DISCUSSION GROUP REPORT
DIRECT ROOTING
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The Group discussed the various aspects of "Direct Rooting" but mainly concentrated on what we understood by the term and what types of materials are available.

It was agreed by all that direct rooting was aimed at reducing the movement of newly rooted plants.

Rooting Cells. The discussion followed on to talk about what "cells" or rooting units have been used in the industry in recent years, with comments from the group on their advantages and disadvantages.

The following is a list of the rooting units which are available and have been used commercially or in trials at colleges and experimental stations:

1. SYNTHETIC PREFORMED PROPAGATION BLOCKS.

a. **Foamed Polyurethane.** This type of block is based on flexible foam, which was first marketed in America. Types:

Baystraat. These blocks were produced by Bayer in pre-cut sheets.

Nutri-foam. Developed by Dow Chemicals. These blocks tend to suffer from surface water drainage and saturation at the base of the block due to the pore characteristics of the block. The cell membranes were also difficult to penetrate by the roots.

Rack Substraat. Developed in Germany, based on shredded polyurethane and peat. Experiments have shown this is difficult to wet and leaf wilt occurs rapidly.

b. **Cellulose Pulp Fibres.**

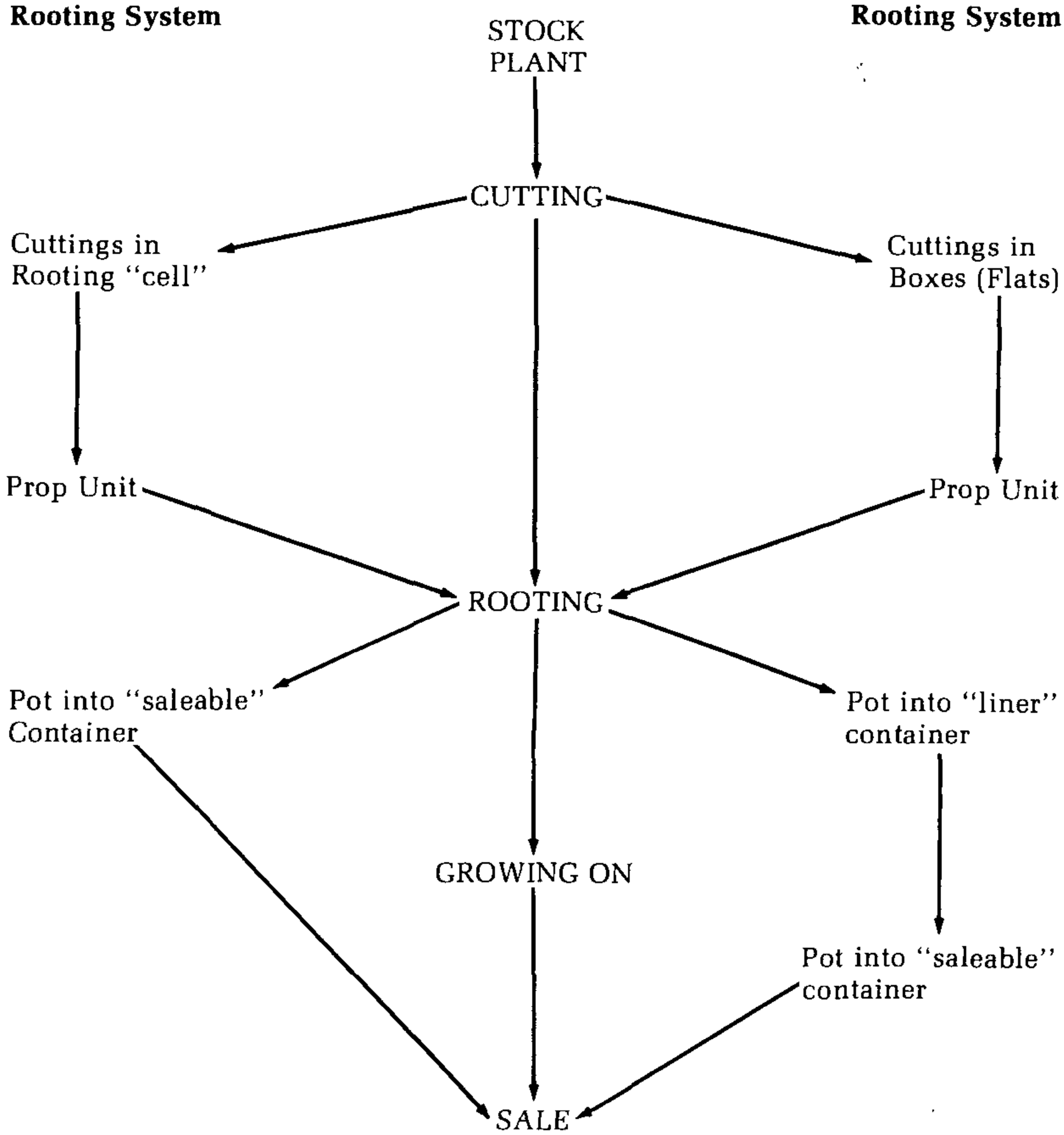
BR8. Developed by the American Can Company. It consists of cellulose pulp fibres held together by synthetic adhesives. These blocks became saturated very easily.

c. **Mineral Wool.** These blocks are manufactured from a fused mixture of sand, carbon and chalk.

