

2017 Acorn Conference & Trade Show Best Western Glengarry - Truro, NS

Title: No-Till Vegetable Experiments and Research: Farmer to Farmer Discussion

Presenters: Carolyn B. Marshall and Shannon Jones

Summary: This session featured short presentations on no-till and low-till methods of management focusing on recent experience at several sites in Canada. One of these highlighted trials at Broadfork Farm in Northern Nova Scotia. The session then opened into a farmer to farmer discussion on no-till and mulching techniques.

Carolyn Marshall began the discussion by summarizing a couple of experiments in no-till vegetable production. One of these was in Manitoba and one in Bible Hill. Both examples utilized full season cover cropping. In Manitoba the cover crop was hairy vetch and barley.

In the Bible Hill example it appeared that no-till didn't provide enough biomass to suppress weeds. Six tons of biomass per acre is the minimum needed.

Organic production that uses too much tillage has been criticized. The result is a loss of organic matter, disruption of soil structure, and soil biological activity. However, most research demonstrates that organic production is much better than conventional management for soils. A soil conservation approach that emphasizes minimal soil disturbance, the use of permanent soil covers, and appropriate crop rotations ensures healthy soils.

Shannon Jones then spoke of the experience on their farm with minimal till and no-till. She and her partner have been conducting trials with no-till.

Using rye as the cover crop, roller crimping was used with some mowing. A tiller with the PTO turned off was run over the rye twice to crimp the rye. This was quite successful. Brassicas were then transplanted into the crimped down rye. The transplanting was a slow process and took a long time. It was also difficult to apply amendments to the crop. The resulting yield was also down. It appeared that the plants needed more space.

In this trial roller crimping wasn't ideal.

Shannon then used landscape fabric and created holes to plant in. Compost was also used for mulching and kraft paper was trialed as a mulch. Pathways are not tilled on their farm and beds are very lightly tilled with a Johnny's tilther ensuring a very shallow till.

As a result of these experiments with low till, the crop rotation plan on their farm has been significantly altered to reflect the following (contact Shannon for details):

- Yr 1: landscape fabric is used for mulch.

- Yr 2: long term crops are mulched with compost and pathways in wood chips: short term, quick turn over crops have their pathways planted in living mulch.
- Yr 3: short term, quick turnover crops are mulched. Pathways planted with living mulch. At the end of the year, beds are planted in a winter cover of rye and vetch.
- Yr. 4: The rye/vetch is crimped or mowed, replanted in rye and vetch with an under seeding of red clover. vetch. No tilling at this point.
- Yr 5: The red clover is allowed to really establish.
- Yr 6: Oats and peas are planted to winter kill.

Participants then moved into a circle to share experience with mulching. Generally Initial comments are recorded here as questions, with discussion points noted following.

Various participants noted their experience with bags of leaves, loose leaves, or eelgrass as a mulch. It was emphasized that eelgrass is not the same as seaweed. Seaweed needs to be used with more caution. Otherwise, eelgrass was recommended for use as mulch.

Other participants were familiar with no-till farms in New York and California that have made extensive use of no-till methods. These have had great success.

Q. Want to put some vegetable beds asleep for a couple of years. Any advice for a cover crop in this situation?

- Use a planting of mustards and granite dust laid on garlic before harvest. Then over plant with oats and let them go to winter kill.
- Oilseed radish can be used and left to overwinter

Q. Any ideas for crimping on a small scale?

- 2 x 4 on ropes to crimp.
- Used a 50 gallon drum which didn't work very well; it just laid the crop down flat. One would need to build a ridge on the drum for it to work as a crimped.
- I've seen a crimper pulled by a walk behind.
- Participants were encouraged to check out Pat Battle, Living Web Farm, on the Internet for some practical ideas for crimping.

Q. Winter rye cut with a whipper snipper and then used as cover resulted in a good planting bed.

Q. We have been experimenting with silage tarps as a mulch to kill weeds before planting. Can harrow maybe twice or till before planting. Tarp makes a huge difference. A 40x 100' costs about \$1,000. Other participants say the mil maybe heavier than needed in this example. The cost would be less with a lighter mil fabric.

Q. The silage bales used by dairy farmers can be very effective and makes use of a garbage resource.

Q. Temperature question:

- Transparent plastic results in hotter soils.
- Black plastic is much better.

Q. Eel grass, can it be used without salt problems?

- Seaweed and eelgrass are different. Eelgrass is mostly carbon. It takes some time to break down. I don't worry about the salt.

Q. I use to keep sheep and tried to compost low grade fleece trimmings. It doesn't break down quickly, but is great mulch.