

SPU # 6 **Sitka Spruce Maritime 1 - 500m**
Breeding and orchard production
Seedling need (million)*: 3.0
 Program category: **Advanced-generation** * estimated need with resistant stock; includes GL zone
 filename: 6 Ss M all June 29/08

STRATEGY Initial selection and breeding for resistance to weevil. Tandem selection for good growth, form and wood quality characteristics will follow. Currently developing an F-1 population of resistant genotypes. Selections of best parents for seed orchards. Full-sib crosses for cutting donors.

TRAITS Primary: **Weevil Resistance/growth** Secondary: **Stem form, Wood quality**

TESTING AND PRODUCTION 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
Parents in progeny test:																				
Open pollin.	700	700	700	700	700	700	700	700	700	700	700	700	700	700	500	500	500	500		
Polycross																				
Clonal	630	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)							100	200	300	300	300	300	300	300	300	300	300	300	300	300
F3																				

Production forecast (million plantables)

Orchards (#, owner)	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27
172 WFP (SFC)	0.2	0.2	0.5	0.6	0.8	1.0	1.2	1.5	1.0	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4
195 YPP (Yellow Pt)	0.2	0.4	0.4	0.6	0.8	1.1	1.3	1.6	1.9	2.1	2.3	2.5	2.6	2.7	2.8	2.8	2.9	2.9	2.9	2.9
Northern orchards; no weevil resistance (GWgrowth shown)																				
192 WFP (SFC) - QCI	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
144 YPP (Yellow Pt)	0.7	0.9	0.8	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

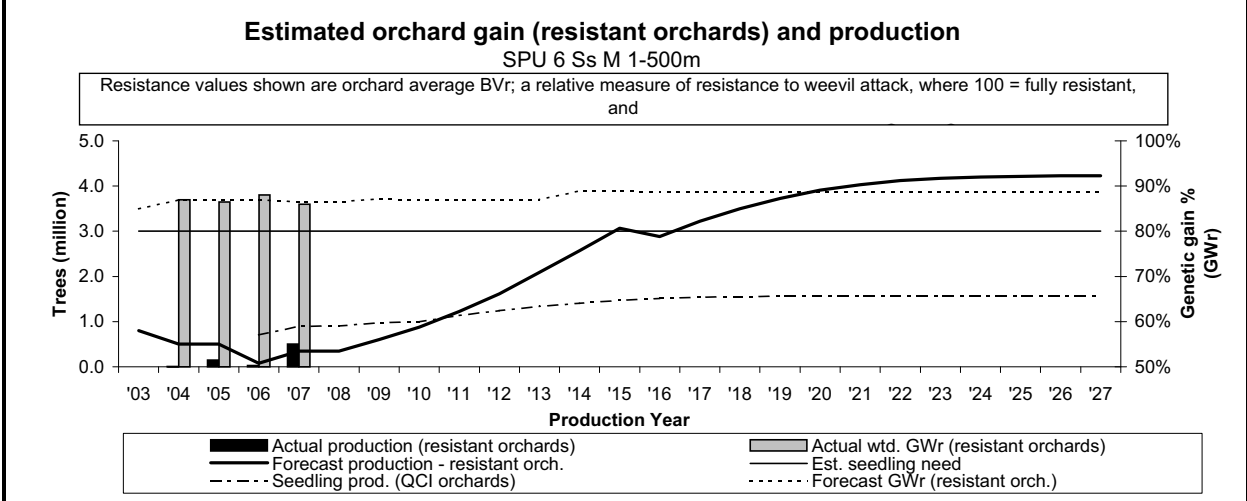
Vegetative prod.:
 Phase 1
 Phase 2
 Estimated gain in primary trait

Orchards

172 WFP (SFC)	86%	86%	86%	86%	86%	86%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
195 YPP (Yellow Pt)	87%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
Northern orchards; no weevil resistance (GWgrowth shown)																				
192 WFP (SFC) - QCI	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
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

Total Production	1.3	1.6	1.9	2.4	2.9	3.4	4.0	4.5	4.4	4.8	5.1	5.3	5.5	5.6	5.7	5.7	5.8	5.8	5.8	5.8
Gain (resistant orch.)	87%	87%	87%	87%	87%	87%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%



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/htl/seedmap for current inventory by Seed Planning Unit

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

SPU #6

GENE CONSERVATION STATUS

Conservation statistics

Seed planning unit (SPU) area	8,424,849	ha
Area protected within SPU	804,589	ha
Percentage of SPU area protected	10%	
Estimated genetic reserves with >5000 mature trees based on botanical sample data	>9	
Confirmed genetic reserves with >5000 mature trees based on forest inventory data	63	

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	86%	553	280	5.8	1.26	
Yellow Pt. Prop.	195	47	87%	490	400	8.3	1.80	
			BVg					
Yellow Pt. Prop.	144	120	2%	296	250	5.2	1.13	North coast/QCI
WFP (SFC)	192	41	2%	211	100	2.1	0.45	North coast/QCI
Total ramets				1,550	1,030	Total production	4.64	
Vegetative propagation						Stecklings/Emblings		
						Total production	4.6	

Seed and Nursery Factors

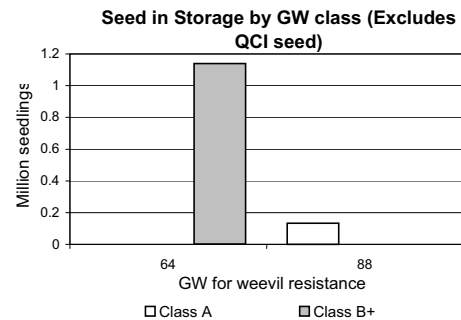
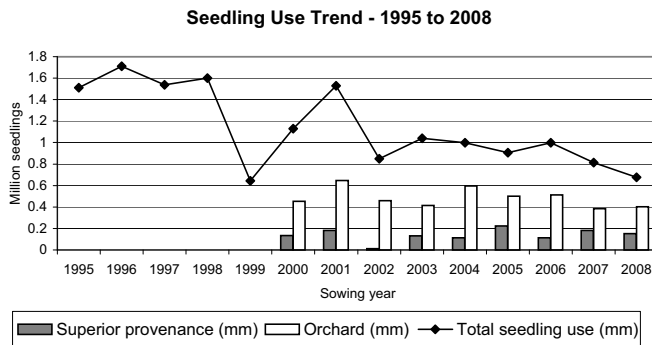
Estimate of Required Orchard Capacity

Expected annual average seedling production per ramet = 4,500	Estimated ann. planting (million seedl.)*	3.0
Seed weight (seeds/gram) = 382	Planned over-production factor	1.3
Seedling recovery factor (seedlings/seed) = 0.57	Ramets required	667
Seedling recovery factor (seeds/seedling) = 1.75	Ramets required with over-capacity	867
	Projected necessary expansion	0

* Estimated demand with more weevil resistant stock.

SEEDLING USE AND SEED IN STORAGE

Average 5-year seedling use from SPAR (2004 - 2008) **0.88** million
 Estimated years of class-A seed in storage **0.15** 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 for current inventory by Seed Planning Unit