

## **Building A Grape Arbor**

by

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Fig. 1. A grape arbor with Marquis grapevines growing on it at the Southwest Michigan Research and Extension Center. Vines were in their third growing season. 8/25/00.

## INTRODUCTION

Grapevines can provide an attractive landscaping opportunity for many homeowners. Luscious, juicy grapes on big, full clusters within easy reach and a pleasantly, shaded area on a hot summer day are the rewards from growing grapevines on an arbor. Unfortunately, many backyard plantings of grapevines take on the appearance of a sprawling weed along a fence. To properly grow grapevines they need an appropriate supporting structure and annual pruning. This is a deterrent to the planting of grapevines because it is much easier to simply dig a hole and stick in a fruit or shade tree. Nevertheless, for those willing to make the extra effort, the growing of grapevines in the home setting can provide an unusual and rewarding variation in horticultural landscaping.

This publication describes the materials and methods needed to easily build a 10-foot square arbor to support grapevines. The unique features of this design are: (1) it can be built from readily available materials with relatively few tools; (2) it provides a shaded area large enough for a picnic table or other lawn furniture; (3) the grid support for the vine growth can be easily dismantled in the winter/spring to facilitate the annual task of pruning and tying of the vines.

Before we begin discussion of the details of construction of a grape arbor, first consider the site to be selected for the arbor. Grapevines must be grown in full sun and well-drained soils. The harshness of winter is another factor. Temperatures below -5 °F may injure

grapevines. The more frequently a location experiences -5 °F and lower temperatures, the more carefully one must choose hardy grape varieties to plant (Zabadal *et al.*, 1997). Choose grape varieties for an arbor that are highly vigorous so they easily fill the arbor with a canopy of leaves. In cool climates, the popular commercial juice grape varieties 'Concord' and 'Niagara' are good choices. However, there are also several outstanding table grape varieties (Zabadal *et al.*, 1997). My current favorite is the 'Marquis' variety (Reisch *et al.*, 1997). When you have chosen a suitable site and suitable grape varieties for your arbor, here's how to build it.

Materials for the Arbor

The materials required to build this grape arbor are:

Quantity	Description
4	4" x 4" x 12 ' pressure treated post
4	2" x 6" x 10' pressure treated
8	2" x 6" x 3' (diagonal braces to 4" x 4" posts)
4	2" x 6" x 4' (diagonal brace - on top)
14	3/4" x 10' galvanized conduit tubing (3/4" tubing has an outside diameter of 15/16")
4	2" x 4" x 12" (corner support)
12	1/4" x 3 1/2" lag bolts and washers
32	16# nails
4	6" ring shank pole barn nails
28	golf tees

Tools Required to Build the Arbor

Hand or Skill Saw

Hammer

Drill and 1" flat drill bit

Post hole digger

3/16" drill bit (for drilling holes in the conduit for golf tees and holes in angle braces)

Level (two or four feet long)

