SPU # 44	Interior Spruce	Nelson	1 - 1000m

Breeding and Orchard Production

Seedling need (million): 0.9

Program category: Second-generation

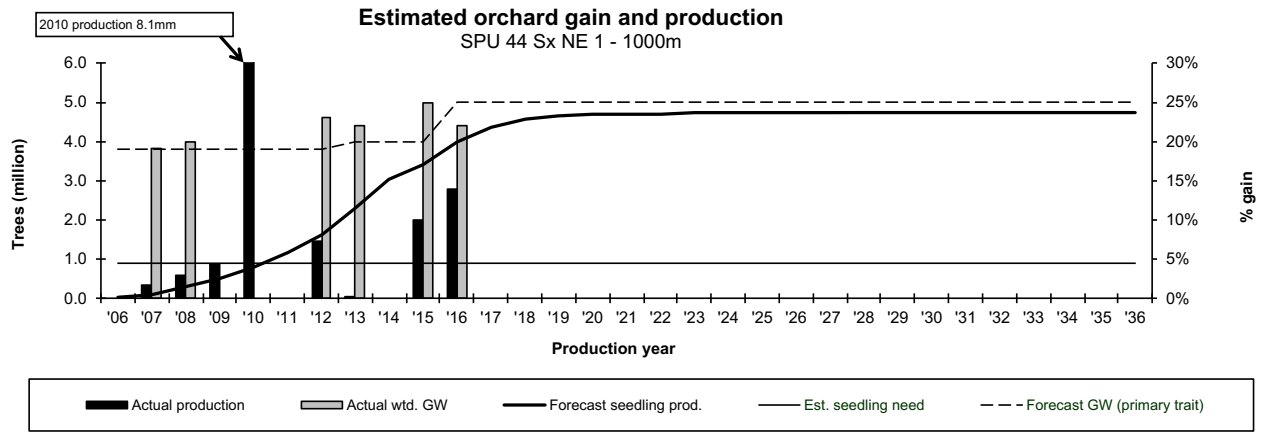
filename: 44 Sx NE low Sept 2017.xlsx

STRATEGY Parent tree selection in wild stands; polycross and open-pollinated progeny tests for old Shuswap Adams and West Kootenay zones. Focus on stam 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)																				
341 FLNR Kalamalka	4.4	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Vegetative prod.:																				
Phase 1																				
Phase 2																				
Estimated gain in primary trait																				
Orchards (#, owner)																				
341 FLNR Kalamalka	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Vegetative prod.:																				
Phase 1																				
Phase 2																				
Total Production	4.4	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Total gain	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%

Seed from orchards 301, 304 and 305 may be used down to 800m elevation (see SPU #4 Sx NE mid)



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 Spruce Nelson 1 - 1000m

SPU #44

Conservation -- Seed Orchards -- Seedling Use

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: **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	# of ramets currently established	# of ramets planned for final orchard size	Target Seed production kg/y at maturity	Total Seedling Prod. million seedlings
FLNRO Kalamalka	341	32	25%	789	900	26.9	**5.40**
			Total ramets	**789**	**900**	**Total production**	**5.40**

Vegetative propagation	**Stecklings/Emblings**	**0.0**
	Total production	**5.4**

Seed and Nursery Factors

Expected annual average seedling production per ramet =	**6,000**
Seed weight (seeds/gram) =	**442**
Seedling recovery factor (seedlings/seed) =	**0.45**
Seedling recovery factor (seeds/seedling) =	**2.20**

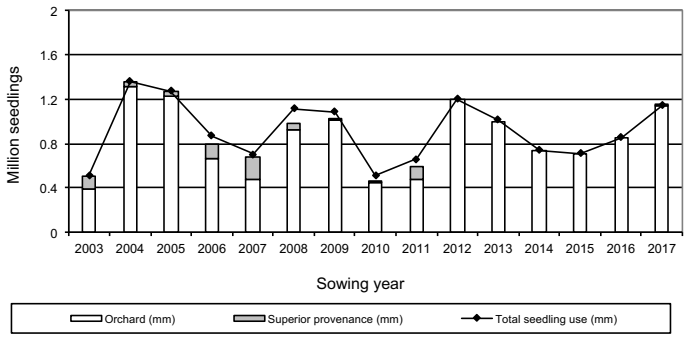
Estimate of Required Orchard Capacity

Annual planting (million seedlings)	**0.9**
Planned over-production factor	**1.2**
Ramets required	**149**
Ramets required with over-capacity	**178**
Projected necessary expansion	**0**

SEEDLING USE AND SEED IN STORAGE

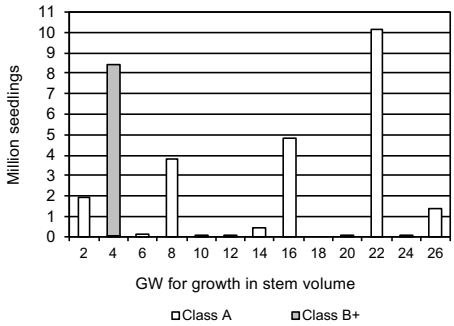
Average 5-year seedling use from SPAR (2013 - 2017)	**0.9**	**million**
Estimated years of class-A seed in storage	**25.4**	**years**

Seedling Use Trend - 2003 to 2017



- 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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