



## National Unit Specification: general information

**UNIT** Sportsturf Nutrition (SCQF level 5)

**CODE** F6TN 11

### SUMMARY

This Unit is designed to enable the candidate to acquire the skills required for applying fertilisers, supported by knowledge of plant foods and the subsequent effects on sportsturf. Candidates will develop the skills to identify deficiency symptoms of major and minor elements and the symptoms of excess of major elements. Candidates will be able to use the correct terminology relating to the choice and use of fertilisers. Candidates will be able to calculate quantities required, calibrate a fertiliser distributor and apply fertiliser in a given situation.

### OUTCOMES

- 1 Explain the importance of mineral elements in turf nutrition.
- 2 Identify types of fertiliser and state uses of each.
- 3 Select an appropriate fertiliser and the quantity required for a given situation.
- 4 Operate a fertiliser distributor.

### RECOMMENDED ENTRY

Entry is at the discretion of the centre.

### CREDIT VALUE

1 credit at SCQF level 5 (6 SCQF credit points at SCQF level 5\*).

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

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### Administrative Information

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## **National Unit Specification: general information (cont)**

**UNIT**      Sportsturf Nutrition (SCQF level 5)

### **CORE SKILLS**

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill                  None

Core Skill component                Critical Thinking at SCQF Level 4

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit Specification.

## **National Unit Specification: statement of standards**

### **UNIT      Sportsturf Nutrition (SCQF level 5)**

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

#### **OUTCOME 1**

Explain the importance of mineral elements in turf nutrition.

##### **Performance Criteria**

- (a) Describe the use of major elements in turf nutrition.
- (b) State the significance of minor elements in turf nutrition.
- (c) Describe the symptoms and effect on turf of a deficiency of a major and minor element.
- (d) Describe the symptoms and effect on turf of an excess of a major element.

#### **OUTCOME 2**

Identify types of fertiliser and state uses of each.

##### **Performance Criteria**

- (a) Use fertiliser terminology correctly.
- (b) State a range of fertiliser formulations.
- (c) State various modes of release of fertilisers and state specific uses of each.
- (d) Identify the common fertiliser types.
- (e) State sources of fertiliser of the major nutrients.

#### **OUTCOME 3**

Select an appropriate fertiliser and the quantity required for a given situation.

##### **Performance Criteria**

- (a) Determine the area of sports turf.
- (b) Select fertilisers for given situations.
- (c) Calculate quantities of fertiliser required for given situations.

## **National Unit Specification: statement of standards (cont)**

**UNIT**      Sportsturf Nutrition (SCQF level 5)

### **OUTCOME 4**

Operate a fertiliser distributor.

#### **Performance Criteria**

- (a) Set distributor according to operator's manual.
- (b) Calibrate distributor by an appropriate method.
- (c) Apply fertiliser to a given area in accordance with manufacturer's instructions.
- (d) Maintain distributor according to operator's manual.
- (e) Correctly observe safe working practices in all practical activities.

### **EVIDENCE REQUIREMENTS FOR THIS UNIT**

**All relevant operational procedures undertaken in this Unit must adhere to current legislation, regulations, codes of practice and manufacturers' recommendations where appropriate.**

#### **Outcome 1 — Written and/or oral recorded evidence**

The candidate must answer a minimum of eight short answer questions which cover all of the Performance Criteria.

#### **Outcome 2 — Written and/or oral recorded evidence**

The candidate must answer a minimum of ten short answer questions which cover all of the Performance Criteria.

#### **Outcome 3 — Written and/or oral recorded evidence**

The candidate must:

- ◆ calculate a minimum of three areas of turf from a plan
- ◆ calculate the quantity of fertiliser required for a given situation corresponding to each of the above areas
- ◆ for one of the situations the candidate must select an appropriate fertiliser for a minimum of four different problems given in relation to the turf using manufacturer's literature

#### **Outcome 4 — Performance evidence**

Candidates will be assessed using performance checklists to satisfy all of the Performance Criteria.

The candidate will be presented with an assessment to test the knowledge on how to set up, calibrate, operate and maintain a fertiliser spreader, in accordance with manufacturer's instructions and observing safe working practices at all times.

## **National Unit Specification: statement of standards (cont)**

### **UNIT**      Sportsturf Nutrition (SCQF level 5)

The Assessment Support Pack for this Unit provides appropriate instruments of assessment, assessor checklists and assessor guidance. Centres wishing to develop their own assessments should refer to the assessment support pack to ensure a comparable standard.

Centres must be satisfied that the evidence submitted is the work of individual candidates.

When using Performance Evidence, assessor observation checklists and other assessment records should be maintained and kept up to date to keep track of candidate progress and to provide evidence for internal and external verification purposes.

## National Unit Specification: support notes

### UNIT Sportsturf Nutrition (SCQF level 5)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

#### GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This is a mandatory Unit within the National Certificate in Greenkeeping at SCQF level 5, but may also be taken as a free standing Unit.

This Unit is aligned to the following Lantra, Sector Skills Council's National Occupational Standard (NOS) Units:

- ◆ (CU2) Monitor and Maintain Health and Safety
- ◆ (L27) Use and maintain equipment and machines
- ◆ (L2) Establish plants outdoors
- ◆ (L6) Present, maintain and repair sportsturf surfaces for play

#### Outcome 1

In this Unit candidates gain an understanding of the essential nutrients required by turf to create a sustainable sportsturf surface. The importance to turf of the major (macro) elements Nitrogen, Phosphate, Potassium, Magnesium, Sulphur and Calcium must be understood. Candidates should know the significance of the minor (micro) elements iron, manganese, boron, zinc, copper, molybdenum, and chlorine on sports turf. The deficiency symptoms and effect on turf of Nitrogen, Phosphate, Potassium, Magnesium and Iron, although unlikely, need to be explained. Candidates need to be aware of using excess nitrogen out of the growing season and the consequences to the turf.

