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DISCUSSION GROUP REPORT— GROUP C
ORNAMENTAL TREES FROM SEED

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When raising ornamental trees from seed on a commercial scale, the object must be to produce the seedlings as economically as possible. In general terms this entails the production of the maximum number of acceptable seedlings from a minimum area of seedbed and the occupation of this seedbed for as short a period of time as may be considered reasonable.

However the important aspects of the situation revolve around the definition of what is acceptable. In real terms this is represented by the particular quality expected, i.e. the size and grade of the seedlings. Nevertheless, before embarking on a project to grow seedling trees it is important to define, in reasonably exact terms, what is required as an end product in any particular instance. To achieve this aim the following factors are relevant when raising seedling trees. It is necessary to know from where seed can be obtained, how it should be stored, how it should be dealt with to ensure satisfactory germination and how the seedling population should be managed.

Seeds of ornamental trees can be obtained either by collection from particular local sources and personal contacts, or from the usual commercial seed houses throughout the world.

The former source is usually more desirable as it is possible that as a parent tree it is correctly identified, is hardy in that particular geographic area, is of acceptable characteristics and, more important, can be collected at that moment of maturity which is desired. However, not all species will be available from plants in a mature seed-bearing condition within the localised catchment area which any one nursery can service efficiently. Thus, unless the propagator is able to obtain seed from reliable personal contacts, it is necessary to obtain seed from the conventional commercial seed

houses. These have the advantage that as wholesale agents they are able to offer a wide range of species from widely scattered areas. However, the quantities involved and the time scale in collection, organisation and dispatch, the methods of collection and storage all may well materially influence the viability of a sample; similarly it is not always possible to rely on supply or on accurate identification until it is too late to be able to compensate for it in any particular year. Nevertheless, these firms are a useful adjunct to the nursery trade and a very necessary aid to the propagator who requires to produce a wide range of ornamental trees from seed.

Much could have been said about the provenance and the selection of sources of seed, but in the context of ornamental plants it has, as yet, little significance because choice of source is not widely available; but wherever possible seed should be selected from well shaped, typical trees which are vigorous and healthy As it has been pointed out previously, one of the problems in collecting, processing and storing under commercial conditions is the level of viability of the finished sample and it is obvious that any unnecessary loss of viability during these processes makes the surviving viable proportion more expensive.

The viability of a seed sample is an expression of the proportion of seed which is alive at the time of assessment and hence it is a measure of the potential number of new plants which could be produced if the seeds were able to be germinated at that moment.

The term "longevity" is also employed in the context of viability and this refers to the period over which an acceptable level of viability will be sustained and this, in part, will be influenced by storage conditions although primarily it is an inherent factor.

However, what is of importance to the propagator is how the proportion of viable seeds can be recognised as it is only this part of the sample which is of value to him.

The maintenance of viability at its highest economic level is an important factor in the production of trees from seed and thus it is relevant to indicate those conditions which are suitable for the storage of particular seed types in order that the maximum degree of viability is maintained but at the same time being aware that there is a natural ageing process which represents the longevity of the sample.

In general terms, reduction in temperature and seed moisture content are the salient features of storage — below 38° F for the former and below 14% for the latter although the maintenance of a high relative humidity is necessary for seeds storing fats etc., in

order to avoid deterioration viz. *Aesculus, Acer, Fagus,* etc

The complexities of seed dormancy were discussed with especial reference to the avoidance of dormancy by collecting the seeds when the embryo had matured but while they were still 'green' and had not developed inhibiting factors. A number of fallacies were also exposed, viz — the collection of *Fraxinus excelsior* seed in the 'green' in order to avoid dormancy.