

SPU # 12 **Interior Lodgepole Pine** **Prince George** **700 - 1400m**

Breeding and orchard production

Adjusted for new Parent Tree Area of use. Previously 700-1200m

Seedling need (million): 26.7

Program category: Advanced-generation

filename: 12 Pli PG low July 12, 2015

STRATEGY Selection of parent trees in wild stands. Open-pollinated progeny tests on multiple sites. Selection for seed orchards of best parents and offspring, with a focus on stem volume and form. Second generation breeding will focus on volume and wood density.

TRAITS **Primary: Stem volume** **Secondary: Wood density, stem form**

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

Parents in progeny test:	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	
Open pollin.	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	303	
Polycross																					
Clonal																					
F1	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	
F2																					
F3																					

Production forecast (million plantables)

Orchards (#, owner)	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
220 FLNRO (PGTIS)	1.5	1.5	1.5	0.0																
222 VSOC (Vernon)	1.4	1.5	1.5	0.0																
236 VSOC/SelectSeed	4.2	4.5	4.7	4.7	4.8	4.8	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
237 KRSO/SelectSeed	3.4	4.0	4.4	4.7	4.9	5.1	5.2	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
352 FLNRO Skimikin	0.6	1.0	1.5	2.2	2.7	3.1	3.7	4.5	5.1	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
244 VSOC (Quesnel)	0.1	0.4	0.8	1.2	1.9	2.5	3.1	3.8	4.7	5.5	6.1	6.4	6.7	6.9	7.1	7.2	7.3	7.3	7.3	7.3

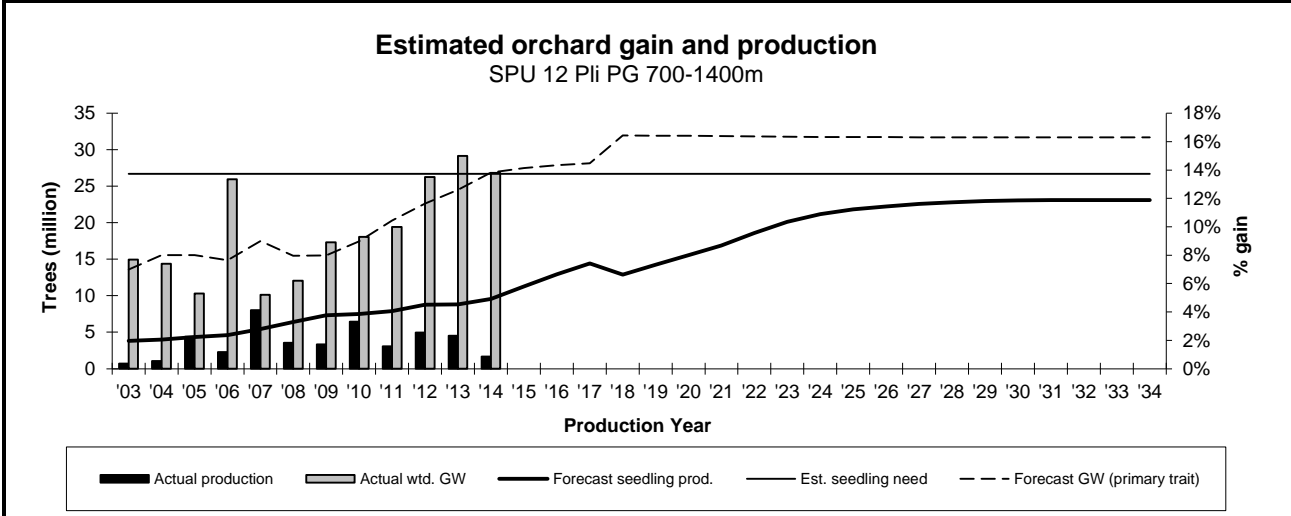
Vegetative prod.:
Phase 1
Phase 2

Estimated gain in primary trait

Orchards (#, owner)	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
220 FLNRO (PGTIS)	6%	6%	6%	6%																
222 VSOC (Vernon)	10%	10%	10%	10%	10%															
236 VSOC/SelectSeed	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
237 KRSO/SelectSeed	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
352 FLNRO Skimikin	Rust resistant orchard - GWg 7% - not included in GWg line in graph below																			
244 VSOC (Quesnel)	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%

