



Using Hoop Houses and Tunnels for Productive Gardening

Growing heat loving plants like tomatoes, peppers, and melons can be a challenge in the Pacific Northwest. Using cloches, cold frames, hoop houses, and high tunnels can mean the difference between success and failure.

Definitions:



Simple cloche of pvc pipe and poly allow melons to ripen.

Cloche - A protective covering. Originally these were glass bells placed over plants at night to keep them warm. Today, any plant or row cover can also be called a cloche. Old five gallon plastic water bottles with the bottoms removed can act as protectors. Simple wire or pipe hoops across a row of plants with a poly or fabric cover is also a cloche.

Cold Frame - Similar to a cloche, a cold frame usually has a rigid frame, either wood or metal, and a hinged lid

of plastic or glass. The lid can be raised during the day for venting.

Hoop House - Usually tall enough to walk inside, and may have solid end walls. A well built hoop house with solid end walls and a method of securing the covering in the winter can be left up year round.



25' x 10' Hoop House over two 4' wide beds. This winter-proof house can be moved to the second set of beds at the right after 2 or 3 seasons. Note poly is raised for venting.

Tunnel - Also known as a high tunnel, this walk in hoop house is usually larger, only up in the summer, and may or may not have end coverings.



Tomato tunnel at the farm

All of these devices can help you plant earlier in the season, and help raise the temperature of the soil and air for heat loving plants. They can also help prevent some diseases in tomatoes that are linked to overhead water and rainfall.

Cloches, cold frames, and hoop houses that are sturdy enough to leave standing all winter can also be used to grow winter greens. Spinach, chard, cabbage and salad greens planted in September can give you late fall harvests, rest a bit in December and January, and begin growing again for February-April harvests. When temperatures become too cold in the structure, cold tolerant plants stop growing and less cold tolerant plants can be killed.

Considerations

Size - For hoop houses and high tunnels, bigger is better. Larger houses heat up and cool down more slowly.

Wind - We live in a windy world. Large frames covered with flexible poly sheeting can easily be damaged by wind. End walls that can be completely closed are necessary on houses that will be up during the windy seasons. Being able to secure the sides will also help.

Venting - The smallest cloche or cold frame and the largest tunnels need a way to be vented. Too warm a temperature will cause blossoms to drop, or in extremes, kill the plants. Once the cloche, hoop house or tunnel is built, it must have its venting adjusted according to the weather. This means opening doors and possibly raising sides on warm sunny days, and closing it at night. If growing melons (needing bee pollination) having a way to raise the sides of the house is critical; bees do not fly into closed houses.

Mobility - Just like in the open garden, crops grown in tunnels or hoop houses should be rotated. In the house stays in the same place several seasons, salts can build up in the soils from fertilizers and hard water. Remove the cover in winter so the rain can leach salts from the soil, so the beds remain healthy for more seasons.

Plants

Even though you will be growing your heat loving plants under protection, it is still best to choose short season, cool tolerant varieties. We like to use indeterminate (vine rather than bush) tomato varieties; these can be pruned to one or two leaders and trained on string suspended from the hoop house frame.

If you put up your cloche/hoop house before the frost season is over, this will warm the soil. Warmer soil will keep the inside of the structure from frosting and you are able to plant earlier.

Water

Drip irrigation works well in these structures, and over head watering should be avoided as it can lead to plant disease. Because the soil will not get any rainfall, you need to water even in the cooler, early season time. Letting the soil dry slightly between watering is fine, but don't let the plants wilt. Having a way to shut certain lines off is helpful. If you are growing melons, they like to be grown a little on the dry side once the fruit has set.

Resources

WSU Extension Bulletin EM015 Portable Field Hoophouse can be found here- <http://cru.cahe.wsu.edu/CEPublications/em015/em015.pdf>

Westside Gardener- Online resource for Northwest Vegetable growing. He has two 'how to' pages on constructing simple cloches and hoop houses- <http://westsidegardener.com/howto/index.html>

Supplies:

Poly film for covering

Just a few suppliers (there are many others out there)

Poly tex Greenhouse Supply- Custom cut poly sheeting, channel locks and wiggle wire.

<http://www.poly-tex.com/pages/accessories/replacement/polyfilms/polyfilms.html>

Envirocept Greenhouses and Supplies- Custom cut poly films (defined with, sold by the length), channel locks and wiggle wire.

<http://www.greenhouses-etc.net/glazing/polyfilm.htm>

Growers Supply (Farmtek)- Hoop house and tunnel kits, as well as poly films and polycarbonate sheeting.

http://www.growerssupply.com/farm/supplies/cat1a;gs1_greenhouse_film_and_covering.html

Clamps for PVC

Territorial Seed Company carries 'Garden Clip System'. They also have row cover clamps that help secure films or frost blankets.

http://www.territorialseed.com/prod_detail_list/171/2

Charley's Greenhouse and Garden- Mount Vernon company sells several sizes of snap clamps. Also cloche and greenhouse kits.

<http://www.charleysgreenhouse.com/174-269-Crop-Covers.HTm>

Steuber's Distributing Co. in Snohomish sells poly film (in 100' rolls) and pvc clamps. No website; phone (360) 568-2626. 308 3rd St, Snohomish, WA 98290