



Saugeen River CSA

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Hello everyone,

I wanted to write a newsletter about our crop rotation, to give members an overview of how we grow your vegetables. Many people who have gardened on a large scale have probably experienced just starting at one end of the garden and planted what needed to be planted until the space was full. This can be fine for one year, but it doesn't take too long to run into problems. There are many reasons to put some thought into how to organize your cropping: fertility requirements of different plants; disease tendencies; insect pressures; and weed control. Many problems that conventional vegetable growers face, and rely on chemical inputs to control, can be avoided with a good crop rotation. In a CSA setting, where we are growing 60 or more different crops, a lot of thought has to go into making the rotation make sense and be practical.



One of the first considerations when planning where the different crops will go is based on the timing of planting and harvest. By grouping crops by when they go into the ground and when they come out allows you to treat areas of soil in particular ways. In our market garden, we organize the space in half acre blocks. There are three types of sections based on timing: early, late, and full season. The early sections have everything planted by the end of May, and have everything harvested and out of the ground by early September. This includes crops like early lettuce, carrots and peas, as well as onions, summer cabbage, and kale.



The late sections don't have anything planted in them until late May and are still being planted into in August, and have crops in the ground throughout the fall. This includes the later lettuces, beets, and Chinese cabbage, as well as rutabaga, celeriac, and leeks. The full season sections have crops that go in the ground early and stay in the ground through the late summer and fall. These are things like the herbs, fall carrots and parsnips. One of the advantages

of grouping things in this way is that we can use different cover crops to condition the soil in different ways, keeping a balanced and enlivened fertility in the soil. More on cover crops in a bit.

The other basic grouping we do is related to the demands that a crop places on soil. Here we divide crops into heavy and light feeders. This is primarily in relation to the nitrogen demands. Some crops like greens and roots don't demand much nitrogen from the soil (although they still need high organic matter to thrive), whereas others like squashes and cabbage require ample nitrogen.



So our three groups become six: Early Light, Early Heavy, Late Light, Late Heavy, Full Season Light, and Full Season Heavy. Nitrogen is of course only one element to consider, but the other aspect relates to the

archetypal three of NPK (Nitrogen, Phosphorus, and Potassium).

From a farmer's perspective this relates to plant expression. Phosphorus is needed more by crops that put a lot of energy into the fruit formation. Potassium is needed more by crops that put effort into the root. And Nitrogen is very appreciated by leafy crops. So, part of balancing the needs of the soil involves paying attention to what aspect of a plant we want to augment. With our rotation we make sure there is a healthy distribution of root, leaf and fruit crops. We would not want to grow root crops in the same area several years in a row; nor fruit crops again and again. This allows there to be a balance in what we take and what we give to the soil over the years.



The next consideration is diseases and insects. Most plant diseases and insect infestations tend to focus on plant families. The separation of plants into different species, genera, and families can seem like a dry science, but from a living perspective, it is about the particular qualities that those different plants express, which is again about finding a balance. Many diseases and insect issues don't come up if a healthy balance is maintained through crop rotation. For example, the squash stem borer, which can be a very damaging insect in home gardens, is never an issue when you can move your Cucurbit crops from one area to another. Also, a disease like club root in Brassica plants we never see with a healthy

rotation. So part of the reason for grouping the different crops together is to spread the families out so that the soil gets to express a diversity of characteristics.



The last reason for a crop rotation is for weed control. What we call weeds have many functions. One of the main ones is the wish for soil to express itself through plants. If you just leave the soil bare, something will want to grow there and will figure out how to do it. Some weeds also are there as medicine for sick soil. They bring something to a soil that has become imbalanced or lacking. But if you have healthy soil, there are a few weeds that follow that fertility to make use of the expressive potential that soil offers. What weeds show up is totally related to how the soil has been treated previously.

One of the best ways to give back to the soil is with cover crops, or what is sometimes called green manures. These are crops that are intentionally grown for specific purposes, not to be harvested, but to be plowed back into the soil. These can often be combinations of plants. There are several cover crops we use: Field peas and Oats, Rye grain and Vetch, Buckwheat, and Rye grass and Sweet Clover.

Grasses or grains tend to condition the soil with the addition of a great deal of organic

matter, but also the way their roots grow, they send many fine root hairs all throughout the soil, breaking up into more fine texture for humus to develop. Legumes (peas, vetch and clover) bring nitrogen into the soil, but the sweet clover also sends a tap root down to break up the soil in the lower layers and bring minerals up from far below.

As many gardeners know who have limited space, making use of these cover crops can be challenging in Ontario where the season is very short. Most of the garden is needed the whole season and you don't have time to plant these cover crops if you are using all your garden every year. That is why we have a one year on and one year off rotation. This gives us the chance to make full use of these different cover crops. So our six section garden just became 12! So each season, half of our garden is in production and half of it is in a resting, rejuvenating cover crop. Then, dividing the sections into different groups based on when the crops are planted and harvested allows us to incorporate the timing and characteristics of these different cover crops.



Some other advantages of having a one year on, one year off rotation is that we can take advantage of what is called stale seed bedding. This is a technique where you prepare the ground ahead of planting and

wait for the weeds to come... and then kill them, working the ground shallowly and planting the food crop where not so many weeds will now come. In Ontario, this often isn't practical for many crops, since we have a short season. But we can do it the year before, in the resting area. This greatly reduces the weed seeds that are in the soil.

So in our production year, we make sure we don't cultivate too deeply, so as not to bring up more weed seeds. During the rest year, we can cultivate the soil deeper. This rotation of deeper cultivating one year and shallow cultivation the next also encourages a diversity of soil organisms for a healthier balance. Weeds used to be our most demanding activity. This rotation has allowed us to make better use of the horses to cultivate and decrease our need for human and tractor labor.

Happy Planting! Cory

