

Lesson 1

Commercial Thinning – What is it?

Definition

60 minutes

Objectives:

1. To get people thinking about commercial thinning.
2. To define commercial thinning according to B.C. Ministry of Forests' policy.
3. To answer questions regarding commercial thinning within the range of silvicultural systems.
4. To discuss what commercial thinning can and cannot do.

Equipment Needs:

- ▲ flip chart
- ▲ overhead projector and screen

Method:

- ▲ lecturette

Overhead: What is commercial thinning?

Facilitator: In the introduction (pg. 1) to the *Commercial Thinning Guidebook*, commercial thinning is defined as an intermediate harvest where the wood removed is sold. It is further defined “as a thinning in which all or part of the felled trees are extracted for useful products” (from Smith 1986).

Ask: What products are we talking about?

Flip chart: Get the group to provide a list of possible products from CT.

- ▲ pulp roundwood
- ▲ small saw logs
- ▲ traditional sized saw logs
- ▲ specialty products such as fence posts, rails, mining timbers, grape stakes, hop poles, orchard props, Christmas trees(?)
- ▲ What about non-timber products? – not part of the definition of commercial thinning.

Note: Commercial thinning depends heavily on a market for your product!

The present view in B.C. is that CT is the first pass in a two-pass clearcut silvicultural system. The amount removed is measured three ways:

Go over these points – we will come back to these later when we talk about prescriptions and assessment procedures.

- ▲ Basal area removed – m^2/ha (40% removed is typical)
- ▲ Volume removed – m^3/ha (50–300 m^3/ha is typical)
- ▲ Number of stems removed – sph (leave stems specified)

Note: This is not to say that a stand could have more commercial thinning entries prior to a regeneration harvest. In Oregon and California (and Europe) it is not uncommon for 2–5 commercial thinnings to occur prior to the final harvest.

In B.C. CT has been, until now, a single entry cut in stands between 30 and 80 years old.

Overhead: Commercial thinning – When to use it

Facilitator: This overhead indicates when commercial thinning fits into a silvicultural system.

Use the overhead to promote discussion. Use a flip chart to summarize points.

1. Higher level plans are supposed to drive the use of CT.

Ask: Are there any examples in your operating area?

Soo TSA plan identifies the use of CT as a harvest method on a small proportion of the TSA each year. Specific objectives identified are:

- ▲ recover stand volume lost to mortality
- ▲ increase the merchantable volume recovered over a rotation – the total harvest volume including the thinned volume must not be less than the volume anticipated if the stand was untreated
- ▲ enhance total crop value
- ▲ increase employment
- ▲ where feasible the volume from commercial thinnings will be utilized to alleviate the age class distribution imbalance.

Three levels of plans can affect the use of CT:

- i) the above higher level plan,
 - ii) the landscape unit plan can identify candidate areas, and
 - iii) forest development plans and silviculture prescriptions outline stand level objectives.
2. What do we mean when we say that CT is an intermediate entry and not a silvicultural system? Points to emphasize are:
 - ▲ Once a stand has reached its rotation age – either biological (max MAI) or economic (usually younger than max MAI, or based on a target, such as piece size) – the block is ready to have a regeneration cut (in the past usually a clearcut). Thus old-growth stands are not suited to this cut without other reasons – anyone have any? Green-up adjacency, visuals, windfirming...
 - ▲ For young stands, the stand has to be merchantable to allow an entry. If we are thinning from below, which reduces the chance of high grading, it is not until stands on good growth sites are 30+ years, and more on poorer sites. Thus the range is usually between 30 and 80 years old.



Objectives of CT



Overhead: Commercial thinning – Objectives of CT

Other overheads follow that can be used at the discretion of the facilitator to clarify points – they are found in the participant’s workbook but may not be used if thought to be self explanatory or redundant.

Facilitator: “Turn to your neighbour” exercise. Have groups of two come up with a list of at least four things that commercial thinning can do for them. Record these on the overhead or flip chart.

