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): 22.0

Program category: Advanced-generation

filename: 12 Pli PG low Sept 2017.xlsx

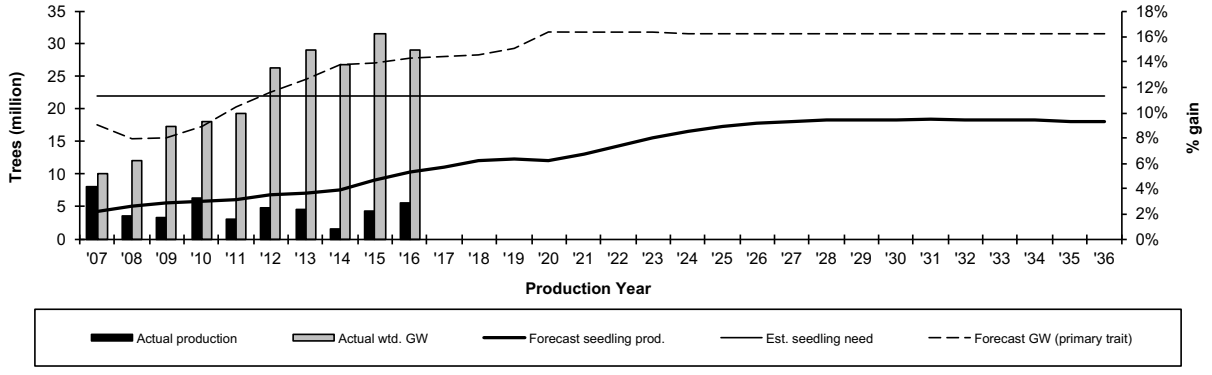
STRATEGY Parent-tree selection in wild stands; OP testing to rank parents for second-gen breeding and seed orchards; breeding for growth and wood density; forward selections from second-gen testing based on growth for third-gen breeding and advanced-gen seed orchards; screen families for disease resistance

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

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
Parents in progeny test:																				
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	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
F3																				
Production forecast (million plantables)																				
Orchards (#, owner)																				
220 FLNRO (PGTIS)	1.4	1.4	1.4																	
222 VSOC (Vernon)	1.1	1.1																		
236 VSOC/SelectSeed	3.5	3.5	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
237 KRSO/SelectSeed	3.6	3.8	4.0	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
244 VSOC (Quesnel)	0.9	1.5	2.2	3.0	3.7	4.6	5.5	6.4	7.1	7.5	7.8	8.0	8.1	8.2	8.2	8.1	8.1	8.0	7.9	7.8
352 FLNRO Skimikin	0.6	0.9	1.1	1.3	1.6	1.9	2.1	2.2	2.2	2.2	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																				
Estimated gain in primary trait																				
Orchards (#, owner)																				
220 FLNRO (PGTIS)	6%	6%	6%																	
222 VSOC (Vernon)	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%
244 VSOC (Quesnel)	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
352 FLNRO Skimikin	Rust resistant orchard - GWg 7% - not included in GWg line in graph below																			
Vegetative prod.:																				
Phase 1																				
Phase 2																				
Total Production	11.1	12.2	12.2	12.0	13.2	14.4	15.6	16.6	17.3	17.7	18.1	18.3	18.4	18.4	18.5	18.4	18.3	18.3	18.2	18.1
Total gain	14%	15%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%

Estimated orchard gain and production

SPU 12 Pli PG 700-1400m



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.

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Interior Lodgepole Pine Prince George 700 - 1400m

SPU #12

Conservation -- Seed Orchards -- Seedling Use

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%	1,255	0	0.0	**0.00**	phasing out
VSOC (Vernon)	222	65	10%	1,248	0	0.0	**0.00**	phasing out
VSOC/Selectseed	236	90	16%	4,139	4,500	24.2	**4.05**	
KRSO/SelectSeed	237	87	17%	4,326	4,884	29.2	**4.88**	
VSOC (Quesnel)	244	115	16%	5,535	6,469	56.1	**9.38**	
FLNRO (Skimikin)	352	72	7%	2,229	2,246	13.4	**2.25**	Increased rust resistance
	Orchard 352 is seed is also suitable in the CP zone. Half the orchard ramets are represented here and half in the CP zone							
			Total ramets	**18,732**	**18,099**	**Total production**	**20.6**	

Vegetative propagation		**Stecklings/Emblings**	**0.0**
		Total production	**20.6**

Seed and Nursery Factors

Expected annual average seedling production per ramet =	**1,136**
Seed weight (seeds/gram) =	**251**
Seedling recovery factor (seedlings/seed) =	**0.67**
Seedling recovery factor (seeds/seedling) =	**1.50**

Estimate of Required Orchard Capacity

Annual planting (million seedlings)	**22.0**
Planned over-production factor	**1.3**
Ramets required	**19,394**
Ramets required with over-capacity	**25,213**
Projected necessary expansion	**7,114**

Superior provenances (B+) suitable for this Seed Planning Unit

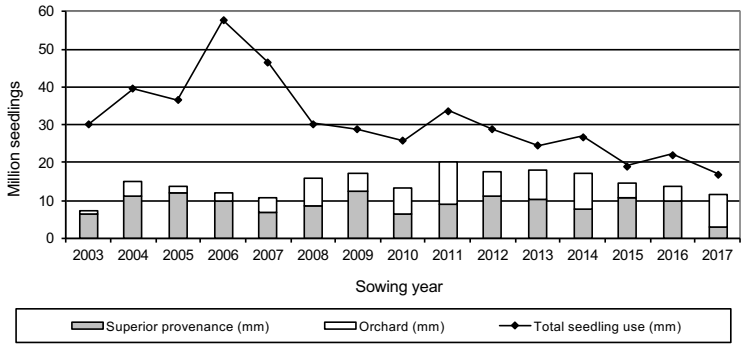
Nechako River, Oie lake, Rocky Mtn. Trench, Udy Creek, Whittier Creek

SEEDLING USE AND SEED IN STORAGE

Average 5-year seedling use from SPAR (2013 - 2017) **22.0** **million**

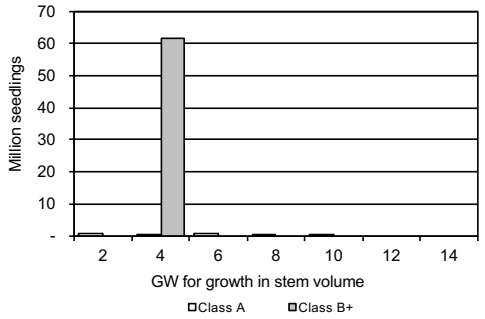
Estimated years of class-A seed in storage **0.2** **years**

Seedling Use Trend - 2000 to 2017



Notes:
- Seedling use data include 1/2 of adjacent overlap zones, where applicable
- Sowing year: Aug 1 to July 31 (i.e. 2017 sowing year starts Aug 1, 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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