

SPU # 4		Interior Spruce Nelson 1000-1700m																			
		Breeding and orchard production																			
		Adjusted for new Parent Tree Area of use. Previously 1000-1500m																			
Program category: Advanced-generation		Seedling need (million): 9.7																			
		filename: 04 Sx NE mid Sept 2017.xlsx																			
STRATEGY		Parent tree selection in wild stands; polycross and open-pollinated progeny tests for old Shuswap Adams and West Kootenay zones. Focus on stem volume, wood density, and weevil resistance. Backward selection of best parents to open-pollinated seed orchards.																			
TRAITS		Primary: Stem volume				Secondary: Wood density, weevil															
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.																					
Polycross		374	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374
Clonal																					
F1		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
F2																					
F3																					
Production forecast (million plantables)																					
Orchards (#, owner)																					
301 FLNRO (Skimikin)		Orchard retired																			
305 FLNRO (Kalamalka)		9.9	10.3	10.5	10.7	10.8	10.9	11.1	11.1	11.2	11.2	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
304 FLNRO (Kalamalka)		Orchard retired																			
New F1 orchard																					
		Seed from orchards 301 and 305 may be used down to 800m elevation (also see SPU #44 Sx NE low)																			
Vegetative prod.:																					
Phase 1																					
Phase 2																					
Estimated gain in primary trait																					
Orchards																					
305 FLNRO (Kalamalka)		20%	20%	21%	21%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%
Vegetative prod.:																					
Phase 1																					
Phase 2																					
Total Production		9.9	10.3	10.5	10.7	10.8	10.9	11.1	11.1	11.2	11.2	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Total gain		20%	20%	21%	21%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%
Estimated orchard gain and production		SPU 4 Sx NE 1000-1700m																			
		2010 production 56.6mm																			
		<p>Legend:</p> <ul style="list-style-type: none"> Actual production Actual wtd. GW Forecast seedling prod. Est. seedling need Forecast GW (primary trait) 																			
		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.																			

GENETIC CONSERVATION STATUS

Conservation statistics

	Seed planning unit (SPU) area	2,110,271	ha
	Area protected within SPU	119,217	ha
	Percentage of SPU area protected	6%	
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		32	

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/cfqc/>

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	Total Seedling Prod. million seedlings	
FLNRO (Skimikin)	301					0.0	0.00	Retired
FLNRO (Kalamalka)	305	47	22%	938	940	59.5	11.28	
Total ramets				938	940	Total production	11.28	
Vegetative propagation						Stecklings/Emblings	0.0	
						Total production	11.3	

Seed and Nursery Factors

Estimate of Required Orchard Capacity

Expected annual average seedling production per ramet = 12,000	Annual planting (million seedlings)	9.7
Seed weight (seeds/gram) = 417	Planned over-production factor	1.2
Seedling recovery factor (seedlings/seed) = 0.45	Ramets required	810
Seedling recovery factor (seeds/seedling) = 2.20	Ramets required with over-capacity	972

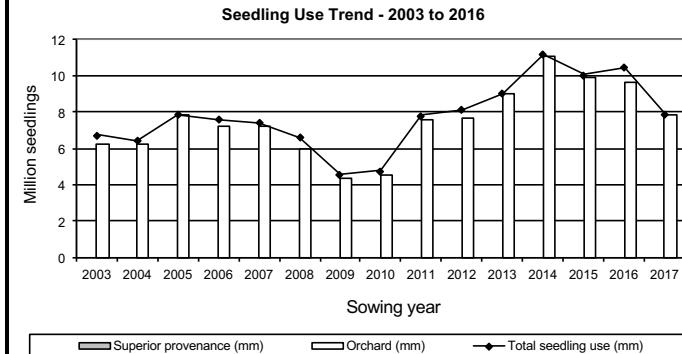
* Orchard 304 also produced seed for NE low and the N-EK overlap zone.

Projected necessary expansion	32
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* Orchard 304 also produced seed for NE low and the N-EK overlap zone.

SEEDLING USE AND SEED IN STORAGE

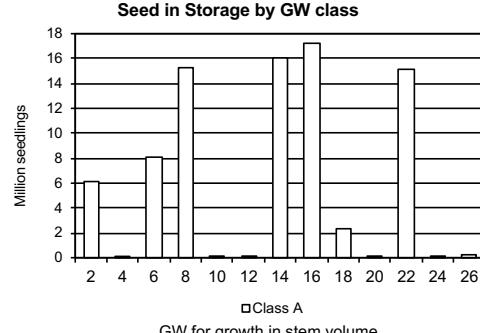
Average 5-year seedling use from SPAR (2013 - 2017)	9.7	million
Estimated years of class-A seed in storage	8.3	years



Notes:

- Sowing year: Aug 1 to July 31 (i.e. 2017 sowing year starts Aug 1, 2017)

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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.