

Workshop Title: FarmHack: Tools and Innovations for Small-Scale Farm Part 2

Speaker(s) & their title(s): David Greenberg, *Abundant Acres* and William Pedersen, *Windy Hill Farm*

Executive Summary

David Greenberg and Will Pedersen present several "Farm Hacks" that they use on their own farms. These included David's 'crop hopper' for mechanical row crop weeding and Will's rolling dibbler. The presentation is followed by an interactive discussion with the audience about different farm hacks they are using.

Detailed Notes

David Greenberg

- On farm research is currently at an interesting point with all the innovation in technology.
- The farm hack model is based on using a lot of off the shelf and reused industrial materials to create tools and systems to make farm life easier.
- See www.farmhack.org/wiki/gettingstarted for introduction video if you are not familiar with FarmHack.
- David is working on a farm hack on his farm: The Crop Hopper: a zero-turn mower which has been turned into a weeding machine. (Refer to David's powerpoint for photos of The Crop Hopper)
- The Crop Hopper is steered with foot pedals and weeding tines are operated with your hands. You can use tines or attach disks for hilling.
- The Crop Hopper works well when there is still a lot of organic matter in the soil and would work well with rocky or clay soil.
- He also has compost cart to add to the back which makes spreading compost much quicker.
- David believes this machine is a game changer as a lightly mechanized farming technique.

Will Pedersen

- Will built a rolling dibbler himself by combining a design from the University of Wisconsin and a High Mowing design.
- He did so because the rolling dibblers on the market were too narrow for his beds and cost over \$600. (Refer to Will's Powerpoint for photos of his farm hacks).
- His rolling dibbler is 3 ft circumference and dibble markers are 1 ft wide.
- It is made of cedar planks and has one removable plank to adjust the dibbles for 3 or 4 rows.
- The handles are wheel barrow handles.
- The dibbles are 1/8 piece dowel cut into 2 inch sections with a screw and bolt.
- It is the same width as his bed top.
- It helps with planting even, straight rows.
- Total cost: \$35 for handles and \$25 cedar.
- Will's ideas for further improvements are to add some additional weight to put dibbles further into the soil or to have pointed dibbles.
- Will also built a garden cart which is made of bicycle wheels: a metal frame he welded together, 1/2 inch plywood and handles are hardwood to stand up to stress that is applied them.
- He built a multi-purpose flat bed cart which is great for using over top of crops with wheels in the path. He often uses it when harvesting lettuce to save trips to the end of rows with bins.
- Another farm hack: roller for used drip tape made of a hardwood handle and spool made of cardboard tube with plywood ends that can be attached to handle.
- Finally is his homemade heat table made of 1/2 inch plywood with aluminum siding on top, and roof heating cables on top. The roof heating cables run back and forth about 3 inches apart. They are covered with sand to help distribute the heat. He also adds bubble foil insulation on top of hoops at night to keep the heat in.
- The thermostat he used is available on Amazon or Johnny's. There is a probe you can insert into the sand which turns on the cables until sand is right temperature.

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- Will also uses a sensaphone which runs on batteries and hooked up to a phone line. It will call you if the power goes out and it monitors temperate and whether the electricity is on or not.

Discussion

Tim Livingstone

- Made his own heat table which is amazing. It has a thermometer from a cooler to go from hot to cold.

- We have to get the plants off within a week or the roots go into the soil.

- Our roof cables are 6 inches too far apart for cables which is too far apart.

Bryan Dyck

- We put roofing steel on top of sand to prevent roots going in and also to spread the heat.

David Greenberg

- Our heat cables are 1 foot apart but we have a wire cage to raise and lower over the seedlings with 6 layers of row cover.

- We only have a wood stove so we can start all these crops on the heat table.

- Don't buy seedling cables from Halifax Seed because they are the same as roofing cables but twice as expensive.

- He's had issues burning out cables but he runs them in an unheated greenhouse where they would run much more often so that may be why.

Bryan

- We built germination chamber off farm hack: it creates nice, humid heat for germinating melons in 2 days.

Phil

- He built aquaponic greenhouse and uses same thermostat as Will for heating water for fish.

Soleil Hutchinson

- She looked at an implement for tractor off FarmHack: triangle on back of tractor to avoid messing around with 3 point hitch.

- It seems to be very popular in Europe.

- She is wondering if anyone has succeeded in building it?

David

- Maybe David Baldwin knows as he has used it?

Phil

- Maybe you hackers would be interested in knowing that two Amish communities will be moving to PEI this year - they have a lot of well taken care of horse-drawn equipment.

Audience Member (name unknown)

- There is a Community in Saskatchewan of people who weld everything and use a lot of metal scraps.

- Does anyone have experience with hand pulled potato digger?

- David just bought a whirly gig potato digger.

- Kent Coates uses one and it works very well.

Amy Smith

- Bunching takes us a long time. Matt Dykerman has a super fancy bunch washer but we are looking online at old fashioned bunch washers: two brushes that spin and you hold the bunch.

Tim

- Having to put all the bunches into the washer one by one takes a long time. We put our bunches out on an old bed spring, pressure wash them and then flip. We have tried all types of washers but we use a cheap washer.

David

- Isaac Villeneuve in Carleton County NB has a carrot washer with a conveyor belt. He has a whole tricked out produce washing system. Farmers and makers need to get together to make these types of innovations like farmers and chefs have gotten together.

- online blog post about homemade root washers: <http://heliotrust.org/2013/04/09/root-crop-washer-update/>

Tim

- He wants a prototype for a carrot digger that actually works well. He has used other carrot digger which just took the tops off rather than digging the carrots up.