#### Outcome 2

The candidate will be advised of a range of *terminology* specific to nutrients and fertilisers. Candidates need to appreciate the benefits and limitations of organic and inorganic fertilisers and understand nutrient analysis and nutrient ratios; the *mode of release*, whether conventional, slow or controlled; the time of application, whether spring/summer, autumn/winter or pre seeding. The *type* of fertiliser, whether an element, straight, compound or balanced fertiliser; the *formulation* of fertilisers used in the turf industry, whether powder, granular, prill or liquid.

Candidates should be able to relate the fertiliser sources to the range of groups listed in the above paragraph, for example; Ammonium Sulphate is a compound providing two nutrients — Ammonia 21% and Sulphur 24%, is conventional release and usually used in spring/summer fertilisers.

## **National Unit Specification: support notes (cont)**

### **UNIT Sportsturf Nutrition (SCQF level 5)**

#### **Outcome 3**

Candidates should be able to calculate areas of a range of shapes from squares and rectangles to circles and ovals and irregular shapes normally related to golf greens. Candidates should be able to convert m<sup>2</sup> to hectares and grams to kilograms. Using fertiliser manufacturer's catalogues candidates should be able to select fertilisers for given situations and calculate quantities required for given areas. On completion of this Outcome candidates should be able to devise a basic annual fertiliser programme for a given area.

#### **Outcome 4**

It is essential that candidates are made aware of the dangers associated with equipment, fertilisers and chemicals and learn how to use, store and maintain these safely and with appropriate PPE. Candidates should understand how to use both a continuous belt (drop) applicator and a spinning disc (rotary) applicator although will be assessed on one type only. Candidates will be able to calibrate, use and complete aftercare on the distributor. Candidates should be able to spread a fertiliser at the correct rate and evenly over an area of turf of at least 100 m<sup>2</sup>. Candidates should understand the factors that affect spreading rate, how to set the spreader, how to set out and use markers to ensure an even spread.

### **GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT**

Outcome 1 can be largely classroom based. Use should be made of charts and fertiliser manufacturer's publications. Observation of turf in early spring may indicate nitrogen deficiency.

For Outcome 2 visits to golf courses or sports grounds to inspect the type of fertiliser in the store will develop the learning experience. Manufacturer's publications and recommendations will provide guidance to the candidates on the uses of a range of fertilisers. Contrasting fertiliser types, formulations and sources will develop the candidate experience.

Outcome 3 is largely a numeracy exercise and the assessment can be signposted for Core Skill development. Small areas of turf can be measured to provide experience for the candidates. The numeracy process should be methodical and logical for each candidate. The introduction of computer programmes for calculating fertiliser requirements for given areas will also add interest to the candidates. Setting candidates into groups to develop a range of annual fertiliser programmes will develop understanding.

Outcome 4 is a practical exercise on the setting up, calibrating, operating and maintenance of a fertiliser distributor. If the visit indicated for Outcome 2 could be coincided when the organisation is spreading fertiliser it would be possible to track the system from store to spreading on the turf. Candidates should practise fertiliser spreading, using dry sand, during delivery of this Unit.

## National Unit Specification: support notes (cont)

### UNIT Sportsturf Nutrition (SCQF level 5)

#### OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

This Unit provides opportunities for developing skills valued by employers. Candidates will be involved as part of a group to develop suitable fertiliser programmes, measure given areas of turf and calculate amounts required for given areas so developing Core Skills in

- ◆ *Communication* (SCQF level 4)
- ◆ *Problem Solving* (SCQF level 4)
- ◆ *Working with Others* (SCQF level 4)

Outcome 3 will provide opportunities of developing the Core Skill *Numeracy*. This Unit will develop employability skills in a wide range of sports turf situations.

#### GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

##### Outcome 1

The candidate will be presented with an assessment to test knowledge of major and minor nutrients used for growth of turf; symptoms of nutrient deficiency and their effect on turf; symptoms and effect of excess of a major element as shown in the Evidence Requirements. The Outcome is assessed by a written or oral short answer question paper.

Candidates will be deemed competent with 6 correct responses of which there must be one correct from each Performance Criteria.

##### Outcome 2

The candidates will be presented with an assessment to test the knowledge of a range of fertiliser terminology, fertiliser formulations, mode of release, type of fertiliser and source of fertilisers. The Outcome is assessed by a written or oral short answer question paper.

Candidates will be deemed competent with seven correct responses of which there must be one correct from each Performance Criteria.

##### Outcome 3

The candidate will be presented with an assessment to test the selection of various fertiliser types and mode of action for the needs of specific areas of turf. The candidate will determine the area of turf from a plan for three situations. The candidate will be expected to select and calculate the quantity of fertiliser for each given situation. The assessment will consist of four different turf problems for one situation in which the candidate has to select appropriate fertilisers for each area of turf and calculate the quantities of fertiliser required for the designated area using manufacturer's recommendations. Candidates should have access to a suitable fertiliser leaflet for this assessment.

Candidates will be deemed competent when all the Performance Criteria have been met.



## **National Unit Specification: support notes (cont)**

### **UNIT**      Sportsturf Nutrition (SCQF level 5)

#### **Outcome 4**

The candidate will be presented with an assessment to test the knowledge on how to set up, calibrate, operate and maintain a fertiliser spreader.

#### **Opportunities for the use of e-assessment**

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Time should be allowed for any necessary re-assessment.

#### **DISABLED CANDIDATES AND/OR THOSE WITH ADDITIONAL SUPPORT NEEDS**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements)