



Australian Government

Department of Education, Employment and Workplace Relations

RTF4005A Develop a sports turf maintenance program

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of developing a maintenance program for sports turf playing surfaces. Development of a maintenance program will require consideration of soil and plant testing, site factors, plant requirements, nutrient application procedures, preparation standards, watering, rolling, mowing, monitoring plant health, OHS hazards, and environmental impacts.

Developing a sports turf maintenance program is likely to be undertaken without supervision, with only general guidance on progress sought by managers. Responsibility for and limited organisation of the work of others involved in the program may be required. Developing a sports turf maintenance program requires a broad range of horticultural skills, and involves the application of underpinning knowledge with depth in some areas such as characteristics and cultural requirements, turf plant species and cultivars, and standards for sports turf presentation.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Determine additives required by performing soil and plant testing	1.1 Soil and plant tests are determined according to the requirements of the turf plant species and cultivars, climatic conditions, prevailing soil and plant conditions, enterprise guidelines and industry best practice. 1.2 A soil and plant testing program is developed which defines field and off-site testing activities, task responsibilities, involvement of contractors, scheduling, and desired information outcomes. 1.3 Testing tasks are implemented and monitored, liaison procedures with outside testing agencies are supervised and remedial action is undertaken where necessary. 1.4 Data and readings are compiled and presented in a form that can be easily read and interpreted. 1.5 Seasonal issues are determined from published data on the turf plant species and cultivars, historical records, own experience, and enterprise guidelines. 1.6 Nutritional status of the turf plant species and cultivars is determined by analysing collected data and comparing to accepted standards.
2 Identify the requirements of a sports turf maintenance program	2.1 The standards for turf presentation are clearly defined according to client requirements, enterprise guidelines and industry best practice. 2.2 The different maintenance requirements during a range of conditions over the growing cycle of the turf plant are identified according to published data on the species and cultivar, historical records, own experience, and enterprise guidelines. 2.3 Sports turf maintenance procedures are selected to achieve the appropriate plant condition according to the standards for turf presentation. 2.4 Resources, tools, equipment and machinery required for the sports turf maintenance program are identified, costed, and availability confirmed

- with suppliers, contractors and appropriate personnel.
- 2.5 The most cost-effective approach to maintaining the sports turf playing surface is determined.
- 2.6 **OHS hazards** associated with the implementation of the sports turf maintenance program are identified, risks assessed and **controls** developed according to enterprise guidelines, costed and documented in the program.
- 2.7 **Environmental implications** of sports turf maintenance activities are identified and documented in the program.
- 3 Prepare and document the sports turf maintenance program
- 3.1 Detailed plan, **specifications** and quotation are prepared based on the requirements of the program and presented to management for acceptance.
- 3.2 Scaled site plan is produced which can be readily interpreted and understood by on-site personnel according to enterprise standards.
- 3.3 Detailed on-site procedures and schedules required for the sports turf maintenance program are developed and documented.
- 4 Monitor the sports turf maintenance program
- 4.1 Implementation of the maintenance program is monitored to ensure enterprise standards for presentation of sports turf playing surfaces are achieved.
- 4.2 The sports turf maintenance program is reviewed and monitored to ensure it remains responsive to changing conditions.
- 4.3 Appropriate courses of action are implemented to alleviate or overcome identified shortcomings in the program.
- 4.4 **Remedial action** undertaken is documented and reported to management according to enterprise policy.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in developing a sports turf maintenance program requires evidence that a person can analyse site factors, select suitable nutritional materials, determine techniques, resources and equipment for the maintenance of the turf to presentation standards, and prepare implementation plans, specifications and associated documents.

The skills and knowledge required to develop a sports turf maintenance program must be **transferable** to a different work environment. For example, this could include different grass species, sports turf surfaces, and workplace procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- the principles and practices of maintaining a range of sports turf playing surfaces in relation to client needs, and the standards required for the intended use of the surface

- growth habits and cultural requirements of specific turf plant species and cultivars under a range of soil and environmental conditions

- maintenance requirements and practices for specific turf plant species and cultivars after initial establishment

- site evaluation techniques including analysis of the condition of soils, plants, and the site for turf maintenance activities

- nutrients required by specific turf plant species and cultivars and the affects of nutrient deficiency and toxicity on individual plant species and cultivars, including visual symptoms

- plant diseases of specific turf plant species and cultivars

- the characteristics of soil and other growth media types, uses and additives to enhance the available nutrition for specific turf plant

species and cultivars

soil ameliorants commonly required to treat the soil problems experienced by the enterprise

the main simple and compound fertiliser products available to the enterprise

legislation and regulations relating to sports turf sites and turf maintenance activities.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

communicate and negotiate orally and in writing with staff, managers, contractors and consultants

research and evaluate information

assess site factors and evaluate their impact on the development of the sports turf maintenance program

record all relevant information

comply with legislative requirements

document plans, specifications and work procedures, and write reports for the understanding of staff, managers and contractors

calculate the cost and spatial and logistical requirements of components of the sports turf maintenance program.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

1. How can **communication of ideas and information (3)** be applied?

Analytical results, the growing requirements of turf plants, and the selection of resources and equipment should be communicated with the manager. There is likely to be negotiation between the developer of the maintenance program and the manager to achieve the program objectives.

