

**SPU # 50**      **Western Larch**      **Nelson**      **1200 - 1800m**  
**Breeding and orchard production**

**Program category: first-generation**      **Seedling need (million): 0.5**

filename: 50 Lw NE high Sept 2017.xlsx

**STRATEGY**      Parent tree selection in wild stands; open-pollinated progeny tests. Selection of best parents for seed orchards. Open-pollinated seed production in orchards. Focus on volume while maintaining wood relative density (RD).

**TRAITS**      **Primary: Stem volume**      **Secondary: Wood density**

**TESTING AND PRODUCTION**      **Production Year (July 1 to June 30) -- (Cone harvest year shown)**

	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36
<b>Parents in progeny test:</b>																				
Open pollin.	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	239
Polycross																				
Clonal																				
F1 (144 Full-sib families)																				
F2																				
F3																				

**Production forecast (million plantables)**

Orchards (#, owner)	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36
353 Vernon private	1.7	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Note: The current Parent Tree area-of-use is 1400-1800m, however, there is an expectation that the lower elevation band will be reduced to 1200m as seed comes available from this orchard. Therefore, a 1200 to 1800m band is used for orchard planning.

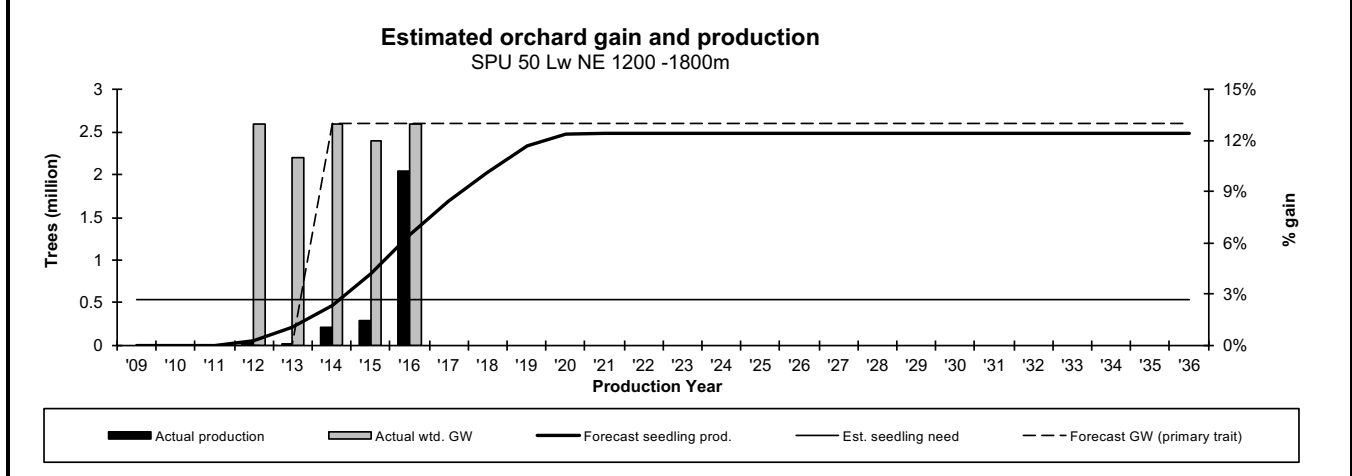
**Vegetative prod.:**  
Phase 1  
Phase 2

**Estimated gain in primary trait**

Orchards (#, owner)	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36
353 Vernon private	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%

**Vegetative prod.:**  
Phase 1  
Phase 2

<b>Total Production</b>	1.7	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>Total gain</b>	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%



The above forecasts are based on orchard status, seed inventories and seed use as of June, the year of publication, and are subject to change. Refer to the seed Planning and Registry System (SPAR) or contact the orchard manager for current seed inventories. Contact the Forest Improvement and Research Mgt. Branch, Ministry of Forests, Lands, Natural Resource Operations and Rural Development, to confirm data if used for silviculture or timber-supply planning.

