

# Assessing reforestation performance: a new approach

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Imagine you are the coach of a major league hockey team. The team's owner is considering two very different types of performance standards to assess your performance over the season. Should he set a minimum number of goals that each one of your 25 players must exceed (Type One)? Or should he set a minimum number of wins that your team must exceed (Type Two)?

In the context of assessing reforestation performance, we are considering these very questions in both Tree Farm License 49 near Kelowna and the Fort St. John code pilot areas.

## Current approach

When timber is harvested on Crown land in British Columbia, the harvested area must be restocked to a level that exceeds a specified minimum density of free-growing trees, typically 700 trees per hectare in the BC interior.

As a rough generalization, if a licensee harvests 1,000 hectares, the silviculture manager pursues those regimes required to restock each and every one of these hectares to densities greater than 700 free-growing trees. Thus, under the current approach, the licensee is held to a Type One performance standard.

## New approach

In a new approach to assessing reforestation performance, if 1,000 hectares are harvested, then the condition of all 1,000 hectares is assessed at the free-growing assessment date and translated into a prediction of future volume. The silviculture manager pursues those regimes required to reforest the harvested area so that the predicted future volume exceeds a target future volume when totalled over all 1,000 hectares. Thus, the licensee is held to a Type Two performance standard—a minimum for aggregate production, not a minimum on each and every hectare.

## An example

In terms of assessing reforestation

performance, a highly simplified example can illustrate some of the implications of shifting from a Type One to a Type Two performance standard.

Assume again that 1,000 hectares were harvested in a given year in a management unit. All hectares were medium site quality and were promptly regenerated to lodgepole pine. At free-growing assessment, if the hectares achieved the stocking levels shown in Figure 1 as Scenario A, then all hectares meet the current free growing requirement (a Type One performance standard). If the hectares achieved the stocking levels shown in Scenario B, then 50 hectares or five per cent fail, as they are below the minimum stocking standard of 700 trees per hectare.

However, when these two scenarios are assessed with a Type Two performance standard by applying the yield prediction in Figure 2, it turns out that the expected future volume is the same for both (305,000 cubic metres). In Scenario B, the loss from poor performance on 50 hectares is offset by superior performance on other hectares.

## Conclusion

When reforestation performance is assessed by Type Two performance standards, the silviculture manager is free to intensify reforestation efforts on those hectares that provide the most cost-effective gains. Small areas of the land base where longer regeneration periods were the ecological norm can be allowed to restock more slowly, thereby enhancing environmental values. All the while, the public interest is protected by setting a high target for overall, cumulative performance.

We suggest that both the hockey coach and the silviculture manager should be held to Type Two performance standards.

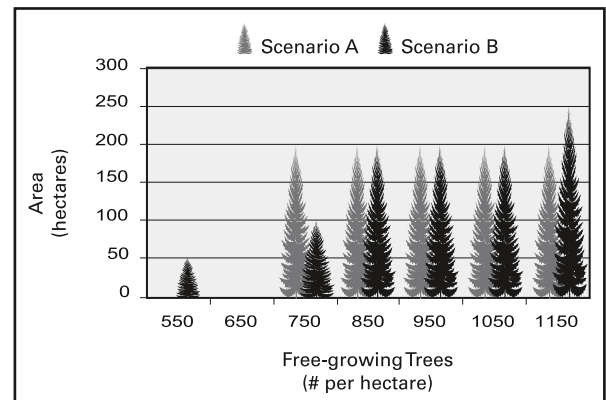


Figure 1: Two stocking distributions on 1,000 hectares with equal predicted future volume.

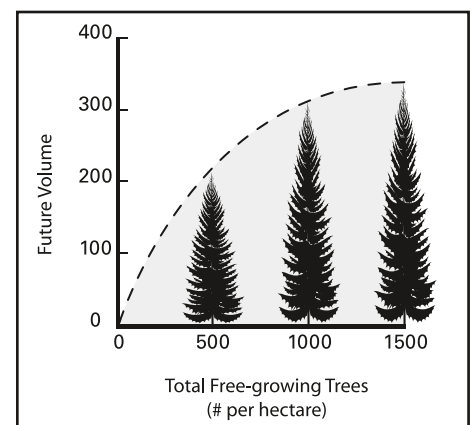


Figure 2: Relationship between total free-growing trees per hectare and merchantable volume at 80 years for promptly regenerated lodgepole pine on medium site quality (site index 19 m).

Evaluations should be based on the overall performance of the team (reforested area). To improve results, we should be free to focus on players (hectares) that will yield the biggest improvements most quickly, easily and cheaply.

Wide-ranging changes to the business of silviculture are required to adopt Type Two performance standards, but we believe the potential benefits justify the effort and cost. To us, evaluations based on aggregate performance may make the most sense in both the arena and the woods.

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