Carpenter's square

Wrench to install lag bolts

pencil

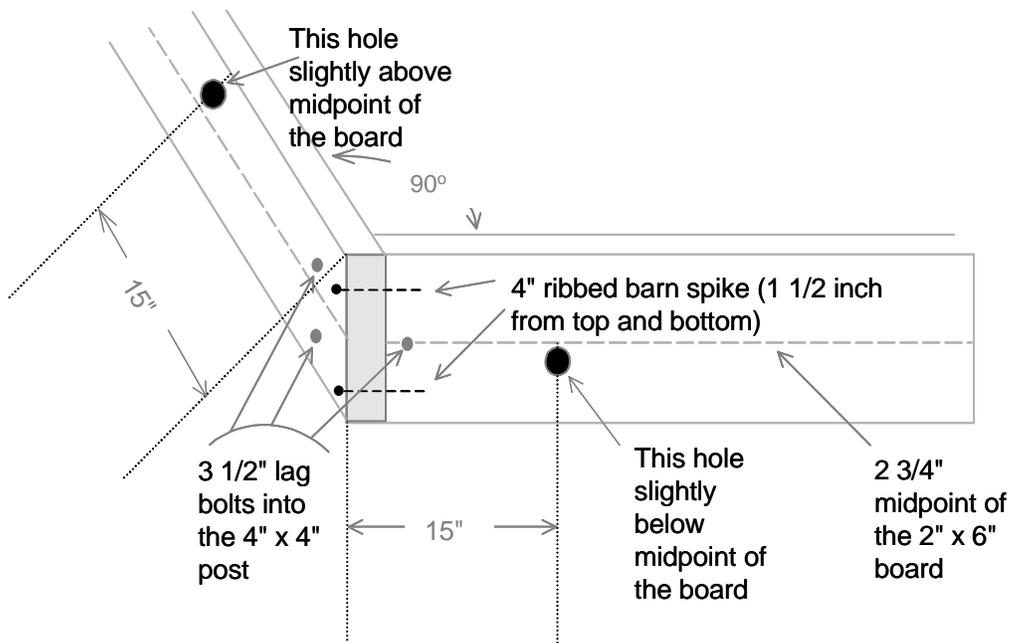
## II. STEPS IN CONSTRUCTION

### 1. Build a 10-foot square frame using 2" x 6" material.

- (a) Cut the four 2" x 6" x 10' boards to a length of 118.5 inches.
- (b) Nail them to each other to form a 10-foot square with two 4" ring shank barn nails in each corner (Fig. 2). Start these about 1 1/2" from the top and bottom edges of the board. Each board should be nailed on its face at one end and receive the nails on a butt end at the other end (Fig. 2).



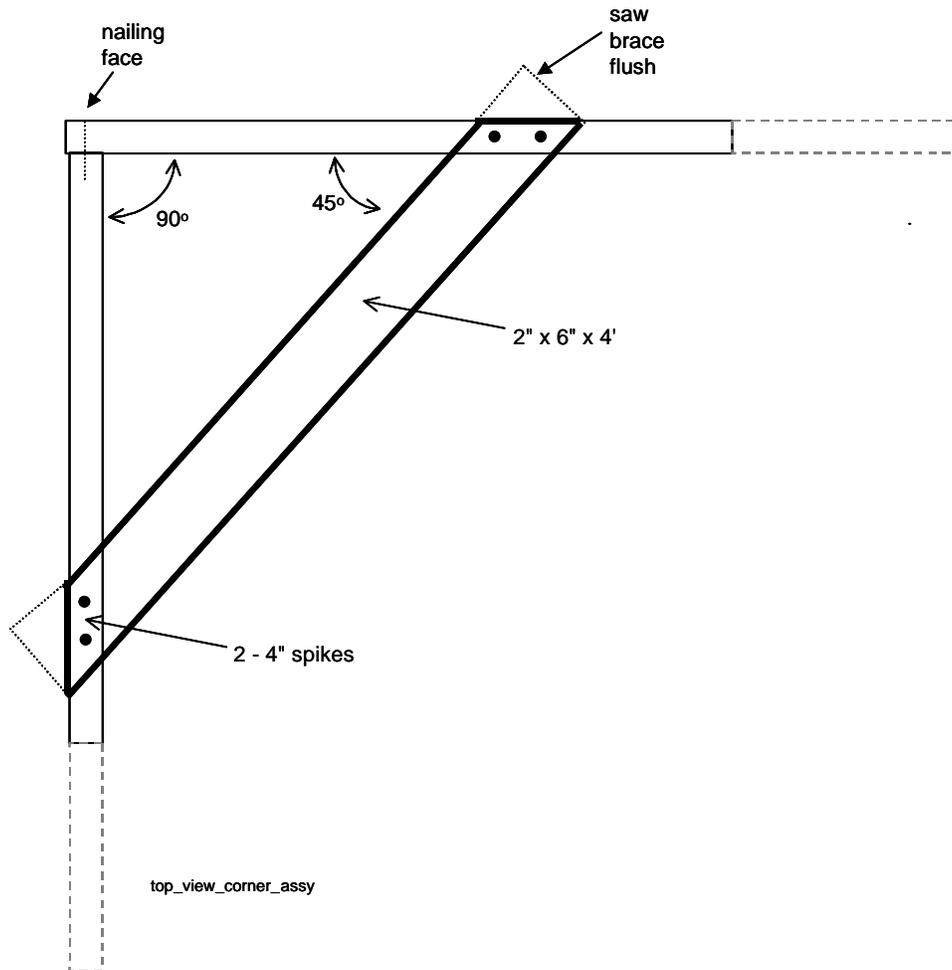
**Fig. 2.** Placement of holes in 2" x 6"s for conduit



placement of holes.ppt

- (c) Square a corner with the carpenter's square and then use four 4" spikes to nail 4-foot long 2" x 6" braces at 45° angles to each side to secure the 90° corner angle of the 10-foot square (Fig. 3). Repeat for all four corners.
- (d) After all braces are nailed in place, saw off their ends flush with the 10-foot square (Fig. 3).

