Title	**Demonstrate knowledge of soil properties and their effect on turf plant growth in sports turf situations**		
Level	**4**	**Credits**	**10**

Purpose	People credited with this unit standard are able to describe the composition of a natural soil and how it appears in a sports turf landscape; demonstrate knowledge of soil texture, soil structure, and water properties of soils typically found in sports turf situations; describe the effects of soil type on the chemical properties of soils typically found in sports turf situations; and describe the effects of biological properties of soil on turf plant growth; and describe turf plant growth.

Classification	Sports Turf > Sports Turf Management

Available grade	Achieved

Guidance Information

1 Legislation relevant to this unit standard includes but is not limited to:
- Health and Safety at Work Act 2015;
  and any subsequent amendments.

2 Definition
Workplace procedures – the procedures and standards set down by the client or employing organisation. Workplace procedures should reflect equipment manufacturer's requirements, and current legislation.

3 For the purposes of assessment:
- evidence must be presented in accordance with workplace procedures.

Outcomes and performance criteria

Outcome 1

Describe the composition of a natural soil and how it appears in a sports turf landscape.

Performance criteria

1.1 Describe major components of soil in terms of their composition, relative size, and proportions.

Range mineral particles, organic material, water, air.

1.2 Describe major components of soil with reference to their influence on turf plant growth.

Range mineral particles, organic material, water, air.

1.3 Describe main soil horizons in terms of their composition.

Range includes but is not limited to – organic layer, topsoil, subsoil, parent material.

Outcome 2

Demonstrate knowledge of soil texture and soil structure typically found in sports turf situations.

Performance criteria

2.1 Describe soil structure and aggregate size in terms of their effects on turf plant growth.

Range crumb, nutty, blocky, platy, structureless.

2.2 Identify major soil textural types by feel.

Range sand, sandy loam, silt loam, clay loam, clay.

2.3 Describe soil texture in terms of its effect on turf plant growth.

Outcome 3

Demonstrate knowledge of the water properties of soils typically found in sports turf situations.

Performance criteria

3.1 Describe and compare soil texture effects on water storage and movement properties of sports turf soils.

Range properties may include but not limited to – macropores, micropores, infiltration, percolation, drainage, saturation, field capacity, permanent wilting point, plant available water.
textures – sand, sandy loam, silt loam, clay loam;
evidence of at least five effects for two soil textures is required.

3.2 Describe and compare soil structure effects on water storage and movement properties of sports turf soils.

Range properties may include but not limited to – macropores, micropores, infiltration, percolation, drainage, saturation, field capacity, permanent wilting point, plant available water;
structures – crumb, nutty, blocky, platy, structureless;
evidence for at least five effects for two soil textures is required.

3.3 Describe soil structure in terms of the effects of excess soil water.

3.4 Describe turf plant growth in terms of the effects of excess and insufficient water.

Outcome 4

Describe the effects of soil type on the chemical properties of soils typically found in sports turf situations.

Performance criteria

4.1 Describe soil nutrient availability in terms of the composition of sports turf soil.

Range mineral particles, organic matter, water, air.

4.2 Describe soil nutrient availability in terms of the structure of sports turf soil.

Range crumb, nutty, blocky, platy, structureless.

4.3 Describe soil nutrient availability in terms of the texture of sports turf soil.

Range sand, sandy loam, silt loam, clay loam, clay.

Outcome 5

Describe the effects of biological properties of soil on turf plant growth.

Performance criteria

5.1 Describe organic matter in terms of the factors that promote its formation.

5.2 Describe physical properties of soil in terms of the effects of organic matter.

Range structure, water holding.

5.3 Describe beneficial and non-beneficial soil organisms in terms of their functions and effects on turf plant growth.

Outcome 6

Describe turf plant growth.

Performance criteria

6.1 Describe turf plant growth in term of the major factors affecting soil suitability.

Range texture, structure, nutrient availability, water holding ability, aeration.

6.2 Describe sustainable soil management in terms of the practices used in a sports turf situation.

Range evidence of at least four practices is required.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 June 2021	N/A

Consent and Moderation Requirements (CMR) reference	0052

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

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.