

## SQA Advanced Unit specification

### General information for centres

**Unit title:** Golf Course Management: Integrated Pest Management for Sportsturf

**Unit code:** HW88 47

**Unit purpose:** This unit is designed to enable candidates to develop the knowledge and skills required for integrated pest management on a golf course. It allows candidates to develop a Pest Management Programme using a range of possible pest control methods on an environmentally-sensitive basis for sports facilities.

On completion of the unit the candidate should be able to:

- 1 Identify selected pests, weeds, diseases and disorders.
- 2 Outline the principles of Integrated Pest Management.
- 3 Develop an Integrated Pest Management programme for sportsturf.

**Credit points and level:** 1 SQA Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7\*)

*\*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 National 1 to Doctorates.*

**Recommended prior knowledge and skills:** Access to this unit is at the discretion of the centre.

**Core Skills:** There are opportunities to develop the Core Skills of *Problem Solving, Communication, Numeracy* and *IT* at SCQF level 6 in this unit, although there is no automatic certification of Core Skills or Core Skills components.

**Context for delivery:** If this unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

**Assessment:** This unit is assessed holistically by a single assessment in the form of a project which will require candidates to produce a folio of evidence based on a case study of a particular golf course.

The sections of the unit stating the outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

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### SQA Advanced Unit specification: statement of standards

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Where evidence for outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

#### Outcome 1

Identify selected pests, weeds, diseases and disorders

##### Knowledge and/or Skills

- ◆ Identification, monitoring and assessment of damage levels
- ◆ Recognition of selected pests, weeds, diseases and disorders
- ◆ Identification keys and handbooks

##### Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ provide written and pictorial evidence of their knowledge of pests, diseases, weeds and disorders, including life cycles as identified on a site survey
- ◆ identify ten weeds, three pests, three diseases and two disorders
- ◆ apply knowledge of identification keys and handbooks

##### Assessment Guidelines

This unit is assessed holistically by a Project. Candidates must to produce a folio of evidence based on a site survey. They will compile information on a range of pests, diseases, weeds and disorders relevant to their own situation (ten weeds, three pests, three diseases and two disorders). This will be incorporated into the holistic assessment portfolio.

#### Outcome 2

Outline the principles of Integrated Pest Management

##### Knowledge and/or Skills

- ◆ Turfgrass plants, the growing environment and the pests, diseases and weeds that compete with it for resources
- ◆ Treating outbreaks of such pests, diseases and weeds based on monitoring and likelihood of unacceptable damage
- ◆ Treatment methods
- ◆ Impact on non-target organisms
- ◆ Evaluation of outcomes of treatment
- ◆ Components of an integrated pest management system

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- ◆ Selection and use of chemical control — herbicides, fungicides, insecticides
- ◆ Use of the UK Pesticide Guide
- ◆ Cultural control — mowing, scarification, rolling, spiking, cultivations
- ◆ Turfgrass selection — resistant varieties
- ◆ Turfgrass nutrition — fertilizers (organic and inorganic)
- ◆ pH
- ◆ Irrigation and drainage
- ◆ Biological control
- ◆ Site — soil type, soil structure, topography, aspect
- ◆ Wildlife habitat and landscape features
- ◆ Organisation and planning
- ◆ Environmental management

### Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can:

- ◆ produce a portfolio of control measures for the problems identified in Outcome 1 to include:
  - five chemical control measures selected from the UK Pesticide Guide
  - three cultural control measures
  - one turfgrass selection measure
  - two measures that manipulate turfgrass nutrition or pH
  - one control measure manipulating soil water
  - one biological control measure
  - one manipulating soil type, structure, topography or aspect

### Assessment Guidelines

This unit is assessed holistically by a Project. This component of the assessment follows on directly from the site survey carried out for Outcome 1. Candidates should recommend appropriate control measures for the weeds, pests, diseases and disorders identified in Outcome 1.

## Outcome 3

Develop an Integrated Pest Management programme for sportsturf

### Knowledge and/or Skills

- ◆ Use of treatment thresholds
- ◆ integration of control measures
- ◆ timeliness of treatments
- ◆ effects on non-target organisms
- ◆ environmental effects of treatments
- ◆ Wildlife habitat and landscape features
- ◆ Organisation and planning; Environmental management

This outcome represents a synthesis and application of the knowledge and skills identified during Outcomes 1 and 2.

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### **Evidence Requirements**

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ produce an Integrated Pest Management Plan for a selected area of turfgrass

### **Assessment Guidelines**

This unit is assessed holistically by a project. Part of the project is the production of the Integrated Pest Management Plan. The plan should incorporate all of the control measures identified in Outcome 2 and should cover one year. All of the knowledge and skills elements identified above should be addressed. The plan should comprise a standard report format not exceeding 3,000 words, inclusive of tables and the portfolio of information compiled for Outcomes 1 and 2. The assessment will be carried out on an open-book (no restrictions) basis.

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### Administrative Information

<b>Unit code:</b>	HW88 47
<b>Unit title:</b>	Golf Course Management: Integrated Pest Management for Sportsturf
<b>Superclass category:</b>	SC
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#### History of changes:

Version	Description of change	Date

**Source:** SQA

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SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

**FURTHER INFORMATION:** Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

## SQA Advanced Unit Specification

### SQA Advanced unit specification: support notes

#### **Unit title:** Golf Course Management: Integrated Pest Management for Sportsturf

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 unit provides an insight into the ongoing problems of controlling pests, diseases, weeds, etc in an industry that has ever increasing needs to reduce chemical use. The unit should be delivered as far as possible in the field — practical visits to a range of golf courses is essential to cover the full range of knowledge and skills in the outcomes.

##### **Outcome 1**

Integrated Pest Management is based on the activities of identification, monitoring and assessment of damage levels. It requires proficiency in the recognition of pests, weeds, diseases and disorders and an appreciation of the methods available for their control.

##### **Outcome 2**

Candidates should be provided with an understanding that IPM is a strategy based on knowledge of the turfgrass plant, its growing environment and the pests, diseases and weeds that compete with it for resources. Utilisation of this knowledge to treat outbreaks of such pests, diseases and weeds based on monitoring and likelihood of unacceptable damage. The system is represented in the diagram at the end of these support notes.

The importance of integration of treatment methods, impact on non-target organisms and evaluation of outcomes should also be stressed.

The components of an integrated pest management system should be covered in depth: selection and use of chemical control — herbicides, fungicides, insecticides; Use of the *UK Pesticide Guide*; Cultural control — mowing, scarification, rolling, spiking, cultivations; Turfgrass selection — resistant varieties; Turfgrass nutrition — fertilizers (organic and inorganic), pH; Irrigation and drainage; Biological control; Site — soil type, soil structure, topography, aspect; Wildlife habitat and landscape features; Organisation and planning; Environmental management.

##### **Outcome 3**

Use of treatment thresholds — how much damage to the sports surface is acceptable before play is affected. The need to integrate control measures and the timeliness of treatments; The monitoring of treatment effects on non-target organisms; The environmental effects of treatments; Wildlife habitat and landscape features; Organisation and planning; Environmental management. The content of this will be taught through the use of a real working sportsturf area which will form the basis of an integrated case study covering all of the outcomes.

# SQA Advanced Unit Specification

## Publications

- ◆ *Turf Management for Golf Courses*, James B Beard: ISBN 0-02-307660-7
- ◆ *International Turf Management Handbook*, D. E. Aldous: ISBN 0-7056-8954-4
- ◆ *Natural Turf for Sport and Amenity*, W. A. Adams and R. J. Gibbs: ISBN 0-85198-720-6
- ◆ *Turfgrass Science and Management*, Robert D. Emons; ISBN 0-8273-1341-1
- ◆ *The Care of the Golf Course*, Perris and Evans: ISBN 1-873431-19-8

## Websites

[www.hse.gov.uk/pesticides/](http://www.hse.gov.uk/pesticides/)

Use could be made of industry links, for example it would be useful to interview working golf course managers on their approach to integrated pest management.

## Guidance on the delivery and assessment of this unit

This unit would best be delivered alongside *Management of Turf Areas on Golf Courses* and other similar/appropriate sportsturf maintenance/management units at SQA Advanced level.

This unit is assessed holistically by a single assessment in the form of a Project which will require them to produce a folio of evidence based on a case study on a particular golf course.

### *Opportunities for developing Core Skills*

There may be opportunities to gather evidence towards the Core Skills of *Problem Solving* and *Working with Others* at SCQF level 6 in this unit, although there is no automatic certification of Core Skills or Core Skills components.

## Open learning

This unit is suited to an Open Learning approach, provided that clear guideline are given on the assessment plan as to the candidate's provision of acceptable evidence.

## Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website [www.sqa.org.uk/assessmentarrangements](http://www.sqa.org.uk/assessmentarrangements).

## SQA Advanced Unit Specification

### General information for candidates

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While many of you are aware of many of the cultural control methods available and used on sportsturf the use of IPM brings in a stronger environmentally-sensitive basis to the control methods used.

You will become familiar with the range of potential control methods which should be as open and holistic as possible. Threshold of damage is difficult as sports facilities do not like any impairment of surfaces, however you should not be too influenced by this since this can ultimately affect your range of possible methods.

IPM management is not solely reflective of the needs of the turf areas, but the also the other areas within the facility such as tree and/or shrub plantings, aquatic areas such as ponds and streams.

On completion of the unit you will be able to:

- ◆ identify selected pests, weeds, diseases and disorders
- ◆ outline the principles of Integrated Pest Management
- ◆ develop an Integrated Pest Management programme for sportsturf

The components of an integrated pest management system for sportsturf are given for you below.



# Integrated Crop Management – an overview

Balancing Turf Quality with Environmental Responsibility

