Title	**Describe the concept of seed orchard situation, establishment and management**		
Level	**4**	**Credits**	**5**

Purpose	People credited with this unit standard are able to: describe the concept of seed orchards; seed orchard location, siting and site requirements; seed orchard establishment; and seed orchard maintenance practices.

Classification	Horticulture > Forest Nursery

Available grade	Achieved

Guidance Information

1 Definitions
Clone – denotes a group of genetically identical individuals (ramets).
Control pollinated (CP) – done by bagging female flower cones in sealed bags and applying pollen from a known superior male parent, so the genetic quality of both parents is known for the controlled cross.
Open pollinated (*OP*) – plants which self-pollinate or are pollinated by another representative of the same variety, resulting in plants similar to the parent.
Ramet – the vegetative off-spring of one individual, genetically identical to the original.
Roguing – the removal of genetically inferior trees in a seed orchard or seed stand.
Workplace procedures – the policies and procedures on safety and operation set down by the employer or organisation

2 Seed orchard plant species include – radiata pine, Douglas fir, eucalypt species, cypress species.

3 All evidence presented in this unit standard must be in accordance with workplace procedures.

Outcomes and performance criteria

Outcome 1

Describe the concept of seed orchards.

Performance criteria

1.1 Describe seed orchards in terms of the types, objectives, and the planting stock used to establish them.

Range seed orchards include but are not limited to – clonal OP, clonal CP, seedling.

1.2 Describe planting pattern requirements of clones, ramets, and seedlings in terms of the type of seed to be produced.

Range planting pattern requirements may include but are not limited to – spacing, random planting, line planting, clonal block planting
type of seed – open pollinated, control pollinated;
evidence of one clonal and one seedling orchard is required.

Outcome 2

Describe seed orchard location, siting, and site requirements.

Performance criteria

2.1 Describe seed orchard location criteria in terms of species' seed-bearing characteristics.

Range includes – elevation, climate, latitude;
evidence of one seed species is required.

2.2 Describe seed orchard siting within a region in terms of the influence by species pollination characteristics, prevailing wind direction, and proximity to stands of the same species.

2.3 Describe seed orchards in terms of site requirements and the effect on productivity and orchard management.

Range site requirements may include but are not limited to – topography, aspect, micro-climate, soil characteristics, machinery movement, accessibility;
evidence of three effects is required.

Outcome 3

Describe seed orchard establishment.

Performance criteria

3.1 Describe seed orchard establishment in terms of site preparation requirements to achieve long term tree stability and vigour, and machinery access and movement across the seed orchard site.

Range requirements may include but are not limited to – levelling, cultivation, ripping, fertilising, weed control, animal control, fencing, shelter;
evidence of five requirements is required.

3.2 Describe seed orchard establishment in terms of plant material characteristics required to achieve 100% stocking and fast early growth.

Range characteristics may include but are not limited to – grafts, cuttings, seedlings, root collar diameter, root system quality, foliage quality, graft union compatibility status;
evidence of five characteristics is required.

3.3 Describe seed orchard establishment in terms of planting practices used to promote early growth and long-term stability.

Range planting spot preparation, planting care.

3.4 Describe seed orchard establishment in terms of the purpose of detailed orchard plans and their importance for future orchard management.

Range purpose may include but is not limited to – orchard planting plan, ramet identity, seed collection, collection of vegetative propagation material, control pollination, roguing.
evidence of four purposes is required.

Outcome 4

Describe seed orchard maintenance practices.

Performance criteria

4.1 Describe seed orchards in terms of the maintenance practices required for the encouragement of pollination.

Range practices may include – mowing, weed control, fertilisers; chemical treatment, pruning pollinators, bees, beehives;
evidence of three practices is required.

4.2 Describe seed orchards in terms of how maintaining orchard health maximises seed orchard production and yield.

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Range orchard health may include but is not limited to – control of fungi and pests, crown form, frost problems, graft incompatibility effects, fertiliser applications, weed control.
evidence of three methods is required.

4.3 Describe seed orchards in terms of the methods used to ensure genetic improvement of seed

Range methods of genetic improvement may include but are not limited to – roguing, clone replacement, cuttings, grafts; evidence of two methods is required.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 September 1997	31 December 2024
Revision	2	19 July 2001	31 December 2024
Revision	3	24 February 2006	31 December 2024
Review	4	24 February 2022	31 December 2026
Review	5	24 April 2025	31 December 2026

Consent and Moderation Requirements (CMR) reference	0052

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.