PROPAGATION MIXES AND TRAYS FORUM

PANEL MEMBERS: Warrick Nelson, Nicola Rochester, Geoff Stent, and Dave Lloyd

The panel members each gave a short presentation based on their own experience of the trays and mixes used by or known to them. A general discussion followed which covered the following:

MIX TYPE

The peat and pumice mix in varying proportions is still widely used and favoured by many, however bark pumice mixes, rock wool, vermiculite, perlite, river sand, palm peat, Oasis' foam, and ponga fibre are all in use or have been tried as propagating mixes. The use of standard commercial propagation mixes was raised with some favouring these over putting together you own mix from scratch. Additives to mixes such as fertiliser and fungicides are widely used. In selecting the type of mix for your crop it is important to consider availability, reliability, handling considerations, efficiency, and economics. In many nursery situations a low number of types of mixes are desirable, e.g., one for seed and one for cuttings. A simple approach has benefits. The type of mix must also match the management of the propagation environment and the crop. If a mist system is used then the mix's draining qualities could be of particular significance where as in a fog system less water is put on so the mix may need to have better water holding capacity. If a mix has very high water holding capacity, such as ponga fibre, then the management system must be suited to this.

MIX QUALITY AND TESTING

The propagator should be aware of the quality of the mix. It is a mistake to assume that the mix quality is correct even in commercial standard mixes or mixes prepared by the propagator. Mixes should be tested regularly to ensure the desired air-filled porosity and water-holding capacities are actually present. There are a number of simple tests that can be done. One suggestion was to fill a pot with mix, add water until full and time how long until all the free water has gone and running out the bottom. The propagator should know if the time is too long or too short. Species that are hard to root may need precise levels of mix porosity. Too much air in a mix could lead to a lot of callusing but poor root formation. With some mixes, porosity or water holding may be too good. In preparing and blending mixes, care should be taken as to how long the media is mixed. Overblending can create a number of problems including the breakdown of components, resulting in a reduction in the overall quality of the mix. A maximum 3 minutes of blending was suggested.

PROPAGATION TRAYS

The large range of propagation trays available can make the selection of the most suitable type for your propagation situation somewhat difficult. In the discussion the term tray included cell and plug trays. Some important consid-

erations are hygiene, air porosity, availability, handling, and price. One approach is the use of a single type of standardised tray that fits most situations. A more specialised approach would be the matching of particular crop requirements to a specific tray type. The use of plugs or cells is becoming more common however reports of propagator experience are not all reporting success. Plugs certainly have a place but not for every crop. It was emphasised by several that the use of plugs needs a management system that meets the requirements of their use. It is not entirely straightforward to simply switch from cutting production in conventional trays to direct sticking in cell trays. Each tray type has particular features and usually takes some experimenting to test if the tray and the propagation system as a whole are meeting the crop's requirements. This often leads to flexibility within the propagation system, which allows a range of tray types to be used. This emphasises the important principle of the tray matching the management of the propagation environment. This is similar to the earlier discussion in this forum regarding the matching of the mix to the management system. The propagation environment, the tray, and the mix are all connected and each component should not be separated out. Changing one will have an affect on all.

PROPAGATION ENVIRONMENTS FORUM

PANEL MEMBERS: Don Currey, Jeff Elliot, Lee Gilbert, Richard Whisker, and Jan Velvin

The panel members each gave a brief presentation based on their own experience of the propagation environments used by or known to them. A general discussion followed which covered the following:

BENCH CONSTRUCTION AND DESIGN

A problem with some bench designs is their thermal properties. This is the bench's ability to hold and distribute heat. A bench construction which appears effective in tackling this problem is a solid concrete bench containing hot water piping. This method creates a very effective thermal mass and also encourages improved hygiene allowing easy cleaning of the bench surface. Another bench material that has good thermal properties is ferrous sand. Constant, even heat and good hygiene are significant components of any propagation bench environment. A problem with concrete benches is their high weight, especially if the bench is raised off the ground. Some thought is needed as to the framing required to achieve this. Benches containing peat, sand, or pumice in varying mixes have advantages of enabling good contact between the tray or pot and the bench surface for water and heat uptake but often have various hygiene problems. Benches raised above the ground provide easier working conditions, however if your environment is aiming for as much cool air above the tray surface as possible then raised benches may not help due to heat rising. With this in mind it was suggested that instead of monitoring the environment air temperature it was more important to monitor the plant level or bench