

Permanent Sample Tree (PST) Protocols for *Stream 2* Material (Appendix 33 FGRMS)

**Table A33.1. Template: annual summary of seed production and monitoring information for region seed orchard, year** **.**

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| Line | **Orchard characteristics** | result |  | Line | **Immature cone production (pine spp. only)** | result |
| 1 | Planned orchard size |       |  | **21** | **Date assessed** |  |
| 2 | Total no. of seed trees established |  | 22 | No. of PSTs producing cones |  |
| 3 | Total no. of *clone*s/families established |       | 23 | Mean no. of cones/PST |       |
| 4 | Average age  |       | 24 | Range of cones/PST |       |
| 5 | Age range  |       | 25 | Cone crop estimate (# of cones)1 |       |
| 6\* | Average height (cm) PSTs only |       | 26 | Cone crop estimate (hectolitres)2 |       |
| 7\* | Height range PSTs only  |       |  | **Cone production**  |  |
| 8\* | Average crown width (cm) PSTs only |       | 27 | No. of PSTs producing cones |       |
| 9\* | Crown width range PSTs only |       | 28 | Mean no. of cones/PST |       |
| 10\* | Average DBH (cm) PSTs only |       | 29 | Range of cones/PST |       |
| 11\* | DBH range PSTs only |       | 30 | Total no. of cones collected from all PSTs; max. 5/tree; (developing orchards only) |       |
| 12 | Total no. of PSTs |       | 31 | Mean no. of cones/litre |       |
|  | **Reproductive balance** |  |  | **Seed production** |  |
| 13 | Total # of PSTs flowering (male and female) |       | 32 | Seed production (g) |       |
|  | **Male flowering** |       | 33 | 1000 seed weight |       |
| 14 | No. of PSTs with male flowers |       | 34 | Germination % |       |
| 15 | Mean no. of male flowers or clusters/PST |       |  |  |
| 16 | Range of male flowers or clusters/PST |       |
|  | **Female flowering** |       |
| 17 | No. of PSTs with female flowers |       |
| 18 | Mean no. of female flowers/PST  |       |
| 19 | Range female flowers/PST |       |
| 20 | Mean male-female flower production ratio |       |

1 For all species except pine, cone crop estimate equals (line 2) x (line 18); for pine species it equals (line 2) x (line 23)

2 To estimate hectolitres, divide (line 25) by the appropriate factor:

 For white spruce – 15,000 cones/hl

 For black spruce – 24,000 cones/hl

 For lodgepole pine – 3,800 cones/hl