

# TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE

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SOIL CONSERVATION SERVICE

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Willow and poplar  
propagation by the  
use of cuttings

## Propagation of WILLOWS and POPLARS



In the State of Oregon

Some species of trees and shrubs can be easily propagated by vegetative means. Poplars and willows are often grown this way to maintain a specific characteristic for the desired use. A cutting is any section of a plant used for propagation purposes. This Technical Note outlines some methods by which poplars and willows can be grown for conservation uses. The method for propagation by cutting is applicable for all species. Willows and poplars are dioecious (male and female flowers on separate plants).

Types of cuttings: Hardwood cuttings, softwood cuttings, and root cuttings are all used for vegetative production. For poplars and willows hardwood cuttings are most commonly used and are the types recommended for conservation plantings. Rooted 1-0 stock from hardwood cuttings are often transplanted from a production bed to a permanent location on the area to be treated.

Time to make cuttings: Hardwood cuttings are usually made during the late fall, or the month of February, or early March while plant is still dormant.

How to make cuttings: For production of rooted cuttings - Best results are obtained with cuttings from one-year old wood having  $\frac{1}{4}$ - $\frac{1}{2}$  inch diameter. The preferred length is 7-8 inches, with at least four buds on each cutting. A knife, pruning shears, hatchet, band saw, or other cutting tool can be used to make cuttings of desired length. An ideal cut is at a slight angle and clean.

How to make cuttings: For direct field plantings - Cuttings are made as described for production of rooted cuttings except the length should be approximately 18 inches. Cuttings could be 24-72 inches long with a diameter of at least 3/4 inch if ample one-year old wood is available. Cuttings of this length are generally referred to as "whips".

Care of hardwood cuttings: It is desirable to dip the upper two-thirds of the cutting in paraffin or a commercial anti-transpirant. Cuttings should then be wrapped in poly plastic and buried in well-drained soil, sawdust, or in a mixture of sawdust and snow. Cold storage can be used if available.

Site preparation: Adequate site preparation is important to insure good survival and growth. Where possible, the soil should be plowed deep and disked or harrowed prior to planting. Sandy loam and loamy sand soils are preferred sites for propagation.

Fertilizer: When establishing in a production bed with adequate irrigation, fertilizer can be applied and incorporated into the soil prior to sticking. Rates up to 1000 pounds of 12-12-12 per acre are rototilled into the soil. If needed, water soluble plant food may be added through the irrigation system.

When to plant cuttings: Hardwood cuttings can be stuck as soon as the site is adequately prepared. Be sure there is adequate soil moisture at the site.

Planting the cuttings: For production of rooted cuttings - A 3/4 inch piece of plywood with No. 10 nails driven through on a 2-inch spacing will serve as a marker. A spacing of 2 x 2" (36 per sq. ft.) is acceptable for willows. A spacing of 4 x 4" (9 per sq. ft.) is recommended for poplars. If space is not a limiting factor, cuttings can be stuck in the garden in rows spaced to permit cultivation. The base of the cuttings can be dipped in a rooting hormone just prior to sticking in the ground. Cuttings should be stuck in the ground about 3/4 of their length. Firm soil around the cutting. It is important to irrigate as necessary to prevent the soil from drying, particularly during root development.

Planting the cuttings: For direct field plantings - On favorable moisture sites, hardwood cuttings may be stuck in the field where plants are desired. Cuttings are stuck as described for production of rooted cuttings with the exception of marking and spacing. A staked line will aid in making a straight row. Spacing should be that which is recommended in the Technical Guide for the species used. It is best to open holes for cuttings with a planting bar, spade, or shovel, to avoid damaging the buds. Pushing cuttings into the soil may cause bud and bark damage and result in low survival. Cuttings should be kept moist and cool until planting. It is not considered helpful to soak cuttings in water prior to sticking. Whips are planted to at least one-half their length. Holes for whips can be made with a power auger, shovel or a section of "re-bar". Pack the soil around a cutting or whip.

Management: Hand weeding, clean cultivation, and protection from livestock are essential. Rooted cuttings grown for field plantings can be topped

and transplanted directly in the field on a prepared site the following spring. If needed, the topped wood can be made into hardwood cuttings. Each spring for the first two years, field plantings should be checked for dead and missing plants which need to be replaced. After the establishment year, selective herbicides may be used for weed control. Follow the manufacturer's recommendations.