

| | | | |
|--|--------------------------------|----------------------|--------------------------------------|
| 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): 37.8 |
| Program category: Advanced-generation | | | |
| filename: 12 Pli PG low Agu 31/10 | | | |

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)

| | '10 | '11 | '12 | '13 | '14 | '15 | '16 | '17 | '18 | '19 | '20 | '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 | | | | | | | | | | | | | | | | | | | | |
| F3 | | | | | | | | | | | | | | | | | | | | |

Production forecast (million plantables)

| Orchards (#, owner) | '10 | '11 | '12 | '13 | '14 | '15 | '16 | '17 | '18 | '19 | '20 | '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 220 MFR (PGTIS) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | | | | | | | | | | |
| 222 VSOC (Vernon) | 3.1 | 3.7 | 3.8 | 3.8 | 3.9 | 4.0 | 4.1 | 4.2 | 4.3 | | | | | | | | | | | |
| 236 VSOC/SelectSeed | 0.8 | 1.4 | 2.0 | 2.9 | 3.5 | 4.1 | 4.7 | 5.9 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 |
| 237 KRISO/SelectSeed | 0.3 | 0.9 | 1.4 | 2.2 | 3.1 | 3.7 | 4.3 | 5.0 | 6.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 |
| 352 MFR Skimikin | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.8 | 1.3 | 2.0 | 2.9 | 3.4 | 4.0 | 4.7 | 5.8 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 |
| 222 VSOC (Quesnel) | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 1.3 | 1.9 | 2.8 | 3.4 | 3.9 | 4.6 | 5.7 | 6.6 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 |