**Fig. 3.** Top view of corner assembly.



2. Drill Conduit Holes

Drill holes for conduit placement to construct a solid grid made of 3/4" (with O.D. of 15/16") diameter metal conduit tubing. These holes are placed on 15" centers (Fig. 2). Seven conduits are used in each direction. Holes in one direction are placed

slightly lower than the middle of the 2" x 6" (Fig. 2) and those in the other direction are placed slightly higher than the middle of the 2" x 6' (Fig. 2).

- (a) Drill a 1" hole 15 inches from one corner of the 10-foot square so the bottom of the hole is slightly above the mid-point of the 2" x 6" (Fig. 2).
- (b) Drill six more holes at 15 inch intervals along this board at the same height.
- (c) Repeat steps (a) and (b) on the board on the opposite side of the 10-foot square.
- (d) Repeat steps (a), (b) and (c) on the two boards on the other sides of the 10-foot square except place the top of holes slightly below the mid-point line of the 2" x 6" s (Fig. 2).

When these holes are drilled, it will allow placement of conduits in one direction to rest atop those in the other direction to form a grid with 15" squares.

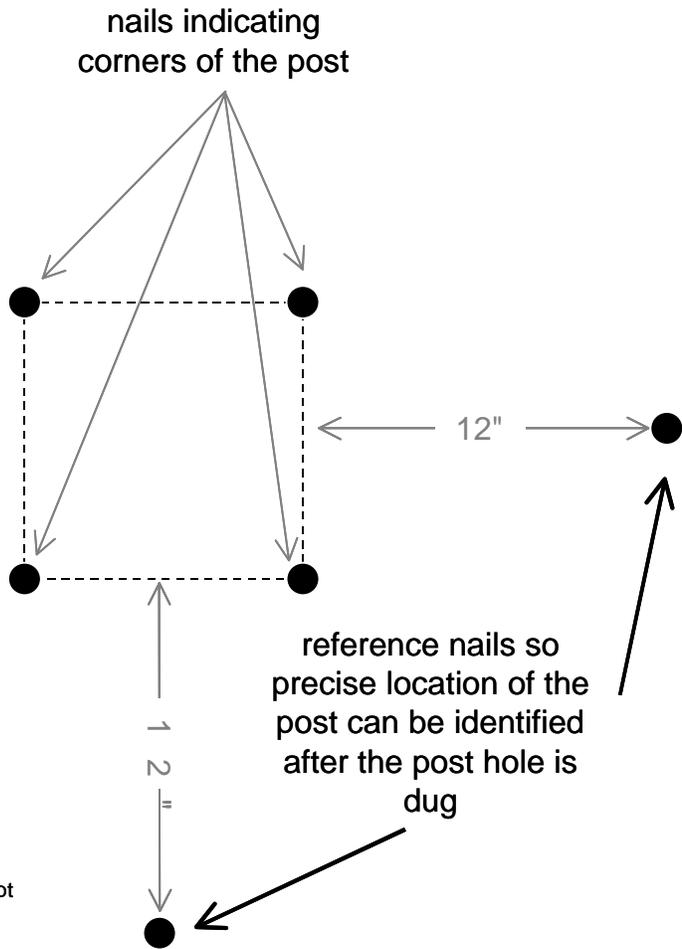
3. Drill holes in conduits

- (a) Drill 3/16" holes 1 3/4" from each end of the 14 pieces of conduit. These holes will be used to pin the conduits in place with the golf tees. Put these conduits aside for now.

4. Locate post holes

- (a) Carry the 10-foot square frame to the site of the arbor. Place it on the ground where you intend to situate the arbor. Then temporarily support this square close to the ground so it is level in all directions.
- (b) Hold one of the 4" x 4" x 12' posts perfectly vertical in an inside corner of the 10-foot square with the help of a level. Mark the precise location of the 4" x 4" on the ground with #16 nails (Fig. 4) then place a #16 nail in each of the two directions from the square of four nails (Fig. 4). These will be used to precisely place the post in the hole after it is dug.

- (c) Repeat step (b) at the other three corners.



