

Tucson Organic Gardeners and Community Gardens of Tucson

Garden Structures Workshop

This workshop will give you some ideas on how to build garden structures like a trellis, shade or frost covering, and ways to keep out insects or animals from your garden. We will give you some ideas on what materials you can use for your project. First you will build a structure, then if you are using this structure for shade or frost covering, or to keep animals or insects out, you will then attach the appropriate material to your structure. Our weather here in southern Arizona can be severe so you will need to build a strong support. Remember that if you want good air circulation and birds and pollinators to be able to get to your plants, you'll need to provide access.

Posts: First you will need to put in posts that you will then attach your structure onto. Depending on the height of your structure, you'll probably want the post to go down into the soil deep enough to really hold it in place. We don't recommend fiberglass poles - they are not sturdy enough.

Recommended choices include:

- **Rebar:** 3/8" x 2 feet for short structures, longer pieces may be needed for a taller or heavier structure. (Home Depot costs: around \$5 per 2, 4, or 10 ft piece. If you buy a big piece they may cut it into sections for you or help you cut it in the store.)
- **Green Steel T Fence Posts 36":** (Home Depot costs: around \$3.50 per 36" tall post)
- **Bamboo** - natural material. Can purchase bamboo plants or stalks from local bamboo nursery - Bamboo Ranch (www.bambooranch.net). Prices vary. Will not last as long as metal pieces can also be lashed together to provide shade.
- **Arundo donax (giant reed)** - natural material. Free! Arundo donax is a non-native invasive plant that grows in our riparian habitats. Watershed Management Group hosts regular Arundo eradication efforts that are open to the public and you can take home as much Arundo as you like in whole pieces or they can chip it up. Arundo posts will not last as long as metal but pieces can also be lashed together to provide shade.

<https://watershedmg.org/river-run-network/arundo-restoration-project>



Example of different bamboo thicknesses

Hoop or Fencing material:

Hoop structures:

- **½" steel electrical conduit** - Home Depot cost: \$6/20 ft piece. You will need a bender to bend it into a hoop. Folks could buy one together and share it, Johnny's Selected Seeds has a bender that can be purchased for around \$117. <https://www.johnnyseeds.com/>
- **½" PVC** pieces between 6'-10'. Painting them will extend the life of the PVC. Rough up the surface with sandpaper first so the paint will stick. (Home Depot costs: \$3.50 - \$4.50 per 10 ft section.) You can cut it smaller using a hacksaw. There are many examples online of how to create these structures:

<https://www.hgtv.com/outdoors/gardens/how-to-build-a-hoop-house-to-protect-your-vegetables> However, some folks do not want to use PVC due to plastic concerns.



Steel conduit or PVC hoops slipped over short Rebar poles, before adding shade or frost material protection

- **Galvanized Hog or cattle panel** - <https://savvygardening.com/cattle-panel-trellis/> Tractor Supply Support = \$26 for 16' x 50". Will not rust but is not easily bendable. https://www.tractorsupply.com/tsc/product/feedlot-panel-cattle-16-ft-l-x-50-in-h-3502077?store=2902&cid=Google-Local&utm_medium=Google&utm_source=Local&gad_source=1&gclid=EAIaQobChMI8u3Ti8eWiwMV9iECB1VVgXIEAQYASABEgJuq_D_BwE



A frame with cattle panels support for vines, shade or frost covering examples from <https://bonnieplants.com/blogs/diy-garden-projects/cattle-panels>

- **Steel wire mesh sheet (Remesh)** - Home Depot cost: 42"x84", \$19.98. Will rust but is bendable. Short sections can be tied together with pieces of wire to make a larger piece.



Arch structure made from metal T posts, Remesh and baling wire before adding vines, shade or frost material

Shade Material: Want minimum 30% - 50% shading. Use twine, fencing wire, twisty ties, cement rebar wire ties to attach the shade cloth/material to the structure. Panels with grommets will be much easier to attach. If your panel/material does not have grommets, you can use something like binder clips to attach them to the structure. 16 Ga baling wire - widely available at Ace, Home Depot and Lowes. 335 ft is about \$14.99. You may also want to invest in a grommet tool and to insert grommets into the shade/frost material. Any tears in the shade or frost material will likely shorten it's useful life.

