



## **National Unit specification: general information**

**Unit title:** Food Manufacture: Sustainability (SCQF level 6)

**Unit code:** H1NH 12

**Superclass:** WM

**Publication date:** July 2012

**Source:** Scottish Qualifications Authority

**Version:** 01

### **Summary**

The purpose of this Unit is to enable candidates to research and make an informed evaluation of the sustainability of the agricultural procedures and manufacturing processes involved in the food and drink industry. Candidates will research procedures for a specific food or drink product to evaluate whether the producing, processing and distribution of a food or drink is sustainable. This is a mandatory Unit within the National Progression Award in Food Manufacture at SCQF level 6. It can also be taken as a free standing Unit.

This Unit is suitable for candidates who are hoping to gain employment in the food production industry. It is also suitable for those who are employed but wish to broaden their knowledge and skills in the food production industry. It aims to facilitate progression to further study including into Higher National and degree programmes in Food Science and Technology.

### **Outcomes**

- 1 Evaluate the sustainability of the raw materials for the food and drink manufacturing industry.
- 2 Evaluate the sustainability of manufacturing techniques used in the food and drink manufacturing industry.
- 3 Evaluate the sustainability of end products of the food and drink manufacturing industry.

### **Recommended entry**

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following, or equivalent qualifications and experience:

- ◆ Numeracy and Communication at SCQF level 5
- ◆ Science or Health and Food Technology at SCQF level 5

## General information (cont)

**Unit title:** Food Manufacture: Sustainability (SCQF level 6)

### Credit points and level

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6\*)

*\*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.*

### Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill                      None

Core Skill component                      Critical Thinking at SCQF level 5

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 title:** Food Manufacture: Sustainability (SCQF level 6)

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**

Evaluate the sustainability of raw materials for the food and drink manufacturing industry.

#### **Performance Criteria**

- (a) Identify factors that affect the sustainability of raw materials for the food and drink manufacturing industry.
- (b) Discuss the environmental demands affecting raw materials produced for the food and drink manufacturing industry.
- (c) Research the use of pesticides and fertilisers in the production of raw materials for the food and drink manufacturing industry.
- (d) Evaluate the impact Genetic Modification has on the sustainability of raw materials for the food and drink manufacturing industry

### **Outcome 2**

Evaluate the sustainability of manufacturing techniques used in the food and drink manufacturing industry.

#### **Performance Criteria**

- (a) Identify factors that affect the sustainability of waste hierarchy outputs employed by the food and drink manufacturing industry.
- (b) Describe how lean manufacturing processing has made food and drink manufacture more sustainable.

### **Outcome 3**

Evaluate the sustainability of end products of the food and drink manufacturing industry.

#### **Performance Criteria**

- (a) Evaluate the influence of the public on the sustainability of end products in the food and drink manufacturing industry.
- (b) Outline the advantages and disadvantages of renewable and non-renewable food packaging in the food and drink industry in relation to sustainability.

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

**Unit title:** Food Manufacture: Sustainability (SCQF level 6)

### **Evidence Requirements for this Unit**

Candidates must provide written and/or oral evidence, with a maximum of 5,000 words required, which demonstrates that they have achieved Outcomes 1–3 to the standards specified in the Outcomes and Performance Criteria. Evidence will be obtained under open-book conditions. Candidates will provide comprehensive evidence and in so doing must:

- ◆ Identify four factors that will affect the sustainability of raw materials.
- ◆ Discuss two environmental demands affecting raw materials produced for the food and drink industry.
- ◆ Research the use of two pesticides and two fertilisers used in the production of raw materials.
- ◆ Evaluate the impact Genetic Modification is having on the sustainability of raw materials for the food and drink manufacturing industry.
- ◆ Research two factors that affect the sustainability of waste hierarchy outputs employed by the food and drink manufacturing industry.
- ◆ Research how lean manufacturing processing has made food and drink manufacture more sustainable.
- ◆ Investigate how the public influence the sustainability of four end products of the food and drink manufacturing industry.
- ◆ Evaluate the advantages and disadvantages of renewable and non-renewable food and drink packaging in relation to sustainability.

