THE NEXT TEN YEARS

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The future for the grower of ornamental plant material in eastern United States looks very exciting if some of the things that are now on the wings come into center stage. It seems clear that from the standpoint of the plant propagator and grower, that the plant breeder will have to consider many new factors in selecting his offspring for introduction.

Some of the things that we should expect are selection for greater disease resistance, for earlier blooming and fruiting in the life of the plant, and for developing plants that lend themselves more readily to production. The plant breeder must help the grower increase productivity by such methods as selecting types that are more self-branching, respond well to optimum growing conditions, hold up well under the stress of the market place and perform well for the consumer. New leaf types and shapes are needed to lend interest to the landscape planting when the material is not in bloom or fruit. Greater cold and winter wind resistance would be desirable in our part of the country, where winter temperatures can go to -25°F. A breeder might develop new habits for existing plants such as a new azalea from Japan that has bright red flowers but has the growth habit of a ground cover. Tree forms of rhododendron that are hardy would have wide application. More and more the plant breeder must consider the grower, for if he cannot make money on producing the plant it will not be grown in important quantities

Toward the end of the next ten years cell fusion could be making some important contributions to the ornamental plant material field. This process, in which cell walls are dissolved, thus allowing the fusing of two unlike cells, will then permit these newly-combined cells to grow and differentiate into a new plant. It is in the very early stages now and could take many years, but could also come on fast. It could provide an abundance of new plant types.

In the U.S most plants are now grown in containers and in the northeastern states most of these crops must be given some sort of winter protection. New types of houses will be developed which will form a continuous cover of a large area instead of the individual curved type houses now used. If some form of polyethylene is still used there must be a way of recovering the energy that is in the poly, rather than dumping it. Perhaps a method would be to shred it and have it become a part of the growing medium.

New vaulted roof glass covers will be developed. This will be thin but very strong, chemically-treated glass that will need no metal supports between gutters. It will be very break-resistant and will automatically increase in color density as incoming radiation increases and thus provide the right amount of light for the crop.

Heating will mostly be done in the soil below the floor as this method allows the storing of heat from bright days for recovery at night or during overcast perioss. The method is available now and since most of the heat comes off as radiant heat (70%) and only 30% as convection it allows you to have a ceiling temperature of only 73°F while having a floor temperature of 72°F. The heat can be off for three days, with an outside temperature of 20°F and the house temperature will only drop 8 degrees because you are still pulling from the vast heat sink in the ground. The plant leaves will be the warmest object in the house at sunset and thus greatly reduce the tendency for disease to become established at night in the free moisture on the leaves All the irrigation water will be circulated through the floor and be brought up to room temperature before application. It costs no more to heat the water before application than after and could save quite a shock to the plants.

Growing media will tend to come from the organic wastes of society. Many different materials will be used, from processed garbage, paper, cardboard, plastic and organic waste from other industries. At the present time we are using ground bark, which is a waste product from the paper and lumber mills.

Irrigation waste, rich in nutrients and insecticides, will no longer be allowed to be dumped into streams. The waste water will have to be clean enough to drink which means we will have to re-use most of our irrigation water. This might be done by chlorinating it, monitering the salt levels and then either stripping or adding nutrients as needed. Another approach is to have the irrigation waste applied to a secondary crop which might be less sensitive, such as corn or wheat. The run-off from this area might then run off to a holding pond for growing algae which, in turn, can feed Amur fish, which can then be eaten!

The present methods of tissue and soil testing will be supplemented by new photographic methods which will show in color, without the need of complex equipment and chemicals, what is needed and where the excess may exist. It may also show disease problems before they can be detected by other means

In the area of irrigation and feeding, the greenhouse and nursery industry is highly automated and will continue to become more effective, reliable, and less expensive, which will allow more and better growth in less time. As the space a plant occu-

pies becomes more expensive the grower will go to many means to reduce the time the plant occupies that space. This gets back to the breeder because if the new plant does not give the grower the proper return for a given "space-time slot" then he will grow something that will. The grower will be looking at a world market and will become very flexible in his ability to shift from growing one crop to another to maximise his return on investment. Flexibility will spell profits and inflexibility will mean disaster in the times ahead in North America.

A MEASURE OF THE CONSISTENCY OF THE RESPONSE OF CUTTINGS TO PROPAGATION TREATMENTS AS A GUIDE TO THE VALUE OF EXPERIMENTS ON NURSERIES [1]

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Abstract. Twenty-three experiments on the propagation of conifers and other woody plants by stem cuttings were done on nurseries by members of the Society The experiments fell into three groups and within each group the same member repeated the experiment in a second year under the same conditions as on the first occasion Treatments investigated the effects of basal wounding in association with other factors which could influence the wounding response Group 1 experiments examined the effect of wounding and the influence of an incision or slice wound on rooting In Group 2 the effect of auxin applied before or after making the wound was investigated. In Group 3 wounding was examined in association with the use of a liquid or powder formulation of root-promoting auxin, with subsequent rooting in a 'wet' or 'dry' regime

Within each group, wounding consistently improved rooting but the response to all other factors was variable and inconsistent Significant interactions of wounding and other treatments with nurseries and with years revealed unidentified factors which influenced the rooting response of cuttings to these treatments

INTRODUCTION

Between 1970 and 1973 three groups of experiments co-ordinated from East Malling Research Station were undertaken by members of the G B. & I. Region, with the object of determining the general value of wounding stem cuttings and of understanding

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