2. How can **information be collected, analysed and organised (3)**?

Information will need to be obtained from test results, research and/or suppliers. Information obtained about the specific cultural requirements of turf plants should be analysed and outcomes discussed with appropriate personnel. Information about the maintenance program should be presented as a site plan, documented plans, written work procedures, a timeline chart, and schedules for maintenance activities.

3. How are **activities planned and organised (3)**?

The development process should proceed in an orderly and efficient manner. Timely and appropriate information needs to be available for decision-making. The sports turf maintenance program should reflect the activities required to implement the program.

4. How can **team work (3)** be applied?

Developing a sports turf maintenance program will involve working with other members of a team to achieve the program objectives.

5. How can the use of **mathematical ideas and techniques (3)** be applied?

Mathematical concepts will be required to measure quantities, distances, depth and calculate areas, resources, costs, ratios, scales and application rates.

6. How can **problem-solving skills (3)** be applied?

Problems relating to testing, the growing requirements of turf plants, nature of the site, availability of resources and equipment,

costs and monitoring of the program may arise during development of the maintenance program and require remedial action.

7. How can the **use of technology (3)** be applied?

Technology will be required to record, store and communicate ideas and information. It will also be used to research relevant information, obtain and analyse data from site evaluation tests, and to produce the sports turf maintenance program.

Are there other competency standards that could be assessed with this one?

This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Range Statement

Range of Variables

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in particular training and assessment requirements may depend on the work situations available

What soil and plant tests may be conducted as part of a sports turf maintenance program?	These may include on-site and off-site testing of the soil to determine physical characteristics such as colour, texture, structure, depth of rootzone and depth of watertable, and chemical characteristics such as pH, salinity, nutrient and carbonate content, and testing the nutrient status of plants through plant tissue testing.
Who may be referred to as a client ?	Clients may include the enterprises management or a private individual, company, community group, management committee, sporting association, government agency, or a combination of these entities.
What range of conditions may affect plant nutrition?	Conditions may include weather, seasonal influences, soil characteristics, nature and frequency of use, fertiliser history, irrigation methods and scheduling, spraying program and soil management practices.
What sports turf maintenance procedures may apply to this standard?	Maintenance procedures may include soil and turf plant tissue testing, applying nutrients, watering, rolling, mowing, monitoring turf plant health, renovating where necessary, and preparing the sports turf playing surface to presentation standards.
What resources may be required for maintaining sports turf playing surfaces?	Physical resources may include soil and plant testing consumables, materials to modify soil pH, soil ameliorants to improve soil fertility, fertilisers to meet the nutritional requirements of turf species and cultivars, and weed, pest and disease control materials. Human resources may include paid labour, contractors, suppliers and consultants.
What tools, equipment and machinery may be required for the implementation of the sports turf maintenance program?	Tools, equipment and machinery may include soil and plant tissue testing equipment; turf maintenance hand tools;

What **OHS hazards** may be identified as part of the sports turf maintenance program?

3-point linkage, trailed or motorised turf maintenance machinery; and irrigation and drainage systems and components.

Hazards may include disturbance or interruption of services, solar radiation, dust, noise, air-, soil- and water-borne micro-organisms, chemicals and hazardous substances, sharp hand tools and equipment, manual handling, moving vehicles, machinery and machinery parts, slippery and uneven surfaces, and flying objects.

What **controls** may be introduced to minimise the risk of **OHS hazards**?

Controls should be introduced according to enterprise OHS policies and procedures and may include identifying hazards; assessing and reporting risks; cleaning, maintaining and storing tools, equipment and machinery; appropriate use of personal protective equipment including sun protection; safe operation of tools, equipment and machinery; safe handling, use and storage of chemicals and hazardous substances; correct manual handling; appropriate use of safety equipment such as signage and protective barriers; basic first aid available on site; personal hygiene, and reporting problems to supervisors.

What **environmental implications** may be associated with the implementation of a sports turf maintenance program?

Over-spraying or run-off into the external environment may result in nutrient overload or excess water to native plants, natural waterways, watertables and ecosystems, water erosion, water logging and salinisation.

Beneficial impacts may include the minimisation of nutrient run-off and toxic side effects in soil and surrounding environment from improved assessment and targeting of nutrient requirements, application techniques and rates, and the reduction of toxic side effects of applied nutrients in the turf plants.

Responsible fertilisation and watering practices may help to reverse previous environmental degradation by allowing natural recovery and regeneration of native ecosystems.

What **specifications** may be included in the sports turf maintenance program?

Specifications may include types and frequency of soil and turf plant tissue testing, a turf plant nutrition program, irrigation scheduling, mowing frequency, height of cut, pattern, mowing directions and specified equipment, rolling instructions, observable turf quality parameters for monitoring turf health, and preparation procedures for achieving presentation standards.

What **remedial action** may be undertaken to improve plant nutrition?

Remedial action may include adjustments to irrigation scheduling and nutrient application rates and methods, and changes to soil management practices.

For more information on contexts, environmental implications and variables for training and assessment, refer to the Sector Booklet.

Unit Sector(s)

Not applicable.