**Fig. 4.**  
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 location  
 before  
 the post post location guide.ppt

How to  
 y identify the  
 of the posts  
 starting to dig  
 hole.

5. Dig post holes and set posts

Move the 10-foot square frame out of the way so you can dig the holes for the posts.

Where each post will be located you should have four nails in the ground to show the precise location of the post.

- (a) Dig a hole for each post with the post hole digger that is a minimum of 24 inches and a maximum of 36 inches deep. Whatever depth to which the hole

is dug, do not place any soil back into the hole. The posts should sit on undisturbed soil.

- (b) Set posts in the ground. While keeping them vertical with the level, adjust their position so they are 12" from each of the two reference nails. Tamp soil around the post until it is rigid. If the posts are not sufficiently rigid to stay in place at this time, the 10-foot conduits can be used as temporary braces by pushing one end in the ground about 7 feet from the base of the post and then temporarily nailing the other end to the post through the hole in the end of the conduit. Two of these may be put 90° from each other for each post.

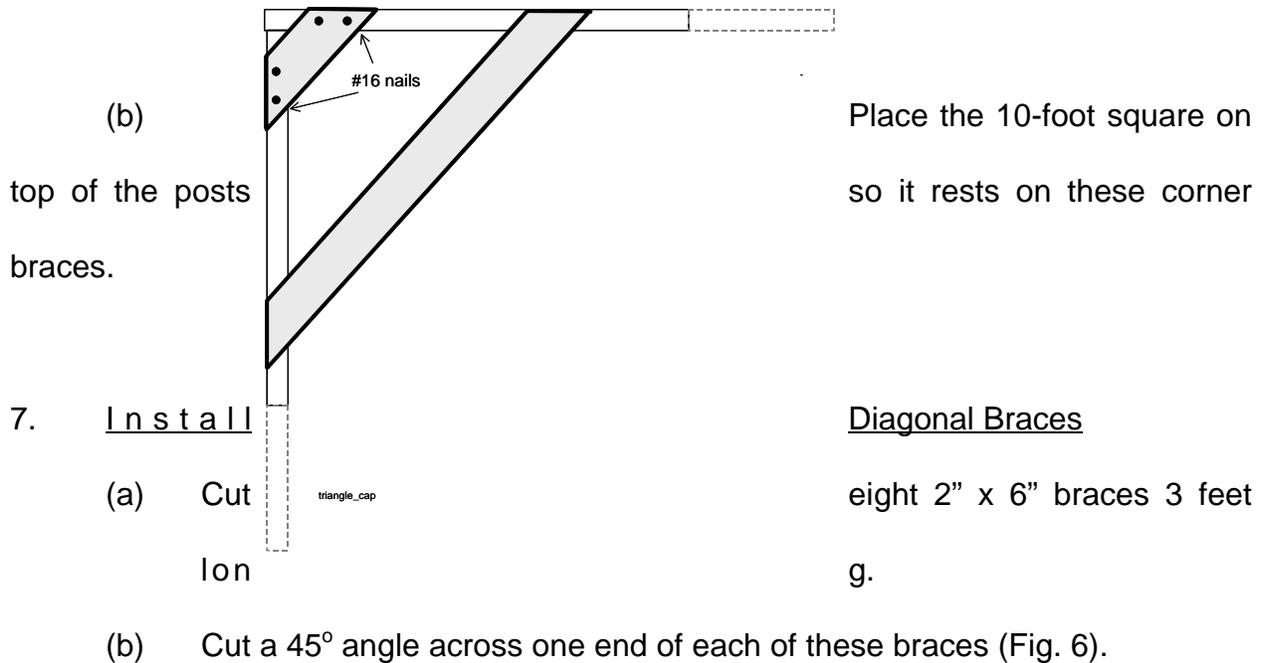
6. Determine the desired height of the posts

The posts will not necessarily be the same height if the ground is not level. If the ground is not level, determine the desired height of the shortest post. If the ground is level, use any post. We recommend a post height of 8 feet, which will give a clearance of about 7 1/2 feet under the sides of the 10-foot square. After the first post is marked at the desired height, use a length of the 10' conduit and the level to mark the same level height on the other three posts. Saw off the tops of the posts at those heights.