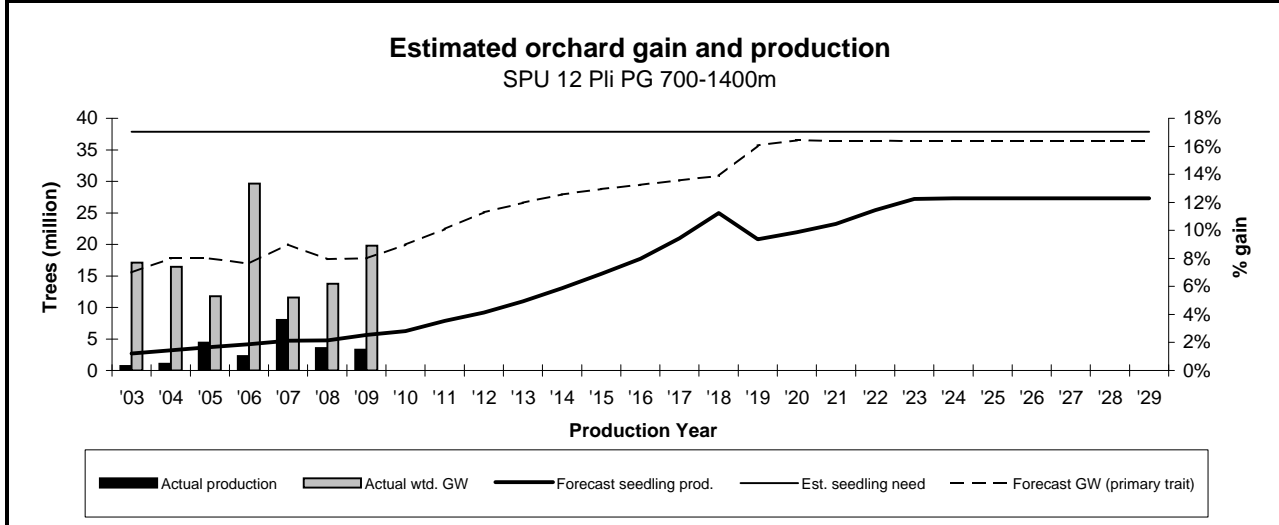
Vegetative prod.:
Phase 1
Phase 2

Estimated gain in primary trait

| Orchards (#, owner) | '10 | '11 | '12 | '13 | '14 | '15 | '16 | '17 | '18 | '19 | '20 | '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 |
|----------------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 220 MFR (PGTIS) | 6% | 6% | 6% | 6% | 6% | 6% | 6% | 6% | 6% | | | | | | | | | | | |
| 222 VSOC (Vernon) | 9% | 9% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | | | | | | | | | | | |
| 236 VSOC/SelectSeed | 13% | 14% | 14% | 14% | 14% | 14% | 14% | 14% | 14% | 14% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% |
| 237 KRISO/SelectSeed | 17% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% |
| 352 MFR Skimikin | Rust resistant orchard - no GWg value | | | | | | | | | | | | | | | | | | | |
| 222 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 | 6.2 | 7.8 | 9.2 | 11.0 | 13.1 | 15.3 | 17.7 | 21.0 | 25.0 | 20.8 | 21.9 | 23.2 | 25.4 | 27.2 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 |
| Total gain | 9% | 10% | 11% | 12% | 13% | 13% | 14% | 14% | 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 and Range to confirm data. See SeedMap on www.for.gov.bc.ca/htl/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 | # of ramets currently established | # of ramets planned for final orchard size | Target Seed production kg/y at maturity | Total Seedling Prod. million seedlings | |
|------------------------|----------------|-------------------|---------|-----------------------------------|--|---|--|-----------------|
| MFR (PGTIS) | 203 | 110 | 0% | 0 | 0 | 0.0 | 0.00 | orchard retired |
| MFR (PGTIS) | 220 | 40 | 6% | 1,319 | 1,319 | 9.9 | 1.98 | |
| VSOC (Vernon) | 222 | 69 | 10% | 3,000 | 0 | 0.0 | 0.00 | |
| VSOC/Selectseed | 236 | 80 | 16% | 4,472 | 4,500 | 33.9 | 6.75 | |
| KRSO/SelectSeed | 237 | 87 | 17% | 4,861 | 4,884 | 36.8 | 7.33 | |
| MFR (Skiminkin) | 352 | 72 | Gwr | 4,335 | 4,490 | 33.8 | 6.74 | |
| VSOC (Vernon) | 222 replcmnt | | 16% | 3,000 | 6,500 | 48.9 | 9.75 | |
| Total ramets | | | | 20,987 | 21,693 | Total production | 32.54 | |
| Vegetative propagation | | | | | | Stecklings/Emblings | 0.0 | |
| | | | | | | Total production | 32.5 | |

Seed and Nursery Factors

Estimate of Required Orchard Capacity

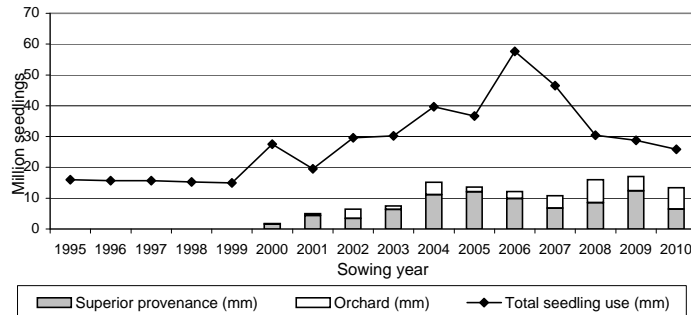
| | | |
|---|-------------------------------------|--------|
| Expected annual average seedling production per ramet = 1,500 | Annual planting (million seedlings) | 37.8 |
| Seed weight (seeds/gram) = 249 | Planned over-production factor | 1.3 |
| Seedling recovery factor (seedlings/seed) = 0.80 | Ramets required | 25,230 |
| Seedling recovery factor (seeds/seedling) = 1.25 | Ramets required with over-capacity | 32,799 |
| | Projected necessary expansion | 11,106 |

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

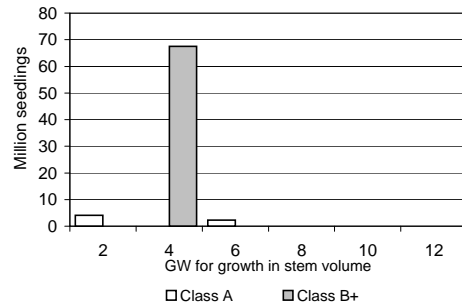
SEEDLING USE AND SEED IN STORAGE

Average 5-year seedling use from SPAR (2006 - 2010) **37.8 million**
Estimated years of class-A seed in storage **0.2 years**

Seedling Use Trend - 1995 to 2010



Seed in Storage by GW class



Notes:
 - Seedling use data include 1/2 of adjacent overlap zones, where applicable
 - Sowing year: July 1 to June 30 (i.e. 2010 sowing year starts July 1, 2009)

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

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