

**SPU # 3**

**Western Hemlock Maritime 1 - 600m**

Breeding and orchard production

**Seedling need (million): 1.1**

\* Includes Georgia Lowlands (GL)

filename: 3 Hw M low June 28/08

**Program category: Advanced-generation**

**STRATEGY**

First generation open-pollinated and polycross testing. Selection of best parents from all BC tests and from US OP tests for second-generation population and for further breeding. Open-pollinated orchard seed production.

**TRAITS**

Primary: Stem volume Secondary: Stem form, wood quality

**TESTING AND PRODUCTION**

Crop production year (July 1 to June 30) -- (Cone harvest year shown)

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27
<b>Parents in progeny test:</b>																				
Open pollin.	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Polycross	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Clonal																				
F1	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460	460
Elite F1's	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
F2 - selections											150	300	300	300	300	300	300	300	300	300

**Production forecast (million plantables)**

**Orchards (#, owner)**

133 Canfor (Sechelt)	0.3	0.3	0.3	0.3																
170 WFP (SFC)	0.9	1.0	1.2	1.4	1.7	1.9	2.1	2.3	2.5	2.6	2.6	2.6	2.6	2.6						
179 Canfor (Sechelt)	0.7	0.7	0.8	0.9																
182 TW (Mt Newton)	0.7	0.9	1.0	1.2	1.3	1.4	1.5	1.7	1.7	1.8	1.8	1.8	1.9							
188 WFP (SFC) QCI	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
New F1 TW (Mt Newton)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.7
New F1 WFP (SFC)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4
132 YPP (McBean)	1.9	2.0	1.2	1.2																

**Vegetative prod.:**

Phase 1

Phase 2

**Estimated gain in primary trait**

**Orchards (#, owner)**

133 Canfor (Sechelt)	15%	15%	15%	15%																
170 WFP (SFC)	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%						
179 Canfor (Sechelt)	17%	17%	17%	17%	17%	17%	17%	17%												
182 TW (Mt Newton)	14%	14%	14%	14%	14%	14%	15%	16%	17%	17%	17%	17%								
188 WFP (SFC) QCI	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
New F1 TW (Mt Newton)	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
New F1 WFP (SFC)	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
132 YPP (McBean)	4%	4%	4%	4%																

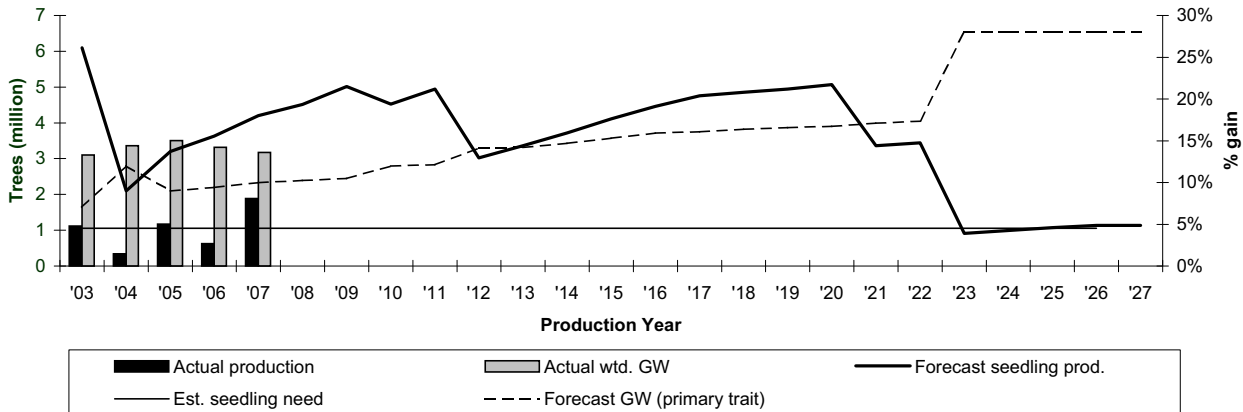
**Vegetative prod.:**

Phase 1

Phase 2

<b>Total Production</b>	4.5	5.0	4.5	4.9	3.0	3.4	3.7	4.1	4.5	4.8	4.9	4.9	5.1	3.4	3.4	0.9	1.0	1.1	1.1	1.1
<b>Total gain</b>	10%	10%	12%	12%	14%	14%	15%	15%	16%	16%	16%	17%	17%	17%	17%	28%	28%	28%	28%	28%

