

Sustainable Canadian Agricultural Partnership

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Silvopasture In British Columbia Information Series

Unit 2.c.1. Case Study: Kootenay Tree Farms



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Silvopasture in BC Information Series Content Guide



Core Units

0. Series Overview

1. Introduction

2. Science Behind SP

3.1. SP BMPs - part 1

3.2. SP BMPs - part 2

4. SP Planning

Case Studies

**2.c.1 Production Synergies:
Kootenay Tree Farms**

2.c.2 Riparian Silvopasture:
Silver Hills Ranch

3.c.1 Small-lot SP: Just Another
Weed Patch Farm

3.c.2 Mature Forest to SP:
Indian Gardens Ranch

4.c.1 Planning on Crown Land:
SP Pilot Project

4.c.2 Adaptive Management at
Aveley Ranch

Supplemental Units

1.s. History of SP in BC

2.s.1. Light & Microclimate

2.s.2. Hydrology

3.s. Managing Damage

Unit 2.c.1. Case Study: Kootenay Tree Farms

Goal

Gain a deeper understanding of silvopasture planning, implementation and management through British Columbia case studies.

Prerequisites

Units 1: Introduction and 2. Science Behind Silvopasture.

Content

Silvopasture for over-yielding: Kootenay Tree Farms.



Silvopasture For Diversification

Cattle with Christmas Trees

- Integrating livestock production and Christmas tree cultivation to diversify, enhance productivity and environmental services.
- Demonstration headed by Charlie Willis (Kootenay Tree Farms) and funded by the BC Agroforestry Industry Development Initiative (2003-2013).



Silvopasture For Diversification

Stump-Cultured Christmas Trees

Native-stands of interior Douglas-fir (*Pseudotsuga menziesii*)

- Practiced in BC for over 80 years.
- New main stem grown from a lower branch remaining after the harvest of a previous tree.
- Extends production from an existing root system, so speeds the regeneration cycle.



Silvopasture For Diversification

Fertilizing and Shearing

Used to give the trees dense, dark green foliage

- Nutrients applied at all production stages.
- Fertilizer also increases forage growth.



Extra forage can pose problems:

- Increased competition;
- Tangling lower branches; and
- Cover for small mammals.

Silvopasture For Diversification

Benefits of Grazing with Christmas Trees

- Christmas tree stands provide large areas for forage production.
- Fertilization for the trees, can also double the understory production.
- Grazing benefits livestock production and also:
 - Controls competition on crop trees.
 - Benefits wildlife
 - Contributes to IPM strategy.



Silvopasture For Diversification

Integrated Pest Management



Production challenges - disease outbreaks.

- Rhabdocline Blight (*Rhabdocline psuedotsugae*)
- Swiss Needle Cast (*Phaeocryptopus gaeumanni*)
- Need 3 to 4 years to recover a marketable tree.

IPM Strategies

- Fungicides effective, but cost-prohibitive.
- Pruning.
- Gap between the bottom branch and the ground
- Grazing to maintain a low-statured understory.

Silvopasture For Diversification



Managing Interactions

- Some livestock damage to trees expected.
- Success depends on understanding livestock behaviour.
- Wildlife damage only eliminated with suitable fencing.

Controlling Livestock Use

- Moderate stocking levels (<1 AUM/ha).
- Use salt placement, watering locations and active herding.
- Time grazing to minimize risk and maximize tree growth benefits.

Silvopasture For Diversification

Improved Economics



- 6 to 8 years needed to produce a marketable Christmas tree.
- Silvopasture generates annual returns from livestock.
- Boughs for wreaths, swags and garlands for additional income.



Silvopasture For Diversification

Production - Overyielding

A 'virtuous circle' is created:

- Managing Christmas trees improves the production and quality of forages;
- The added forage improves grazing opportunities; and,
- Managing livestock improves the production and quality of Christmas trees.



Thank You!

