



National Unit specification

General information

Unit title: Sustainable Food Production

Unit code: H6RF 46

Superclass: NE

Publication date: February 2014

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

This Unit is designed to enable learners to understand how food production developed from hunter-gatherer communities to the present day agricultural society. Learners have the opportunity to compare the characteristics of the global and local food markets and to compare their sustainability in terms of economic, social and environmental effects. They will also consider the issues involved in moving from the global to a local food market. It is intended for learners who wish to work in local food production or who have an interest in sustainable rural development.

Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Describe the key characteristics of global and local food markets.
- 2 Compare global and local food markets in terms of sustainability.
- 3 Identify issues in moving from the global to a local food market.

Credit points and level

1.0 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6)

National Unit specification: General information (cont)

Unit title: Sustainable Food Production

Recommended entry to the Unit

While entry is at the discretion of the centre, learners would benefit from having attained one of the following, or equivalent:

- ◆ National 5 Geography
- ◆ National 5 Science (any subject)
- ◆ NPA Crofting (SCQF level 5)
- ◆ Hospitality and Catering (SCQF level 5)
- ◆ Rural skills (SCQF level 5)

Learners taking this Unit do not need to have any prior knowledge of food production, however good skills in research and analysis would be an advantage.

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 4

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

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.

This Unit is included in the NPA in Local Food Production at SCQF level 6, however it may also be delivered as a stand-alone Unit or as part of other relevant programmes.

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.

National Unit specification: Statement of standards

Unit title: Sustainable Food Production

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

Describe the key characteristics of global and local food markets

Performance Criteria

- (a) Identify key developments in the history of food production and development of agricultural societies.
- (b) Describe the key characteristics of the current global food market.
- (c) Describe the key characteristics of current local food markets.

Outcome 2

Compare global and local food markets in terms of sustainability.

Performance Criteria

- (a) Compare global and local food markets in terms of economic sustainability.
- (b) Compare global and local food markets in terms of social sustainability.
- (c) Compare global and local food markets in terms of environmental sustainability.

Outcome 3

Identify issues involved in moving from the global to a local food market.

Performance Criteria

- (a) Identify key issues faced by producers in moving from the global food market to a local food market.
- (b) Identify key issues faced by consumers in purchasing locally produced food rather than globally produced food.

National Unit specification: Statement of standards (cont)

Unit title: Sustainable Food Production

Evidence Requirements for this Unit

Evidence is required to demonstrate that learners have achieved all Outcomes and Performance Criteria.

Outcome 1

For Outcome 1 written and/or recorded oral evidence is required to demonstrate that the candidate can:

- ◆ Identify a minimum of four key developments in food production from pre-history to the present day.
- ◆ Describe a minimum of six key characteristics of the global food market.
- ◆ Describe a minimum of six key characteristics of local food markets.

Outcome 2

For Outcome 2 written and/or recorded oral evidence is required to demonstrate that the candidate can:

- ◆ Describe a minimum of two areas of comparison between global and local food markets within economic sustainability.
- ◆ Describe a minimum of two areas of comparison between global and local food markets within social sustainability, with reference to:
 - health
 - depopulation in rural areas
- ◆ Compare the environmental impacts of global and local food markets, with reference to:
 - climate change
 - soil fertility
 - pest infestation
 - biodiversity

Outcome 3

For Outcome 3 written and/or recorded oral evidence is required to demonstrate that the candidate can:

- ◆ Identify a minimum of six issues faced by producers moving from the global food market to a local food market.
- ◆ Identify a minimum of three issues faced by consumers in purchasing locally produced food rather than globally produced food.

Evidence could be generated for each Outcome separately or through a holistic assessment for all three Outcomes.



National Unit Support Notes

Unit title: Sustainable Food Production

Unit Support Notes are offered as guidance and 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

Suggested topics and themes that could be covered in this Unit are given below for each Outcome.

