

<b>SPU # 6</b>	<b>Sitka Spruce Maritime 1 - 500m</b>	<b>Breeding and orchard production</b>	<b>Seedling need (million): 0.9</b>
<b>Program category: Advanced-generation</b>		filename: 06 Ss M all Sept 2017.xlsx	

**STRATEGY** Initial selection and breeding for resistance to weevil. Tandem selection for good growth, form and wood quality characteristics will follow. F-1 population of resistant genotypes. Selections of best parents for seed orchards.

<b>TRAITS</b>	<b>Primary: Weevil Resistance/growth</b>	<b>Secondary: Stem form, Wood quality</b>
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<b>TESTING AND PRODUCTION</b>	<b>Production Year (July 1 to June 30) -- (Cone harvest year shown)</b>																			
	'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.	700	700	700	700	700	700	700	500	500	500	500	500	500	500	500	500	500	500	500	500
Polycross																				
Clonal	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680	680
F1 (weevil pop.)	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
F2 (growth & value)																				
F3																				

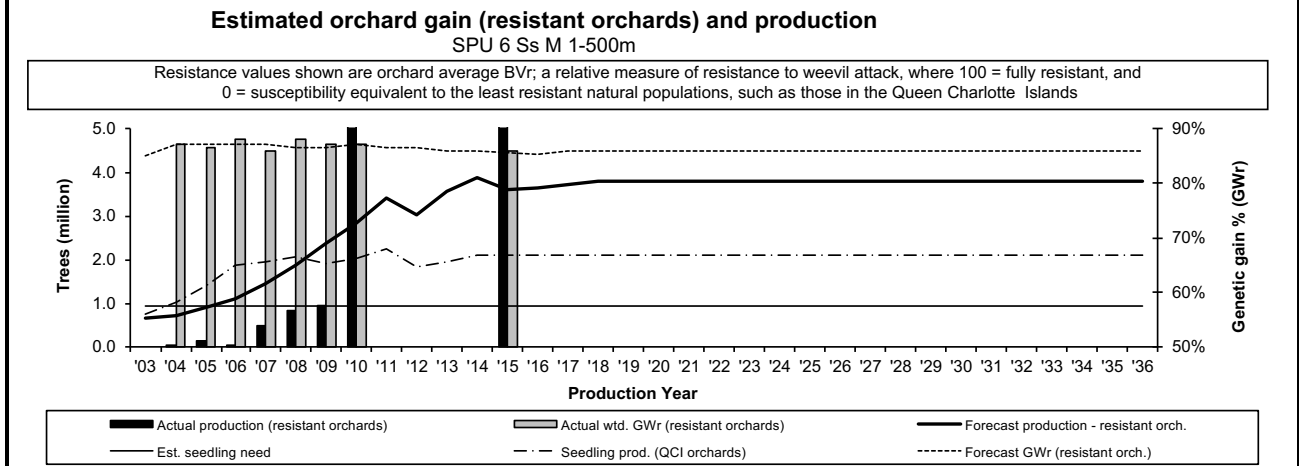
<b>Production forecast (million plantables)</b>																				
<b>Orchards (#, owner)</b>																				
172 WFP (SFC)	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
195 YPP (Yellow Pt)	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
<b>Northern orchards; no weevil resistance (GWgrowth shown)</b>																				
192 WFP (SFC) - QCI	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
144 YPP (Yellow Pt)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Vegetative prod.:  
Phase 1  
Phase 2

<b>Estimated gain in primary trait (GWr)</b>																				
<b>Orchards (#, owner)</b>																				
172 WFP (SFC)	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
195 YPP (Yellow Pt)	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%	87%
<b>Northern orchards; no weevil resistance (GWgrowth shown)</b>																				
192 WFP (SFC) - QCI	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
144 YPP (Yellow Pt)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

Vegetative prod.:  
Phase 1  
Phase 2

<b>Total Production</b>	5.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
<b>Gain (resistant orch.)</b>	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%



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.

**Sitka Spruce Maritime 1 - 500m**  
Conservation -- Seed Orchards -- Seedling Use

SPU #6

**GENETIC CONSERVATION STATUS****Conservation statistics**

Seed planning unit (SPU) area	<b>8,424,849</b>	ha
Area protected within SPU	<b>804,589</b>	ha
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>63</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 BVr	# of ramets currently established	# of ramets planned for final orchard size	Target Seed production kg/y at maturity	Total Seedling Prod. million seedlings	
WFP (SFC)	172	85	85%	345	280	8.2	<b>1.68</b>	
Yellow Pt. Prop.	195	47	87%	288	360	10.5	<b>2.16</b>	
			BVg					
WFP (SFC)	192	22	6%	102	100	2.9	<b>0.60</b>	North coast/Haida Qwaii
Yellow Pt. Prop.	144	120	2%	250	250	7.3	<b>1.50</b>	North coast/Haida Qwaii
<b>Total ramets</b>				<b>985</b>	<b>990</b>	<b>Total production</b>	<b>5.94</b>	
Vegetative propagation						<b>Stecklings/Emblings</b>		
						<b>Total production</b>	<b>5.9</b>	

**Seed and Nursery Factors**

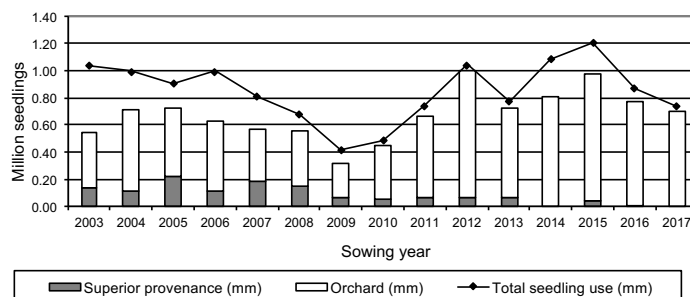
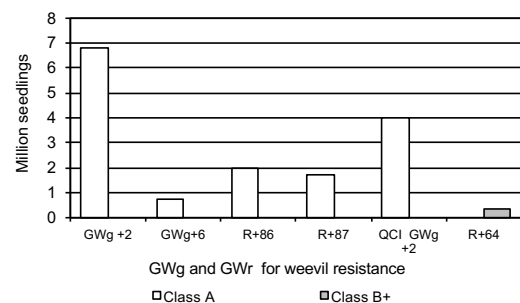
<b>Expected annual average seedling production per ramet =</b>	<b>6,000</b>
<b>Seed weight (seeds/gram) =</b>	<b>391</b>
<b>Seedling recovery factor (seedlings/seed) =</b>	<b>0.53</b>
<b>Seedling recovery factor (seeds/seedling) =</b>	<b>1.90</b>

**Estimate of Required Orchard Capacity**

<b>Estimated ann. planting (million seedl.)</b>	<b>0.9</b>
<b>Planned over-production factor</b>	<b>1.3</b>
<b>Ramets required</b>	<b>156</b>
<b>Ramets required with over-capacity</b>	<b>203</b>
<b>Projected necessary expansion</b>	<b>0</b>

**SEEDLING USE AND SEED IN STORAGE**

**Average 5-year seedling use from SPAR (2013 - 2017)**                      **0.9**      **million**  
**Estimated years of class-A seed in storage**                                      **16.2**      **years**

**Seedling Use Trend - 1998 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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