Vegetative prod.:
Phase 1
Phase 2

Total Production	11.3	13.0	14.4	12.9	14.3	15.6	16.9	18.6	20.1	21.2	21.9	22.2	22.6	22.8	23.0	23.1	23.1	23.1	23.1	23.1
Total gain	14%	14%	14%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%



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 Lands and Natural Resource Operations to confirm data. See SeedMap on www.for.gov.bc.ca/hti/seedmap for current inventory by Seed Planning Unit

Interior Lodgepole Pine Prince George 700 - 1400m
 Conservation -- Seed Orchards -- Seedling Use

SPU #12

GENE CONSERVATION STATUS

Conservation statistics

Seed planning unit (SPU) area	2,686,004	ha
Area protected within SPU	232,212	ha
Percentage of SPU area protected	9%	
Estimated genetic reserves with >5000 mature trees based on botanical sample data	>4	
Confirmed genetic reserves with >5000 mature trees based on forest inventory data	24	

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 volume	# of ramets currently established	# of ramets planned for final orchard size	Target Seed production kg/y at maturity	Total Seedling Prod. million seedlings
FLNRO (PGTIS)	220	40	6%	1,269	1,269	9.5	1.5
VSOC (Vernon)	222	65	10%	1,248	0	0.0	0.0
VSOC/Selectseed	236	90	16%	4,115	4,500	33.6	5.4
KRSO/SelectSeed	237	87	17%	4,715	4,884	36.5	5.9
FLNRO (Skiminkin)	352	72	7%	4,491	4,491	33.6	5.4
VSOC (Quesnel)	244	115	16%	4,772	6,000	44.8	7.3
Total ramets				20,610	21,144	Total production	25.6
Vegetative propagation						Stecklings/Emblings	0.0
						Total production	25.6

Increased rust resistance

Seed and Nursery Factors

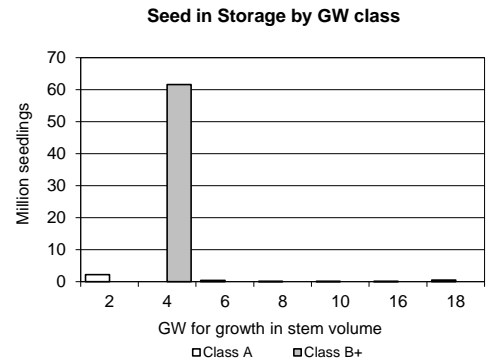
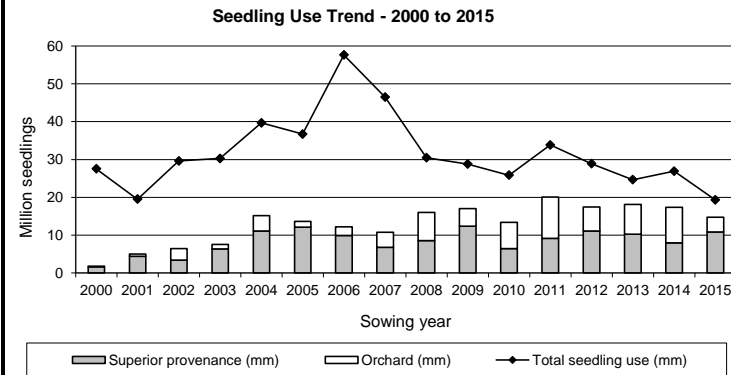
Estimate of Required Orchard Capacity

Expected annual average seedling production per ramet = 1,210	Annual planting (million seedlings)	26.7
Seed weight (seeds/gram) = 251	Planned over-production factor	1.3
Seedling recovery factor (seedlings/seed) = 0.65	Ramets required	22,073
Seedling recovery factor (seeds/seedling) = 1.55	Ramets required with over-capacity	28,695
	Projected necessary expansion	7,551

Superior provenances (B+) suitable for this Seed Planning Unit
 Nechako River, Oie lake, Rocky Mtn. Trench, Udy Creek, Whittier Creek

SEEDLING USE AND SEED IN STORAGE

Average 5-year seedling use from SPAR (2011 - 2015) **26.7 million**
Estimated years of class-A seed in storage **0.1 years**



Notes:
 - Seedling use data include 1/2 of adjacent overlap zones, where applicable
 - Sowing year: Aug 1 to July 31 (i.e. 2015 sowing year starts Aug 1, 2014)

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

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 See SeedMap on www.for.gov.bc.ca/ht/seedmap for current inventory by Seed Planning Unit