GREEN INITIATIVES – SEEDLING SERVICES

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BRITISH COLUMBIA | BCTS BC Timber Sales

BACKGROUND- WHY GO GREEN?

BCTS CLIMATE CHANGE ACTION STRATEGY

COMMITMENT TO CANADA'S CLIMATE CHANGE ACTION PLAN

CLIMATE CHANGE ACTION STATEGY – GUIDING PRINCIPLE

- Make change happen
- Lead by Example
- Embrace Uncertainty
- Be Pro-active
- Foster Innovation
- Seek Collaboration
- Be Adaptive
- Be a Climate Change Action Champion

COMMITMENT TO CANADA'S CHANGE ACTION PLAN

2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy. The plan is an ambitious and achievable sector-by-sector approach for Canada to reach its new climate target of cutting emissions by 40 per cent below 2005 levels by 2030, and to put us on track toward our goal of achieving net-zero emissions by 2050

Loose Pack

LOOSE PACK

BCTS Seedling Services manages all government funded seedlings, and is responsible for the production, distribution, and storage of over 80 million seedlings annually

Seedling Wrap is a single use plastic that wraps around root plugs in bundles of 5, 10, 12, 15 or 20 seedlings.

Previously it was our practice in BC is to wrap 100% of seedlings before they are packaged into a seedling box.

Seedling Wrap is not recyclable and ends up in **BC landfills.**

WHY WE MOVED TO LOOSE PACK?

- Worked in other jurisdictions with no problem
- Reduce repetitive stress injuries (MSI) in nurseries
- Get ahead of future Regulations
- Reduce Single Use Plastic by 18,000 Kg’s

LOOSE PACK FOR 2024/2025 Planting

- Government funded Sx, Cw, Pli, Py and Pw were packaged Loose Pack for 2024 Spring plant
- Nurseries had the discretion to wrap a request key if plug integrity would be compromised
- 2 Fdi request keys packaged Loose Pack as a small trial
- Small amount of summer Pli packaged Loose Pack
- Approx 18 000 kg's was removed from the supply chain last year- 3.6 grams per seedling
- This transition with the loose pack of 58 million seedlings to date, it is estimated that it will reduce greenhouse gas emissions by 355 tones of C02
- **This is equivalent to taking 109 passenger vehicles off the road!**

LOOSE PACK SURVEY-NURSERIES

- Did loose pack effect daily production?
- Do you think loose pack impacts root integrity in the box?
- Do you have any concerns the trees/box numbers are inaccurate?
- Were there labour savings with packaging loose pack?
- Did you wrap any Spruce, Pine, or Cedar due to weak roots?
- Did you increase pre-storage spray applications for loose pack?
- Did loose pack affect Daily Production?
- Do you have any concerns the trees/box number are inaccurate?

LOOSE PACK SURVEY-PLANTERS

- Was any significant soil loss in Spruce, Pine or Cedar observed?
- Were there any concerns with the Spruce, Pine and Cedar tree count per box?
- Were there any issues while bagging up Spruce Pine and Cedar?
- Were tree count issues when planting mixes, including Spruce, Pine and Cedar?
- Did loose pack Spruce, Pine and Cedar add significant time to your planting routine?
- Did you encounter frozen loose pack?
- Were there any issues with loose pack Spruce, Pine and Cedar seedlings in your bags?
- Were higher levels of Botrytis observed in any of the species?

NURSERY SURVEY TRENDS

- 17 Nurseries responded
- Short chaotic start but once the process was sorted out it was a very positive response – took a day to get used to.
- Production was same or better than wrapped bundles
- Labour was the same or less than wrapping bundles
- Less wrist strain or MSI injuries
- Some concern with box counts at first

PLANTER SURVEY TRENDS

- 44 Responses
- Concerns with trees/box counts
- Concerns with keeping track of trees in mixed plants
- Slower bag up times, time spent counting trees
- Frozen loose pack seedlings
- Difficulty in sharing boxes

❖Most responses came early in the season

❖Another Survey will be going out this year

SEED SAVINGS CONSERVATION

- Seedling Services reduces seed grams on A class Fdi, Pli, Py, and Sx and B class Pli and Py.
- Amount of reduction varies based on historical data, germination rates and # of seedlings requested.
- We do not reduce any requests under 10,000.
- This reduction has a domino effect, from collecting the seed, to growing and transport.
- This year we reduced approx. 123Kg’s or 6M trees.

