



University of Idaho

College of Natural Resources

SITE PREPARATION OPTIONS FOR SUCCESSFUL SEEDLING ESTABLISHMENT

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PURPOSE OF SITE PREPARATION

- I Create planting spots (safe sites) for planted seedlings or seeds
 - Reduce and/or redistribute logging slash
 - Expose or cultivate mineral soil
 - Reduce amount of organic matter
 - Modify microenvironment
- I Improve uniformity of spacing
- I Improve planting quality and success
- I Reduce planting and establishment costs
- I Control colonization of competing vegetation

RESPONSE TO PRESCRIBED FIRE

Light prescribe fire ineffective in controlling salmonberry (*Rubus spectabilis*) sprouts in Oregon Coast Range. A hotter fire could have killed rhizomes and reduced sprouting.

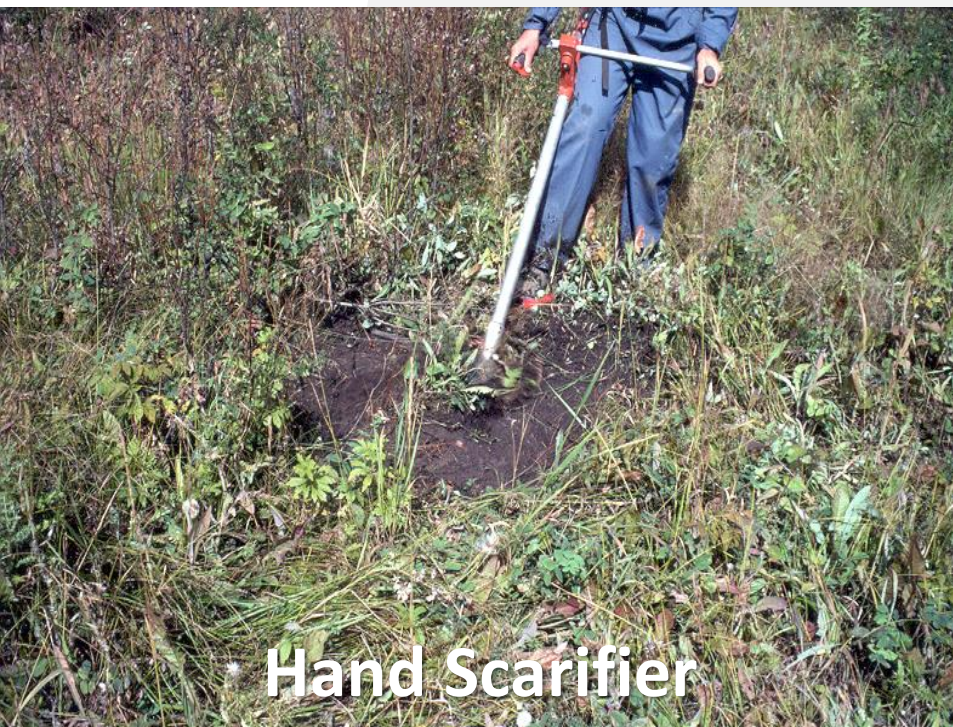


Prescribed fire in northern California ineffective at controlling many fire adapted shrubs. Rapid basal sprouting by many shrub species allows quick re-establishment

