

Nursery Management in Producing **High Quality** Nursery Stock

By Jack Long

The first and most important, factor **in** the production of high quality stock is, of course, the selection of a good nursery site **where soil texture and fertility**, drainage, local **weather conditions** and many other requirements have been carefully **considered.. In most cases**, it seems the **nurseryman hasn't much control over this and has to put up with what he has**. For this reason, we **not dwell on this subject**.

To grow good stock we should start with good **seed of** the right **provenance for the planting areas**. **Careful consideration should be given to the size and** age class of stock best suited for any given area **taking** into consideration both the **economic and** survival factors.

Only by the utilization of the best cultural methods in the nursery can we insure the production of the best quality stock that **the nursery is** capable of producing.

This begins with efficient planning and supervision of all phases of nursery practice. will mention some of these practices which we think have a direct bearing **on** the quality of stock produced.

1. Soil Management:

Each nursery will have its own soil problems and a definite plan of soil management **should be** undertaken to see that fertility is maintained.

2. Sowing:

Time of sowing can be important. In some locations and with certain species, fall sowing has advantages over spring sowing. We have ground at Duncan that fall-sown Douglas-fir produces a seedling about twice as large as the same seed sown in the spring. Mere 1-0 stock is used for planting out, this could be **quite** important.

Consideration should be given to the method of sowing, whether it should be broadcast or **drill** sown. **Again**, both quality of stock and production costs have to be considered **along with conditions of soil** and climate **peculiar** to each nursery.

Density of sowing is one of the most important factors in producing good stock. I believe the trend is towards sparser sowing whether it be drill sowing or broadcast. This is good and no doubt will do much toward the production of better planting stock.

Proper preparation of the seedbeds should be given attention. Shallow cultivation or lumpy conditions on heavy soils can result in abnormal root development.

3. Shading:

Shading is most essential with some species **and** beneficial to others, but it can be overdone causing tall, spindly stock.

4. Watering:

No specific rules can be formulated for watering. It has to be left to the nurseryman's own judgment. Larger stock will be produced with heavy watering but this does not necessarily mean better quality stock. Excessive watering may result in tall, succulent seedlings, lacking in resistance when planted out. The type of root systems developed by the plants can, to some extent, be controlled with the proper use of water.

5. Protection from frost damage:

The best insurance against frost damage is to have our stock hardened-off before the danger of frost occurs. The nurseryman doesn't have too much control over this, but there are a few things he can do that will help.

By curtailing irrigation during late summer and where shade frames are used their removal during this **period will help to hasten the hardening-off of stock.** The placing of shade frames over the seedbeds on nights when early frost is anticipated does much to cut down on the extent of damage. A proper **balance of soil nutrients** will do much towards inducing hardening-off.

Frost-heaving may **cause** serious damage to seedlings. If not **killed outright, the quality of the stock can be considerably** lowered due to deformed or abbreviated root systems. The use of winter mulches and shade frames, improvement of soil texture by keeping up the supply of organic material in the soil and better drainage are some of **the remedies for frost heaving.**

6. Lifting

Time of lifting is important particularly if the stock is going into storage. Normally stock should only be **lifted during complete dormancy.** Lifting methods should be such as to insure a minimum of root damage and as little exposure to **sun** and air as possible.

7. Culling:

Culling is one of the most important factors in the production of high quality stock. Even when optimum conditions for the growth of **good stock** have been maintained at **least a small** percentage of the stock will be of inferior quality and should be culled.

Minimum standards, no doubt, vary from one **location to** another but **in** any case it is important that people doing the **work be thoroughly trained** to recognize these **standards.** Constant supervision of even **experienced help is necessary to get a good job done.**

8. Baling and Storage:

Proper care must be exercised **any time stock is being handled.** Unnecessary exposure of roots often takes place **during the baling,** especially where large quantities of trees are hauled in from heel-in beds to be baled.

Proper tightening of the **bales is** important. Loose bales come apart in transit and in some **cases** the wires or bands are made too tight and bruise the bark on the seedlings. Occasional checking of the balers will usually eliminate such **mistakes.**

Quality of stock can be greatly reduced **with** improper storage whether it be heel-in beds or cold **storage plants.**

Where stock **is heeled-in in** the nursery, the nurseryman should give it special attention. Even experienced **workers** tend to get careless **at times when** handling large quantities. Stock can dry out **in a day** or two if not **properly** heeled-in.

We haven't as yet had too much experience with holding stock in cold storage. Our new plant at Duncan will be used for the first time this coming season.

We understand there are many pitfalls for the unwary but we can all benefit from the experience of others.

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The foregoing is a list of the more important items that a nurseryman should give his attention to if he wishes to grow good quality stock and have it reach the planting site in good condition. I hope some of these points will be brought up in our discussion.

In spite of much advancement in nursery techniques, nursery equipment and general knowledge we are still concerned with the same problems that we were at our first meeting many years ago.

This, I would say, is **not alto^gether** an unhealthy state of affairs but **would point to** the fact that we are not completely satisfied with what we are producing or how we are producing it. The important thing is that we are willing to change our thinking and adopt new ideas.