



Foothills Growth and Yield Association
Quicknote # 4
Enhanced Management of
Lodgepole Pine
January 2004

In December 2003, the Forest Resource Improvement Association of Alberta (FRIAA) selected the project “*Enhanced Management of Lodgepole Pine*”, proposed by the Foothills Growth and Yield Association (FGYA), for support under FRIAA’s Open Funds initiative. The five-year Project will focus on filling information gaps in nutrition and density management of fire-origin and post-harvest stands. It is complementary to the five projects already initiated by the FGYA to improve the assessment of lodgepole pine growth and yield in managed stands. Work will commence in April 2004.

Objectives of the new project will be to:

1. Develop techniques to predict the growth response of stands to density and nutrition management practices with potential for enhancing timber volume, economic value, and / or forest health.
2. Produce managed-stand yield tables, forecasting growth and stand development over a wide range of sites, treatments and stand conditions.
3. Establish a network of sample plots for demonstrating and monitoring actual versus predicted response, and for continual improvement of predictive techniques.
4. Assess impacts of enhanced forest management practices on stand composition, structure, biodiversity, susceptibility to fire and insect damage, and wood quality.
5. Produce stand assessment guidelines and interpretative criteria for selecting silvicultural treatments.

Subject to detailed design in 2004, tasks are scheduled in two overlapping phases, plus design, analysis and reporting, as shown below.

	2004-05	2005-06	2006-07	2007-08	2008-09
<i>Phase 1 – Site and stand assessment</i>					
Stand reconnaissance and selection	x				
Sample plot enumeration	x				
Foliage analysis	x	x		x	
Screening-plot fertilization		x			
<i>Phase 2 – Experimental treatments</i>					
Installation of plot clusters		x			
Thinning treatments		x			
Fertilization treatments			x		
Measurements		x	x		x
<i>Design, analyses and reporting</i>					
Detailed design	x				
Analysis	x	x	x	x	x
Technical reports		x		x	x

Tasks as preliminarily scheduled by year (fiscal years running from April 1 – March 31)

Phase 1 will involve screening and reconnaissance of an initial stand list to select approximately 60 stands across a range of sites and developmental stages, for detailed measurement and diagnostic fertilizer-response testing. In Phase 2, clusters of fixed-area treatment plots will be established, on a replicated experimental design, in stands with high probabilities for treatment response. The basic layout for a cluster

will be a two-factor split plot with four treatment combinations: control, fertilization, thinning, and thinning plus fertilization. Tree and stand variables, relevant to timber volume yield, wood quality, economic value, ecosystem health, biodiversity, fire hazard, and insect susceptibility will be measured prior to treatment, and at 1 and 3 (and subsequently 6 and 9) years following treatment.

Deliverables will include managed-stand yield tables providing quantitative predictions of stand development over a wide range of treatments and conditions, plus assessment guidelines and interpretative criteria for selecting silvicultural treatments. The ambitious objectives are achievable because the project will draw and build on knowledge and experience already acquired. Important sources of information include research and operational trials such as those initiated by Weldwood of Canada (see illustration), historic field trials being maintained in cooperation with the Canadian Forest Service and Alberta government, and fertilization and thinning research conducted by the BC Ministry of Forests. The new experimental treatments and measurements will be used to test and extend predictions derived from the earlier work.



Operational trial of commercial thinning in a 70-year old lodgepole pine stand
Photograph courtesy of Weldwood of Canada

Dick Dempster will be project manager and analyst, with inputs from technical representatives of the FGYA member organizations. Rand McPherson and Murray Hubscher will coordinate field services and operations. Christian Weik will provide data management services.

If you have comments or questions regarding this project, or would like more information, please contact:

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