

Capillary Beds—My Experience

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INTRODUCTION

When planning to set up the nursery, the following criteria were laid down.

- It was to be a one-person operation.
- The production level was to be 6000 to 8000 saleable units per year.
- Use of electronic controls was to be kept to a minimum, mainly as a cost-saving measure on both equipment and power.
- Hand watering, being a time-consuming exercise, was to be kept to an absolute minimum and the use of overhead sprinklers was to be avoided because of its problems and wastage of water.

In this paper I would like to share with you my experiences with capillary beds. After looking at different methods of providing the needed water to the plants, it was decided that the Kinsealy Capillary Beds system was the best one to use. This system is outlined by Lamb et al. (1975).

Although certain measurements are given, it is not necessarily to adhere to them. The system is very adaptable and can be used with success on many different sites.

CONSTRUCTION

As the site was slightly sloping, the system was adapted to suit our requirements. The beds were built on levelled terraces to fit the site with a narrow path between the beds. Although we have some odd-shaped beds fit into the site, in general the width of the beds is about 1.5 m and the length 6 m. The sides and ends were constructed with 10-cm-wide timber and the area within the frame was leveled. A channel was constructed down the middle of the bed to take a 6-cm Nova-flow drainage pipe—this supplied water evenly throughout the bed. The bed was lined with heavy-grade black polythene, the Nova-flow drainage pipe was placed on this, and the bed filled with pumice sand. To control the water level in the bed, a copper toilet cistern and ballcock was installed on one end and the Nova flow connected to it. On the other end an overflow outlet was provided to keep the water level about 2.5 cm below the sand surface. The sand was compacted and plants were put on it and given a good watering to start the capillary action.

RESULTS AND DISCUSSION

The system worked very well in the first summer and no stress was apparent even on very hot days. Overall growth was very good with plants saleable in a shorter time than those grown with overhead watering. Spraying programs could be reduced as sprays were not being washed off. There was, however, one problem and that was weeds growing on the sand. To solve this problem we used weed mat on the sand. It works well and does not affect capillary action.

The first winter things did not go very well. When we had a period of cold heavy rain the plants were standing in water for a considerable time, consequently the mix was soggy and cold. At the time we were using a 1 peat : 1 pumice (v/v) mix. We did two things to solve this problem. First, we put in drainage at the base of the bed and made an L shaped piece of polythene pipe to fit the hole. This could be swivelled to whatever level of water we wanted in the bed. We decided that for winter we would drain the beds and that worked very well. Secondly, we changed the bagging mix as the one we were using held excess water. We changed to a 1 Punga fibre : 1 bark : 1 pumice (by volume) mix. This mix gave us more drainage yet the mix did not dry out. Even with the few problems we had, I was more than satisfied with the system. Apart from the minimum of hand watering, we used less fertilizer, less chemicals for spraying, and plant growth was more rapid.

A further development occurred the following summer when structures called "cropcovers" came on the market. Lyndale Nursery had put one up, Malcolm called it "his big umbrella". I was impressed and, after having a good look at it, I felt that this was our answer but there were two problems. It was too expensive and it would not fit on our property. Because of our situation the cover would have to be removed during the summer as temperatures would be too high and surely burn the crop. This called for some Kiwi ingenuity, or was it Dutch. A structure was designed and the cover put up before the next winter. The sides were left open as the sole purpose was to keep off the rain. We have now used the cover for three winters and I am more than happy with it. It keeps the plants and me warmer and drier during the winter months. I cannot give you scientific proof that this is the way to go. What I can say is that, from my observations and my bank balance, it works for me. I believe that with the use of capillary beds and the winter cover, I get the best of both worlds.

LITERATURE CITED

Lamb, J.D.G., J.C. Kelly, and P. Bowbrick. 1975. Nursery Stock Manual. Grower Books, London.