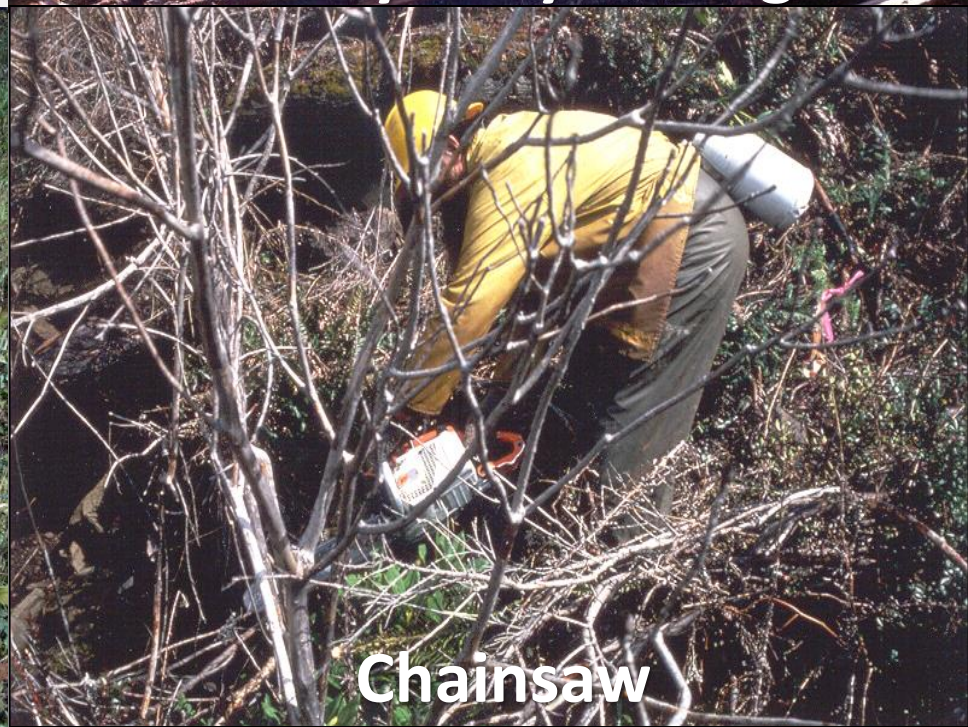
MECHANICAL METHODS



Heavy-duty Raking



Hand Scarifier



Chainsaw

MULCHES



CHARACTERISTICS OF IDEAL MULCH



1. opaque, to prevent growth of vegetation under the mulch;
2. dark, to create temperatures hot enough to kill germinants and sprouts that emerge under the mulch;
3. of a porosity that will allow water to infiltrate evenly through the mulch but still retard loss of water from under it;
4. having thermal characteristics that maintain a favorable soil temperature regime;
5. strong and durable enough to last until the seedling is established and not tear at fastening points;
6. photodegradable;
7. inexpensive;
8. lightweight for ease of transport and installation and pre-folded for placing in tree-planting bags;
9. colored so as to blend into the landscape; and
10. non-toxic.

Plastics have been shown to have all these characteristics.

MULCHES PERFORM AS WELL AS SPOT HERBICIDE TREATMENTS OF THE SAME SIZE

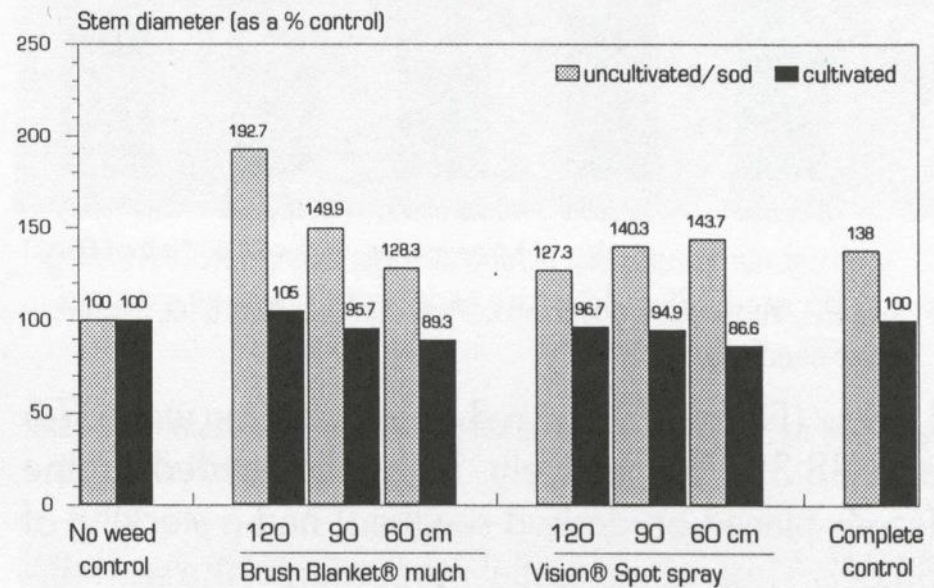


Figure 24. Second-year stem diameter of white pine with different weed control methods (Midhurst).

