



A Producer's Perspective

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My structure is a 30x72 “greenhouse” kit purchased from Nolt’s Greenhouse Supply in 2015, with cost sharing through NRCS. I have two layers of poly with an inflation blower, polycarbonate endwalls, two 16” exhaust fans at one end, and two thermostatically controlled shutters at the other end. I have roll up sides, and plan to upgrade to roll-loc this season instead of securing the roll up sides with wiggle wire, which is too much hassle. It is oriented east/west, with four long beds running the length of the tunnel, and 12 short beds that are perpendicular. Drip irrigation is automatically controlled, except in freezing weather when I water by hand as needed.

Prior to starting my current farm in Cumberland County, I worked at an urban farm in Dauphin County that offered a traditional CSA (May through October) and sold produce at on- and off-site farm stands. A high tunnel was an important tool on that farm, particularly for consistent production of cherry tomatoes, eggplant, and slicing tomatoes.

At my new location, I am using an unorthodox approach to marketing: a winter-only CSA. Of course as farmers know, that doesn’t mean that I work only in the winter, but the workload is spread throughout the year instead of being concentrated from March to November. Through the spring, summer, and early fall, I grow lots of storage crops (winter squash, potatoes, sweet potatoes, onions, garlic, parsnips, etc.). As summer progresses, the remaining fields transition from cover crops to intense brassica production (broccoli, cabbage, brussel sprouts, cauliflower, turnips, arugula, radishes), carrots, beets, spinach, and lettuce. Greens from the high tunnel take center stage throughout the winter.



Kirsten Reinford presenting during an on-farm workshop in 2011. Photo: Capital RC&D

During the 2016-2017 season, customers got a box of produce twice a month from November through April, with a three week gap in February, for a total of 12 boxes. The cost was \$330, approximately \$28/box. Boxes can be customized, a process I manage through shared Google documents and emails, and folks really seem to like that option. About a third of the members alter their box each time, swapping and/or adding alternate items to suit their tastes. I have a home bakery license and usually include one baked item in each box (granola, soft pretzels, biscotti, pita bread, scones, etc.). *(Continued on page 2)*

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A stand-alone commercial kitchen is in the works, which will expand the options for freezing (fruit, edamame, sweet corn, etc.). I also offer an egg share, and on occasion have purchased produce from other farmers, but I am very clear about which produce is not mine.

This CSA has been met with enthusiasm from customers (12 shareholders the first year, 36 the second year, with a waiting list). Because the options for buying local produce through the winter are limited in some locations, I can charge a premium price for my product. This cycle of farming fits into my family's life a bit better, as my three school-age children have minimal interest in participating in the farm, and my husband works full time off-farm. I also have an off-farm part-time job with varying hours that peak in April and May, so that job dovetails well with the farm. I've even been able to squeeze in some family vacations during the summer, an impossibility with traditional vegetable production.

Growing a steady supply of greens from November to April is challenging, and I have not yet perfected the process and timing of it all. I hope that my experiences might encourage you to try something new and help you avoid some of the mistakes I've made.

During the winter, cut-and-come-again crops comprise about $\frac{2}{3}$ of the high tunnel. Spinach (Winter Bloomsdale, Tyee, and Winter Giant) is the big workhorse here. The last two years I have direct seeded it, but I plan to transplant this coming fall so that I can let my summer crops stay in the ground as long as possible. At some point I would like to invest in a Paper Chain Pot Transplanter¹ to speed up the transplant process.. *Winter Spinach Production in High-Tunnels, 2014-2016*² is a good resource on winter spinach production that I wish I had discovered sooner. I had significant issues with aphids in the high tunnel in late winter (aided no doubt by an unseasonably warm February in 2017) which caught me off guard. I ended up tearing out the worst spinach and feeding it to the chickens; the remaining plants have recovered without any additional intervention. The northernmost bed of spinach was very stunted, and I'm not sure if that's related to its position, the fact that I never got around to securing the wiggle wire on the roll up sides and thus they weren't actually inflated, the variety (which I neglected to record), soil fertility (or lack thereof), or some combination. I also overwinter spinach outside, and though it survived pretty well without cover in 2016-17, I would like to try covering it in fall 2017 to see if I can extend production into the winter. I don't think any customers would complain if they got spinach in every box!

