

## Step-by-step instructions for installing new hoophouse plastic, on a windless day (less than 5mph)

1. Gather a team of 6-8 calm, sensible people, explain the job and the ground rules. Allow 2 hours with 5 people for replacing the inner plastic and tubes (steps 13-25) Allow 3 hours and 6 people for the outer layer and wigglewire (steps 26-34). We are not the fastest team, as most folks have never done this before.
2. Check if the hoophouse bows and the grass are dry. Unplug the inflation blower.
3. Loosen all the ends of the wigglewire all the way round, with pliers and/or a screwdriver.
4. One by one, remove each piece of wigglewire, extract the outer plastic, then tack the center of the wigglewire in the channel to hold the inner plastic.
5. Pull off the old outer plastic, and either roll it up as it is, or cut it into 10' wide lengths for future low tunnels. If you might want to use it to recover the hoophouse in an emergency, don't cut it now. Label it, tie with rope, store it.
6. Detach the blower and jumper hoses and the manometer tube from the inner plastic.
7. Remove the wigglewires into carts. Do not set them on the ground. Hang on to the plastic!
8. Remove the inner plastic and roll it up, entire or in 10' strips; label and store it.
9. Remove all the crumbling old tape from the metal connectors.
10. Put new high-quality Gorilla tape over all the metal frame connectors, bolt heads and sharp edges. Keep the skyward surfaces smooth, not wrinkled, so the plastic will slide over.
11. If the grass is at all wet, unroll a silage tarp along the side of the hoophouse.
12. Read the box labels of the plastic. TIV=Tufflite 4-year plastic, outer layer. IR=InfraRed, inner layer.
13. Unroll the new inner plastic outside the hoophouse along one side, keeping the surface which will be on the *outside (top)* dry. Use 4 people, two on each end lifting the roll by holding hoe handles in the tube, and one person walking the free end of the plastic out as far as it goes.
14. Note the writing telling you which side goes down (=inside).
15. Perhaps fluff up the layers and separate them, but it should not be necessary.
16. Tie at least 5 tennis balls in gathered-up plastic along the long edge which is on top of the unrolled but still folded plastic. Use ropes at least 45' long, preferably of different colors.
17. Tie a filled plastic bottle in a sock to the free end of one of the ropes and throw it over the top of the hoophouse. Adjust the amount of water in the bottle to give a useful weight.
18. Untie the socked bottle on the far side, bring it back and repeat with each of the other ropes.
19. Agree with your crew on a set of directions, especially to call "Stop!" if everyone should stop until a problem is fixed. Agree that anyone puncturing the plastic will fess up and fix it.
20. Slowly and evenly, pull the plastic up and over the top of the frame until the edge reaches the ground along the whole length on the north side. Have spotters inside, and on the starting side.
21. Don't pull against strong resistance, call stop. If the plastic gets snagged on the framework, have the indoor spotter (on a stepladder?) use the sweeping end of a broom, or a paint roller on a telescoping pole, to lift the plastic free.
22. Keep hold of the plastic. Start at one gable end on both sides and work in a coordinated way to the other end, shimmying the plastic around until it covers the whole frame and is square. You won't want ripples and waves across your hoophouse. Use the writing to keep plastic roughly straight. Be sure the tennis ball-deformed edge is in the bit you will trim off.
23. Using the middles of lengths of wigglewire, tack the plastic into the channel, at least once every 12' down the length of the hoophouse, on the baseboards (or the hip-board, if you have roll-up or drop-down sides). If possible, tuck the free ends of the wigglewires underneath the surplus plastic on the ground, to avoid damaging the outer layer.

24. When all seems good, work in pairs to attach jumper hoses and inflation blower hose. You won't be able to access the space between the layers after you put the outer plastic on. Start with undersized cross-shaped holes in the plastic and stretch them to fit. The flat side of the locking rings goes against the plastic.
25. Refit the manometer tube now or later, before turning on the blower. If later, be sure not to cut the outer plastic when you make the hole for the tubing.
26. Unroll the outer plastic outside the hoop house along one side, keeping the surface which will be on the *inside (down)* dry. You don't want to trap moisture between the layers of plastic. Additionally, water between the layers will cause the two pieces to stick to each other and it will be hard to pull the second one over. If the grass is damp or full of cut bits, use the old plastic or a silage tarp as a carpet, and unroll the new plastic on top.
27. Repeat the tennis balls trick until the outer plastic is in position. It should be easier, as it won't have any metal framework to snag on. Don't pull against strong resistance. If a tennis ball gets stuck in a sag of inner plastic, stop pulling on that rope until it gets free. Make sure the plastic doesn't snag on the ends of the wiggles wire sticking out from the baseboard.
28. Start at one gable end and work in a coordinated way on both sides to the other end, shimmying the plastic around until it covers the whole frame and is square.
29. Tack the second layer of plastic in the channel with the first, using the same wiggles wires.
30. Using stepladders as needed, and starting at the peak on one end, set the wiggles wires fully, using a spoon handle to push, or pliers to grasp the wire ends and tuck them into the channel. An occasional little pleat is OK and will give you some slack.
31. You could mark the ends of the wiggles wires on the plastic as you go, using a really permanent marker, to make them easier to find when it's time to replace the plastic (again). You could make a map too.
32. Starting at the finished end, work down both sides in a coordinated way, doing the final setting of the wiggles wires along the baseboards. Remove the wiggles wires one at a time, pull the plastic only enough to avoid wrinkles, allowing a few inches of slack. With the outer plastic in place, set both layers in the channel and fully set the wiggles wires in place pushing with spoon handles, or pliers carefully. Once it's all up and running, your goal is a bubble 6-12" deep between the inflated layers. Pulling the plastic too tight can result in the plastic rupturing in cold weather.
33. If you are doing this with just two people, start at one end, fix 3 bays, repeat on the opposite side, and continue switching from side to side. With two crews you can do both sides at once.
34. Trim the wiggles wire with bolt cutters if needed at the far end. If you feel confident, trim the plastic now, all the way round, leaving a 6" margin. If you think there could be a problem that might involve resetting the plastic, leave it overnight.
35. Turn on the blower and check every few hours, adjusting the air intake as appropriate.
36. Tidy up, store tools, and write any helpful notes for next time.