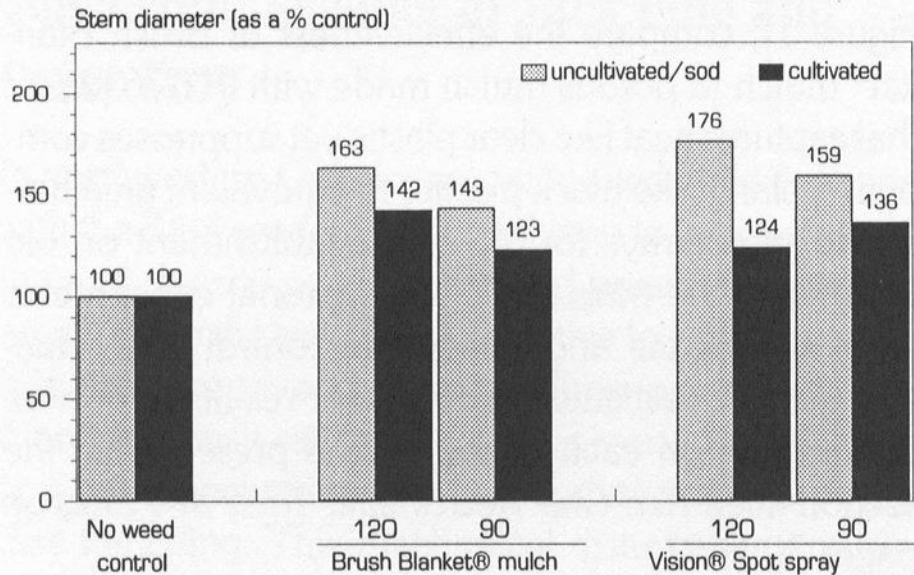
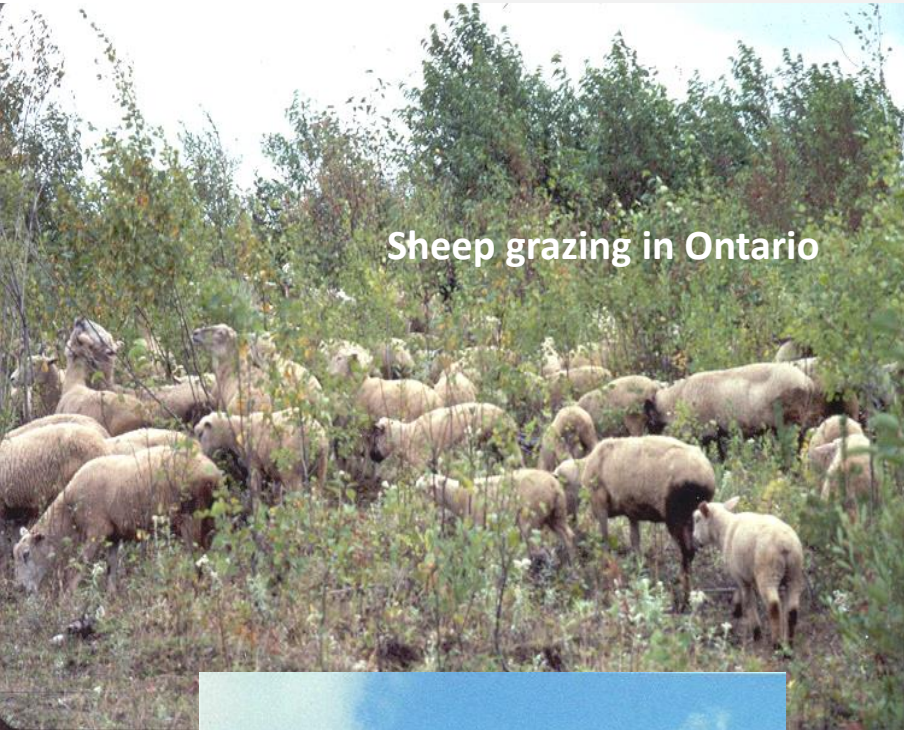
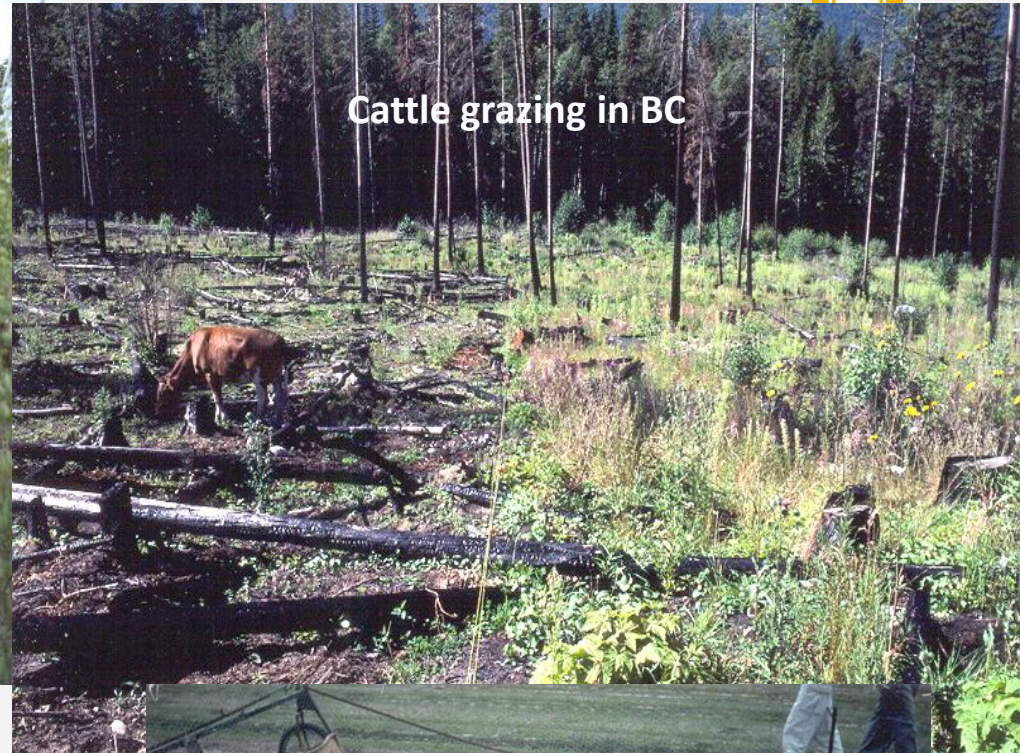


