Beech — Purple beech worked in the field on seedlings has proved successful.

CONCLUSION

In all, we feel that the nursery field unit at Cannington produces:

1) A lot of interest in the economic production of hardy plants.

2) A fair measure of skill in the keen student.

3) A good basic understanding of propagation by seed, layers, cuttings and grafting.

PROPAGATION OF CAULIFLOWER FROM CUTTINGS

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It is very difficult to grow seed from Cornish winter cauliflower (broccoli). They mature in the middle of winter, and so cannot be left to seed in the field. Transplanting to a glasshouse is rarely successful owing to their susceptibility to bacterial rots developing both in the pith of the stem and also in the middle of the curd.

To overcome this problem, various methods have been tried to propagate vegetative shoots. These vegetative shoots can be grown under glass to produce plants with relatively thin stems and small heads which are not susceptible to bacterial rots and which can produce high yields of seed.

Some research work in Edinburgh about fifty years ago demonstrated that pieces of cauliflower curd could be propagated successfully. Following this, at Seale Hayne College it was found that when rooted pieces of curd were grown on in a warm glasshouse, the flower buds aborted and vegetative shoots developed on the inflorescence.

This technique has given quite useful results but it needs very strict attention to hygiene at all stages. Also it has the disadvantage of a long delay in development of shoots and the late cultivars may fail to seed in the following year if there is a delay in planting.

In the course of this propagation work it was noticed that some plants formed adventitious shoots at the base of the stem. Such shoots were much more suitable, but not all plants produced them. Some French visitors to Rosewarne E.H.S. noted these basal shoots and made further experiments which have

developed into a very successful technique which is far superior to the use of curd cuttings.

The mother stock plants are selected in the field. When they have developed enough to make sure that they have no serious faults, the heads are cut off and the leaves are trimmed to the stem. The stumps are dug up and washed free of soil. They may also be dipped, as a precaution against disease, in permanganate or thiram or Benlate.

In Brittany, large plastic tunnels are used for seed production and one of these is used for the stumps and the soil is first covered with a 3 inch layer of calcareous sand (very similar to Hayle sand). About half the roots are covered in the sand; the rest left exposed. The stumps are planted at an angle of about 45 degrees so that the exposed roots are pointed upwards.

Adventitious shoots develop in a month or six weeks generally. Some of these are basal shoots from the stems and others grow from the exposed roots. Twenty or more shoots per plant are usually obtained. These shoots can be cut off as they develop and will root easily under mist or in a propagating case. Alternatively, sand can be ridged up around the stumps so that the roots may develop naturally but fewer cuttings are obtained by this method.

This technique is so simple that growers themselves can obtain seed from their very best plants. Any keen grower should be able to select plants which are suited to his own soil, climate and market requirements. With a medium sized plastic tunnel he should be able to grow 20 or 30 lbs of seed.

There are perhaps two points of interest from the propagator's angle:

1. *Apical Dominance.* The cauliflower appears to have very strongly developed apical dominance so that no shoots can be obtained until the head is removed. Experiments have been made with hormone treatments to break this dominance but they have not been very successful so far.

2. *Root Shoots.* The number and vigour of these shoots is quite remarkable and possibly it would be interesting to know if there are other plants which would respond in a similar way.