

Growing and Marketing Root Crops at Tangerini's Spring Street Farm

Although our 67 acre farm has been around since the early 1800's it was established as Tangerini's Spring Street Farm in 1995. Located in Millis, Ma. We currently have 40 acres under cultivation, a display greenhouse, a propagation house, three high tunnels and a low tunnel. In 2010, we construction a three bay, climate controlled cold storage facility primarily for the storage of winter vegetables for our CSA. The farm's diverse operations include the growing and selling of a wide variety of vegetables and fruits using organic methods on all our crops with the exception of apples and sweet corn. Our fresh-picked produce is sold through our farm stand, our 325 member CSA that distributes from mid April to mid March, two local farmers' markets and a few wholesale accounts. The farm supports other local growers and producers as well as local fisherman by making their products available at the farm. Our family farm is a treasured piece of open space and a profitable agricultural operation who's doors are open to people in the Metro-West area. Over the years, Tangerini's Spring Street Farm has become a model for the preservation of open space for landowners who want to see their land remain productive while sharing it with future generations.

We grow a number of different root crops including carrots, beets, parsnips, rutabaga, turnip, winter radish and daikon. But for the purpose of this presentation, I would like to talk about growing carrots for winter storage. Of all the vegetables we grow, carrots are a mainstay for 99% of our customers. It's a vegetable enjoyed by people of all ages and it's an absolute must for winter and Deep Winter CSAs. Many people sign up for our Winter CSA because of the carrots. The cold temperatures associate with the late season harvest, makes carrots a standout in the CSA share. Most carrots in the grocery stores come from much milder climates and the carrots don't sugar like carrots grown throughout New England. That's why it's important to grow and store them well.

When we started our winter share we knew we were going to have to raise more root crops, particularly carrots. We spent hours on our hands and knees tending to carrot seedlings only to save half of them. While we were spending our afternoons on carrots, other crops were getting neglected. After a couple seasons of struggling with trying to keep up with the weeding of carrots we developed a plan that works for our farm. Not only were the carrots much easier to grow, but we also freed up man-hours that could be spent on producing other crops.

We begin by performing a soil test. Two to three weeks prior to planting date, which is somewhere between July 15th and July 25th we start preparing the field. We till in the previous crop, subsoil or chisel plow the field, add our compost and the necessary amendments and prepare a nice seedbed using our 8' rototiller.

It is important to get as many weeds to germinate as possible prior to planting. If we are not getting adequate rainfall we will irrigate the field several times. By the time the field is ready to seed, our first flush of weeds will have germinated and it's time to flame the whole field. We use a Flame Engineering flamer that is connected to the three-point hitch

of our JD5095MH. We run over the beds with the flamer with a tractor speed of 2-4 mph depending on weed pressure and soil moisture. The flamer uses liquid propane and emits about 1,000,000 BTUs. The flamer does a good job on annual weeds and sets the grasses back too. Immediately after flaming we seed the field with pelletized Bolero seed using a Mater Macc 4 row vacuum seeder. We drop 15 seeds to the foot. Only 80% of the carrots seeds will germinate so we will get a stand of about 12 carrots to the foot. If necessary we will irrigate the field. When the carrots are just seeded we irrigate with Netafim Meganet. It put down even moisture without disturbing the seedbed. Five days after seeding we flame again for the last time. During the summer months our carrots can emerge in 6 to 7 days so it important to set the alarm on your phone to remind yourself. The last flaming will save you hours of weeding. When the carrots emerge our fields are clean of all weeds with the exception of some grasses here and there. With a July 25th seeding date we are able to mechanically cultivate carrot seedling by August 15th with our 4-row Fobro weeder. In total, one of our fields that has about 7000 linear feet of carrots required less than 6 man hour of hand weeding after using the Fobro weeder.

Carrots are harvested with the tops on all during the month of October. Harvesting for storage begins during the 3rd week of October. Carrots are lifted during a modified plastic lifter. The crew removes the tops while they are picking and crate them. By the end of the day any carrots that have been picked that day are washed in the barrel washer and packed in 15" x 30" vented plastic bags and put in bins that are eventually stacked three high our in a high moisture, low temperature storage unit along with our beets, parsnips, winter radishes, rutabaga, turnips, celery root and cabbage. Not only do we have carrots available all winter long but, they will be available for our farmers' markets in May.

We prepare the soil for parsnips as far in advance as we can which is often difficult in the spring. Parsnips are done in the same way carrots are except they take much longer to germinate so we wait about 2 ½ weeks for the last flaming of the field. We still use pelletized seed mostly because if there is an issue when seeding you notices it right away. Parsnips are one of the last roots we harvest. Harvesting in mid-November ensures that they are nice a sweet. We again wash them the day of harvest and pack them in vented plastic bags.

Beets are a little different because they emerge from the soil so quickly during the summer months, you can flame them a second time. Fortunately, they grow a little faster allowing us to mechanically cultivate earlier. To get good sized beets thin them to about 2-3" apart. For winter storage it is important to thin them while they are young. Trying to thin beets that are 6" high is difficult.

Winter radish, rutabaga and turnips are treated similarly. The seed bed is created just we do for carrots but flaming only takes place once, just before seeding.

Root crops are a must for many diversified farms and they can be profitable to grow if you take the time to develop a system that minimizes hand weeding.