Discussion: Discuss each point and determine whether it is true and to what extent the CT can meet the objectives they have described. Page 1 of the guidebook provides these examples:

- ▲ to obtain wood volume or revenue earlier than the usual harvest
- ▲ to improve the growth of residual trees
- ▲ to improve the stand quality by removing dead, diseased and deformed trees
- ▲ to capture some of the production that would be lost to competitive mortality.

The guidebook adds that CT is now used to:

- ▲ modify stand structure for wildlife habitat or biodiversity
- ▲ satisfy visual quality and ‘green-up’ constraints.

Get acquainted here with the issues – use the available overheads to flesh out issues that emerge. Use what you find useful – in some cases drawing on the flip chart or having a participant describe a situation or example will work best. Do what you think is right.

Points: Some points to cover...

1. Changing stands from even-aged to uneven-aged. Can CT be used to change even-aged stands into uneven-aged configurations? Yes, and it can be used in areas that are strictly even-aged today but are in areas where single tree selection would be considered an effective system to provide for the objectives of the site (e.g., constant high forest cover in retention VQO areas or in areas where structural diversity is an objective for stand and landscape level biodiversity). It may take

some time to convert the stand and will not necessarily be the most efficient timber production method, but it is a valid entry to achieve a range of objectives – **USE OH.**

- ▲ Where a silvicultural system with stem retention is contemplated, a commercial thinning entry could be used to help the remaining trees become more windfirm (reduce taper, add roots).
 - ▲ It may be used to ‘beetle proof’ pine stands making them more vigorous and better able to pitch out beetles, as well as modifying the microclimate, confusing the beetles.
 - ▲ Age class distributions at a landscape level can be manipulated using commercial thinning. Logging of stands now will often extend the length of time until similar volumes are available (if ever). Thus if there is a glut in the medium term and less wood available in the longer term, CT may help with the timber supply. It can also break up homogeneous forest cover for diversity objectives.
2. Can it provide more volume over time? If so only marginally – some estimates indicate a 10% increase is possible but to get that amount of increase great care must be taken to avoid damage to leave trees and to minimize detrimental disturbance. Therefore, in general, the answer is little to none – **USE OH.**
 3. Can it provide a higher rate of return? Or does it make economic sense?
 - ▲ Page 2 of the guidebook indicates that the thinned plus unthinned stand should have a higher NPV than the untreated stand. Ask the group what this means.
 - ▲ Tell them we will go over this criteria in more detail later. In general it means leave a healthy, economically operable stand after your entry. If you can log at a profit now and leave a healthy intact stand you will likely have a positive NPV.

4. Can it smooth out timber supply shortages?
How does it work? – ask the group.

Note: The guidebook suggests obtaining volumes early (e.g., 20 to 40 years ahead of schedule).

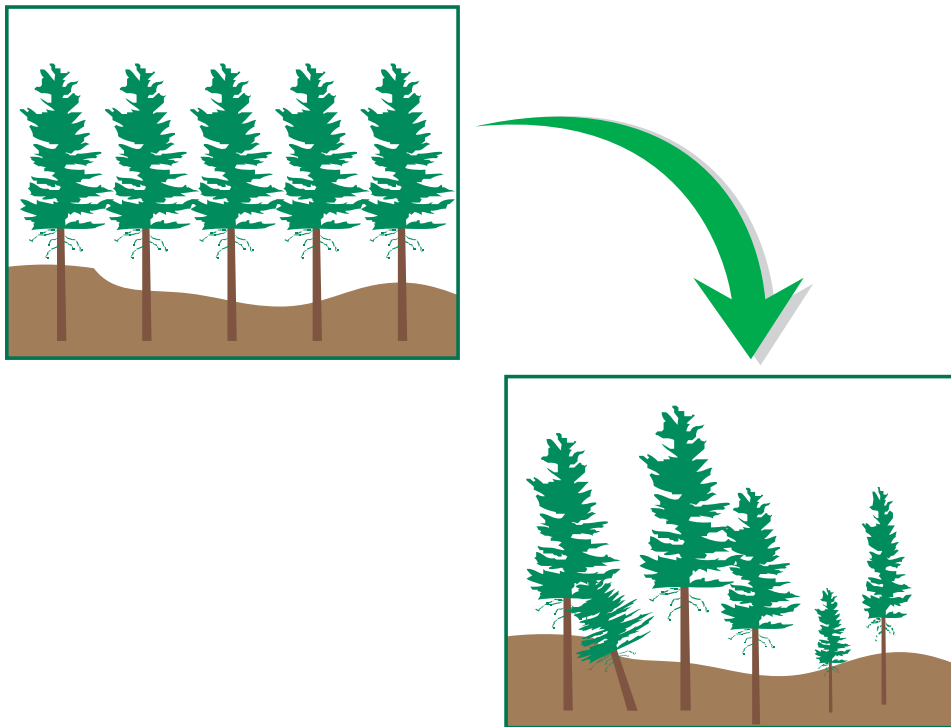
▲ The issue is different from using spacing to move stands towards merchantability sooner. With spacing, a larger average piece size is produced sooner than it otherwise would have been. This will allow for an earlier economic harvest and thus supply a remedy to timber shortfalls in the short term. Commercial thinning provides volume NOW to aid in present supply shortages, and may provide added economic wood in 20 to 40 years.

