

Trickle Irrigation for Sweet Corn

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I'm not sure just how I was fortunate enough to receive this rare invitation to address such a distinguished group. As I look over the list of attendants, it gives a new meaning to the old phrase "preaching to the choir", but I'll give it a shot.

Living here in the Northeast and trying to grow sweet corn, one thing we can depend on is that every year is different. Last year we started in late March and early April with about one nice week. We got our plowing done and some corn planted and the next six weeks were cold and wet, and it alternated with being wet and dry all season.

First, let me tell you about our operation in Niagara County, NY. Our farms are along the Ridge Road where the soils are gravelly, very nicely suited for early season vegetable crops. We can get on them early in the spring since they hold the heat but not the water. Most of these soils are located close to the Ridge Road in a pretty heavily populated area. We lease about 12 fields which vary in size from 1 to 10 acres, and they are often cut up and a pain to work but most have a county water supply available. This is a very important part of our trickle decision.

We raise about 65 acres of fresh market sweet corn. About 30 acres of this is planted under plastic with the intention to harvest from approximately July 1st through July 20th. To complicate our operation, we also raise about 15 acres of strawberries – which puts a strain on our available manpower for irrigation work at a critical time for our early corn. We supply our own roadside market, a few other local roadside markets, and some local Wegmans and Tops supermarkets.

It used to be that we could stick in some Seneca Horizon, Harmony or Sundance and you had a corner on the early market. \$15.00 per box wasn't even questioned. Now the Southern Super Sweets continue to pour into our markets well into July – cheap – and not bad quality. So the challenge gets tougher.

Every year, we see new varieties coming along with fairly good cold tolerances and disease resistance, and many with great eating qualities. So we have good varieties to work with. Most growers with a little timely spraying still have products enough to keep us insect free. So we've narrowed the field down to other management practices. I consider the two most important to be fertilizer and water.

We have used overhead sprinklers, we have a couple of reels and have recently added trickle. Now – if used properly – they all work. Which one or more work best is a management decision.

Now – to talk about trickle irrigation. I'll tell you some of the things we use to make our decisions, and the economics involved as I see them.

1. I'm older and lazier.
2. Trouble getting good reliable help.
3. Getting things done on time.
4. Most important – We must have acceptable marketable yields of quality corn.

The most expensive corn we grow is the corn that doesn't fill to the tip. If you don't believe this – load up fifty boxes of corn that hasn't filled or that had immature tips and drop it off to Wegmans. Chances are that you'll haul that corn back home. That's expensive.

Let me tell you about my failed sales promotion program. I call it the “Butter Handle” program. Faced with a considerable amount of corn with those unfilled tips that I called “butter handles”, I tried to convince customers that it was premium stuff and when you eat it off the cob, the butter won't run off, down your arms and drip off your elbows. It sounded reasonable enough and I was actually able to convince two little old ladies and one new bride that it was a good idea. But I failed to convince produce buyers and about 99% of regular customers that this was the way to go. So much for my “Butter Handle” program. But we have learned to grow “butter handles”. Simply fluctuate your moisture supply to your corn. Rain is seldom dependable enough, especially on drier soils, to maintain consistent growth.

We first tried trickle 5 years ago. We liked what we saw. Some of our methods and equipment are “Mickey Mouse” but they work for us.

Our 2-row, 3-point hitch planter plants two rows 17” apart. We use an old cultivator shoe to make an open furrow for the planter and also build a ridge between the two rows. Trickle tape is laid under the center ridge about 2 – 3” deep. It takes a littler longer to plant obviously, but not much. A couple of tips: 1) I leave a little extra tape at the end of each row so when it is hooked up, flow can be easily checked from the truck window. 2) When laying tape, we found that a cement block at each end tied to a pair of vise grips, when attached to the end of the tape, will avoid tape slippage or dragging of the tape.

Let's briefly talk of economics. Don't hold me to any of these figures since they are all “ballpark” figures. Talk to your supplier for exact figures.

1. Planting corn as we do under plastic, 2 rows – 17” apart under a 4' roll of plastic, it takes 8,700 feet to give you one acre of corn. We plant at 5' row spacing which breaks down to 30” rows.
2. Since our trickle tape is laid between the two 17” rows we can adequately water 17,400 linear feet of corn row with 8,700 feet of “T” tape, or approximately one acre.
3. Using 8 mil tape at a cost of approximately 1.6 cents/foot your tape will cost about \$140 per acre. Now depending on the shape of your field and how close you are to your water supply, add another \$40- \$45 per acre for your header bringing the cost to about \$185 / acre. Now this sounds like a lot of money, and it is! But we

have found that with a little careful management we can get 2 – 3 years out of that tape, bringing the cost down to about \$60 per acre.

Reusing the tape requires a little more “Mickey Mouse” work. We use our plastic puller to rewind the tape on old wire spools for reuse. Since we do grow much corn after corn – we rewind it so it can be used right back in the same fields the next season. Sometimes you get a few nicks and bangs that have to be repaired – but not bad – and you’ll learn fast.

General Operations – Advantage of the System

Once installed, the system is easy to use and is almost labor free - just turn it on. Timeliness of application is achieved with the regular flow tape – 5 gal/1,000 ft/min, or 43 gal/min/acre. (Low flow tape gives approximately $\frac{1}{2}$ as much.) Our blocks are approximately 2 acres in size. We like to put on 1”/acre equivalent. (It takes approximately 27,000 gallons of water to do 1 acre overall. Since we only cover $\frac{1}{2}$ of that acre with trickle we need about 14,000 gallons.)

On our gravel soils we run approximately 6 – 7 hours at a run which gives us about a 2 foot strip nicely saturated right where it’s needed. Depending on rainfall, we think about 2” per week is necessary to do the job. We install an in-line pressure regulator set at about 11 psi which gives adequate flow and stops errors and blowouts. This season we experienced a countywide restriction on hydrant water use except from 10PM to 10AM. Trickle use was exempt from this restriction.

The other option we like is running Nitrogen or fertilizer into the system. We’re still experimenting on how to best utilize this probably with several applications over the season. On plastic, maybe an application before we pull would be worthwhile. But fertigation makes sense. It’s a fast, easy and on-target method for your fertilizer.

Introducing fertilizer into the system is really pretty simple – injector kits are available. We use our sprayer set at an idling speed to inject 100mgallons of fertilizer solution into the system in only 15 minutes. Note: You must of course have proper back flow valves in place.

In Conclusion

We feel trickle on corn does have a place – it works great. It takes a little extra management. The economics can actually look pretty good, especially if you can get 2 - 3 years use out of the tape. We are planting all of our corn with the same planter we use for plastic – 17” rows on 5’ centers – since this will give us the option of using trickle wherever practical (bareground or plastic) and not having to change plants or cultivators. Trickle is a good option – unless you can sell “butter handles”. I hope that maybe I have offered some useful information.

Thank You.

