Industry Perspective – Better Forest Management Decisions Using EFI / LiDAR

• Presented to the Enhanced Forest Inventory Workshop

• By: Tim Moulton
  • Planning and Development Superintendent
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Outline

• Current Inventory
• Enhanced Forest Inventory
• Importance of EFI - A real life example
• Future Benefits of EFI
Current Inventory

- Ortho-rectified photography
- Plot sampling
- Re-inventory cycle 10-15 years
Current Inventory Pros

1) Cost effective

2) Excellent spatial accuracy

3) Good network of PSP plots

4) Large suite of general forest attributes

5) Good for strategic level planning
   - Wood supply analysis, 5 year operating plans
Current Inventory Cons

1) Not good for operational level planning
   - Contract rates, budgeting, AOPs etc.

2) Not accurate enough in key stand level parameters
   - species, volume, trees/ha.

3) No statistically accurate info. on stand level productivity parameters
   - tree size, basal area, average diameter
Enhanced Inventory

- LiDAR (light detecting and ranging)
  - airborne and terrestrial
- Remote sensing products
- Fiber attribute modelling and mapping
Enhanced Inventory Pros

1) Adds new and valuable inventory parameters
   - basal area, average diameter, tree size, biomass, crown volume, etc.

2) Can deliver statistically more accurate current parameters
   - species, volume, tree height, trees/ha.

3) New and improved fibre quality parameters
   - wood density, MFA, cell wall thickness, fibre length
4) Excellent for operational level planning
   - Contract rates, budgeting, % sawlogs

5) More accurate strategic level planning
   - Wood supply, five year plans, fibre allocation

6) Extremely accurate terrain mapping
   - Optimizing road locations
   - Unmapped stream and wet area mapping
   - Better cut block layout
   - Extremely accurate DEMs for viewscape modelling
Enhanced Inventory Cons

1) Its New…

2) It’s expensive ???
   - is the extra cost worth the new level of accuracy and new functionality?
   - cost will drop as more provinces adopt
Importance of EFI – A real life example

- FICAP and EFI projects overview
- 2230 wood cores analyzed by SilviScan
- Wood fibre attribute modelling/mapping
- Sept. 2010 mill trial - % spruce, 7 days
- Dec 2011 mill trial – HDS, LDS, HDF and LDF
- What did we learn?
- What was the single biggest impact?
Importance of EFI –
A real life example

Financial Impact

- Average Spruce consumption 2011 = 58%
- Average Spruce consumption 2012 = 47%
- Savings on wood cost in 2012 = $2,400,000
- How low can we go in % Spruce?
- Optimum is 46% (from 2012 analysis)
- Will change over time according to available timber by species.
Future Benefits of Enhanced Inventory

1) New and improved inventory parameters ➞ improving fibre attribute modelling.
   - Wood density, MFA, fibre length, etc.
   - Good base for new product development
   - Improved mill efficiency and quality

2) Better informed strategic, tactical and operational decisions
   - Better business decisions
   - Cost savings and increased value
Future Benefits of Enhanced Inventory

3) Numerous benefits outside of Forestry

- Wildlife > habitat modelling / mapping
- Water Resources > watershed mapping
- Transportation and Works > road location/costing
- Mines
- Hydro
- ...
End Result ....

Better Forest Management Decisions !!!
Thank You!

Questions?