

| SPU # 28  |  | Interior Spruce   |     | Thompson Okanagan |     | 1300-2100m  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---|--|---|-----|-------------------|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|   |  |   |     |                   |     | Breeding and orchard production                                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     | Adjusted for new Parent Tree Area of use. Previously 1300-1850m |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>Program category:</b> Advanced-generation    |  |   |     |                   |     | <b>Seedling need (million): 5.5</b>                             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     | filename: 28 Sx TO high Sept 2017.xlsx                          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>STRATEGY</b>                                 |  | Parent-tree selection in wild stands. Polycross progeny tests of selected parents. Focus on stem volume, wood density, and weevil resistance. First-generation seed orchards established from best parents. |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>TRAITS</b>                                   |  | Primary: Stem volume  |     | Secondary:        |     | Wood density, weevil  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>TESTING AND PRODUCTION</b>                   |  | 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.                                    |  | 135   | 135 | 135               | 135 | 135   | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 |
| Polycross                                       |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Clonal  |  | 70  | 70  | 70                | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  | 70  |
| F1  |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| F2  |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| F3  |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>Production forecast (million plantables)</b> |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Orchards (#, owner)                             |  | Orchard retired   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 303 Tolko Ltd.                                  |  | 6.2   | 6.2 | 6.2               | 6.2 | 6.2   | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| 343 Tolko / SelectSeed                          |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>Estimated gain in primary trait</b>          |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Orchards (#, owner)                             |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 303 Tolko Ltd.                                  |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 343 Tolko / SelectSeed                          |  | 18%   | 18% | 18%               | 18% | 18%   | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% |
| <b>Vegetative prod.:</b>                        |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Phase 1   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Phase 2   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>Total Production</b>                         |  | 6.2   | 6.2 | 6.2               | 6.2 | 6.2   | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| <b>Total gain</b>                               |  | 18%   | 18% | 18%               | 18% | 18%   | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% | 18% |
| <b>Estimated orchard gain and production</b>    |  | SPU 28 Sx TO 1300-2100m   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
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|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|   |  |   |     |                   |     |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

## GENETIC CONSERVATION STATUS

## Conservation statistics

|   |                                  |                  |    |
|---|----------------------------------|------------------|----|
|   | Seed planning unit (SPU) area    | <b>2,981,748</b> | ha |
|   | Area protected within SPU        | <b>381,511</b>   | ha |
|   | Percentage of SPU area protected | <b>13%</b>       |    |
| Estimated genetic reserves with >5000 mature trees based on botanical sample data |                                  | <b>&gt;9</b>     |    |
| Confirmed genetic reserves with >5000 mature trees based on forest inventory data |                                  | <b>33</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

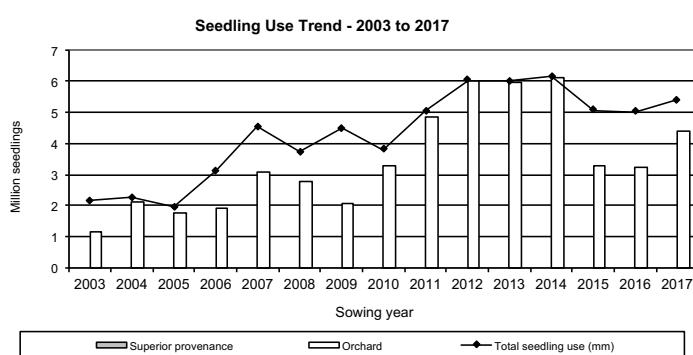
## **Seed and Nursery Factors**

|   |                                     |       |
|---|-------------------------------------|-------|
| Expected annual average seedling production per ramet = 6,000 | Annual planting (million seedlings) | 5.5   |
| Seed weight (seeds/gram) = 421                                | Planned over-production factor      | 1.2   |
| Seedling recovery factor (seedlings/seed) = 0.45              | Ramets required                     | 922   |
| Seedling recovery factor (seeds/seedling) = 2.20              | Ramets required with over-capacity  | 1,106 |
|   | Projected necessary expansion       | 56    |

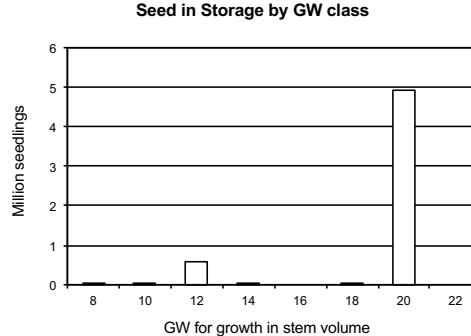
## **SEEDLING USE AND SEED IN STORAGE**

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

5.5 million  
1.0 years



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)



## 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.

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.