

**Conclusion:** Many types of soil sterilants are available. In addition to pest, disease, and weed control, at least some of them offer considerable potential for improving seedling emergence and crop growth. The growth amendment effects are worthy of more detailed investigation for the nursery stock producer.

## PROPAGATION OF DWARF PICEAS AT KINSEALY

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The suitability of dwarf spruces for the modern small garden, their unavailability in the general nursery trade and the ban on their importation into Britain and Ireland prompted preliminary work into their propagation and culture. Observational trials in 1969 indicated satisfactory rooting with the use of 0.8% IBA powder. There were also indications that mid-summer cuttings of current season's growth responded better than one year old shoots taken as cuttings in March. In 1970 further observational trials were carried out, in which 30 cuttings of 14 dwarf *Picea* cultivars were taken at two week intervals from July 21 to September 1. The rooting medium used was two parts peat moss to one part granitic sand. All cuttings were treated with a proprietary 0.8% IBA rooting powder and placed under mist, with a base temperature of 21-23° C.

Each batch of cuttings was lifted after three months. Table 1 shows the rooting percentages of the cultivars rooted on the dates indicated. Generally rooting in all types decreased after August 19, except in *Picea abies* 'Nidiformis'. All *Picea abies* cultivars except *P. a.* 'Repens' showed a marked increase in rooting up to mid-August. There was a sharp drop in rooting after August 5 with *P. a.* 'Juniperinus' and *P. glauca* 'Conica'. (*P. albertiana* 'Conica').

**Table 1. Rooting percentages of cuttings of 14 cultivars of *Picea* taken at four different dates in 1970 at Kinsealy.**

Cultivar	Date of Insertion			
	July 21	Aug. 5	Aug 19	Sept. 1
<i>Picea abies</i> 'Microsperma'	80	72	80	33
" 'Pseudo Maxwellii'	0	2	10	8
" 'Decumbens'	27	68	30	30
" 'Nidiformis'	70	80	86	86
" 'Barryi'	7	30	55	20
" 'Dumosa'	5	10	30	5
" 'Prostrata' ('Procumbens')	10	66	80	38
" 'Capitata'	27	33	45	20
" 'Pumila Glauca'	0	5	20	35
" 'Tabulaeformis'	12	8	50	43
" 'Repens'	50	33	27	3
" 'Juniperinus'	40	33	30	5
" <i>glauca</i> 'Conica'	20	45	10	27
" <i>orientalis</i> 'Nana'	5	27	20	3

The rooted cuttings were planted in April in a pure peat medium with a range of nutrients added — Kinsealy Range Mix (1). The plants had been overwintered in pots to ensure good establishment. In 1971, their first growing season, they produced one flush of growth, but did not increase much in overall size. In an attempt to produce two flushes of growth per year some plants were potted in January, 1972, and placed in a growing room for two months with the temperature maintained at 20° C. Watering was automatic by capillarity, and the plants received 17 hours of light per day. Under these conditions an early flush of growth took place. It was expected that the plants would continue to grow during the following summer. This did not occur and the only difference between these plants and the plants left in the frame outdoors is the slightly less mature shoots of the latter due to coming into growth later than the growing room treated material. Both sets of plants will be observed for any subsequent differences in the coming season.

Although development of these cuttings is slow, a saleable dwarf spruce (12 to 24 cm diameter, 8 to 12 branches) can be produced in three seasons. Many of the cultivars in this trial have similar growth habit and general characteristics, and would be equally effective in

a garden setting. *P. a.* 'Nidiformis', *P. a.* 'Pumila Glauca' and *P. a.* 'Repens' are examples, but the latter two showed much reduced rooting in this observational trial; the consistently high rooting percentages of *P. a.* 'Nidiformis' over the entire period of the trial suggests it would be a suitable nurseryman's cultivar. The attainment of a saleable size quickly is also an important consideration; plants of cultivars, Barryi, Capitata, and Dumosa, after two growing seasons, are 20 cm, 24 cm and 18 cm across respectively.

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#### LITERATURE CITED

1. Woods, M. J., Lynch, M. R., and Kenny, T. 1968. Developing a peat compost suitable for propagating a wide range of species. *Third International Peat Conference*, Quebec, Canada.

#### VEGETATIVE PROPAGATION OF JAPANESE MAPLES AT KINSEALY

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In earlier trials on the propagation of *Acer palmatum* cultivars the methods similar to those described by Wells (1) and Anstey (2) gave satisfactory rooting percentages. Young, actively growing, shoots from outdoor trees wounded and treated with Seradix 3, rooted well in a mist unit but it soon became apparent that overwintering losses were high. Subsequent trials, therefore, dealt with cultivar difference in rooting ability and treatments to ensure better winter survival.