

# ESPALIER

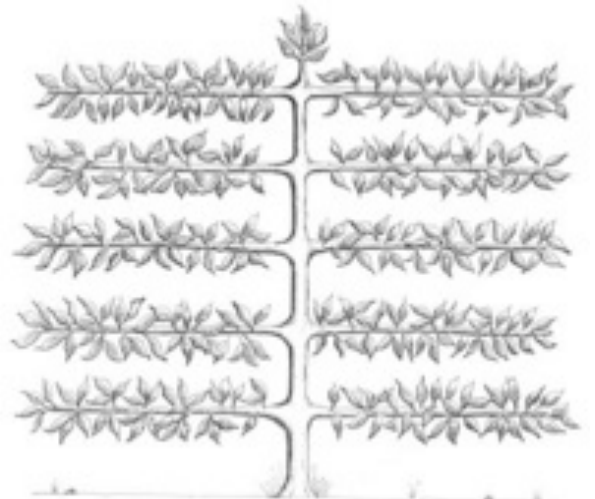
An espalier is a plant trained in a flat, vertical and horizontal manner, often against a wall or fence. Patience and timing are required when creating an espalier. A variety of shrubs, trees and vines can be trained into this design structure. The following instructions are suitable for apples, pears, vining fruits or ornamentals such as camellias or magnolias. There are numerous designs that an espalier can follow. Some ideas are shown here. The “Fence” or “Lorette System”, “Candelabra” and “Cordon” are the most popular styles. Directions for these three styles have been provided, and can create a guideline for any design you desire.

A support structure is necessary to help the plant take shape. You can use a trellis, lattice, or wire support system attached to a wall. The plant should be six to twelve inches from the wall to allow good air circulation and easy pruning. Young plants, whips, or a plant already started are the best candidates for an espalier. If you decide to install a wire support system, draw your design on the wall or fence with chalk. Screw eyebolts to fasten fourteen or sixteen gauge wire, and trace the design with the wire. When planting your specimen, place it as close to the support structure as possible. If the root ball is too big, shave off a few roots on the side facing the wall.

The Fence Design, or Lorette System, is the easiest espalier pattern to start. When beginning with a whip or small tree, cut off the top of the tree two inches above the location of the first tier. Within a few days buds will start to swell along the main leader. Gently rub off these buds except for six located closest to the location of the first tier. As the branches grow, select the branch with the most vertical growth habit to become the new leader. Next select two branches closest to the guide wires to become the first tier.

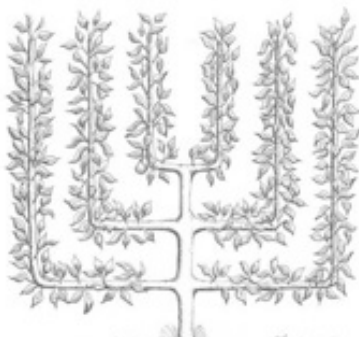
Do not remove the extra branches until the selected branches begin to establish. Once the branches grow six to eight inches long, bend them to meet the guide wire or support structure. The branches will straighten out as they grow. As the branches become longer, secure them to the support structure at six to eight inch intervals.

## Fence Design



If one branch selected does not grow, a technique called notching allows nutrients to pool around the bud and promotes growth. When notching, use a sharp knife or pruning shears to take out a small wedge of the cambium layer right above the bud. The wedge will eventually fill in and callous over.

## Candelabra Design



If you are designing Candelabra, turn the branch vertically when it has grown six to eight inches past the point of the desired turn. Top the new central leader two inches above the second tier location and follow the same directions for forming the first tier. Repeat these steps for each additional tier. Standard spacing between tiers is sixteen to twenty-four inches apart. This spacing may look sparse in the beginning, but it will fill in with time and allow room for fruit production.

Cordon Designs use multiple plants spaced tightly together to form a living fence or screen. Choose plants that are young and flexible or branch low to the ground. Cordons need to be trained against a horizontal support system. If you are constructing your own system set posts eight feet apart and stretch the bottom wire twenty-four inches from the ground. The upper wire can be placed four to seven feet above the ground depending on the potential height of the plant and your desired height.

The trees are planted three feet apart beginning next to an end post. The last tree ends up two to three feet from the other end post. If you are starting with a whip, bend the trunk at a 45 degree angle and tie it to the guide wire. If you are starting with a branched plant, cut branches with wide crotches leaving two buds. Cut off branches with narrow crotches at the trunk. Cut off the top of the leader to encourage branching. Continue to train the leader and additional branches that develop at a 45 degree angle during the first summer. Tie additional branches to the guide wires so they are parallel with each other. Trim the tips of any branches that are poorly placed or grow at a right angle.

In the second summer, continue to train branches at 45 degree angles. In addition, cut side branches back to four buds in the beginning of July, and remove any suckers. During the winter, and each successive winter, remove tangled or damaged growth, and cut long branches to four leaf buds. With this maintenance your hedge row will become three to four feet wide. To maintain the dimensions, cut back excessive growth to a healthy side shoot in early summer (or after flowering). Pruning at this time will reduce the onset of water shoots.

### Cordon Design



### Pruning

Espaliers need regular pruning to keep their shape. Pruning is done once a month through out the summer until six to eight weeks before the first frost is expected. For fruit trees, wait until the tree has set fruit before you do any pruning. Side shoots and spurs that come from the trunk and branches need to be pruned out regularly in order to maintain formal designs like the cordon or candelabra. Fruiting spurs should be headed back to four to six inches long. If you miss the window for bending a branch (because it has hardened off) or a branch breaks, cut the branch back to a straight portion with a downward facing bud. Tie the new branch to the support structure when it is six to eight inches long to replace the missing piece.

An espalier is often not an instant sculpture. In the first year, growth may be leggy, but the design will begin to take shape. By the end of the second year the design will look more apparent. Some designs can take up to five years before they reach your desired dimensions. The reward of an espalier is a beautiful living sculpture that any gardener can appreciate.