

Irrigation Techniques and Tools with Taproot Farms (NS)

Workshop Description

If you didn't think you needed irrigation on your farm, the summer of 2012 may have changed your outlook. A good irrigation system can save you money, time, and improve crop growth and yield. This session will go over some of the basic systems you can use on your farm, and discuss the practicalities of equipment choice, design, and some lessons learned in the field.

Workshop Notes

Started as a rundown vegetable operation + organic farm

Goal: to have healthy high organic matter soil – to reduce amount of watering.
Trying to add a lot of organic matter.

They manage 300 acres of vegetables, 60 acres organically, 40 acres in transition and 200 non organic with intention to transition all of acreage.

Have irrigation ponds on different properties – 7 ponds on one property – lots of site, helpful in drought years! Also have a drilled well on another property. If you are not using you well (well for production, if you are not using it run it once a month so it doesn't seize up).

CSA – they have commitments to customers and irrigation is a part of keeping those commitments.

They use aluminum pipe, a reel, pump and sprinklers, tractor and ponds. A reel is stationary, you pull the gun out into the field.

Their tactic:

Get pump out, grease it, put it in the pond.

Attach to reel, pull pump out into the field.

They have a 5 acre pull, but you can get a small 1 acre pull or a 13 acre pull. Require a HUGE amount of gallons per minute – this needs to match up with what your well can produce. The pump oscillates -you can put them on different settings. Some of them are computerized and you type in very specific settings (1 inch here, 3 there) etc.

They have invested in drip technology (thin wall drip tape, use once) – overheads in tunnels lead to disease problems, micro sprinklers on risers, drilled well.

**2012 PEI ACORN Conference
The Rodd Charlottetown – November 22-24th**

Sprinklers on aluminum pipe – run off the well. They are fast – 12 sprinkler heads and 24 pipes you can do an acre- 1 inch. in one hour. Easy to move + fast compared to the reel which takes a lot of tractor time. They last for a really long time, and won't wear out. The reel wears out a lot faster.

Question: Do you move pipe around?

Yes, it would be great to have enough for everything but they don't. Buried mainlines would be a luxury and make irrigation a lot easier.

The cost of watering an acre is \$100/per inch per acre, in labour, fuel, cost of equipment, and repairing.

Tunnel - overhead micro sprinklers – hook to the top of the greenhouse. They use a wand to water transplants. Drip irrigation as well.

Fertility- we use fertigation in our high tunnels to ensure appropriate fertility is getting to the plants.

One thing Josh (of Taproot Farms) doesn't like about drip-tape – is that he can't see it (but you can hear it). Plus there can be problems with mouse holes, leakages, etc. It is a good way to be conservative on water usage, but it can be challenging at times.

Question: Do you manually start and stop?

Yes, though sometimes they forget to turn it off!

Quote from VanOostrum on setting up drip irrigation, from a pond:
\$5900

For sprinklers: \$6500

Question: Are there water quality concerns or issues when watering overhead from a pond?

The well has to be tested, just because it's a well. If you are pumping from an irrigation pond you don't have to get it tested. They pump from a pond where the water has to go through a series of ponds. You don't even have to test for organic certification. All of Taproot's ponds have a spring in them.

Question: If you were going to restart, what would you do differently now?

They would use sprinklers – drip is great but I don't like the plastic and the waste.

**2012 PEI ACORN Conference
The Rodd Charlottetown – November 22-24th**

Question: If you wanted to crop 5 acres a year, what do you think is a reasonable ratio of moving to do?

You would want at least ½ acre worth of pipe (10% at a time).

Question: How long would it take to move the pipe?

One person could move 12 sprinklers in one hour. It takes about an hour of labour to irrigate an acre of land.

Question: Can you comment on whether the sprinkler system works with plastic? The water finds its way in, like with rain. The plastic helps to keep in moisture.

Question: What about sprinklers and wind?

You need to think about timing. A lot of people irrigate at night. When it's windy you lose a lot of the water through evaporation. With certain crops (like tomatoes) you should water in the morning so they are not sitting wet all night.

Question: What are the pressure requirements of a drip system over an acre?

It can be gravity-fed but you need about 10lbs of pressure – 40 ft up. As you get more volume, you need more head pressure to give you 10 lbs. When Josh first started he was doing big long runs, and was losing pressure at the bottom, so the drip tape needs to be split.

You could hire consultants, but you need a cashflow – they do it all themselves.

Well – 8 inch casing – pump is about 10 ft tall. 80 gallons per minute.

Question: Do you use a pressure regulator on your mini sprinklers?

No, he uses a ball valve and a pressure gauge.

Question: What crops would you prioritize as needing irrigation in terms of yield?

Lettuce, cherries (turned water on low, irrigated 4 times – got bigger cherries!)

Taproot doesn't want to do a lot of irrigating. Starting to adapt their expectations to the weather systems. Wants to educate consumers about changing costs of food based on weather considerations. Want to change production to get away from irrigation – use permaculture techniques, be more resilient – fewer infrastructure crops.

Question: With soil quality expectations – what else figures into that?

2012 PEI ACORN Conference
The Rodd Charlottetown – November 22-24th

A lot of mulching. If your soil is healthy, you don't need to water a lot. Crops that can establish themselves did fine.

Question: How do you water transplants, newly seeded beds?

Yes, water them before they go out. They get transplanted with no water. If it is really dry over the next few days, they go out with an old wooden sprayer and water them.

Drip? You can buy more permanent thicker drip.

To reuse drip – roll it back onto electrical spool to store.

Cindy Rubinfine says, “For every fertigation – run a water rinse for three minutes every time, helps deal with clogging, discourage mice that might like fish fert.”

Tim Livingstone says “Sprinklers – when the circles touch – stop.”

Early frosts – in September – put on sprinklers at night to save crops.

Becky Sooksum says “If you are from NS – you can apply for matched funding from irrigation costs.”