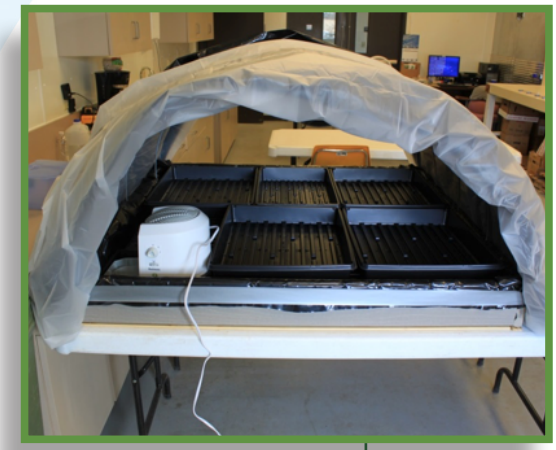
GUIDE SHEET *Lincoln University Cooperative Extension • Horticulture Program*

How to Build a Healing Chamber for Grafted Vegetables



1. General Information

Grafting is a horticultural (related to growing plants) method that joins the stems of two plants, at the seedling stage, so that the vascular tissues (tissues that transport nutrients, water and gases) of the two plants become connected in a few days. One plant is selected for its root qualities and is called the rootstock. The second plant is selected for its yield, fruit quality or both. When cut to use for grafting, the top plant is called the scion.

For successful grafting to take place, the vascular tissues of the two plants must be aligned and in tight contact with one another. The grafted plant must be kept alive until the graft has "taken." This usually occurs within one to two weeks. This period of time is called the healing period. During the healing period, newly grafted plants are kept in a high humidity environment, with a constant temperature. High humidity prevents the plants from losing moisture through transpiration (moisture loss through the leaves). Also, the plants need to be kept in the dark for several days to avoid photosynthesis (the process of converting light into energy in plants, which uses water molecules in the plant). Thus, newly grafted plants are placed in a special chamber that is humid and dark, so the plants can heal.

This fact sheet lists the materials needed to use and the steps to take to build a low-cost, healing chamber. For information on grafting and healing the newly grafted plants, see the bibliography.

2. Steps to Build a Low-cost Healing Chamber

Step 1: Purchase and/or gather all of the materials needed to make a healing chamber.

- Two 8-foot composite decking boards.
- One roll of 3-mil clear plastic and one roll of 3-mil black plastic.
- One 4-foot by 4-foot sheet of white, hardboard wall panel (or one 4-foot by 8-foot sheet cut in half).
- Three 8-foot pieces of lath.
- Five low-tunnel hoops or some heavy gauge wire (#9 or #11).
- A tape measure.
- A hand drill.
- One 1/8-inch and one 3/32-inch drill bit.
- 2.5-inch and 1-inch deck screws.
- One hand saw.
- One 1.3-gallon tabletop humidifier.
- Duct tape.

Figure 1. Materials needed to build a healing chamber.

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Step 2: Cut the boards.
First, cut the two 8-foot composite decking boards in half.

Figure 2. Pieces of the board.

Step 3: Build a box.
Using the 1/8-inch bit, drill two pilot holes at the ends of two of the boards. Then, screw the boards together, using the 2.5-inch deck screws, to make a box.

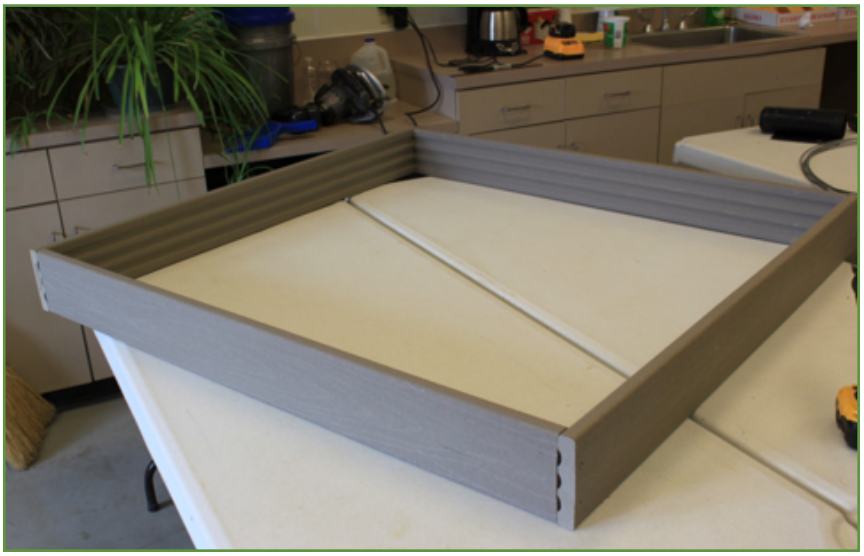

Figure 3. The box, when finished.

Step 4: Build the bottom of the box.
Place the 4-foot by 4-foot white, hardboard wall panel on the box (white side down). Cut the lath to make a frame around the bottom of the box and across the center. Screw the lath to the frame using the 1-inch deck screws.