5. Requirements under the *FPC of BC Act* and regulations limit the size of clearcuts and require a certain amount of green-up to occur prior to harvesting adjacent (contiguous) areas. The specifics of this are outlined in the *Green-up Guidebook*. The key point for CT is that, if part of an uneven-aged silvicultural system, up to 60% of the basal area can be removed. If used as part of a shelterwood or seedtree system, and meets district manager approval, there is no specified limit as the green-up requirement is waived. For maximum block size there seems to be an opportunity to cut up to 60% of the basal area before the block adds to adjacent blocks for maximum block size (see page 5 of 1995 *Green-up Guidebook*). This may not always be possible but will likely be seen as a significant opportunity to harvest in areas with adjacency concerns.

▲ Ask if the group has any other points that they would like to add. Write them here for future reference.

Note: Use the overheads provided here to backup issues raised in this discussion. You can use them in any order. The topics will be covered at least once again so total comprehension may not be the goal at this point. Instead everyone should be thinking CT.

CT – What can it do for you?



It can:

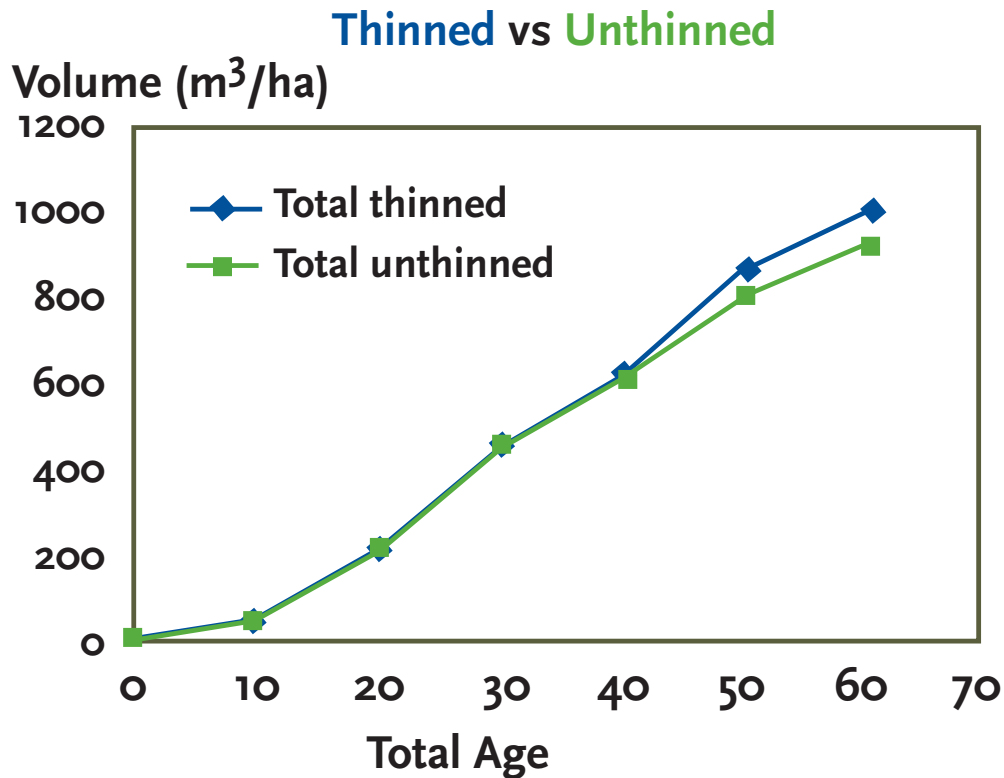
- ▲ begin to convert even-aged stands into uneven-aged stands
- ▲ increase windfirmness in leave trees
- ▲ tackle forest health problems (e.g., “beetle proofing”)
- ▲ break up age classes by extending rotation lengths.

