

An aerial photograph of a dense, lush green forest, likely a coniferous forest, covering a hillside. The trees are packed closely together, creating a vibrant green texture. The image is framed by a solid brown border at the top and bottom.

Seedling Specifications & Seed Usage

One Nurseries Perspective

Important Points to Consider

- Specification overview
- Specifications as they relate to seed usage
- Operational considerations
- Costs
- Customer willingness
- The New reality

Specification Overview

■ Absolute Specs

- An absolute measure that must be contractually met for payment to occur. The two main parameters are a contract minimum root collar diameter and contract minimum and maximum height. Should the absolutes not be met penalties will be applied to payment.

Specification Overview

■ Sturdiness ratio / Harvest mean

- Sturdiness ratio is: A ratio of height to diameter is used to harvest the crop and typically a maximum “limit” is established so that seedlings are not to exceed the maximum, avoiding tall skinny trees. The lower the number the better the perceived “quality”
- Harvest Mean: is a crop diameter mean that must be achieved and seedlings above and below the mean are accepted providing the audit measure meets the mean test.

Specification Overview

■ Block Run With Specs

- A target specification is desired and the crop is only accepted based on a percentage of the crop achieving said target spec. Then it is agreed that quality well rooted, good morphological, seedlings will be delivered. Setting of contractual sow dates is one way to try to achieve this. This will vary by facility, seedlot, and stocktype. Good communication with the grower is essential to making this work. Overrun considerations must be made up front prior to ordering seed.