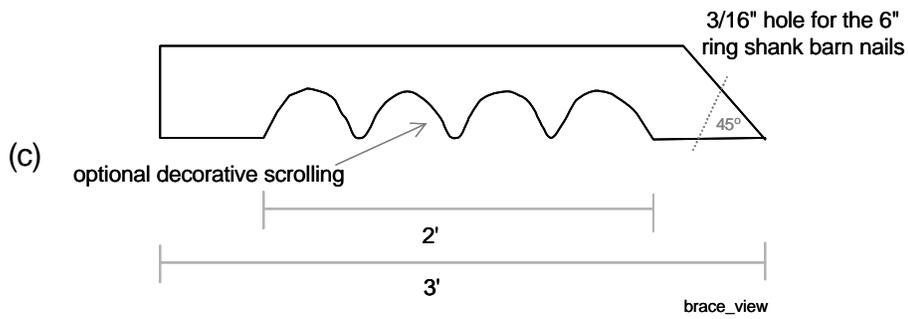
7. Place 10 foot square frame on posts

(a) Nail the 2" x 4" x 12" pieces across the corners of the 10-foot square (Fig. 5) then saw these pieces flush with the 10-foot square. These pieces will allow the 10-foot square to rest on top of the posts until it is secured.

**Fig. 5.** Placement of a triangular cap in the corner of the 10-foot-square.



**Fig. 6.** A Diagonal Brace

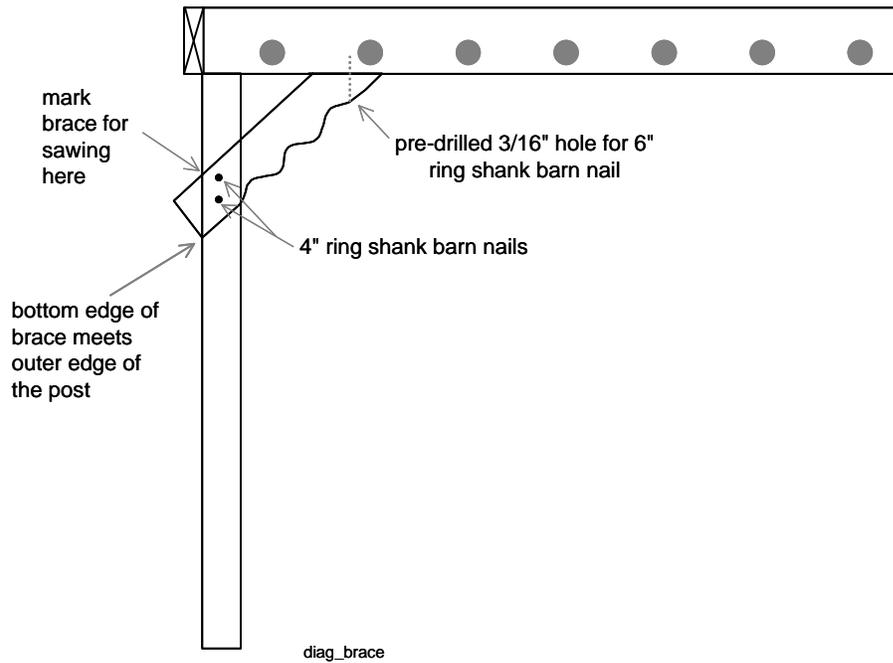


Drill a  
3/16"  
hole  
through  
the 45E  
end of  
the  
brace  
(Figs. 6  
& 7).  
These  
will be  
used for  
the 6"  
ring

shank barn  
nail.

