

Tunnel Innovation at Kilpatrick Family Farm
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Kilpatrick Family Farm was started in 2003 and that fall we put up our first hoophouse. As we have grown we have used a multitude of different tunnels for our production. Over the years we have refined, made mistakes, and figured out ways to improve designs, production and efficiencies.

We use 5 different tunnels on the farm. High tunnels, Haygroves, prop house, hoophouses, and mini tunnels. We have specific crops which we prefer in different houses/styles.

High tunnels are a key aspect of our year-round greens production and our high tunnel tomatoes. We do a range of winter greens planted mid-October on and then rip out all greens April 1st for our summer tomatoes. We inter-plant greens with our tomatoes 2 rows either side of the tomato row with 10" between rows and 8" in row. We understand the risk that interplanting entails but find that through careful management and biological controls the risks can be abated. We are using grafted stock for our tomatoes, using the Pellikaan clip system and very happy with it. For air heat, we are using a 100% efficient propane Greengro heater from LB White. Our in-ground heat is powered by a takagi flash hot water heater which we really like. We prefer a 18" to 2' kneewall around our greenhouses to keep cold air from dumping directly onto crops. At least a 6' sidewall is important for winter greens production and allows your walking path to be on the edge of the houses, in the coldest area. One of the big questions is what kind of tillage equipment you are going to be using in your greenhouses and make your doors and ends to suite that.

We love and hate our haygrove. A great 3 season growing space which has it's quirks and tricks. One thing is the plastic, it needs to come off if winds gust over 50 MPH and for any snow over a couple of inches which involves at least biannual removal and re-skinning of the house. Plan on using at least 6-8 people to help skin, 4-5 hours and under 2 MPH wind. it helps to have a bucket/forks tractor at each end to quickly attach the plastic. Although the haygrove is able to be put up on uneven soil we found that with normal vegetable soil disturbance it's best to be mostly level side to side to prevent "losing" the soil out one side of the house. Although it has its downsides, it is a very inexpensive spring/summer/ fall space and we grow a lot of product in it. We love the plastic clip system that haygrove supplies and have adapted it to many different buildings on the farm- (see online resource page).

Our hoophouses are used mainly on our farm now for summer cherry tomatoes, peppers, eggplant and ginger. We do two styles, both movable and semi-permanent- Summer Caterpillar style (8 ft bow spacing) and winter buried plastic style (4-5 ft bow spacing). Our bows are 15 bows from rimol which allows us to have 2 beds of tomatoes or 3 beds of other crops inside. The biggest solution to keeping the plastic on is to keep the ropes very tight and tamp down the soil. We don't run a rope down the spine of the caterpillar but do run one from the end bow to the ground to keep them in position. One of the things that can be done with these hoophouses is setting up a permanent grid of groundposts and anchor points and moving bows and plastic around during the year. (see resource page mentioned at bottom)

We have busted at the seams of our 17X48 transplant house for years now and just haven't gotten around to upgrading. One of the key elements of our house is our heated benches- they are a Delta-T hot water system which we placed over 1" foam insulation to channel the heat up and under ground cloth to keep everything tidy and allow us to slide trays around on the benches. We cover the benches with rowcover during the winter and spring to keep the heat in and prevent us from having to heat the air in the houses. This system has saved us almost 2/3rds on our propane bill. One feature we did put in is a misting system for propagating strawberry tips and allowing us to germinate mid summer greens easier. We have a backup modine heater for emergencies.

We use our mini-tunnels mainly for overwintering greens, onions, and anything else we can dream up. We bought the bender from Johnny's and cover 5' raised(very important) beds made with our buckeye bedformer- we get 10 ft wide plastic, drape it over the hoops and weight it down with LOTS of sandbags. We found that 150' length seems to work best for us.

One thing we have done that has helped us keep weeds down on the edges of our houses is to put 2 ft groundcloth down when we put houses up. We center this on the row of ground posts-one ft on each side and then can mow right up next to the house on the outside and till right up next to it on the inside.

Covered production has been a key to our growth here in the often unpredictable northeast climate. It has its rewards and also its challenges. Please follow the below URL or scan the QR code to access the custom resource page which has much more information including pictures, sketches, dates of planting and harvesting, storage, the presentation slides and other relevant resources.

www.kilpatrickfamilyfarm.com/NEVF

