

## Lesson 2

# Stand Selection Process and Post-treatment Densities

45 minutes

### Objectives:

1. To observe the key elements in two MoF stand ranking procedures; and
2. To begin the thought process for selecting post-spacing densities.

### Equipment Needs:

- ▲ Flip chart
- ▲ Overhead projector

### Method:

Small group exercise

Discussion

## Spacing – Ranking Stands – Short Exercise

### What are the issues?

Comparison of assessment methods:

Appendix 1 in the *Spacing Guidebook* compared with the Draft Field Guidelines

Criteria	Specifics	
	Appendix 1	Field Guidelines
<b>Species</b>		
<b>Site quality</b>		
<b>Stand density</b>		
<b>Stand height</b>		
<b>Percent live crown</b>		
<b>Forest health factors</b>		

**Overhead:** Table to go over stand ranking procedures

**Facilitator:** Use this exercise to focus attention on the decision points within the two ranking procedures provided by the Ministry of Forests. The first method is presented as Appendix 1, the second as Appendix 2.

**Exercise:** Have the participants read through the two ranking procedures and identify specifics regarding the various criteria. For example, one procedure may have “do not treat if the stand is less than minimum height.” The other has different values.

Once they have gone through and identified the cut off points have them turn to their neighbour (in approximately 20 minutes) and have them discuss the similarities and differences between the two. Ask them to look for the underlying reasoning for the cutoff points.

Discuss their findings as a large group. Here are some observations:

- ▲ Species – guidebook is limited to few due to lack of data, the field guide is more general. The guidebook provides information on data availability, the field guide recognizes reality of trying it in a range of stands.
- ▲ Site quality – guidebook uses the old site quality codes, the field guide uses SI bha 50 values that are relatively low. Both are promoting spacing on the better sites.
- ▲ Stand density – guidebook breaks it down by Fd, Hw on the coast, and Pl and other in the interior. The numbers provide a greater range than in the field guide. Generally, both indicate lower priorities for relatively open stands, and highest priority to stands of intermediate density (i.e., not height repressed).
- ▲ Stand height is broken into three categories in the guidebook, and two for the field guide. The guidebook offers a ranking of sorts but does not address minimum heights. Both stress stems in the 3–6 m range.
- ▲ Percent live crown – the guidebook gives the highest priority to >50% – and do not treat below 30%. This matches quite well with the field guide. Both emphasize the need for an engine to drive growth once spaced.
- ▲ Forest health – the guidebook sends you to other guidebooks, while the field guide offers some specific suggestions by factor. The field guide is more specific and provides greater emphasis. This is an extremely important consideration and should be highlighted and not done last as is shown in both procedures.

**Note:** Both procedures are meant to help you think about important considerations. Note the guidebook does not have a height:diameter ratio in it – it likely should.

# Determining Post-spacing Densities<sup>1</sup>

## Some general rules of thumb:

1. Crown width and length – leave enough room between trees to maintain approximately 70% live crown until either commercial thinning or final harvest.
2. Species – the more shade-intolerant the species, the wider the spacing interval to maintain maximum growth.
3. Site quality – higher quality sites will support greater densities of stems without stagnation.
4. Site moisture regime – drier sites require lower stand densities; root space and moisture become the key limiting factors rather than crown space and light.
5. Anticipated future mortality – where a certain amount of stem death is anticipated due to forest health agents, fire or other causes, you may adopt a more conservative, closer spacing.
6. Management objectives – the desired end products and anticipated future treatments will influence the spacing interval, as will other management objectives, such as forage production.

Some example juvenile spacing densities and inter-tree spacing:

Species	Inter-tree spacing (m) (triangular spacing)	Stems/ha
<b>Coast</b>		
Douglas-fir	3 – 5	1100 – 400
western hemlock	2.5 – 5	1600 – 400
<b>Interior</b>		
lodgepole pine	3 – 4	1600 – 800
ponderosa pine	3.5 – 5	800 – 400
Douglas-fir	3 – 4	1600 – 800
western larch	3 – 4	1600 – 800
spruce	3 – 4	1600 – 800
subalpine fir	3 – 4	1600 – 800

What tools, or issues, other than those given above, would you use to influence the selection of a spacing density?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

<sup>1</sup> From *Managing your Woodland* (1992), FRDA II publication.

## **Workbook: Determining Post-spacing Densities**

**Facilitator:** Have the participants read the rules of thumb section taken from *Managing your Woodland* (1992). They also have some examples of juvenile spacing densities along with the inter-tree spacing.

The intent of this section is to get the participants thinking about tools and issues that could influence the post-spacing density selection. The general rules of thumb should be reviewed.

1. Live crown greater than 70% is meant to provide optimum diameter growth of the leave trees.
2. Shade-intolerant species need space to use the available light. Remember, too wide a spacing could compromise timber values.
3. Higher sites can support greater densities or can grow fewer trees faster; be sure to know your objectives.
4. Drier sites may be limited by moisture, therefore open spacing may be needed to provide release (e.g., Py).
5. Closer spacing is in order for areas with possible disease or damage agents. Be careful, however, not to leave too many stems; this may reduce vigour and promote insects or disease, especially on drier sites.
6. Management objectives will affect spacing density. What tools are available to help determine crown closure over time? (TIPSY)

What tools or issues other than those presented would you use to influence the selection of a spacing density:

- ▲ objectives provided in higher level plans;
- ▲ successful treatments in the area;
- ▲ growth model runs to simulate the desired results (WINTIPSY, WINSTIM);
- ▲ biodiversity issues – perhaps clumps would be an objective over some of the area;
- ▲ wildlife viewing blocks; and
- ▲ whether you are planning a CT.

Ask what densities they feel comfortable with for each of the main species in their area. List the densities on the flip chart.

**(Get local input on this prior to the session to provide guidance.)**

