

HYGIENE IN THE NURSERY

NEV HIGGS

*Nev Higgs Nursery
Wynnum, Queensland*

Hygiene is one of the most important parts of plant production. It is so easy for us to pick up the phone and order chemicals to cure our ills in the nursery, but I am sure it is much better and cheaper to resolve this before it starts. That is, to look toward prevention rather than cure. This of course falls into basic areas — Why — and — How.

The question of why we should be concerned with plant hygiene is really the first and most important area that any propagator should be concerned with. Without a proper understanding of its necessity by both management and staff, no hygienic programs can be successfully introduced. The key words for this area which relate to the overall topic, are *education* and *awareness*.

A good example of the futility of one without the other, happened recently in the nursery. A young lad was taken on just after he had attended a Horticultural Refresher course, a good part of which did emphasize various aspects of hygiene. On this particular day, he had been walking through several sections, over both concrete paths and some soil areas. In seeking further information about a particular job, he walked up to his supervisor, and while asking about the job, put one of his boots up on a low bench that had just been sterilized ready to receive a new batch of African violets. He had some education which is a first must, but he had fallen down in its application.

In most cases in a nursery, hygiene falls down through:

1. A lack of understanding why, which is education.
2. Thoughtlessness, which is continuing awareness.
3. Straight-out laziness.

In each of these, management can be just as much at fault as the staff. For a commercial grower, the number one reason why we must give hygiene first place in our culture practises, is, when its all said and done, a dollars reason. What might initially appear to be a waste of time and money in establishing a good hygienic system will, in the long term, save many thousands of dollars. For what must never be forgotten is that although poor hygiene can cost a nursery dearly when large losses are incurred, there is a much more important and far reaching loss and effect. That is, when diseased plants, whether the disease is obvious or suppressed, are sold to the con-

sumer. For where this happens, a retail and general consumer backlash can develop that not only affects the original supplier but also hurts other innocent growers and the trade as a whole.

This is one of the most important points of education. For only when this is fully realised and appreciated, can the actual implementation of a hygienic system begin. And then, when we break any good system down and analyse it, its only common sense anyway.

Education then must start with management, the implementation and enforcing of hygienic practices then becoming a continuing daily aspect of good management. Thoughtlessness or a lack of awareness by staff, although in part their own fault, generally always comes back to the management or supervisors.

Straight out laziness is a common problem, that only a firm hand will correct. Cutting corners is a variation of this, again done by both management and staff, which, if done when a full hygiene programme has been in hand, completely wastes all effort, time, and money spent on that programme to that point of time, and into the future. There are many examples of cutting corners that could be quoted, but probably the most prevalent ones would be when excessive quantities of cuttings or plants are programmed for a day, when one is running short on supplying a specific quantity that one does not feel he can afford to fall down on, and when cramming occurs. When problems do arise in a crop that is for general sale, or pre-sold, or being promoted, keeping in mind the long term and far reaching effect that diseased plants can have when moved into retail, one must be frank and take the bull by the horns, clean up, suffering the loss as the only responsible action one can take.

I will now consider the second aspect of how this is achieved.

As always hygiene must start with the mother or stock plants. Too often these are left in areas less accessible for easy maintenance. Also, there are often slip-ups in controlling excessive growth, which reduces ventilation and penetration of preventive disease controls, and becomes a perfect breeding ground for disease. Method of watering is also very important, with many diseases being spread by water splash. So when cuttings are taken off stock plants, it is always very important to take them well above ground level, or above the water splash line. Trickle irrigation in preference to overhead irrigation is an obvious means of preventing these sort of problems, when in a roofed house situation.

On taking the cuttings, the next most important aspect has to be observed. It is one that we all have fallen down on at some stage, and that is, the continuous sterilization of our cutting tools. Whether they be knives, blades, secateurs, scissors or whatever, they should always be at least doubled up on, with the spare one soaking in a sterilant solution, with only a small number of cuttings being taken with a tool, before replacing it with a sterilised tool. By changing over at regular intervals, the transmission of any disease from one to the next is greatly minimised, overcoming a problem that has been very evident in a variety of plants grown throughout Australia in the last 12 to 18 months.

Of course it is very easy for anyone to talk about how things should be. So what if we are getting diseases through our cutting batches, or even if it is only being manifested later on in the adult plant stage. This is where records become a very important part of hygiene and disease control. Where there is a problem, each small batch of stock plants, or better still, every stock plant should be numbered, and the cuttings coming off each numbered batch, also identified. This batch number must be carried right through to adult plants, if that is when the disease is manifesting itself, so that when the disease does show up, those original mother or stock plants can be identified and removed.

Even generally, accurate concise records are a must if trends such as lowering percentage strikes, etc., are to be picked up. Yes, there is a lot more effort involved, but when we do find a drop off we must take stock of ourselves and our systems, and clean up and straighten up. Let's face it, we are only human. Many will always say it is expensive but really, as I have personally found, the results always exceed the cost.

We next come to the propagation working areas, especially the benches. These must be regularly washed down with a sterilant. Once a day even is of no real practical advantage. It should be done between each batch of plants during the course of the day, so as to effectively reduce any carry over of disease.

It follows, of course, in any good hygienic system, that no contact with the floor or possible contaminated objects or areas is made with any items used directly or indirectly with plant propagation and production in general. All items used must be guaranteed clean or sterilized.

Several points that come to mind that are often overlooked are water supply and contamination through dust and water drip.

Clean water is essential for good plant management. Even

with most town water supplies, it is often necessary to use filtration systems to take out algae and other organisms. This can be achieved through a series of special microfilters or sand filters. Also, separately or in conjunction with, chlorination injection can be used to assist in control.

Contamination through dust being sucked in through fan ventilation systems, and then settling on plants, is also a very important aspect too often neglected when problems arise. Ventilation duct systems can hold quite a residue of contaminated dust that can be dispersed over a greater period of time.

Contamination from condensation taking place, and water dripping from the roof and purlins, can often be a factor in disease spread as well. Control for these is much more difficult, extra ventilation being one of the few means of overcoming condensation.

It is always amazing how quickly disease can spread from such contamination points. Wiping out big areas if daily checks, which should be a normal part of good management, are not made, and immediate remedial steps undertaken.

OPEN GROUND VS. CONTAINER-GROWN CITRUS

GARY R. EYLES

*A.T. Eyles & Sons Citrus Nursery
Kenthurst, New South Wales*

“You’ll never change an old field grower to growing in containers.”

I have heard that comment made on any number of occasions. It is difficult to change from something you know well and which, in our case, has been a successful practice for over 60 years. This paper is a brief description of how we have begun the change to container growing of citrus.

For many years citrus in the Sydney area has been grown in the field to a stage of one full season’s growth after budding. They are then pruned back significantly and dug bare-root. They are sold to orchardists or retailers, in the latter case they need to be placed in a “healing in” bed, or grown-on in containers for another season and then sold as an “advanced” or three-year-old tree.

A T Eyles and Son were and still are involved in growing the tree to the two-year-old stage in the field. It is now felt, however, that a tree could be grown in a container in two years that would compete favourably with the three-year-old tree containerised after being transplanted from the field.

The system being developed for container-growing differs little from previous practice in the field.