

region of 100 per cent most of the time. However, this has had no adverse effect on his cutting take; in fact, he reports significant increase in the take of deciduous azaleas to around 100 per cent, an increase of 25 per cent over his conventional mist propagation system. Clematis has also improved with a 15 per cent increase in take. He has also seen quicker rooting with plants such as spirea and dogwood, but is not sure of the advantages of using fog with conifers at this stage.

The improved rooting of so many plant cultivars under fog, has interested Mr. Tristram in moving toward direct sticking procedures next year, again without the use of base heat. He is also intending to purchase a further fog unit at the beginning of next year, to have three mobile units—the intention being to fill a particular house with cuttings, propagate, and wean off using the fog then move the fog on into the next house leaving the plants *in situ*. Mr. Tristram feels that direct sticking and reducing the handling of the cuttings will result in more economic production.

CONCLUSIONS

Since the introduction of the Micron 5 Fog System, nearly one year ago, it has received great interest from British growers, primarily for humidification control, but also for cooling and shading. Its practical attributes, including its ease of installation and operation, its low running costs, and even humidity distribution, have resulted in many systems being installed.

THERMABED—FAILURE THEN SUCCESS

CHRISTOPHER FAIRWEATHER

Aline Fairweather, Beaulieu, Hampshire, U.K.

With the increasing demand for rooted shrub cuttings and liners we decided in 1986 to double the heated space we had available for propagation.

Our first house was installed in 1979, and our first installation was a simple hot water system using alkathene pipe and a second-hand 120,000 B.T.U. boiler for which we paid only £10. This original system is still working well and we find it generally satisfactory. The main drawbacks are the considerable work involved with the installation. The other disadvantage we have noted over the years is the uneven temperature. There can be as much as five and sometimes 10 degrees drop, with the highest temperature near the boiler, dropping away at the farthest point.

Early in 1986 we prepared a new site and erected a 12m by 21m aluminum glasshouse. Our original hot water system had generally worked well for us and running costs had compared very favourably with other possibilities. Electricity on this scale would be easy to install but very expensive to run; added to this our available electric supply was limited. We do not have mains gas available. Therefore, we again turned to oil as our source of heat. The price of second-hand boilers had moved up a bit over the years but once again we managed to find another 120,000 BTU model, this time at £40.

Finally, we had to decide how we should move the hot water around this new house. To save time on installation we decided on the Thermabed system as being the best for our needs. The polystyrene moulded units that carry the flexible water pipe come in standard sizes of 1.332m by 2.0m. We installed this new system on the floor of our new house. The ground was levelled and the Thermabed was laid on sand. With a concrete path down the centre of each six metre bay we formed four beds. To ensure a really flexible system we divided the four long beds in half and installed the necessary valves to divide the house in to eight separate heated units. The hot water from the boiler was pumped to a header main across the centre of the house. This we have found eliminated any variation of temperature.

Any failure on this system was perhaps our own fault. Overhead we incorporated an automatic mist system and we hoped that by covering the Thermabed with capillary matting this would prove satisfactory. In the early part of the year this worked well, but we did find the matting quite difficult to keep clean and, in addition the cuttings rooted into it. As the year progressed and temperature started to rise it became apparent that with more frequent mist the matting was holding too much moisture and the cuttings were too wet. This we quickly replaced with around five centimetres of well drained sand; since then we have had no further problems.

Over the past two seasons we have been very pleased with this system; using a Nobel sensor we aim to maintain a temperature of 21°C in the sand which gives us a consistent 15.5°C in the trays. We put the cuttings in large Dutch trays with well-drained mesh bases. Starting around March or April we use the mist. Over the winter months, about late October we turn off the mist and cover all the beds with light polythene resting on a framework that we made ourselves. This keeps the polythene five centimetres or so above the cuttings. During these months we remove the polythene each week and apply a variety of fungicides.

We believe that the Thermabed has given us an economical and sufficient system that certainly achieves all that we require.