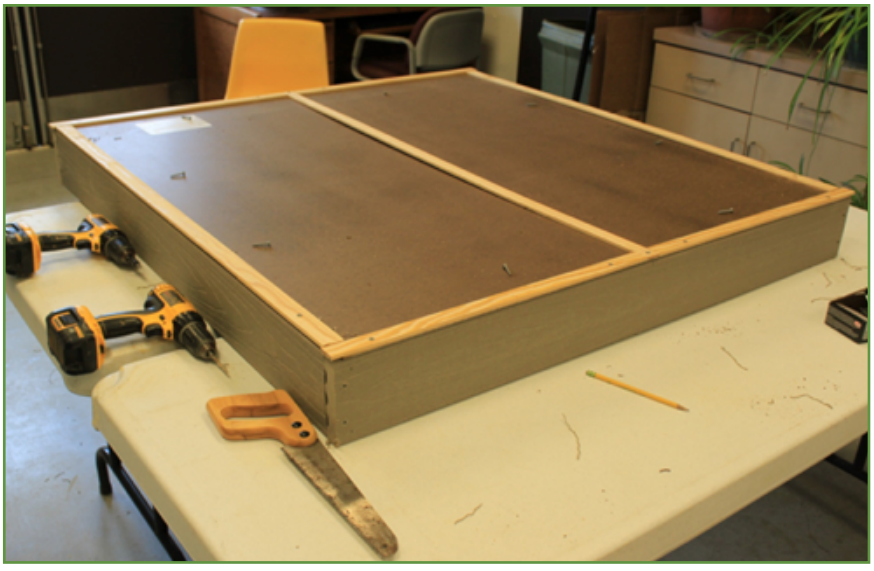

Figure 4. Bottom of the box, when finished.

Step 5: Attach the hoops.

Using the 3/32-inch bit, drill five holes 1-inch to 1.5-inches on the top of the box, on each side and at equal distance. Place the hoops across the top of the box.

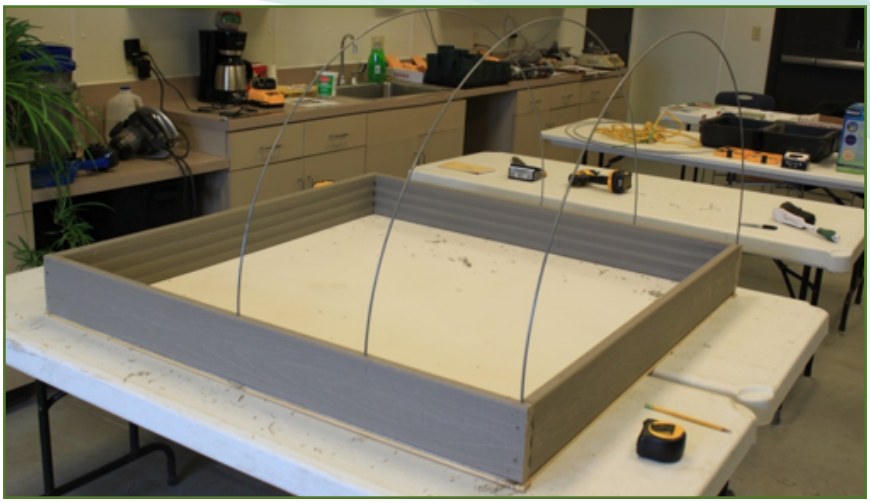

Figure 5. Hoops placed on the top of the box.

Step 6: Line the box.

Line the bottom of the box with black plastic to create a waterproof lining. Wrap the sides of the plastic with duct tape to secure it to the box.

Figure 6. Bottom of the box lined with black plastic and secured with duct tape.

Step 7: Cover the chamber with clear plastic and black plastic.

Cover the chamber with one layer of clear plastic. The clear plastic will maintain the high humidity in the chamber. Cover the clear plastic with one layer of black plastic, which will prevent light from entering the chamber.

Figure 7. The hoops covered with clear and black plastic.

Step 8: Keep the healing chamber humid to avoid transpiration.

Place a 1.3-gallon tabletop humidifier on the inside of the grafting chamber, with some plastic flats to hold the grafted plants. If you do not want to use the humidifier, flood the bottom of the healing chamber with about 1/2-inch of water. Then, place plastic flats upside-down inside the chamber. Place the flats of grafted plants on top of these flats so they are not touching the water.

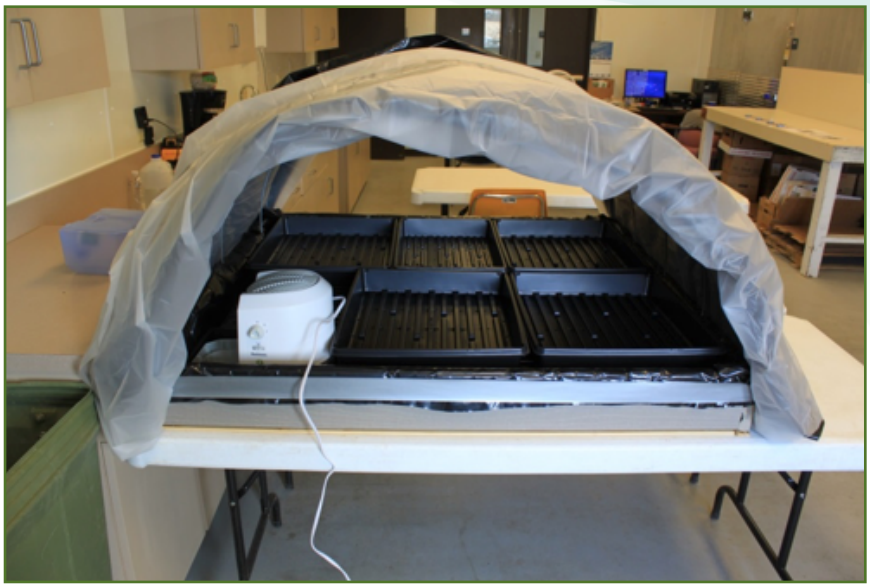

Figure 8. The inside of the grafting chamber.

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