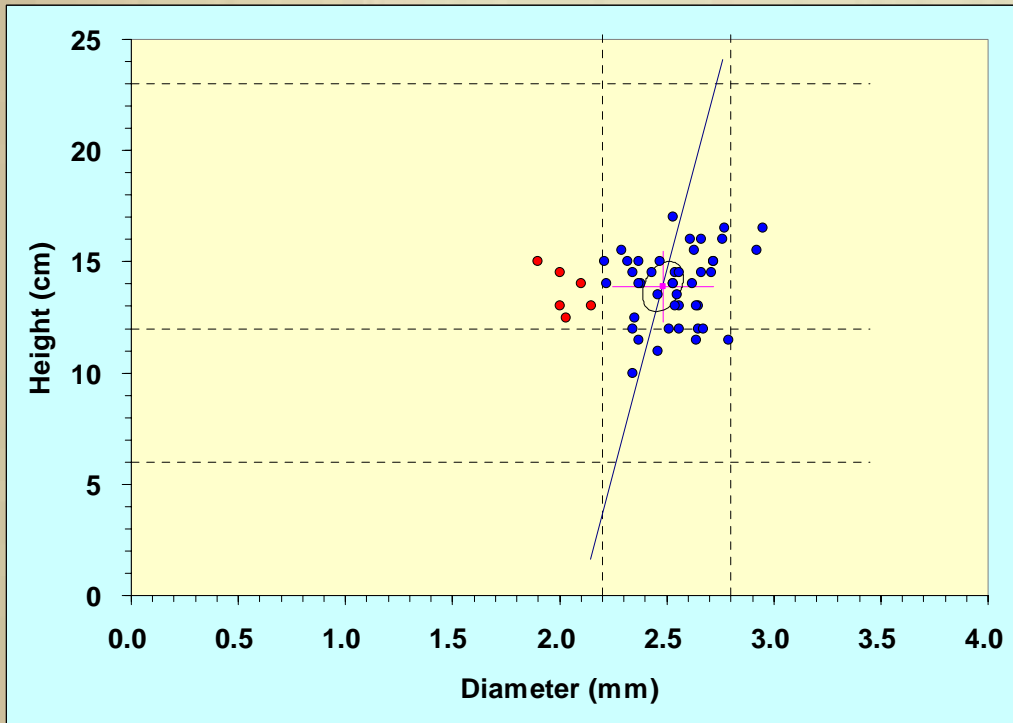
Specification Overview

■ Block Run Without Specs

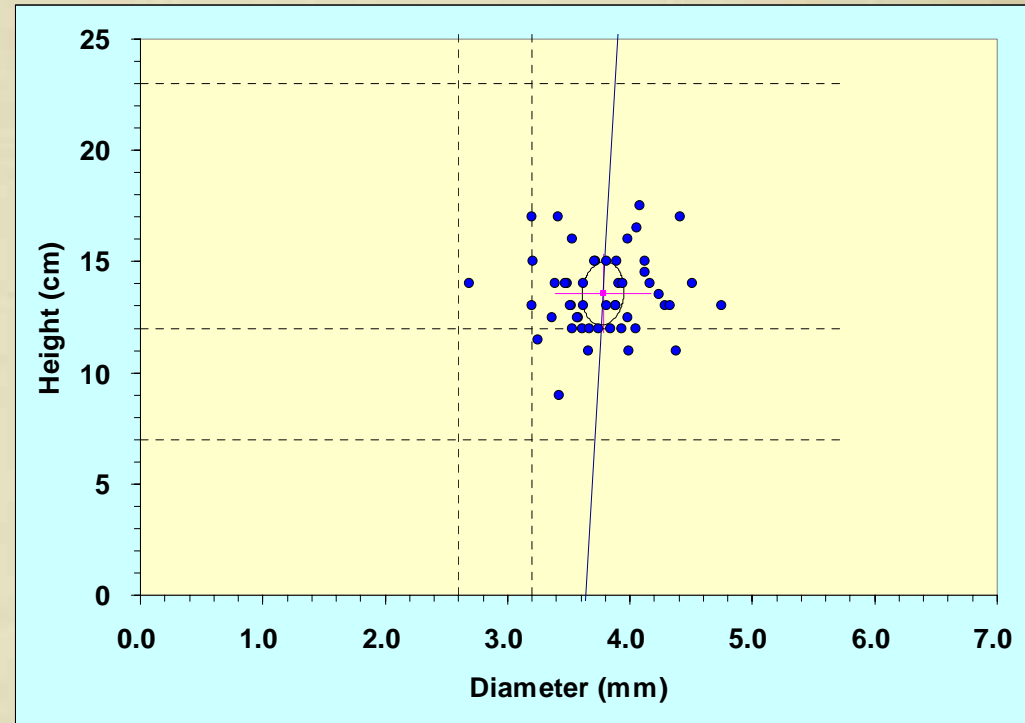
- Contractually at the start of the growing season a block run specification is established. Essentially no Caliper, height or sturdiness ratio is applied to the definition of an acceptable seedling. All “plugable” seedlings are harvested.

Scatter Graph

PSB 310C Secondary Pli



PSB 410A Primary Pli

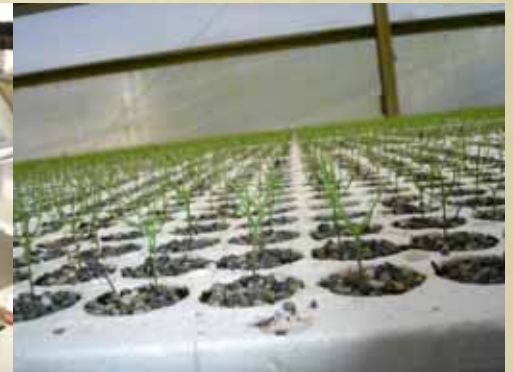


Specifications and Seed Usage

- Knowing the “game” up front prior to seed stratification will greatly influence the amount of seed required to seed a specific order.
- Meeting a contractual minimum spec the more seed required
- The greater the minimum root collar for a specific stock type diameter the more seed required
- The greater the density of the block the more seed required
- Morphology in pine has differences in seed requirements as high as 5%

Operational Considerations

- Facility
- Species and stocktype
- Contract obligations
- Seed viability and quality
- Historical seedlot data
- Acceptable risk (Client and Nursery)
- Seeder accuracy
- Data Collection



Costs

- Greenhouse space is more expensive to carry than open compound space and is therefore it is less desirable to single seed as germination percentage decreases.
- What does it cost for a square foot of greenhouse Space? If it cost \$0.21 for a 410 spruce seedling at a 1.2 oversow then a square foot of greenhouse space is worth \$8.55 and only 51 cavities (or seeds). If spruce seed is \$2500/Kg with 350 seeds per gram that would mean each seed is worth \$0.00743 each multiplied by 51 or \$0.379. (assuming one seed per cavity)

Costs

- When does it make more sense to spend more dollars on seed or on capacity?
- Would you change your mind if you knew every “good” seedling would be at full price?
- At what seed cost do you change your view?



Customer Willingness

- Good communication at time of ordering
- Trust – historical confidence
- Acceptance that not everything goes according to plan (birds, frost, reduced heat units, germination fall downs field vs. lab)
- Understands the math and knows the true costs
- The overrun debate needs to be understood

The New Reality

- Block run and minimal grading has entered the playing field to reduce nursery costs as a cost offsetting strategy to better utilize seed and save clients dollars
- Block run increases seed efficiency and increases genetic diversity
- Input cost are rising dramatically, capacity is waning leading a very competitive marketplace. If we can find ways to be more efficient and save clients seed and dollars it is a win win for both.

