

Practical management for quality in nursery production

John Kavanagh

In the practical management for quality in a nursery, all staff must be aware of what the nursery is aiming to produce, i.e. quality plants. For this reason it is important that staff understand the definition of a 'quality plant'. Quality in this paper means the fitness of plants for planting in the forest. It should be remembered that good quality plants have a better chance of becoming established and getting away to a good start than poor quality plants. Attributes of quality plants which should be highlighted in nursery practice include:

- a) An awareness of the importance of using the best and most suitable seed sources is essential. Knowledge of origins and provenances is useful, and the importance of keeping plant material of different sources separate should be emphasised.
- b) Staff should be aware of the importance of the target height and sturdiness for planting stock. This is especially important in the grading process; poor, weak plants should be culled.
- c) It should be explained to staff what to look for in a quality plant in terms of root:shoot ratio, especially when they are directly involved in the grading, undercutting and lifting operations. Other important physiological features to be aware of include target root collar diameter, which

should be randomly checked during the grading process

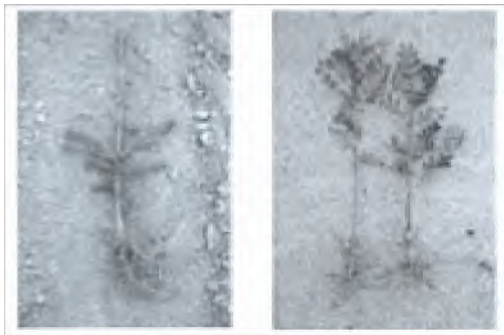
- d) Staff must also be aware of other important features such as minimum and maximum sizes acceptable to the customer as well as the general overall health of the plant and freedom from insect damage and disease.
- e) It is important to be clear on what the customer's requirements are and to make sure that these needs are being fulfilled.

All nursery staff must be aware of the impact of their actions and the influence of their work on these characteristics, otherwise they could be causing an adverse effect on plant quality or even damaging the transplant without realising it.

When we think of quality control in a nursery, we tend to think of the process of grading and its effect on the final product. However, quality control should begin at a much earlier stage, at seed bed preparation and seed sowing: it must be in place at all stages of the operation. Quality control does not have to be a formal system, but there must be designated and trained staff members with responsibility in key areas in order to monitor and record work at the various operations.

In the process of lifting, grading, packaging and dispatch of plants a lot of good work can be undone by poor plant handling. The nursery must have systems in place to monitor and avoid this.

Continuous training of staff, and monitoring their performance, must be an ongoing process. For example, quality control in the grading shed must be a continuous operation as well as the monitoring of stock quality while lifting in the field and coming in to the shed. After the grading process is completed the handling and dispatch of plants from the nursery should be constantly monitored. While transportation from the nursery may be outside the control of the nursery management, attention to packing and handling is essential.



It is important for nursery staff to understand what is meant by a 'quality plant' and how their work can affect this quality

Attention to detail at every stage during the growing cycle determines the ultimate quality of the final product. This means paying attention to such questions as:

- What is the ideal target seedling density in the seed bed?
- What is the quality of the seed to be sown?
- What is the actual seedling density and does this alter the original plan?
- Do we grow a transplant or an undercut seedling, and what is the most desirable growing cycle - will it be a one, two or three year transplant?
- Are the plants produced to the satisfaction of the customer?
- How are the plants performing in the field — it may be useful to discuss these and related issues with the customers

EXTERNAL FACTORS

Many external factors affect plant quality and nursery management should have systems in place to mitigate these factors, which include weather conditions, soil conditions, weed control, pest and disease outbreak and its control.

For example, staff must be aware of the importance of when weather conditions are too dry — when you need to irrigate, when not to; or when it comes to seed sowing or lifting of transplants, when are soil conditions right for the operation — not too dry or too wet. Sometimes it is better to postpone these operations, than to rush in when soil conditions are poor and end up with a bad result.

Vigilance is required from key staff members when it comes to weed control, pest control and disease control. Management and staff must be aware of what to look out for. It is important that the nursery manager is notified of anything happening in the nursery that is out of the ordinary.

OPERATIONAL FACTORS

Staff and management should operate as a team, which involves key people in the operational sectors that affect plant quality, i.e. ground preparation, seed bed establishment, seed sowing, chemical and fertiliser application, undercutting, transplanting, lifting, grading, and plant handling and storage prior to dispatch.



The various operations involved in nursery production have an impact on the quality of plants produced.

There must be continuous dialogue between the staff involved in these operations and also between the management and staff.

In the transplanting operation for example, staff involved must be made aware of the impact of their actions and how these actions will directly affect the crop that they will be lifting and grading the next year.

Staff operating machinery must be made aware of the importance of avoiding mechanical damage of plants during chemical and fertiliser applications and other mechanical operations.

With this in mind there is an onus on the manager to know the limitations, or more importantly, the strengths, of the work force, i.e. which people are best suited to specific jobs and staff should be selected accordingly.

UNDERPINNING QUALITY IN THE NURSERY

To underpin quality in the nursery, a manager must depend on key people. To achieve success their skills must be developed. It is necessary that they operate as a team and take ownership and responsibility for the quality of their own work and that of their colleagues.

Because of the nature of the nursery business, there must be a continuous emphasis on team building and team work, combined with ongoing staff training, for both full-time and casual staff

It is also important that experienced members of staff are encouraged to continue to examine how things might be improved, from a quality or efficiency point of view. Examples of this would be modification of a machine or suggesting ways to streamline various aspects of plant handling and production. This can be achieved by informal experimentation, complemented by formal research.