

## **Workshop Title: Mechanical Weeding Techniques**

**Speakers & their titles:** Josh Oulton (Tap Root Farms, NS), Michael Carr (Jemseg River Farm, NB), Kent Coates (Nature's Route Farm, NB)

### **Executive Summary**

This presentation featured guest speakers from three different farms. Each guest speaker presented for 15 minutes on the methods they use on their farms to mechanically cultivate, as well as other methods of weed control and prevention that they use. There was a brief discussion at the end about where each farmer gave his input about when to start using mechanical cultivation, and what it has done for them in terms of efficiency.

### **Detailed Notes**

#### **Michael Carr, Jemseg River Farm**

Jemseg River Farm is in its 4<sup>th</sup> production year, with 8 acres under cultivation. Their main crops are veggies, potatoes, and strawberries. Almost everything on the farm is planted in two rows (except for strawberries and brussel sprouts)

Approach to Weed Control: Initially Michael thought about adopting the Eliot Coleman style of production, and to start using a BCS walk-behind tractor. He decided in the end that it was impractical because of their larger scale and the number of rocks in soil. He made the decision to use tractors because he grew up with them and is comfortable working with them.

Tractors:

11 horsepower Farmall '79 is main cultivation tool:

- Uses a midpoint cultivator, which is easier to cultivate with rather than with a 3-point hitch. An implement that is set up onto a 3-point hitch will swing in the opposite direction as you are turning which could run over your crops during cultivation
- Cultivator, plow, mower, manure spreader cost \$3500 altogether.
- Motor is offset to one side so you can see what is directly below you as you're on the tractor
- Cultivates a two-row bed in two passes

Also owns a 23 horsepower Farmall, but it's not working at the moment.

Also owns a 28 horsepower Kubota

- Diesel powered, and has a three point hitch
- More power

Michael uses the tractor to mark rows before planting. Everything needs to be straight to cultivate with a tractor.

It takes approximately one hour to cultivate ~3/4 acre, and costs ~\$4 each time in fuel. Mechanical cultivation is by far worth investing in for them because of the amount of labor it saves. They hardly use any of their time hand weeding.

Other forms of weed control: Diamond hoes from Lee Valley; and cover cropping.

Youtube: Farmers and their weed control machines (*refer to slide show*)

### **Josh Oulton, Tap Root Farms**

Methods of weed control: First and foremost, Tap Root Farms spends a lot of time hand weeding. They use straw mulch and black plastic mulches on the high tunnel tomatoes and peppers to eliminate weeds in the beds. They also plant a mixture of rye and clover in some of their alleys, and whipper snip midway through the season. For smaller crops, such as spinach, they will use the wheel hoe.

In addition to mulching the high tunnel tomatoes and peppers, they use biotello in for a lot of their field crops. Biotello is probably their main weed control tool.

Mechanical cultivation techniques: In the cases where they do use mechanical cultivation, Josh will set up the tractor with the cultivator on the front and the Reigi on the back. They will often use the Reigi for cole crops, or anything else that's planted at a 32" spacing. Most of their cole crops are cultivated at least 3 times.

Preparing beds: To standardize the spacing between the rows and to make them as straight as possible for cultivation, he will mark rows behind the tractor with a pair of chains while he is defining the bed. Next he will follow over the rows with the Jang seeder.

Flame weeding: They use flame weeding as a cultivation tool, but they have decided to rethink how they do it. Sometimes they use an Earthway seeder, which easily gets clogged up with residues on the soil surface while seeding. Instead of flaming the weeds on the bed right before seeding, their plan for next year is to allow the weeds on the bed to germinate, and then to seed directly into

the bed. Then after a few days he will flame weed and kill the weeds without harming the germinating seeds.

### **Kent Coates, Nature's Route Farm**

Nature's Route Farm uses cover crops, rotations, handweeding and hoe weeding as control strategies in addition to mechanical cultivation.

Cover cropping: Cover crops are a very important aspect of Nature's Route Farm's weed control strategy. Generally they will use a buckwheat-fall rye rotation, where the buckwheat will be followed by fall planted rye, and veggies will be planted the following year. They also plant fall rye in the wheel tracks (alleys) of the carrot beds. 2012 was too dry to put in cover crops, and as a result 2013 involved a lot of hoeing and handweeding, which stresses the importance of cover crops in reducing the weed population in the seed bed. Cover crops are also important for breaking down sod and preparing the soil for planting.

Seed bed preparation: Kent will make his beds with a bed shaper, and will stale seed bed for 7 days. Afterwards he will go in with a small tiller in front of the tractor, and will plant behind into the furrows with a seeder (*refer to video in Kent's slides*). They use three mounted Planet Juniors for seeding, and standardize their beds so that everything is seeded 3 rows per bed, into 3 trenches. Rows must be parallel and straight in order to cultivate mechanically.

A note about tractor cultivation: Kent mounts his S-tine cultivator onto the front of tractor to avoid taking out plants while steering. (For instance, if the cultivator is on the back, turn right and tool turns left). This is the same problem Michael Carr addresses by using a midpoint cultivator. On a three-point hitch there is more control if the tool is in the front of the tractor or under the wheels.

Kent sums up his most important factors for weed control in the last slide

1. Cover crops
2. Seed bed prep
3. Parallel (straight) rows
4. Control of cultivation
5. Timing

Finally, he estimates that mechanical cultivation has saved 20-30 hrs per week of hand weeding. All of the farmers on the panel agree that if your farm owns a tractor, it is well worth your time to cultivate mechanically for the amount of time and labor you save.