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Planting and Tending Recommendations for Sugar Maple

Where to plant: For optimum growth plant in deep, fertile, moist but well drained sandy loams or loams. Seedlings will also grow in soils ranging from sand to clay loams and stoney tills. However, tree growth on these sites will be slower than on the loams.

Where not to plant: In excessively dry, poorly drained or shallow soils.

Site preparation: Seedlings are very sensitive to competition from weeds and grasses and therefore require intensive site preparation and postplanting weed control for satisfactory growth. In August before spring planting spray 4.7 L/ha ($\frac{1}{2}$ gal/ac) of Roundup over the total plantation area. One week after spraying plow and disk or rototill the sprayed area. Where mechanical site preparation is not possible or desirable, spray 4.7 L/ha ($\frac{1}{2}$ gal/ac) of Roundup in August in strips at least 1.2 m (4 ft) wide or in circular spots with a diameter of at least 1.2 m (4 ft).

Species mixtures: On intensively managed, highly productive sites, it is generally most economical to plant only the most valuable species. Such plantations may best be compared with fruit orchards. On less productive sites and for purposes other than that of high-quality timber production, it might be most desirable to plant sugar maple in mixture with white ash, red oak, black cherry, basswood, black walnut or other hardwood species suitable for the soil and drainage conditions of the planting site.

Sugar maple should not be grown in mixture with conifers because the conifers provide an ideal habitat for rabbits which will browse the tops and gnaw the bark off the hardwood seedlings. In plantations with even relatively low rabbit populations the browsing and bark gnawing will prevent most hardwood seedlings from producing stems of acceptable size and quality.

Spacing: There is no ideal spacing for planting all species on all sites. Spacing is therefore determined mostly by a compromise involving the growth requirements of the species, the purpose of the planting, the wishes of the plantation owner and the economics of plantation establishment and tending. It is known that trees grown at wide spacings generally grow faster in diameter while trees grown at narrow spacings generally produce stems of better form, but spacing trees has little effect on height growth.

Since open-grown sugar maple produce short boles and heavy branches, trees grown for high-quality timber production should be planted at a spacing of not more than 1.8 x 1.8 m (6 x 6 ft). This spacing requires planting 3100 trees/ha

(1200 trees/ac) and will necessitate pre-commercial thinnings. Trees planted for any purpose other than that of high-quality timber production may be planted at wider spacings, but tree form will be correspondingly poorer, and will require extensive pruning to produce long stems.

Planting stock: Two- or three-year-old seedlings or transplants with stem diameters of 2-5 cm (0.7-2.0 in.).

Time of planting: In spring as early as site conditions permit but never later than the middle of May.

Method of planting: Seedlings may be planted by machine or spade while transplants require large holes best made with a soil auger at least 30 cm (12 in.) in diameter or a mechanical tree spade.

Weed control after planting: Shortly after planting spray 5.6 kg/ha (5 lb/ac) of Princep Nine-T over the total area, strips or spots prepared for planting. In October of the first and second year or April of the second and third year after planting spray 6.7 kg/ha (6.0 lb/ac) of Princep Nine-T over the same areas. Where necessary continue spraying after the third year until the trees have outgrown the weed competition.

Fertilization: Fertilization at time of planting is not recommended since it is generally ineffective. If the tree leaves look yellowish 4 to 8 years after planting and annual leader growth is less than 30 cm (12 in.), broadcast 300 kg/ha (270 lb/ac) of ammonium nitrate over the total area together with 6.7 kg/ha (6.0 lb/ac) of Princep Nine-T, or control weed competition by some other method. Never apply fertilizer without also controlling the weeds.

Rodent control: On sites with dense rabbit populations it may be necessary to protect the young trees from browsing by intensive hunting, by fencing the total plantation area, by spraying the seedlings each autumn with a repellent, or by placing wire screens around individual seedlings. Where stem girdling by mice is a problem, eliminate weeds or place plastic tree guards around the stems.

Pruning: During the first three years after planting, prune one side of forked leaders or individual branches annually to improve stem form. Thereafter remove the lowest branches every three to five years. However, always leave a crown of two-thirds to one-half of the total height of the tree.

F. W. von Althen

Copies of this leaflet can be obtained from the Centre's Information Office.

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Additional information on hardwood planting is contained in "A guide to hardwood planting on abandoned farmland in southern Ontario" by F. W. von Althen.