- **Vines:** can be used to provide shade in the summer. Annual vines which may work here: loofah, gourds, cow peas, tepary beans (they do not like too much water), sweet potatoes, queen's wreath vine: <https://www.spadefootnursery.com/vines/antigononleptopus>. Many of the beans are leguminous and are nitrogen fixing so they are good for your soil health as well.
- **Burlap:** It doesn't last very long so we don't generally recommend this
- **Remay:** doesn't last long in our climate (made from polypropylene or polyester). You might prefer a more natural material.
- **Shade cloth:** EcoGrow and the Community Food Bank sell shade cloth. A 50% shade cloth at 6' is less than \$4/linear ft.
<https://www.communityfoodbank.org/event/pick-up-free-seeds-and-purchase-garden-containers-worm-castings-and-shade-cloth/2025-04-02/> We do not recommend white shade cloth in general as we think it breaks down too quickly.
- **Frost Cloth:** Available online and at EcoGrow and Community Food Bank



Example of using frost cloth from:

<https://www.gardeners.com/buy/super-hoops-set-of-6/8609749.html>

- **Tulle fabric:** Purchase from fabric stores. Provides light shade, can be doubled up. May not last very long.
<https://squarefoot.forumotion.com/t14882-recommended-source-for-garden-grade-tulle-and-good-shade-cloth>
- **Aluminet:** Be Cool Solutions™ 50% Aluminet Shade Cloth. The edges of these panels are sewn with heavy-duty reinforcing tape. A 7' x 8' section with Grommets at Greenhouse Megastore costs \$42.
https://www.greenhousemegastore.com/products/50-aluminet-shade-cloth-grommited-panel?pos=3&_sid=ba165c425&_ss=r Much lower priced versions of this can be found online elsewhere, but be aware that they are not made of natural materials and may not last more than a few years before deteriorating.
- **Arundo or bamboo** pieces can be lashed together in many different ways and using different kinds of knots, to make a pretty fence, screen or light shade. Can weave with willow or mulberry whips. Can be tied with baling wire jute, rope, hemp etc. Arundo or bamboo can

also be used to make teepees so you can grow vines on them.

<https://www.youtube.com/watch?v=85EoSjsi2og>

<https://www.gardeners.com/how-to/diy-bamboo-fences-and-trellises/5162.html>

<https://www.woohome.com/diy-2/top-21-easy-and-attractive-diy-projects-using-bamboo>

<https://themicrogardener.com/how-to-make-bamboo-tepee/>



Example of Arundo screen



Bamboo can be thick enough to drill holes in and use nuts and bolts to secure it to a post

Vine Supports and other useful materials/products

- Jute Netting material for vine support:
https://www.groworganic.com/products/jute-trellis-netting-6-12-x-150?srsId=AfmBOopeXRVbDGaddsc4z8Hn7KNYkgulstiypF86bHKgkbwZv9WZCZ_o
- Galvanized steel chicken wire - not completely pest proof
- Hardware cloth - easy to bend, ¼" mesh is effective at keeping pests out. Relatively inexpensive and is galvanized (won't rust). Prices vary according to size.
<https://www.homedepot.com/p/EVERBILT-1-4-in-Mesh-x-2-ft-x-5-ft-23-Gauge-Galvanized-Steel-Hardware-Cloth-308231EB/205960850>
- Coolaroo lacing needle and cord - great for mending shade cloth & adding loops for hanging.
<https://www.coolaroo.com/accessories/lacing-cord-kit-with-needle> Available at EcoGrow
- Coolaroo Butterfly clips - for clipping the shade or frost cloth onto a support.
<https://www.coolaroo.com/accessories/butterfly-clips> Available at EcoGrow



Coolaroo Lacing Needle and Cord, and Butterfly Clips

Growing In The Garden has a terrific article on how to create shade and other structures:

https://growinginthegarden.com/adding-shade-cloth-to-a-hot-summer-garden/?mc_cid=d28b1d8349&mc_eid=98ad024a1e

and

<https://growinginthegarden.com/how-to-create-shade-in-the-garden/>

Community Gardens of Tucson: <https://communitygardensoftucson.org/> Pio Decimo Garden (848 S 7th Ave) has a work day the first Saturday of every month. Many of the other community gardens do too, so getting a plot at any of them will likely introduce you to a great network of gardeners. Joining Tucson Organic Gardeners (tucsonorganicgardeners.org) is another good way to connect with and learn from other gardeners. Check out both websites for more information, including on the TOG Resources page for the handouts on Organic Gardening Basics and Home Composting in the Desert.