**Estimated orchard gain and production - Excludes QCI orchard 188**  
SPU 3 Hw M 1-600m



Seed production estimates are subject to change. When using this information for silviculture planning or timber supply analysis, contact the Tree Improvement Branch of the Ministry of Forests and Range to confirm data. See SeedMap on [www.for.gov.bc.ca/hti/seedmap](http://www.for.gov.bc.ca/hti/seedmap) for current inventory by Seed Planning Unit

**Western Hemlock Maritime 1 - 600m**  
Conservation -- Seed Orchards -- Seedling Use

**SPU #3**

**GENE CONSERVATION STATUS**

**Conservation statistics**

Seed planning unit (SPU) area	<b>7,333,067</b>	<b>ha</b>
Area protected within SPU	<b>697,388</b>	<b>ha</b>
Percentage of SPU area protected	<b>10%</b>	
Estimated genetic reserves with >5000 mature trees based on botanical sample data	<b>&gt;9</b>	
Confirmed genetic reserves with >5000 mature trees based on forest inventory data	<b>95</b>	

**Conservation status**

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

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	Target seedling production (mm/yr) at full production	Latitude range for seed use
Canfor (Sechelt)	133	12	15%	84	84	1.6	<b>0.29</b>	48° to 52°
WFP (SFC)	170	39	14%	746	746	5.0	<b>1.57</b>	48° to 52°
Canfor (Sechelt)	179	20	17%	266	300	5.6	<b>1.05</b>	48° to 52°
TW (Mt Newton)	182	33	14%	454	605	11.3	<b>2.12</b>	48° to 52°
WFP (QCI)	188	37	2%	37	83	1.5	<b>0.29</b>	51° to 54° 30"
YPP - McBean	132	77	4%	625	350	6.5	<b>1.23</b>	48° to 52°
				<b>Total ramets</b>	<b>2,212</b>	<b>2,168</b>	<b>Total production</b>	<b>6.54</b>
Vegetative propagation						<b>Stecklings/Emblings</b>	<b>0.0</b>	
						<b>Total production</b>	<b>6.5</b>	

**Seed and Nursery Factors**

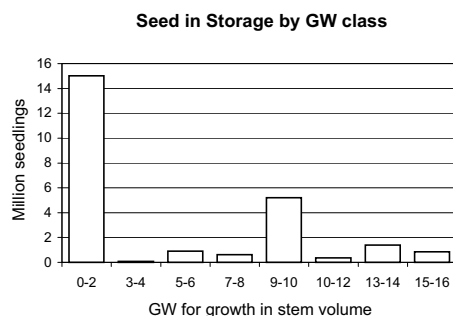
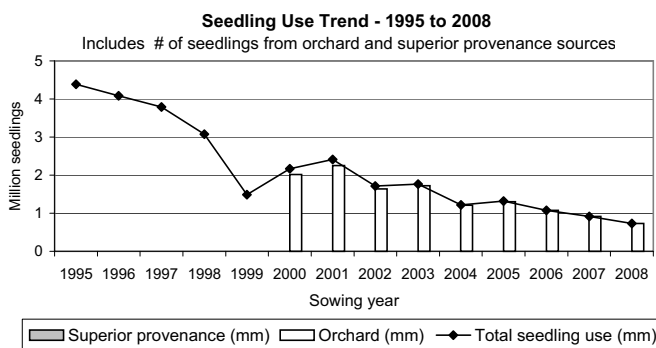
Expected annual average seedling production per ramet = 3,500
Seed weight (seeds/gram) = 418
Seedling recovery factor (seedlings/seed) = 0.45
Seedling recovery factor (seeds/seedling) = 2.22

**Estimate of Required Orchard Capacity**

Annual planting (million seedlings)	1.1
Planned over-production factor	1.3
Ramets required	301
Ramets required with over-capacity	391
Projected necessary expansion	0

**SEEDLING USE AND SEED IN STORAGE**

Average 5-year seedling use from SPAR (2004 - 2008) **1.1 million**  
Estimated years of class-A seed in storage **23.2 years**



Notes:  
- Seedling use data include 1/2 of adjacent overlap zones, where applicable  
- Sowing year: July 1 to June 30 (i.e. 2006 sowing year starts July 1, 2005)

Notes:  
- Seed held in both "reserve" and "available" status in the Seed Planning and Registration (SPAR) system is included  
- Seed inventories change with new orders. Data presented here are based on a June sample.  
- For up-to-date information use SPAR, or contact the Tree Improvement Branch of the Ministry of Forests and Range

Seed production estimates are subject to change. When using this information for silviculture planning or timber supply analysis, contact the Tree Improvement Branch of the Ministry of Forests and Range to confirm data.  
See SeedMap on [www.for.gov.bc.ca/hti/seedmap](http://www.for.gov.bc.ca/hti/seedmap) for current inventory by Seed Planning Unit