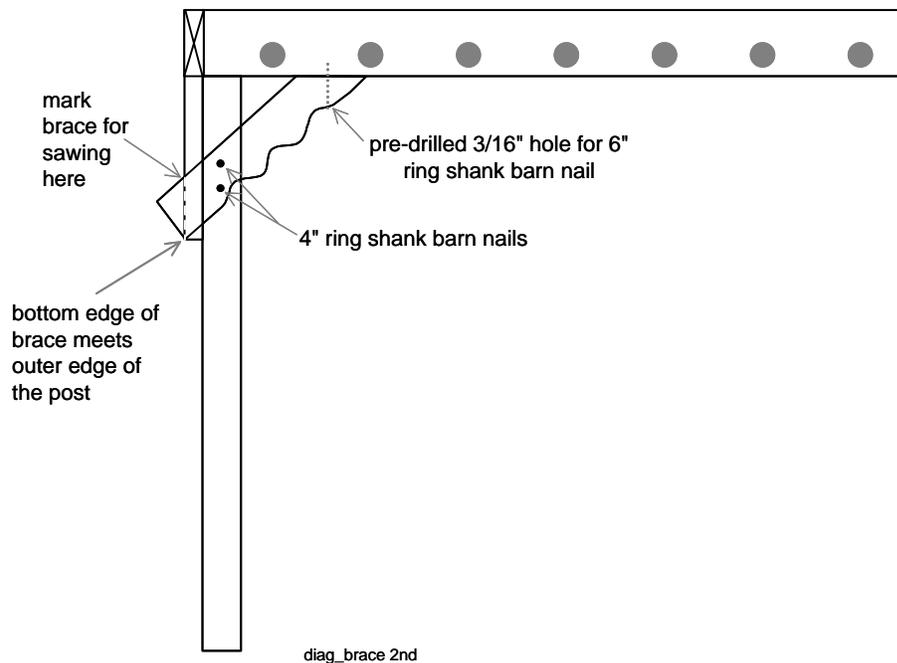
- (d) Optional decorative scrolling of the braces may be cut into the middle 24" of the long side of these braces (Fig. 6).
- (e) Hold one of these braces so the 45° angle rests on the bottom edge of the 10-foot square (Fig. 7). Slide the brace along the bottom of the 10-foot square until the bottom edge of the brace is in line with the outer edge of the post (Fig. 7). Mark a line on the brace where it clears the post and then saw the brace along the marked line.

**Fig. 7.** Placement of the Diagonal Brace



- (f) P u t  
brace  
back in  
place  
a n d  
secure  
with two  
4" ring  
shank  
b a r n  
nails.

**Fig. 8.** Placement of the Second Diagonal Brace



- (g) When the second angle brace in a corner is installed, it should be held on the bottom edge of the 10-foot square so the other end meets the bottom of the first brace (Fig. 8). Mark it for cutting at the outer edge of that first brace. Remove, saw along the mark and then install as for the first brace.
- (h) Repeat steps (e) to (g) for the other three corners.

8. Attach 10-Foot Square

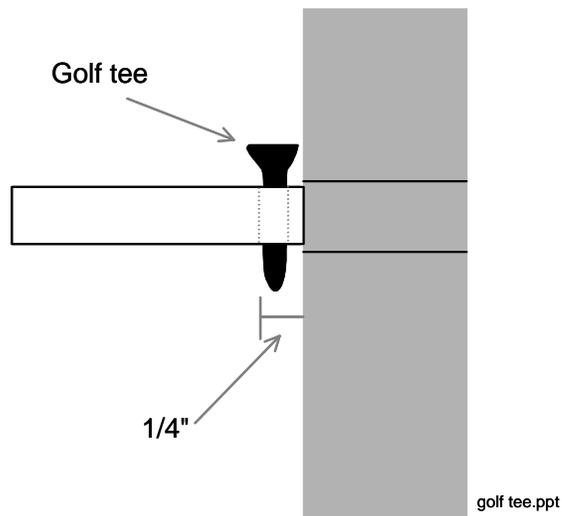
- (a) Attach the 10-foot square directly to the posts with three 3 1/2" x 1/4" lag bolts by first drilling 3/16" holes so one hole is at the midpoint of the 2" x 6" on one side and two holes are about 1 1/2" from each edge of the 2" x 6" on the other side (Fig. 2).
- (b) Install lag bolts with washers with a wrench.

9. Install Grid

The conduit grid does not actually have to be installed until the start of the second growing season of the vines.

- (a) Whenever it is installed, slide conduits through the sets of holes so their ends are flush with the outside surface of the 10-foot square.
- (b) Tap golf tees gently into the holes in the conduits on the inside of the 10-foot square (Fig. 9).

Fig. 9. Placement of golf tees in conduit



This completes construction of the arbor. Optional painting of it is described below.

10. Painting of Arbor - If painting of the arbor is desired, pre-wash the pressure-treated lumber with a trisodium phosphate (TSP) solution (see instructions on box). Use a penetrating stain to "paint" the arbor. This should be done before installing the conduits.
11. Planting and Care of Vines - It is suggested that four vines be planted with this arbor, one on the inside corner of each post. The details of training and pruning these vines are presented in the publication "Growing Table Grapes In A Temperate Climate"

(Zabadal, in press). Information for controlling diseases and insects in vines can be found in the bulletin "Pest Control in Small Vineyards" (Zabadal, 1999).

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