**Western Larch Nelson 1200 - 1800m**  
 Conservation -- Seed Orchards -- Seedling Use

**SPU #50**

**GENETIC CONSERVATION STATUS**

**Conservation statistics**

Seed planning unit (SPU) area	1,361,077	ha
Area protected within SPU	125,532	ha
Percentage of SPU area protected	9%	
Estimated genetic reserves with >5000 mature trees based on botanical sample data	0	
Confirmed genetic reserves with >5000 mature trees based on forest inventory data	5	

**Conservation status**

Current in-situ protection status: **Acceptable**  
 Probability of maintaining > 3 protected areas with adequate  
 population size given natural disturbance regimes: **Uncertain**

For further information visit <http://www.genetics.forestry.ubc.ca/cfgc/>

**ORCHARD STATUS**

Orchard location	Orchard number	Number of parents	Mean BV	# of ramets currently established	# of ramets planned for final orchard size	Target Seed production kg/y at maturity	Total Seedling Prod. million seedlings
353 Vernon private		39	13%	444	444	27.9	2.40
<b>Total ramets</b>				<b>444</b>	<b>444</b>	<b>Total production</b>	<b>2.40</b>

Vegetative propagation	<b>Stecklings/Emblings</b>	<b>0.0</b>
	<b>Total production</b>	<b>2.4</b>

**Seed and Nursery Factors**

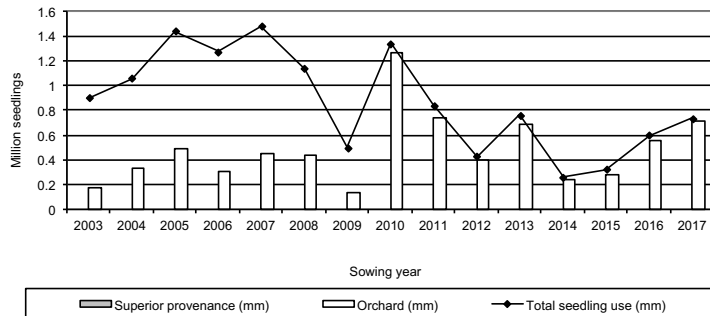
**Estimate of Required Orchard Capacity**

Expected annual average seedling production per ramet = 5,400	<b>Annual planting (million seedlings)</b>	<b>0.5</b>
Seed weight (seeds/gram) = 189	<b>Planned over-production factor</b>	<b>1.3</b>
Seedling recovery factor (seedlings/seed) = 0.45	<b>Ramets required</b>	<b>100</b>
Seedling recovery factor (seeds/seedling) = 2.20	<b>Ramets required with over-capacity</b>	<b>125</b>
	<b>Projected necessary expansion</b>	<b>0</b>

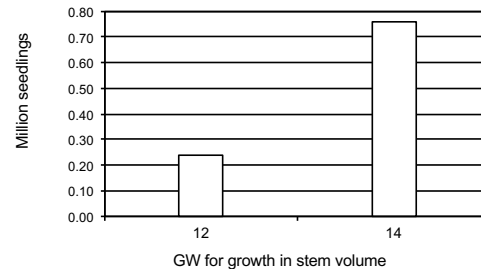
**SEEDLING USE AND SEED IN STORAGE**

**Average 5-year seedling use from SPAR (2013 - 2017)**                      **0.5 million**  
**Estimated years of class-A seed in storage**                                      **1.9 years**

**Seedling Use Trend - 2003 to 2017**



**Seed in Storage by GW class**



- Notes:
- "Reserve" and "Available" seed in the Seed Planning and Registry System (SPAR) are included.
  - Class A = seed orchard; Class B+ = superior provenance; Class B = wild stand seed.
  - Genetic Wroth (GW) for growth means the projected additional wood volume available at rotation compared to using Class B seed.

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