Figure 23. Second-year stem diameter of unsheltered red oak with different weed control methods (Midhurst).

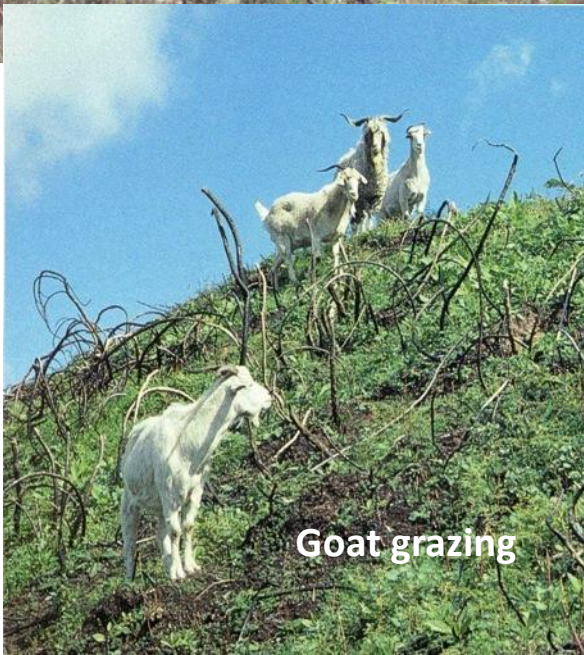
GRAZING ANIMALS FOR FOREST VEGETATION



Sheep grazing in Ontario



Cattle grazing in BC



Goat grazing



Geese weeding conifer nursery bed

CONIFER SUSCEPTIBILITY



Table 2. Relative sheep preferences of coniferous species¹

Species	Preference
white spruce <i>Picea glauca</i>	low
western red cedar <i>Thuja plicata</i>	low
Douglas-fir <i>Pseudotsuga menziesii</i>	moderate
lodgepole pine <i>Pinus contorta</i>	high
western white pine <i>Pinus monticola</i>	high

