

### **Moveable tunnels: a reality check**

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The recent interest in moveable tunnels is very easy to understand. A farmer is always trying to cover more crop area with a minimal amount of tunnel square footage. In some cases it makes sense, in other cases I feel that you won't see the benefit of the increased risk.

The situation where a moveable tunnel works best is when you have two crops whose production cycles don't overlap. I can see spring greens, peas, carrots, beets, etc. and then fall raspberries. Neither crop needs to be covered during the time the other crop is vulnerable. In many cases both crops need to be protected at the same time to optimize growth and production. For example, summer tomatoes that will produce until late October and winter greens that need to be covered in September to maximize production. You will have to decide which crop loses.

Rolling poly to the ridge pole. If your main reason for a moveable tunnel is to move the tunnel to expose the soil to the weather, maybe you should consider removing or rolling the poly to the ridge pole for that period of time instead. It is a fairly easy process and only takes an hour or so to complete.

I attach the poly to the ridge pole with short sections of 2"x4" lumber bolted to the ridge. The poly is outside of the lumber and then a piece of 1"x3" board is screwed to the 2"x4" to sandwich the poly between the boards. This keeps the poly from shifting out of position when you roll it up. The next step is to remove your cleats from the hip board and using the roll up pipe roll the sides all the way to the peak. They will be anchored in position with rope tied around the bundles and the ridge. The two handles are tied or wired together so they can't rotate.

Risks with moveable tunnels. The reason that tunnels survive year after year is the ground posts that anchor the tunnel to the ground and provide stability against snow and wind load.

If you remove the ground posts and replace them with a rail or skid you don't have any stability for outward rotation or lift. Lift can be addressed with earth anchors or weights on the skids. You will want to check to see what lifting loads your size frame will experience in various wind conditions. This information is available from a greenhouse engineer. You can reduce lifting forces by making sure the tunnel is completely closed during high wind events including doors and roll up sides. Now the only lift is from suction along the outside of the poly.

Wind and snow loads that push down on the roof of a tunnel transfer that load as an outward force rotating at the curve. The outward force extends down the leg of the bow and if the bow is attached to a track, rail, or skid the leg of the bow will bend outward and allow the roof to cave in to the ground.(classic greenhouse failure even with posts) The only way for a tunnel to survive from wind and snow loads that push down on the roof are with ground posts attached to the tunnel. After the tunnel is moved into position you must drive posts into the ground and bolt or clamp them to the vertical leg of the bows. Depending on the width of the tunnel, you should have a post every other or every third bow. The post will be driven into the ground to a normal post depth of two to three feet. The post should extend above the ground two to three feet and be bolted to the vertical bow with bolts or strong clamps. This will simulate a ground post attachment while still allowing reasonably easy dismantling to move the tunnel.