## National Unit specification: support notes

### Unit title: Food Manufacture: Sustainability (SCQF level 6)

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 Progression Award in Food Manufacture at SCQF level 6. It can also be taken as a free-standing Unit. The purpose of this Unit is to give candidates an overview of the sustainability of the raw materials, packaging and the public demand for sustainable produce in the food manufacturing industry. Candidates will develop a knowledge and understanding of the principles of sustainability in relation to the production of raw materials as well as the recycling of the packaging. This Unit can be tailored to suit individuals already working within a specific food or drink industry or individuals wishing to specialise in particular areas.

This Unit is aligned to the following National Occupational Standards (NOS) from Improve:

- ◆ principles of sustainability in a food environment — IMPSF102Kv1
- ◆ develop a strategy to achieve sustainability in a food environment — IMPSF101Sv1
- ◆ principles of waste minimisation in a food environment — IMPSF106Kv1
- ◆ understand how to reduce energy usage in a food environment — IMPSF112Kv1
- ◆ understand how to minimise waste in a food environment — IMPSF114Kv1

Candidates would benefit from having knowledge and/or skills from a specific food production area but this is not essential. A basic knowledge of a science based subject would also be beneficial but not essential. This Unit could be integrated with employers progression schemes to allow employees the opportunity to proceed into supervisory posts or quality control posts. This Unit could also be used to prepare candidates for progression into university degree programmes in various food related subjects including BSc in Food Science and Technology.

### Guidance on learning and teaching approaches for this Unit

For Outcome 1 candidates would benefit from working in small groups to research and present information on the sustainability of raw materials and their environmental demands.

Candidate could make use of the internet to research the pesticides and insecticides commonly used on food crops and have visits from researchers in the working in the genetic modification of raw materials.

For Outcome 2 candidates would benefit from having visits from environmental health personnel to highlight the importance of a waste hierarchy in the food and drink manufacturing industry. They could use the internet to investigate how lean processing affects the food and drink manufacturing industry.

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

### **Unit title:** Food Manufacture: Sustainability (SCQF level 6)

For Outcome 3 candidates would benefit from working in small groups to investigate how the public influence the sustainability of the end product in the food and drink industry. They could also work individually to produce a portfolio that look at the advantages and disadvantages of renewable and non-renewable food packaging in relation to the sustainability of products.

### **Guidance on approaches to assessment for this Unit**

Evidence for this Unit may be assessed holistically or on an Outcome by Outcome basis. The evidence should be gathered under open-book conditions.

Candidates could produce a single comprehensive research portfolio and presentation for all three Outcomes consisting of a maximum of 5,000 words which meets the Outcomes; Performance Criteria and Evidence Requirements.

If candidates have varied food manufacturing interests, opportunities may exist for the assessment brief to be tailored to meet individual areas of interest. Alternatively, candidates could work on a single theme determined by the centre.

Information could be gathered by a range of methods and may involve a mix of individual, small group or class work. Centres must be satisfied however that the final evidence submitted is the work of the individual candidate and that the candidate has participated actively in all group activities.

Time should be allowed for reassessment. Where the Unit is assessed holistically candidates need only be reassessed on those elements that have not met the Performance Criteria.

### **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)*.

## National Unit specification: support notes (cont)

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### Opportunities for developing Core Skills

In this Unit candidates will develop knowledge and understanding of sustainability associated with food and drink manufacture industry. Various food processing procedures will be investigated to demonstrate lean practices as well as an investigation into renewable and non-renewable packaging.

Candidates will:

- ◆ identify the departments within a food and drink manufacturing industry are affected by sustainability
- ◆ describe and outline the lean processes used in the manufacture of food and drink
- ◆ carry out research investigations
- ◆ present findings
- ◆ identify workplace practices relating to the food and drink industry
- ◆ research specific packaging from a sustainability angle looking at renewable and non-renewable materials

This means that as candidates are doing this Unit they will be developing aspects of the Core Skills of *Communication, Numeracy, Problem Solving, Information Communication Technology (ICT)* and *Working with Others*.

This Unit has the Critical Thinking component of Problem Solving embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 5.

### 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)

## History of changes to Unit

Version	Description of change	Date

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