Create a 1,000 square foot Greenhouse "Hoop-house" for $500 or less

I was asked to provide some details about tips on creating my 10 x 100 foot sheet-plastic greenhouse or "hoophouse".

There is a detailed parts and instruction list at http://westsidegardener.com/howto/hoophouse.html
But here are some upgrade tips I learned in my research that have served me well.

Use 20 foot PVC 1.5 or 2 inch pipe, not ¾ inch, for much greater stability in high winter-winds and better longevity. I drive 4' rebar 2' into the ground at each end of the pipe, bend the pipe onto the rebar, then screw the pipe to 2x6 boards at ground level for a rock-solid frame. Use fresh PVC because old PVC is stiff and brittle.

I link the PVC ribs together at the top with a run of ¾" PVC pipe, from which I hang drip irrigation and misters. Make sure your fasteners are UV-resistant. I cover them with aluminum tape so they don't irritate and create holes in the plastic sheeting. Sticky-back felt-pads -like you use for chair-feet- work well for irritation-prevention too.

Use good quality professional greenhouse polyethylene plastic sheeting which includes benefits like infrared light dispersal and condensation reduction. I prefer Durafilm 6 mil Thermax from McConkeyCo.com in Stockton, a major greenhouse supplier, but they get newer products regularly. If you time your delivery for their regular deliveries to Santa Rosa, shipping is cheaper. A 24' x 100' roll was $285 plus delivery last time I checked. If you need less, maybe share a roll with other members. I bought a cheaper type from Harmony this year, and regret it. Get the 24' width sheet and cut off the extra 18"after you mount it. The 20' width is too narrow for 20' PVC ribs. Have at least 4 people on hand to install it.

Don't let the sheet plastic touch the PVC! PVC sweats chlorine-gas which rots sheet plastic. Let the completed frame gas-off in the sun for a few days, then paint the PVC once erected, and/or put a strip of aluminum tape (from any hardware store and cheaper than felt) between the PVC and plastic. This will extend the life of the plastic to its natural 3-5 year life. Otherwise the plastic rots and tears in a year or two at PVC contact points.

Use re-useable plastic sheeting fasteners ("wiggle-wire-in-base") for continuous attachment and ease of replacement. There are a few brands of wire-and-holder devices. McConkey sells CONWLB12-EA base and wire at around $1.80 per foot. I used Wire Lock from GrowersSolution.com at $1.45 per foot.

I used three sheets of T-111 exterior plywood to create wooden end walls (1.5 sheets per end) to allow for latch-able doors and greater stability. Brace the doors open for ventilation and pollination in the summer. I also cover one end with shade cloth for orchids and work-tables. Open-able sidewalls is an option, see GrowersSolution.com.

For winter heating I use a heater fan plugged into a thermostatically-controlled outlet called ThermoCube, $12 online and from many sources like Tractor Supply in Windsor. It turns on when the temp drops below 35 degrees, back off when the temperature rises. I also use it with a light bulb at the end of an extension cord under my trees covered with a sheet during freezes.

I use cut salvaged plastic city storm-drain pipe on hardware cloth as pots for trees.
Harmony sells poly-plastic-sheet repair tape and greenhouse flooring cloth.