Kale is another customer favorite that does well in the high tunnel. I've found that Siberian is a good variety for the winter. It can be planted closer than outside plantings (10" in a staggered row system) and harvested intensely, with good regrowth particularly after the days lengthen. Mizuna, baby leaf lettuce (I use the Allstar mix from Johnny's), and greens mix (Elegance from Johnny's) are also good for multiple cuts before bolting. I also keep small beds of parsley and cilantro going through the winter, and have a couple clumps of rosemary. I haven't jumped on the Salanova® lettuce bandwagon yet, though I hear it is also good for multiple cuttings.

Among the "once and done" crops that I have grown during the winter are fennel, chinese cabbage, head lettuce, bok choy, tatsoi, radishes, and carrots. Customers rave about my carrots, and though I grow most of them outside, I'm still nervous about having them stuck in frozen ground when I need them, so I always plant 30 or 40 feet in the high tunnel. "Napoli" is my favorite variety, with consistently great flavor and size. I grew beets in the high tunnel the first year, *(Continued on page 3)*

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but decided that they weren't valuable enough for dedicated indoor space.

Since I don't sell much produce over the summer, I'm not in a hurry to pull out spring crops to get a head start on tomatoes, but by the end of April most things have succumbed to the heat and bolted. I'm still figuring out what makes the most sense to grow during the summer. Ginger has been a good crop for me, since it can't be put in the ground until soil temperatures have warmed, and is harvested as baby ginger at the beginning of November when the CSA starts. I grew sweet potatoes one year--insurance in case my main outdoor crop lost the fight against rodents big and small--but they were still actively growing in November when I needed to pull them out to get winter crops established, and I didn't notice any increase in yield in the protected environment. Specialty onions and shallots may be an option this year, especially with the advent of Allium Leaf Miner, though that would make more sense if my high tunnel had insect netting. I may experiment with melons to supply a farmer friend who does a summer CSA. I will also plant some cover crops over the summer, mainly buckwheat, field peas, cowpeas, and oats. In my system, most cover crops get smothered with landscape fabric and left in place as mulch for transplanted crops.

The winter-only CSA model needs to be tweaked, and I'm still developing the infrastructure and efficiencies necessary to realize a profit. As I start my third season, I have a long list of things to improve on --better record keeping, more consistent transplant production, expansion of storage spaces, and better planning for the late winter gap. One of the big challenges is that most storage crops, potatoes and sweet potatoes in particular, are very labor-intensive to harvest by hand, and I'm not growing large enough quantities of them to upgrade to machine harvest. The fore-mentioned late winter gap has been a challenge, too. Microgreens, popcorn, dry beans, and value-added products have been helpful, but I also need to make sure I have enough storage crops held back for the darkest, coldest days of the year. As I continue to grow, I will eventually need more area under plastic. My next step will probably be a caterpillar tunnel³, since I'm not sure my marriage could survive the construction of another high tunnel.

In my experience, there is definitely demand for fresh produce through the winter. If you already have a loyal customer base from a summer CSA or farmer's market, a winter CSA or buyers' club can be a great way to increase sales without having to do significant marketing to attract new customers.

¹ Paper Chain Pot Transplanting System: http://smallfarmworks.com/Paper_Pot_Systems.php

² Orde, K. & Sideman, B. (2016, June) Winter Spinach Production in High-Tunnels, 2014-2016. Retrieved from https://extension.unh.edu/resources/files/Resource006103_Rep8625.pdf

³ Caterpillar Tunnel: <https://farmersfriendllc.com/products/season-extension/caterpillar-tunnel>

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High tunnel network

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