GRAFTING PINES AND SPRUCES


OBJECTIVES:
1. Develop proficiency in grafting spruces.
2. Gain experience in side grafting.

INTRODUCTION: The more difficult-to-root, narrow and broad-leaved evergreens are often propagated by side grafting to compatible rootstocks. The rootstocks can be seedlings or easily rooted cuttings. Examples of plants propagated in this way are some cultivars of oriental arborvitae (2-yr-seedling rootstocks), camellias (seedling or rooted cutting stocks), hollies, magnolias, viburnums, junipers (vigorous seedling stocks), eucalyptus, rhododendron (side-veneer graft), pine (side-veneer graft), cedar (side-veneer graft on deodar cedar seedlings) and spruce (2-yr-seedling rootstocks). Blue colored foliage on Colorado spruce can be selected out of seedling populations. Seedlings of Colorado spruce with truly superior blue foliage, however, have been selected and can be propagated as cultivars by grafting. These grafted trees will be more expensive (spruce graft slowly and in low percentages) but are far superior in color or growth habit to the less expensive Colorado spruce trees from seedlings.

Rootstocks are normally dug from the field in the fall, potted, and placed in the greenhouse. In several weeks, when stocks show good root growth, the grafting operation is performed. Grafted plants are kept under mist or in grafting cases to maintain high humidity. In about four weeks, the top of the stock is removed as close to the graft union as possible. Success depends
primarily upon the use of healthy components, good technique, and the regulation of moisture, light, and temperature. Which of the two common side graftage techniques is used depends on past experience, size of the rootstock, or grower preference. The side-tongue graft is more popular for broadleaf evergreens, and the side-veneer graft is used for conifers.

PROCEDURE: Observe the grafting demonstration carefully. Conifer wood may be available for practice.

Side-Tongue Graft. The diameter of the scion should be the same or smaller than that of the stock. A piece of bark and wood, about ¼ way through the stem, is removed from the stock, as close to the soil line as possible in a smooth area of the bark. Reverse directions at the bottom of this first cut to complete the cut; avoid stripping the bark. A second cut, starting 1/3 the distance from the top of the first cut, is made into the first to form a thin tongue, which can then be interlocked, with a tongue on the scion. Cut the scion as for a whip and tongue graft. Be sure to match the cambiums of the two components as closely as possible on at least one side. Tie tightly with a rubber strip and place under light shade in the greenhouse.

Side-Veneer Graft. A long, shallow cut is made into the stock, slanting inward to about ¼ of the total diameter. The cut is made as low as possible but in a smooth area. A short, second, downward cut is made at the base of the first, removing a piece of bark and wood (see Figure 1). A long, shallow cut to match is made at the base of the scion, with a short, slanting cut on the opposite side (see Figure 2). The scion should fit tightly into the notch on the stock (see Figure 3). Make certain that the bark is well matched on at least one side and tie tightly with a rubber
strip (see Figure 4). Cover the graft union with Parafilm, and then place the plant under light shade in the greenhouse.

You will receive two Colorado spruce seedlings (*Picea pungens*) for grafting two scion cultivars. One cultivar, *Picea pungens* ‘Hoopsii’, will grow to about 40 feet tall by about 15 feet wide (has among the bluest needles of all Colorado spruce cultivars). The other cultivar, *Picea pungens* ‘Globosa’ is a dwarf Colorado spruce cultivar that is a slow growing, dwarf plant, ultimately reaching 6 to 8 feet tall and wide. Take one scion of each cultivar, but make the grafting cuts only after you have practiced on the practice wood.

Make side-veneer grafts for each cultivar, following the directions above. Be sure to cover the graft wound with Parafilm. Carefully pot the grafted seedling (to avoid changing the alignments between the cambial tissues of the stock and scion). Put the potted (grafted) plants
on a bench in a shaded greenhouse. In four weeks, check the scion to see if it is pliable and turgid. Also check to see if callus growth covers the graft union. If the scion looks healthy and alive, cut off the top of the stock. If the scion is dead, leave the stock top on the plant.

Observations: