

PLANTING STOCK DESCRIPTION COMMITTEE

Presented By

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Your chairman of the Stock Description Committee, Mr. Jim Dick, conveys his greetings and regrets that he is unable to be at the meeting and inasmuch as he could not be here, has asked me to incorporate the modifications to our preliminary draft that would reflect the thoughts of the entire committee .

I will first read the report as prepared by Jim, after he and I had gone over most of the points in question.

JIM'S REPORT

It would seem that the greatest differences among the committee center on age class designations and methods of measuring.

An acceptable compromise leads us to recommend the use of the numerical age class code be confined to nursery records only, retaining the existing convention (F-1-1 S 3-0 etc.) for the purposes of communications (this would keep us 'Old Mossbacks' happy).

It is conceded that the metric system of measuring is not readily accepted, although there is dissatisfaction in correlating tenths of inches to tenths of feet, it is therefore, recommended that tenths and hundreds of feet be used. Measuring the tree height and 'root length in tenths and the caliper in hundredths of feet.

The committee feels that we have gone as far as is practical at this time, and requests its dissolution or that specific goals be outlined.

REPORT OF COMMITTEE ON
PLANTING STOCK DESCRIPTION

(Proposed)

This committee originated as a result of the eighth biennial Western Forest Nurserymen's meeting at Cowichan Lake Experiment Station, Mesachie Lake, British Columbia in August 1962. The proceedings of that meeting fail to note that the committee was appointed to look into means of describing planting stock in terms having specific meanings when used by both planters and nurserymen. The committee is composed of two nurserymen, two researchers, and an administrator working closely with problems of planting and planting stock.

The first report of the committee was submitted at the ninth biennial meeting at Lucky Peak Nursery, Boise, Idaho in August, 1964. Details concerning desirable characteristics of planting stock had been solicited from planters throughout the West. These indicated a desire for sturdier stock for the more

severe planting sites. While desired physical dimensions varied with species and geographic area, trees with dense, multi-branched root systems and more foliage and buds were generally desired for more severe sites. That first report also contained a summary of the physical dimensions of seedlings of several species and age classes of stock produced at 17 western forest nurseries in 1963 and 1964. The measurements, in metric units, emphasized the variation between lots grown to the same age class.

The committee recommended seven specific items necessary for description of a lot of planting stock. These are:

- 1) name of species;
- 2) seed source;
- 3) nursery or nurseries producing the stock;
- 4) age class, distinguishing between fall and spring sowing as well as years in the seed and transplant beds;
- 5) average height, in 5-centimeter classes;
- 6) average stem diameter in 1-millimeter classes;
- 7) average root length, also in 5-centimeter classes.

Anything unusual about the lot was also to be recorded. For the determination of items 5-7, at least 25 seedlings should be measured.

The committee recommended also that the Nurserymen's Association consider also limits of variation within a lot of stock for physical measurements. These would be tolerance limits toward which to work for more uniform stock.

Other recommendations made in 1964 were:

- 1) for the nurseryman to maintain a transplant bed within which at least 100 seedlings of major lot or of lots of question condition could be transplanted for one year.
- 2) for the nurseryman to maintain a photographic record of stock
- 3) for planters using special stock to add into such plantation samples of other classes of stock, thus permitting improvement of empirical knowledge of planting stock requirements.

Since rendering that report, the committee has received comments from several sources. We are indebted to individuals who have solicited and summarized comments from the field. Based in part thereon are the following comments on the recommendations:

1) Species: both common and scientific names are desirable.

2) Seed Source: the Western Forest Tree Seed Council has developed a seed source designation system and applied it within the States of Washington and Oregon. All major seed dealers and major users in the area have agreed to utilize the system. The suggestion was made that the WFISC coordinate with interested people on the perimeter of these states. The Western Forest Nurserymen's Association might well go on record, endorsing the WFTSC effort to systematize seed lot designation and recommending that all western seed dealers and users elsewhere in the West cooperate and coordinate with the WFfSC to extend the project.

- 3) Age Class: this is a holdover from past use in recognition that changes cannot be made overnight. This would have even little value if the numerical description of stock size were adopted. Its principal value is among nurserymen to describe how seedlings are grown. One nursery may need to grow spring-sown 2-1 in order to equal fall-sown 2-0 from another. The 3-digit numeric code is to simplify record keeping on hand-punch cards or machines. The specific designation suggested is a compromise among committeemen.
- 4) Seedling measurement in metric units may be premature. The committee will not argue the point and concedes that measurements can also be obtained in inches. Average height and root length can be expressed in 2-inch classes rather than 5-cm. classes; average caliper can be expressed in .01-inches. Averages, of course, would be better if developed on the basis of 100 trees, but 25 is generally acceptable from a statistical viewpoint and from the standpoint that a nurseryman probably cannot invest the added time required for greater sampling. Measurements related to the cotyledons is suggested since groundline is lost after seedlings are 'lied and varies while seedlings are in the bed.
- 5) Root description is a problem. Knowledge of average maximum length permits decision to prune if necessary to fit a particular planting tool or to change tools to handle the roots. Among "other descriptive items" the committee envisions such items as "root too rigid for machine planting", and frost damage.

The reaction of planters to the recommendations in general has been varied. The suggested modifications tend to cover the specific disagreements with them. However, there exists a feeling that the description may be too complex and confusing to "our old 'Mossbacks" to quote one forester. However, if we as manufacturers will agree on a system of describing our product, the planter will ultimately accept and use our description.

Top root ration is a measure which is neither understood generally nor satisfactory because of its destructive method of determination. The ratio is based on oven-dry weight which permits no direct evaluation of field performance of the seedling. A non-destructive but quantitative measure is highly desirable. The acid titration method applied at Webster Nursery is too tedious for general acceptance. Interest in volume displacement of tops and roots as a measurement technique was revived in British Columbia. This technique is relatively simple, quick, and non-destructive.

Preliminary evaluation has been made of the volume displacement measurement. The measurement of top or root is obtained by immersing that part of the tree into a partially-filled with water standard graduated cylinder and either reading directly the displacement or siphoning off the displaced volume for measurement in a smaller graduate. A bit of detergent in the water and care to avoid carrying excess water on the plant parts improves accuracy. Bigelow is working to develop the technique for measuring root volume and calculates:

$$\text{Seedling Quality (SQ)} = \frac{\text{Caliper (mm.)} \times \text{Roots (cc)}}{\text{Top (cm)}}$$

Dick has used volume displacement to describe top/root ratio in Douglas-fir lots, Field performance must yet be related to SQ if this is to become an integrated measure of planting stock.

We recognize that no measure of physiological condition has been suggested. However, if stock is handled so as to prevent its drying, if it is stored properly for periods less than those known to be detrimental, and if reasonable care is taken in planting, seedling physiology is not so upset that bareroot planting survival in areas normally forested is a failure. Studies in tree physiology will eventually provide better knowledge of the processes that may require descriptive data.

In summary, the committee has modified certain items it suggests be used to describe planting stock. It suggests adoption of its recommendations: 1) to use such descriptive detail, 2) to consider adoption of standards of variation with lots of planting stock, 3) to advocate all nurseries maintain a photo record of its product, 4) to advocate planting samples of standard stock in areas where special planting stock is employed, 5) to encourage research in nursery and allied problems 6) to support the WFTSC move towards standard and universally-used seed source descriptions. And finally, the committee suggests its discharge or that the Nurserymen's Association give it specific goals to be attained.

Charles Bigelow
Keith Illingsworth
Lloyd Soule
Homer Ward
James Dick

DISCUSSION

Q: Use of photograph record, please explain more fully,

A: Take photos of average trees of various lots each year. They catalogue them and then refer back to them as their physiological comparative record.

Comments

One of the objectives was to set up a way of describing stock

Many people want to stick with the 2-0 and 2-1, thinking they don't need anything better.

But a 2-0 grown at a nursery this year has a different description than it had two years ago.

If we could stabilize the square foot density by sticking to a square foot of bed area rather than a foot of bed length,

The physical measurement from nursery to nursery varies when considering

stock description.

One recommended that we order stock by height.

The committee should include caliper which is one of the keys.

The California Division of Forestry has a committee that goes around to nurseries each year and sets up standards for description of stock.

One feels individual nurseries will have different descriptions.

We have got to describe these by sizes including both top and stem caliper measurements.

Something else involved that needs to be remembered, Plans are made quite a few years before trees are delivered. They are dependent on the nursery producing the kind of stock they want. Along with this, the nurseryman has something happen to his stock, good or bad. He has to tell his people what kind of trees he has available by the stock class. Don't think you can get away from specifying age class and sizes.

More and more we are getting field men coming into a nursery asking for certain stock by size.

I have the opportunity to speak from the field and nursery side. the field men often actually don't know and aren't concerned as to whether we are talking about 2-0 or 3-0, They have found that trees of a certain size survive. A tree less than 1/4-inch stem caliper doesn't live. The field man wants a certain size, he doesn't really care how old the tree is.

We are attempting to get field planters to come in and actually see the stock. They look at the root system to see what they are actually going to get. You have to have some things down on paper, but to see a tree is better. More and more the planters are coming in and looking at their trees.

From the foregoing discussion, I don't think the committee should quit yet, until we get standardized descriptions to fit all stock.

Maybe what you need is a series of photos of seedlings and send them out to people interested in the stock.

My opinion on the photos is they should all be in the same position with the same camera and background. There are difficulties in techniques to get the same effects from area to area.

Let's take the obvious out and get age and size in there.

Photocopies of the Planting Stock Description Committees' recommendations were prepared for the councils further consideration for action to be taken at the business meeting the following day.