Outcome 1: Describe the key characteristics of the global and local food markets

The Global Food Market

- ◆ The development of agricultural societies from hunter-gatherers.
- ◆ The production of food as a commodity available for trading.
- ◆ The Agricultural Revolution, of the 18th and 19th centuries and the subsequent production of surplus food.
- ◆ The effect of improved transport systems.
- ◆ The effect of new food handling and preservation methods.
- ◆ The role of the World Trade Organisation in defusing conflicts between major food producing nations (eg USA, European Union and Japan).
- ◆ Review the changes in the world food imports and exports since 1960 (source: Food and Agriculture Organisation).
- ◆ The reliance of the global supply of cereals on the export capacity of only 15 countries.
- ◆ The political lever of Food Aid (Food Power).
- ◆ The effect of 'Agribusiness' on the ability of developing nations to remain self-sufficient.
- ◆ 'Food Dependency' and the reasons why a state of emergency in food supply systems exists in many countries while the world per capita supply of cereals has been steadily growing since the 1960s.
- ◆ The effect on the world food supply of growing cereals as a food stuff for livestock.
- ◆ The effect of human migration from rural to urban areas.
- ◆ The tendency of producers for the global market to grow 'cash crops' which may not be suited to the local conditions and to grow large areas of monocultures.

National Unit Support Notes (notes)

Unit title: Sustainable Food Production

The Local Food market

- ◆ Could be defined as: 'food produced locally for local or regional consumption'.
- ◆ An understanding of the organic model of food production, which may or may not also involve local food production.
- ◆ Typically involves small farmers or producers with heterogeneous products and short supply chains in which the producers also perform the marketing functions, including storage, packaging, transport, distribution and advertising.
- ◆ The two basic types of local food market: 'direct-to-consumer' (including farmers' markets, on farm sales and pick-your-own) and 'direct-to-retail' (including direct sales to restaurants, shops and possibly schools and hospitals).
- ◆ The tendency for farms involved in direct sales to be small.
- ◆ Food security in rural areas.
- ◆ Provenance
- ◆ Possible health and nutritional benefits, from food that is fresher and has received less processing.
- ◆ The seasonal nature of locally produced food.
- ◆ The Slow Food movement.
- ◆ The connection between the food consumer and the producer through information reaching the consumer about the origin of the food.
- ◆ The significant rise in the consumption of local food in western nations since 2000.

Outcome 2: Compare Global and Local Food Markets in terms of sustainability.

Content

Consider sustainability in three areas: Economic, Social and Environmental

1 Economic Sustainability

- ◆ The effect of the 'loss' of money going to 'middlemen' in the global market.
- ◆ The positive effect of 'import substitution' of buying local food rather than imported food.
- ◆ The economic and viability effect of shifting the location of intermediate stages of food production (eg meat slaughtering and processing) to the local area.
- ◆ Input-Output Models and the 'Multiplier Effect'.

2 Social Sustainability

- ◆ The conflicting evidence over the retention of nutrients in fresh fruit and vegetables compared to those transported and processed.
- ◆ The claim that fresh fruit and vegetables are more inviting to eat and therefore encourage people to eat more of them.
- ◆ The range of methods of preserving food for transport and extending shelf life, including the use of additives and genetic modification, and the possible effects on health.
- ◆ The opportunities presented by local food production to reduce or even reverse the trend of depopulation in rural areas.

National Unit Support Notes (notes)

Unit title: Sustainable Food Production

3 Environmental Sustainability

- ◆ The greenhouse effect and how it is linked to climate change.
- ◆ The carbon cycle and how intervention by man has resulted in an increase in carbon dioxide in the atmosphere.
- ◆ The factors linking the level of carbon emissions and food miles travelled.
- ◆ The origins of all items in a weekly shopping trolley.
- ◆ The use of carbon calculators to investigate the carbon emissions from a range of food and other online resources to consider the range of factors that result in carbon emissions from food.
- ◆ The carbon emissions resulting from food packaging and compare food packaging for local food and global food.
- ◆ Relative proportion of carbon emissions from transport varies according to factors such as mode of transport, distance travelled, food product and the size of the production footprint. Hence air-freighted green beans from Kenya may be 20 times more greenhouse gas intensive than beans grown in-season in the UK, while transport accounts for a relatively small part of the carbon emissions from energy hungry production of imported meat.
- ◆ Savings from reducing transport emissions can be undone by higher emissions from production, storage, packing or processing. For example it may result in lower carbon emissions to transport fruit and vegetables from Spain than to grow them under glass in the UK, although the better solution would be for consumers to be encouraged to eat locally produced, seasonal food.
- ◆ How to reduce the carbon emissions from the transport of both global and local food, for example through the use of low-carbon fuels and low emission vehicles.
- ◆ The effects of large scale monocultures on soil fertility and pest infestation and the resulting environmental impact from the use of artificial fertilisers (eg eutrophication of water courses, damage to soil structure and soil erosion) and pesticides (eg bioaccumulation of toxic residues).
- ◆ The nitrogen cycle and understand how soil fertility can be maintained.
- ◆ The relative benefits and limitations of organic and natural fertilisers.
- ◆ The effects of large scale monocultures on biodiversity (eg the impact of palm oil and soya bean production for the global market on the local biodiversity).