Overhead: Commercial thinning – What can it do for you?

Facilitator: Be sure the following points are covered. Ask the group whether anyone has experience using CT for these or any other reasons.

1. CT can be used to start the process of changing even-aged stands into uneven-aged stands. This may be accomplished by leaving the better trees to enhance their vigour. Future cuts would be for regeneration and would be deemed intermediate entries within a selection system.
2. When a partial cutting silvicultural system is prescribed to meet landscape level objectives, the stand may not be in a condition to absorb the brunt of a regeneration harvest. In some cases a commercial thin should be done to enhance windfirmness, add increment to the leave trees, and begin the selection of candidate leave trees.
3. In some lodgepole pine stands a commercial thin to reduce density may be used to reduce the possibility of a mountain pine beetle attack. This is called “beetle proofing” and is based on two theories.
 - ▲ One suggests the microenvironment in the stand is modified and the beetles search elsewhere for habitat.
 - ▲ The second proposes that the spaced trees will grow faster and be better equipped to pitch out beetles.
4. In some timber supply units there may be an overabundance of stands just coming to rotation. CT can harvest some stands just before normal rotation and some after normal rotation to spread out the cut. It can also modify homogenous stands into more diverse versions if desired at a landscape level.

Does commercial thinning provide more volume over time?



What are the key factors?

- ▲
- ▲
- ▲

The bottom line – no free wood with one entry.

Overhead: Does commercial thinning provide more volume over time?

Facilitator: Discuss the volume issue.

People quote the increase in volume from European (French Fd) stands as being up to 35% greater than if no thinnings had occurred. Testing by MoF Research Branch of these results showed a minor increase (approximately 10%) resulted from the numerous light thinnings (done about every five years).

B.C. data from Shawnigan Lake thinning trials show minor 12 and 8% increases in total volume for Fd and Hw respectively with a single thinning. The results indicate that there was no difference in the largest 200 or so trees with CT. The average stand diameter was, however, increased by 24 and 14% respectively (Stone 1993 cites Omule 1988a and b).