¹Adapted from Newsome *et al.* 1995

EVIDENCE SUGGESTS THAT GRAZING MAY INCREASE CONIFER GROWTH

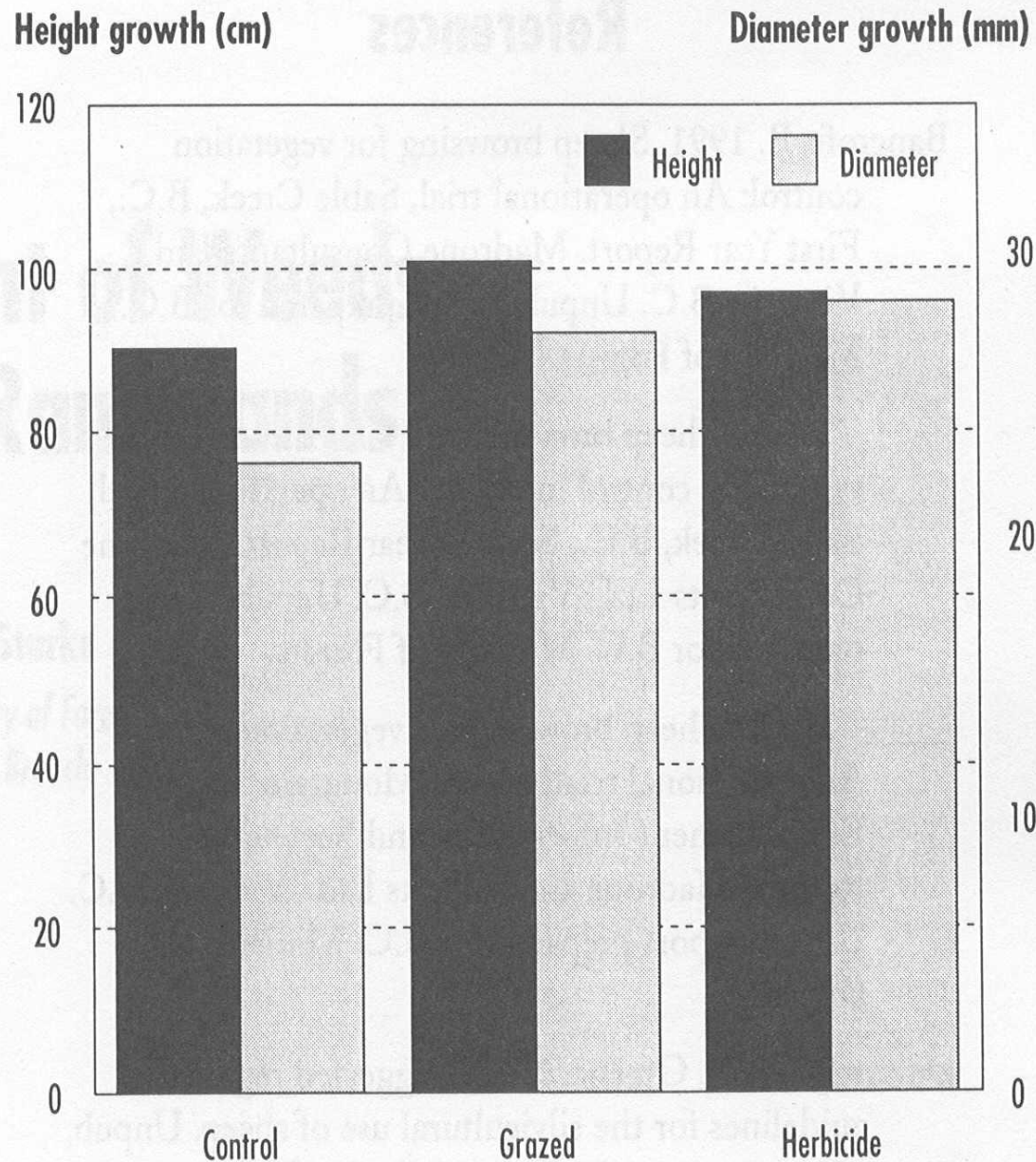


Figure 6. Effects of treatments on spruce diameter and height growth over six years at Doreen Creek.



AERIAL HERBICIDE APPLICATION



BACKPACK SPRAYERS



Broadcast waving wand



Directed spray



Broadcast waving wand



Spot spray



Band Application



Spot spray miss

SPOT AND BAND SPRAYING



SUMMARY

- I Numerous site preparation techniques are available to facilitate planting and successful seedling establishment
- I The different methods vary in their per acre cost, availability for a given area, vegetation control potential, treatment windows, terrain limitations, injury to workers, soil erosion and compaction, and social acceptance
- I Manual cutting and scalping, and grazing can temporarily reduce competition, but may not be sufficient for preventing quick re-establishment of sprouting brush species
- I Herbicides are one of the better options for killing competition (including below-ground) and can be modified as broadcast, hand, or spot/strip applications to reduce cost and labor. Although social acceptability for herbicides is often low in many areas