

**SPU # 42**      **Interior Spruce**      **Prince George**      **1200 - 1550m**  
**Breeding and Orchard Production**

**Program category: First-generation**      **Seedling need (million): 3.9**  
 filename: 42 Sx PG high Sept 2017.xlsx

**STRATEGY**      Parent-tree selection in wild stands from PG zone. Open-pollinated progeny tests using seed from selected parents. Focus on stem volume, wood density, and weevil resistance. Provenance information available. Overlap of tested material with PG low SPU. Best parents based on progeny-test performance used in seed orchards.

**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
<b>Parents in progeny test:</b>																				
Open pollin.	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080
Polycross																				
Clonal																				
F1	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
F2																				
F3																				

**Production forecast (million plantables)**

Orchards (#, owner)

239 VSOC	5.0	5.3	5.6	5.9	6.3	6.7	7.0	7.2	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
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**Vegetative prod.:**  
 Phase 1  
 Phase 2

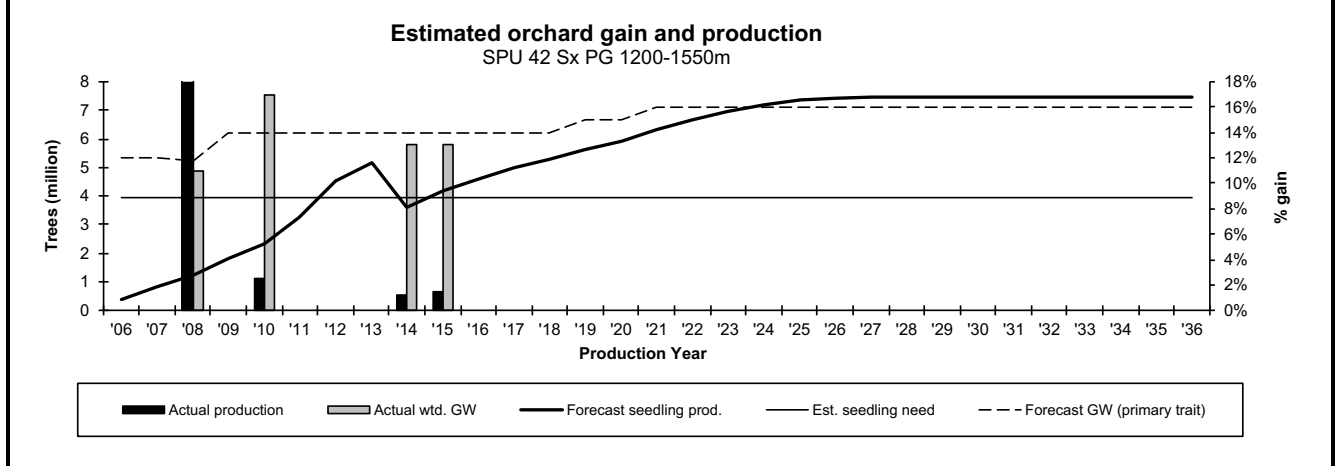
**Estimated gain in primary trait**

Orchards (#, owner)

239 VSOC	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
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**Vegetative prod.:**  
 Phase 1  
 Phase 2

<b>Total Production</b>	5.0	5.3	5.6	5.9	6.3	6.7	7.0	7.2	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
<b>Total gain</b>	14%	14%	15%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%



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.

## Interior Spruce Prince George 1200 - 1550m Conservation -- Seed Orchards -- Seedling Use

**SPU #42**

### GENETIC CONSERVATION STATUS

#### Conservation statistics

Seed planning unit (SPU) area	<b>2,380,019</b>	<b>ha</b>
Area protected within SPU	<b>262,712</b>	<b>ha</b>
Percentage of SPU area protected	<b>11%</b>	
Estimated genetic reserves with >5000 mature trees based on botanical sample data	<b>&gt;4</b>	
Confirmed genetic reserves with >5000 mature trees based on forest inventory data	<b>23</b>	

#### 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	# of ramets currently established	# of ramets planned for final orchard size	Target Seed production kg/y at maturity	Total Seedling Prod. million seedlings
VSOC (Vernon)	239	40	14%	622	622	42.7	<b>7.46</b>
<b>Total ramets</b>				<b>622</b>	<b>622</b>	<b>Total production</b>	<b>7.46</b>
Vegetative propagation						<b>Stecklings/Emblings</b>	<b>0.0</b>
						<b>Total production</b>	<b>7.5</b>

#### Seed and Nursery Factors

Expected annual average seedling production per ramet =	<b>12,000</b>
Seed weight (seeds/gram) =	<b>385</b>
Seedling recovery factor (seedlings/seed) =	<b>0.45</b>
Seedling recovery factor (seeds/seedling) =	<b>2.20</b>

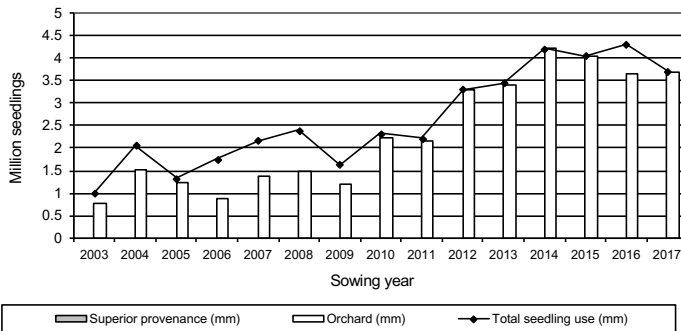
#### Estimate of Required Orchard Capacity

Annual planting (million seedlings)	<b>3.9</b>
Planned over-production factor	<b>1.2</b>
Ramets required	<b>329</b>
Ramets required with over-capacity	<b>395</b>
Projected necessary expansion	<b>0</b>

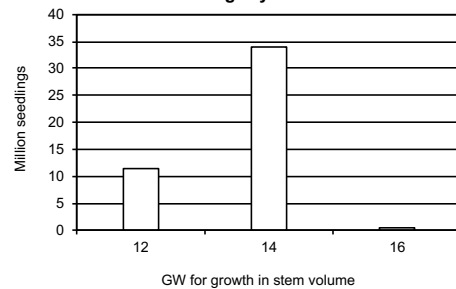
### SEEDLING USE AND SEED IN STORAGE

**5-year average seedling requests to SPAR (2013 - 2017)                          3.9     million**  
**Estimated years of class-A seed in storage    11.7     years**

**Seedling Use Trend - 2003 to 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.

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

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