***Commercial thinning simply harvests
some of tomorrow's wood today.***

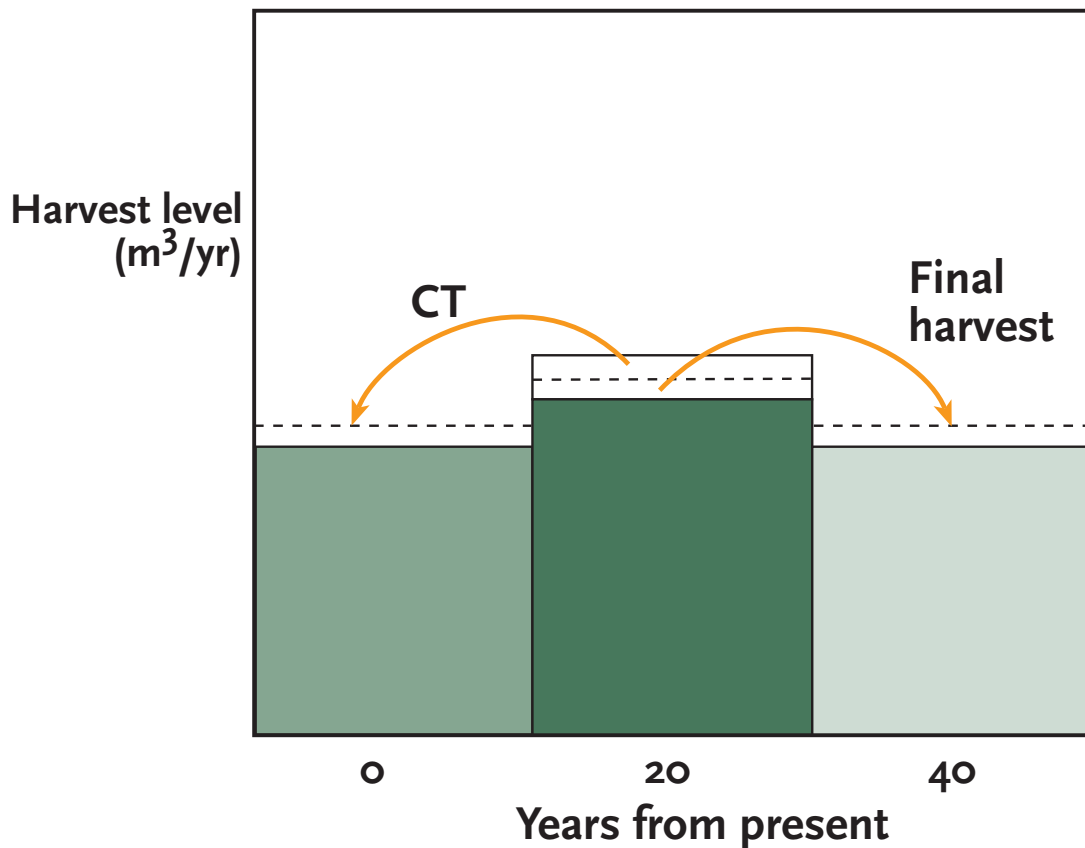


Write this on a flip chart page and post on the wall.

The opposite may not be true – that is – commercial thinning harvests *simply*, tomorrow's wood today.

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Can commercial thinning smooth out timber supply shortages?



▲ If so, how does it work?

Overhead: **Can commercial thinning smooth out timber supply shortages?** (See page 3 in the *Commercial Thinning Guidebook* and *Forest Level Benefits to Commercial Thinning and Fertilization*, Feb. 1997. Prepared by Timberline Forest Inventory Consultants Ltd. for the Forest Practices Board.)

Facilitator: Discuss the following.

In areas where there are immediate supply problems – for example, where green-up adjacency is a significant limitation – CT may provide wood today at the expense of a reduced cut in the future.

The overhead shows the diagram used in the guidebook. It indicates that there is a shortfall now and in 40 years, in 20 years there is more wood available. The graph shows how some of that wood is used now, and how those stands will be left to supply wood in the future (40-year time period).

Presently the MoF is looking for young second-growth stands that are not quite ready to be harvested, but that could support a commercial thinning entry to sustain the flow of timber.

To date (August 15, 1994),¹ Forest Practices Branch had identified 4000 ha on the coast and 20,000 ha in the interior available for CT each year.

Flip chart: Summarize the following points.

Commercial thinning can:

- ▲ increase volume or value very modestly;
- ▲ benefit forests province-wide;
- ▲ deliver wood earlier; and
- ▲ alleviate some timber supply and IRM constraints.

This could help:

- ▲ keep mills operating;
- ▲ employ local people; and
- ▲ stabilize communities.

Care must be taken when using CT not to limit future options and opportunities – that is high grading the stand leaving uneconomic green illusions – reducing future options.

¹ The section on growth and yield and timber flow is taken from: *Commercial Thinning, Executive Presentation*, Victoria, August 15, 1994. Prepared by Ken Mitchell, Jim Goudie, Mario Di Lucca, and Ken Polsson, FDPS, Research Branch.

