

**Shading.** From germination and throughout the first season it is necessary to shade all species mentioned except *A. campestre*, *A. platanoides*, *A. pseudoplatanus* and *A. trautvetteri*. Materials giving 50% shade are ideal.

**Irrigation.** Apart from the initial watering in, no artificial application of water is usually required until the following spring. However, after germination regular watering will be necessary to keep the seedlings growing in order to promote a vigorous shoot and root system

**Weed control.** Removal of weed competition at an early stage is vital. Due to the rather loose nature of the surface of the seedbed, weed seedlings are easily and quickly removed by hand. If a weed population builds up before germination commences a contact herbicide, such as Paraquat, could be used to burn off surface foliage.

In conclusion, the importance of early collection and sowing cannot be over emphasized. It is this attention to detail, not allowing the seed to dry out, that ensures an even germination the following spring. If seeds of such plants as *A. campestre*, *A. circinatum* and *A. palmatum* are allowed to dry out germination will not take place until the second season.

## PROPAGATION OF EXBURY AND KNAPHILL AZALEAS

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Cuttings of Exbury and Knaphill azaleas are taken during late May and early June. The first cuttings are from container plants grown under glass, followed by soft cuttings from outside plants. Cuttings generally are about 3 inches long and, from a long shoot, two cuttings can be made. The apex bud is removed from all cuttings and the leaves reduced to about five.

The cuttings are rooted in old span-frames running north to south. The frames have heating cables with individual thermostats for temperature control. Prior to putting in the cuttings, these frames have a layer of sand over the cable, followed by one foot of leaves for drainage and for preventing the mixture from becoming too compacted and, finally, 6 inches of rooting medium, consisting of 75% sharp sand and grit and 25% medium Irish moss peat. The rooting medium is allowed to settle, given a drench of 1% IBA, diluted to 25 c c per pint of water. One gallon of this mix is watered over about three square yards.

The cuttings are then inserted at about 2 inch spacings; bottom heat is set to a minimum of 70° F and the cuttings are given a supplementary cover of polythene. Approximately 15 hours after the

cuttings are inserted, they are given a good watering—almost to flooding the plants—with a hosepipe and fine rose nozzle. The frames are covered with shading material and, during the initial stages, light is given only during the early morning and late evening.

When the cuttings start to callus (around six weeks) the second covering of polythene is removed and the bottom heat reduced to around 60° F., also some air is given during the early morning and evening. Supplementary light is given from mid-July to early October for three hours per day. The bottom heat is further reduced and completely turned off during the winter. Hand watering is carried out twice daily as required. Any aphid problems are solved with *Metasystox*.

During the spring the plants begin to grow and will give a batch of early cuttings in late May. If the bottom heat is turned on these cuttings can be rooted very early. After these first cuttings are removed we allow the plants to grow again prior to planting them into well-prepared frames during July, at about 9" spacing. Second year plants can be sold or containered and usually make 18 inch selected plants in the third year

## THE DISTRIBUTION OF VIRUSES IN ORNAMENTAL MALUS AND THEIR EFFECT ON GROWTH

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Many nursery catalogues list between 10 and 20 ornamental *Malus* species, and with the introduction of new cultivars, usually from America or Holland, the popularity of this group of trees seems to be increasing

Few other ornamental shrubs or trees have such valuable attributes and, although ornamental *Malus* are primarily grown for their spring flowers, many are attractive at other times of the year. Some, for example *Malus x. purpurea* 'Lemoinei' and *M. tschonoskii*, have interesting coloured foliage throughout the summer, while others have highly coloured fruit and foliage in the autumn.

The trees are usually sold after 3 or 4 years in the nursery as standards or half-standards. Seedling crab rootstocks are commonly used because propagation difficulties have increased when clonal rootstocks are used. The problems have taken the form of bud failures with some cultivars, while in others the growth rate has been unsatisfactory and dieback has been common.

One of the main factors causing these difficulties has been shown to be viruses in the propagating material. The same viruses are