



Photo: Ralph Winter, RPF



Fertilization: How Can it Affect Midterm Timber Supply?

FOREST FERTILIZATION CAN MAKE A SUBSTANTIAL positive impact on the midterm timber supply by increasing the amount of wood growing on a forest site. It is also the only activity that can increase growth rates on existing stands in the short term and increase the midterm timber supply.

What is the fertilization program?

The provincial Land Based Investment Program fertilization program is science-based and it is designed and applied through collaborative strategies, plans and implementation. The program relies on a variety of resources and information ranging from growth and yield results to management unit strategies incorporating stand and forest modelling for tree farm licenses and timber supply area.

There are numerous fertilization trials in British Columbia, ranging from very large (such as EP 703 with 85 installations containing 940 plots on the coast) to single installations.

Why are fertilizing trials important?

Initially, research trial results indicate which types of stands are responsive to nutrients added as fertilizer, as well as the anticipated magnitude of response. Trial results are also used to calibrate growth models, such as the Tree And Stand Simulator (TASS), which is used in timber supply analysis to find timeframes in which to obtain the most beneficial growth response from fertilizer.

Growth and yield data and tools are important to the fertilization program because of their essential role in resource management planning at the stand, landscape and forest levels. For example, long-term data from permanent sample plots and experimental projects are critical to predict rotation length after multiple applications of fertilizer.

Where is fertilization most useful?

The impact of fertilization is most acutely beneficial when it is directed at timber supply 'pinch-points' in the projected timber supply. For example, the *Lakes Type II Analysis and Preferred Strategy Report* (2009) reported that fertilization results in a mid-term increase

in timber supply above base case of 31% for 2024-2028 and 7+% for 2029-2058 for a 59,400 ha program over the years 2009-2018.

How do we decide which trees to fertilize?

Stand selection is based on specific priorities. The first criterion is the management unit need regarding the status of future timber supply. In BC's Interior, management areas with the largest projected falldown (for example, resulting from the mountain pine beetle epidemic) and with potential areas of treatment are the highest priority because of the projected decrease in jobs and economic activity associated with the decreased mid-term timber supply.

Approximately one-third of the fertilization program is allocated to the coast to increase timber volume and value and accomplish the targets outlined in the Land Base Investment Strategy.

Stand selection guidance relies strongly on maximizing financial return. Projects that are expected to achieve an internal rate of return (IRR) below 2% are rejected. The remaining potential stands are prioritized based on both a calculated return on investment and their ability to contribute to meeting the strategic timber supply objective. Generally, preference is given to fertilizing stands with good access and within five to ten years of harvest, provided other conditions are met, such as species, site quality, forest health, vigour, and live crown size and dominance.

How does the fertilization program work?

The fertilization program's framework is contained in the Incremental Silviculture Strategy for British Columbia. This strategy requires strategic planning at three levels: provincial, regional and management unit. Management unit strategies form the basis of the provincial program.

The program involves teamwork by academic and government researchers, and planners and operational staff from the provincial government, forest licensees, and consulting firms. The group collaborates through conference calls and meetings to identify priorities, and to deliver and

evaluate the fertilization program.

The provincial fertilization program's provincial strategies, regional tactics and site prescriptions form an iterative process with feedback at each stage of a continuous improvement cycle. Possibilities are investigated, and accepted or rejected, as they are tested for compatibility before implementation. This approach is used to maximize benefits for British Columbia, particularly to address the mid-term timber supply.

The Ministry of Forests, Lands and Natural Resource Operations develops and implements silviculture strategies to produce a rational investment plan for government funds. It provides detailed objectives and performance indicators at the different levels. Benefits from fertilization include jobs and future timber supply, as well as carbon sequestration by the additional wood growing in forests.

How do I find out more about fertilization?

The Silviculture Strategy website houses silviculture strategies for management units throughout BC. Each strategy report contains an analysis of the present situation in the management unit—not only timber supply, but other issues such as habitat and timber quality—and outlines a program of proposed silviculture investments. 🌱

For more information about the BC fertilization program, see the following website: www.forestsfortomorrow.com/fft/node/446 or contact Kevin Astridge at 250-387-8909.

For more information on the Landbased Investment delivery see: www.for.gov.bc.ca/hcp/fia/landbase

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