

Seed Use Efficiency Meeting

Langley, BC July 30 & 31, 2008

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Upgrading Abies Seedlots

Overview:

- This topic is directly tied to the discussions we have been having on the need to better utilize our seed resources. Where as the overall reduction of certain types of seed is required to guarantee the long term sustainability of our industry, the upgrading of Abies seedlots is a good example of how nurseries have been trying to make the best use of the seed they get for upwards of fifteen years (the length of time we have been upgrading).
- Nurseries are currently expending a large amount of time and money working on better utilizing their seed resources, even on minor crops, such as Abies.

Abies Production in BC:

- Total production of forest seedlings in BC for 2008 is 214 million
- Total production of Abies is 2.2 million (approx 1% of total grown)

Reasons for Upgrading:

- The average germination capacity of BA/BL is 60%
- With the ministry sowing rules that gives us 4.3 seeds per cavity
 - This is operationally very difficult to sow accurately
 - The process of upgrading was developed to remove as much of the unproductive seed as possible to better facilitate the sowing and growing of the crop (4.3 seeds per cavity can often be upgraded down to 3.5 seeds per cavity)
 - Upgrading removes empty seeds and leaves less, but more productive seed that can be better distributed in the blocks during sowing.
 - Better distributed seed leads to more uniform germination, less transplanting and a more consistent crop.

Limitations to the upgrading process:

- Upgrading cannot remove all seed issues. Empty seeds are easily removed in the process, but the following can still be present after the upgrading is complete:
 - Insect damage
 - Immature seed
 - Mechanical damage
 - Disease

Upgrading process:

- Planning is critical to the success of the operation
 - PRT is producing just over 950K Abies seedlings in 2008 (half of the total Abies production in the province).

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- There were roughly 123Kg of Abies seed that needed to be upgraded. All of this to produce trees for less than half of one percent of the total trees grown in 2008.

Upgrading process (con't):

- Upgrading must be planned so that the process is complete and seed is at the desired nursery in time for it to be sown.
- Equipment needs are minimal
 - Seed is soaked for 1-8hrs in clear Rubbermaid bins
 - As seed sinks, the percentage of filled seeds is checked to determine if the process is complete
 - Once the percentage of filled seed remaining floating is less than 10%, it is skimmed and discarded
 - The total seeds available is recalculated and a new seeds per cavity is generated for sowing