks next season.

Remember, these articles are predicated on living in a post TSHTF environment, you won't be running down to your local hardware or garden supply store to purchase a new shovel when the handle breaks or replacing a hose that froze and broke in fifteen places. You will need to protect and preserve your resources.

Irrigation

While there are many different types of irrigation in my opinion the four basic means of irrigation are flood, aerial, focused or localized, and sub irrigation. I don't include rainfall as an irrigation method because it is not dependable for interval, duration and amount.

There are several forms of flood irrigation and for most our garden needs flood irrigation won't work well because we'll be raising too many different varieties of plants having very disparate irrigation needs.

Aerial irrigation, though varying greatly in complexity and size from your small back yard sprinkler to wheel lines to a huge pivot systems are all similar in that they deliver irrigation water through the air. They are an effective means of irrigating a large area that requires the same irrigation as long as you have cheap energy and plentiful water. Aerial irrigation has several drawbacks in that it will rob you blind, can suffer from evaporative loss and it is also indiscriminate in what gets irrigated (though I suppose you could say your small yard sprinkler could be somewhat discriminant based on where you place it and how high you have the water pressure). Aerial irrigation robs you by wasting water (ergo energy, ergo money). It drives plant growth where you don't want it i.e. weeds and steals your time by making you pull those weeds. It can also drive or exacerbate plant diseases which again can steal your money, time and efforts.

Sub irrigation depends on a very high and stable water table. Over my years I've lived and farmed in a few areas where we actually had quite good sub irrigation. I know of one valley in particular where I never had to irrigate the hay fields. Most of us are not going to be able to count on sub irrigation as our primary means of watering our truck garden.

This brings us to focused or localized watering systems. Drip lines and soaker hoses are two common forms of focused watering systems. I suppose we should stick hand watering here as it is definitely a focused watering method, it is also very time consuming. We have moved almost entirely to these two systems, drip lines and soaker hoses to meet our irrigation needs.

Soaker Hoses

The type of soaker hose I'm talking about are the round hoses that if used properly would more realistically called seeper hoses. All soaker hoses are not created equal. Soaker hoses of different manufacture and size will have different flow rates. Sometimes even within the length of a particular soaker hose you will find variations in flow rate.

Insoluble particulates in your water can plug the inside of your hoses making them virtually worthless, a good inline cleanable filter placed in your supply line will greatly extend the life of your hoses (and drip emitters).

If you're like us over the years you'll accumulate a lot of hoses and almost none of them match any other hose. To deal with the different flow rates get some flow discs. These fit in the end of your hose and control how much water gets delivered through the hose, regardless the flow rate of the hose. The discs have different flow rates and the ones we get from http://www.bestbudsgarden.com are available in .5, 1 and 2 gallon/hour rates. I'm sure there are other sources to get these but we've had real good results with the ones we sourced from bestbudsgarden and no, we have no affiliation with them other than purchasing their product. They are not even aware of our reference to them here (at least not yet and not unless one of you tell them about it, and even then they wouldn't know who we are).

To make the layout and use of your hoses for row crops easier build a pvc manifold. I build ours out of ¾ pvc and place a T and male hose adapter every at what ever row spacing we want and then put a female hose adapter one end for connecting to a supply line. We uses hoses rather than rigid connections for the supply lines because it keeps from stressing the feed valves. I use ¾ pvc rather than ½ inch because it stands up better to being moved around year after year without breaking. I can efficiently run twenty, fifty foot long, soakers hoses on one manifold at the same time using a ¾ inch supply line hose.

To work correctly your soaker hoses need to be in full contact with the soil so the water can be wicked away from the hose by the soil. Also if you turn your soaker hose on and it swells up like a puffer fish and you have water streams jetting out all over the place your pressure is way too high. Your hoses will also fail sooner if the pressure is too high.

You have two ways to deal with excessively high pressure. The first way, which costs nothing is to reduce the flow through your water valve. The second way is to put a pressure regulator inline with your supply line. We use ones for regulating pressure to campers and travel trailers as these are designed to hook up to a garden hose.

Drip Irrigation

Most folks are at least cognitively aware of what drip systems are and there are many different kits and setups with all kinds of accessories you can purchase. To save yourself some money, the three main parts of a drip system are the supply lines, the emitters and emitter tubing, purchase these in bulk and save a lot. Locally it costs me nine bucks and change to purchase a ten emitter package. I can purchase thirty in bulk for the same price. For the price of a basic starter kit I can get a couple hundred feet of hose, a package of emitters and emitter tubing that will go a lot further than the kit.

Instead of the fancy couplings, splices, hose ends, emitter tube stand offs and so on use standard poly pipe fittings and small hose clamps to put your system together. Use heavy gauge wire to make your line staples and emitter tube stand offs.

Though there are goof plugs you can use to plug an emitter hole in a line you'll be better served to standardize your spacing and stick to it. On the topic of spacing (we'll use peppers at every two feet) you might be inclined to put an emitter every two feet in the line and then put a plant there. Don't do it this way. For one, never put just one emitter in for a plant, if it fails your plant may die before you realize it's not getting water. You'll be better served to either use two emitters of half the flow you planned on using (or cut your watering cycle in half). For our plants like blueberries we run four emitters per plant.

As an aside another reason for using multiple emitters is because some plants like blueberries don't transpose water and nutrients well. This means you could water one side of the plant and have the other die for lack of water. Multiple emitters ensures your plant gets even water all around it.

Also don't plant your plant right at the emitter. Go ahead and put your emitters in every two feet but plant the plant half way between the emitters and use emitter tubing to carry the water to the plant base. This method will let you check an emitter without having to paw through your plant to find the emitter and if you have to replace an emitter it's a lot easier working in the open than under a mature plant with a load of fruit on it.

The third thing you accomplish this way is as your feeder line expands due to heat (the ½ drip hose we get will expand as much as twelve inches in length in a fifty feet run on a hot day) even though the emitters move around the emitter tubing stays at the plant base and you don't have to go out and reposition the line every time you water.

Before I leave drip lines I want to touch on water pressure again. Too high of water pressure can collapse the disc in the emitter and cause it to stop flowing water. You'll think you have a clogged emitter and replace it only to have the next one not work either. Many emitters have a max pressure of around 30 psi. We have found that the pressure regulator for campers and RV's that regulate the pressure down to 45~55 psi (nominal) is sufficient to keep from over pressuring our systems.

Fertilizers

I urge you to do your best to move away from inorganic fertilizers. If we ever are growing food post collapse they are not going to be available. If you do use inorganic fertilizer don't over do it and burn your plants and you really should do some soil testing so you know how much of what you need to apply.

I'm going to use the rest of this spot to plug compost again because you kind of get a free pass if you compost. BUT if you wait to establish compost piles until you need them you are going to be waiting for anywhere from two months to as much as a year before it's ready to go so you need to start composting before you think you'll need it and considering as how none of us has a crystal ball that really tells the future, I would recommend starting as soon as you can.

If you are going to use manures for fertilizer compost them first or turn them in your soil in the fall so they break down by the time you need to plant. Remember fresh manures are most likely to be way too hot for your garden and you can burn your plants to the point of failure. Another problem with non composted manures is the weed seeds that animals will pass. A good compost pile will run at temperatures that will kill most weed seeds.

Manures and manure crops are not the same thing. Manures are just what they sound like, herbivore animal manure. Manure crops are cover crops that add nitrogen and organic content when tilled in or turned under.

I don't know, I feel like I'm starting to ramble. I'll let you beat me up in the comments if I've left you with questions.

~til next time

foodgrower