FOURTH SESSION

PRACTICAL EXPERIENCES WITH POLYTHENE STRUCTURES

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The type of house I intend to relate my address to is based on the prototype Film Plastic Tunnel designed by the Lee Valley Experimental Horticultural Station, Hoddesdon, Hertfordshire. The practical aspects are based on my own experiences with five such houses, each measuring 60 feet long by 14 feet wide erected in September, 1969, and used for the production of ericaceous nursery stock.

It is worth noting at this stage the reasons for erecting this type of house in the nursery. We were faced with a shortage of covered space for growing nursery stock. To this end a cheap form of cover was needed that could be constructed with nursery labour. It had also to be of a semi-permanent nature so that if plans changed it could be moved to another site. Bearing these items in mind it was decided to try the type of house already mentioned.

At the time of erection of the houses, little work had been done with nursery stock grown in this type of house. The basic cultural techniques had to be adapted from those already laid down for glasshouse crops grown at the Lee Valley Experimental Horticultural Station.

The basic structure of the house is a metal hoop formed out of ½ inch bore medium barrel galvanized tubing to British Standard 1387. The entrances in either end are constructed of timber, and the whole structure covered with 500 gauge ultra violet light inhibited polythene sheet.

For those interested in full details of construction and costs, Leaflet No. 17 produced by the Lee Valley Experimental Horticultural Station should be consulted. Another leaflet worth noting is the Growers Technical Bulletin No. 1 produced by British Visqueen Limited, Stevenage, Hertfordshire. This provides comprehensive details of polythene and its properties, together with articles on ventilation, heating and plastic houses overseas.

Erection. Some preliminary site work was necessary, and this consisted of levelling across the width of the house and producing a constant fall down the length. The houses were sited running parallel with one another, with a gap of 3 feet between each individual house. This was the minimum distance possible, as room had to be given for trenching when the polythene was anchored in the soil. Having erected

the metal framework the whole structure was tensioned up with the side and ridge straining wires, diagonal struts in the ends giving further rigidity. Prior to covering with polythene it is essential that all sharp metal edges be covered to prevent snagging the polythene.

To produce a taut covering to the house the following items should be carefully adhered to so as to obtain a good result. The air temperature should be at least 65° F., thus making certain that the polythene is expanded and pliable and will not sag once in position. The polythene should be secured as tightly as possible as the structure is then the most stable in wind and the film is not excessively worn by flapping about on the framework. To date the houses have been subjected to several severe periods of high wind and have suffered no damage.

Where a block of several houses are erected it is well worthwhile looking at the problem of rain water disposal from the immediate site, especially on a sloping area. It was found that quite a lot of soil was washed away between our houses during prolonged spells of heavy rain and loosened the polythene sheeting.

Practical techniques. Four of the five houses have been used for growing container plants. To provide a clean and well drained base on which to stand pots a layer of ¼ inch gravel has been spread to a depth of 2 inches. A 2 foot wide path runs down the length of the house. With the curvature of the house coming very close to ground level it has been necessary to leave a gap of 6 inches between the side of the house and the first row of pots.

It was discovered that local drying out occured in the areas around the entrances to the houses. This was especially acute when only partial ventilation was in operation, with the entrance flaps only a third open, and the house containing material in 3 and 4 inch diameter pots.

To streamline the operation of potting, a portable potting bench is connected to one end of the house. This consists of a tractor drawn trailer with a light wooden frame covered by polythene, to provide a weatherproof area in which to work.

With an estimated life of two years the polythene covering will be removed during the second summer. This will enable container stock to harden off and be sold directly from the site of the house, thereby eliminating the necessity to move stock to a separate standing-out area.

One of the disadvantages often connected with polythene is the question of condensation. This did prove troublesome during the winter months as all our plants were being grown in soilless compost of 3 parts peat to 2 parts sand. Many plants suffered, especially the dwarf rhododendrons as they remained in damp cold conditions. This was further aggravated by the fact that routine liquid feeding had started before the outside air temperature had risen appreciably

during February and March. It is hoped to overcome this problem by incorporating grit with the compost to enable it to drain more freely and use a base fertiliser with a longer period of nutrient release.

Before decrying the fact of condensation on the inside of the house one should remember that a certain amount is beneficial during cold weather as it helps to slow down the heat loss of the house through the polythene.

During periods of bright sunlight in the spring it was found beneficial to apply shading to prevent leaf scorch on young stock. The main subjects affected were hybrid rhododendrons that had started producing the new season's growth.

The fifth house erected was used to force deciduous azaleas of Knap Hill and Exbury types. Stock plants 2 to 2½ feet high were housed in January, and were planted directly into the soil which had previously been cultivated and dressed with peat. To provide frost protection in the house a small paraffin heater was used. This produced 6000 B.T.U. per hour and enabled the frost to be kept out down to 27° F. Flower buds were rubbed out as they appeared. Vegetative growth started to appear during the first week of April, thus advancing our propagation programme by nearly six weeks against stock plants growing outside. A far more even type and size of cutting was produced without too much elongation of the internodes. The maximum number of flushes of growth was four, although some variability among varieties was apparent.

The experiences of the past months have proved very fruitful, and it is envisaged that the number of houses will be increased this year. To provide a better method of watering and liquid feeding other than overhead spray lines several of the houses will be adapted to a system of capillary sand beds. Propagating facilities are to be increased in the nursery and a larger house to our own specification is to be built. This will contain bottom heated mist beds and closed cases for the propagation of deciduous and evergreen azaleas and rhododendrons.

OVERWINTERING OF DECIDUOUS AZALEA CUTTINGS

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The advent of the modern aids to propagation, i.e. mist units, bottom heat and rooting hormones made the task of rooting azalea cuttings fairly straightforward, but this was only half the story; the stumbling block to 100% success was getting the rooted cutting through