Grodan Rockwool. Developed at Hornum Research Station, Denmark. This product consists of ⅓ coal, ⅓ calcium carbonate, and ⅓ basalt; the constituents are placed in a retort which is heated and the strands which are produced are made into blocks with the aid of a wetting agent. The blocks are chemically inactive and a nutrient mixture has to be added if one intends to "grow on"using the blocks. Blocks are produced in 5 cm and 10 cm cubes. Compared with other blocks tried

Direct Rooting System

Traditional Rooting System



Rockwool became easily saturated and growers felt it was only of value to pot plant producers.

Newall's Rockwool. This material is used commercially for thermal insulation of industrial plants. In trials the coarse grade SR4 and the finer grade, Therbloc, were tried. The material arrives in slabs and has to be cut into blocks on the nursery. This material does not seem to be as ridged as Grodan but again tends to become too saturated. The insertion of cuttings into this material is more difficult than insertion into Grodan.

d. **Phenolic Foam.** Urea-formaldehyde foams which, when crushed, are like cottonwool. The blocks release nutrients over a long period once the cutting has become established.

Bloom-Fix. These types are being developed by Silva-Development Ltd. with various pH's and water holding capacities.

e. **Micaceous Mineral Blocks.** These are blocks of minerals composed of silicate of aluminum and other silicates.

Vermipeat Blocks. These are circular vermiculite blocks 54 mm or 38 mm in diameter. The blocks are supplied in plastic coated trays, 90+ blocks to a tray. Before inserting the cuttings, the blocks have to be thoroughly watered. In trials at Merrist Wood we found sand had to be placed in the central hole to support the cuttings.

2. COMPRESSED PEAT BASED BLOCKS. At present these seem to be the more popular blocks being used by growers for tree and shrub propagation.

a. **Commercial Ready-Made Peat Blocks.**

Ky-Kubes. Produced by the Keyes Fibre Company in America, these are cubes tapered towards the top with a ready-made hole for cutting insertion.

Root-o-Blocks. Similar to the above but made in Ireland.

Jiffy Blocks.

b. **Commercial Blocking Composts.** In trials it was found that moss was produced on many of the peat blocks, however this did not seem to detract from the rooting of cuttings.

Fenmere Blocking Compost. Sedge peat.

Levington Blocking Compost. Sphagnum peat.

Caledonian Blocking Compost.

Finnpeat ST 400 Maxi. As with the previous three composts, this product is easy to block and cuttings seem healthy in the blocks.

Humber Blocking Compost. This compost is composed of

90% peat and 10% marl, the marl being used as a grit and binding agent.

Shamrock Blocking Compost.

Alexpeat Block Compost.

c. **Normal Peat Products.**

Irish Peat Moss. Although this is not produced as a blocking compost it blocks easily; whereas the above-mentioned composts contain nutrients, this peat has no added fertilizer. In the early stages of trials cuttings produced have been healthy and, as long as the rooted cuttings are potted up, make a suitable blocking compost.

Levington Blocking Compost. Results in trials have shown little difference between this product and Levington Compost.

3. MISCELLANEOUS CONTAINERS.

Japanese Paper Pots. Growers in the discussion group were most familiar with these pots and favored them for direct rooting. Although used on a wide range of plants some growers mentioned problems with coarse rooted subjects, e.g. pyracantha where roots go to the bottom of the tray and curl under the containers. This meant that at potting the plants were still disturbed.

Objectives. After a review of the materials we discussed the objectives of direct rooting, which were divided into three areas.

1) Many growers were direct rooting as a labor saving technique to produce either cheap ground cover plants by either using a rooting unit or placing the cuttings directly into the saleable container; or to produce plants which do not do well with root disturbance at the early potting stage; for example, *Garrya, Ceanothus, Magnolia,* and *Hamamellis.*

2) Secondly, some growers used direct rooting systems as they felt cuttings have a faster "take-off" and produced better quality plants.

3) Finally, one nurseryman used the technique to alter his timing of potting and sale of plant material. Using the same species, he would grow one batch by direct rooting and another batch by the traditional method. The result was that he could bring forward his selling date for direct-rooted subjects.

It was stressed that these objectives could change, depending on the demands of the industry. At present we are concerned with labor saving, but problems such as peat shortages could alter our priorities as growers in the future.