

spring as a fill-in for our weeding and seeding crews during the showery periods.

Another variation of direct seeding was done using *Araucaria araucana* (*A. imbricata*), monkey puzzle tree. Seeds were stratified until germination had begun in early summer; then they were planted in peat pots with no losses involved. When working with an expensive seed such as this one, the advantage of having each plant established in a pot is obvious. They could readily be transplanted into a larger container later.

An interesting thing was noted in the use of flats. Cedar flats were dipped in a solution of copper naphthanate. A mid-summer set-back was noted with Pacific madrone and the native dogwood. On further inspection, the cause of the set-back was attributed to the tap-root coming in contact with the copper-treated flat where the root would become dessicated. Other roots would subsequently be forced out within the medium and a fibrous root system would soon develop. When transplanting to larger containers, the protruding roots were broken off when possible, giving the plants an extra root pruning.

Other experiments were conducted to a lesser degree with *Liquidambar*, *Sequoiadendron giganteum* (*Sequoia gigantea*), *Acer circinatum*, and *Albizia julibrizzin*.

After looking back over the results of our tests for the season, we are certain that transplanting shock can be minimized, or completely eliminated, by using these procedures.

MODERATOR CLARKE: I don't think our past president needs any introduction. If I want to characterize him, I would just say that he is an old-time nurseryman. Bill Curtis, Sherwood, Oregon is going to talk on *Acer palmatum*, seed germination and culture. Bill:

SEED GERMINATION AND CULTURE OF ACER PALMATUM

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Over the past years I have grown a few *Acer palmatum* seedlings with varying degree of success. Poor germination occurred sometimes but at other times germination was excellent; however other problems developed. I have sown the seed outside in beds, covered with sawdust, but always with a variable survival percentage. Some adverse problems are birds or mice in the beds; the mice ate the seeds or the pheasants picked off the seedlings as they came through the sawdust. On one occasion I was too late with shade on an April day when the temperature climbed to the high 80's. On another day I forgot to water when watering was critical.

Two years ago I changed procedures and have been following closely a more exact method of handling the seeds and

seedlings of this plant. The seeds are picked as soon as they are ripe and spread out on newspapers in the greenhouse bench for a day or two. The wings rub off more easily with a little drying.

A standard flat is filled with a mixture of $\frac{1}{2}$ peat and $\frac{1}{2}$ silty sand. The soil is firmed in the flats so that the soil level will be $\frac{3}{8}$ to $\frac{1}{2}$ inch below the top of the flat. The seeds are sown quite thickly for the plants only stay in the flats until the second leaf is formed.

After sowing the seeds, the flats are set outside in a well-drained area; the seeds are covered with clean sawdust. A clean flat is turned upside down over the filled flats, using flats that have narrow cracks. These small cracks slow the entry of winter rains and keep out mice and birds.

As soon as there is sign of germination the flats are returned to a warm greenhouse and the seedlings are pricked off after the second leaf has fully developed; the small seedlings are planted in 4" plastic pots. With good care over 50% of these will be ready to graft by the next spring.

We use a mix of $\frac{1}{3}$ peat moss (coarse "greenhouse grind") and $\frac{2}{3}$ silty sand. To a wheelbarrow of this mix we add one 4" pot of fine ground bone meal. In a week or ten days after potting, we begin feeding, using a dilute mixture of one tablespoon of "Fish and Six" to one gallon of water, applied with a Hayes fertilizer applicator attached to a hose. This can be purchased at any garden store supplier. At the end of 30 days we increase the "Fish and Six" to three tablespoons per gallon of water, applied weekly. If aphids or leaf rollers are not bothersome we add an insecticide to our fertilizer solution using wettable diazinon, Cygon, or malathion. When leaf rollers are too persistent we use nicotine dust applied in the evening just before quitting time. Many of our pests build up an immunity to the best new materials available to-day. When all else fails nicotine dust will give a good kill, but be careful, for it will also kill warm-blooded animals.

We leave the seedlings in the greenhouse until late October, for by then they are going dormant. During November, December and January they are placed outside; in February they are returned to the greenhouse and in two weeks or less they are ready to graft.

Now, if you are real thrifty, you can cut the seedlings back to the desired height for grafting and root the tops that normally are thrown away. Make short cuttings, three or four inches long, dip in Hormodin #3, sticking them close together, 300 to 400 to a flat. Don't over water — 50% or better will root and they will reach grafting size by next season.

MODERATOR CLARKE: Thank you, Bill. Our next speaker comes to us originally from Boskoop, Holland, that great nursery center. He is now with the University of Washington Arboretum at Seattle. Mr. Richard Van Klaveran is going to talk to us on *Acer palmatum* forms and their rooting.