SEED SAVINGS CONSERVATION

- Example Fdi:

Seed Adjustment Rules for A Class Interior Douglas Fir (Fdi)	
Germination Rate of Seedlot	**Seed Adjustment Factor**
96 to 99	0.90
84 to 95	0.85

USING STUBBY BOXES

By using the most efficient size boxes, we get more boxes on a truck

Save up to 20% space

TRUCK BIODIESEL/ TRAILER TRANSFER (using multiple hubs)

- Some transport companies are switching from Regular Diesel (ULSD) to Renewable Diesel (R100)
- This shift translates to a 77% reduction in carbon emissions (CO2)
- Renewable diesel (or Hydrogenation-Derived Renewable Diesel) is a fuel made from fats and oils, such as recycled vegetable oils, agricultural waste, tallow, crops such as soybean oil or canola oil and is processed to be chemically the same as petroleum diesel.
- Renewable diesel can be used as a drop-in replacement fuel or blended with any amount of petroleum diesel.
- Multiple Hubs – saves drive times on empty miles.
- Seedling Services shipped approx. 200K boxes this year.
- We've shipped 230 loads and 25% (56) of these loads were shipped using biodiesel.
- We also work with other licensees shipping trees to ensure each truck shipped is fully loaded.

COMPOSTING BAG FOR BOX LINERS

- Currently we use a polyurethane plastic bag as a liner in our Spring tree boxes. This equates to approx. 40 000 Kg's of plastic/year for just 200K boxes.
- Approx 160 000 Kg's of plastic being used for all box liners in BC.
- Alternatives are plant based compostable bags.
- The bags we are trialing are made from plant-based carbohydrates.
- Converted through a process to become a Biopolymer which is compostable.
- Processing of bags is better than carbon neutral as the plants used to make the bags absorb CO2 and is better than CO2 neutral by 0.2 Kg/bag
- Claim the bags will biodegrade 100% within 27 days in an industrial composting environment
- And 28 days in a marine environment

COMPOSTING BAGS –

- One of the nurseries we work with, as well as Seedling Services is trialing some bags to see how they hold up.
- These bags are used for garbage cans etc., so we have high hopes.

Drawback:

- The cost may be a bit more but maybe with volume this price would come down.

RECYCLABLE BOXES

- Over 950K boxes are shipped every year in BC.
- We ship most of these trees in wax corrugated boxes which are not recyclable and end up in the landfill or burned.
- Seedling Services shipped 200 000 K boxes to date so far this year which equates to 1238 cubic metres of wood and a lot of garbage.
- Currently Seedling Services is working with other nurseries to trial over 60K of recyclable boxes.
- Most of the boxes we are trialing are constructed out of a 3-layer carboard liner board. This carboard is still sprayed with a polyurethane to make it water resistant, but the amount is within the recycling limits.

RECYCLABLE BOXES

RECYCLABLE BOXES – Feedback to Date

- This trial has been conducted for the past 2 years on a smaller scale.
- GOOD FEEDBACK
  - The boxes have held up in the cold storages and out in the field for the Spring trees.
- ROOM FOR IMPROVEMENT
  - The glue holding the corner of the box failed when boxes were left open in the rain on a summer plant.
  - The cost is greater.

BOX DISPOSAL

Where do we dispose now?

Currently we throw our boxes in the garbage and a minor amount go to a co-gen plant.

Can we recycle these new boxes?

Yes, but currently we are working out a few issues:

- Mixing with non-recyclable or wax boxes
- Some issues with municipalities and recycling due to large quantities

What are the solutions?

- Building relationship with municipalities
- Make sure there is wording in contracts to separate boxes
- Increase the # of recyclable boxes we are using in the industry

PALLETIZING – MINIMIZING WRAP WITH STRAPS and CORNERS

- Multiple loads were transported with either straps and 1 layer of wrap or carboard corners and 1 layer of wrap.
- Almost all reports were good with the exception of 1 pallet which collapsed the lower boxes.
- These types of initiatives could save at least 50% of the single use wrap on palletized loads.

Other Initiatives

MANY OF THE NURSERIES ARE USING LED LIGHTING

AI FOR WATERING AND FERTILIZATION

STYRO BLOCK RECYCLING

STYRO BLOCK RECYCLING

- Many nurseries melt down blocks to use for other products such as:
  - Fence Posts
  - Landscaping stability
  - Roofing

SUMMARY

Collective action and the adoption of sustainable practices will help ensure that the seedling industry can thrive while contributing positively to the planet's long-term ecological health.

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