National Unit Support Notes (notes)

Unit title: Sustainable Food Production

Outcome 3: Identify challenges to moving from the Global to a Local Food Market

Content

- ◆ Capacity constraints and potential over capacity of small producers.
- ◆ Time constraints for small producers exacerbated by the need for off-farm activities such as marketing.
- ◆ Limited availability of labour and low wages in rural areas.
- ◆ Lack of investment capital for supply chain infrastructure, such as vehicles, temperature-controlled storage facilities and processing plants.
- ◆ Lack of distribution systems for moving local food into mainstream markets.
- ◆ Limited research into the local market.
- ◆ Lack of education and training for business and marketing.
- ◆ The reluctance of producers to invest time and money in changing their practices and their products for the local market.
- ◆ Uncertainties relating to the regulations that may affect local food production.
- ◆ The higher cost of local food to the consumer caused by hidden subsidies in the global food market.
- ◆ Expectations of consumers for standardised products and year round supply.
- ◆ Quality control issues and uncertainties of production volumes unless producers form groups or co-operatives, which then causes problems with traceability.

Guidance on approaches to delivery of this Unit

This Unit is primarily intended to establish a context for local food production, set against the historical background of the development of agricultural societies and eventually a global food market. Much of the focus of the Unit is a comparison of the global and local food markets in terms of sustainability. It is appreciated that the term 'sustainable' is often overused and that there is no single, generally accepted definition. However, The Oxford English Dictionary's definition: 'to be capable of enduring', could be the starting point for a discussion into how the word could be applied to economic, social and environmental issues. Another

It is hoped that the different aspects of the global and local food markets will be considered by the learners and that by the end of the Unit they will be in a position to make their own judgments about the relative merits of both systems. It will therefore be important to give learners plenty of opportunities to research information, explore their own ideas, to discuss with each other and to present their opinions.

Outcome 1 provides the foundation of understanding of how and why the global food market became established and also of understanding the characteristics of the local food market. Much of this can be achieved through the learners researching and feeding back as well as through teacher led activities. Reference made to producers in the local area, who either sell into the local food market or into the national/global food market would help to contextualize the learning. Learners should be encouraged to consider the many motivations associated with the argument, such as: feeding the world population, supporting national export markets, stimulating international trade, reducing greenhouse gas emissions, stimulating local economies and encouraging young people to find work in their local community.

National Unit Support Notes (notes)

Unit title: Sustainable Food Production

In **Outcome 2**, learners make direct comparisons between the two systems under the headings of economic, social and environmental Sustainability. Many learners will be familiar with the concepts surrounding environmental sustainability, although perhaps not in detail in relation to food production. They are likely to be less familiar with applying the sustainability term to economic and social contexts. Opportunities should therefore be given to fully explore these ideas.

A good starting point for looking at environmental sustainability would be 'Local Food and Climate Change: The role of community food enterprises' which is a publication commissioned by Making Local Food Work.

Outcome 3 considers the issues faced by producers in moving from the global food market to a local market and also the challenges faced by consumers buying locally produced food. The learners should be encouraged to identify these challenges by talking to local producers and consumers, perhaps making use of questionnaires. The challenges faced by producers and consumers are likely to vary from location to location (for example meat producers are dependent on an accessible slaughterhouse), although there are likely to be some generic challenges.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

This Unit would be best assessed Outcome by Outcome, although the form of assessment could take a variety of forms.

Outcome 1: Describe the key characteristics of the global and local food markets

The key developments in food production and the key characteristics of the global and local food markets could be presented in separate reports or in a single report. The report(s) could be in the form of a written document, a detailed poster or a recorded oral presentation to the group.

Outcome 2: Compare Global and Local Food markets in terms of sustainability

A single report could be presented to cover the descriptions of areas of comparison between global and local food markets within the areas of economic and social sustainability. The report(s) could be in the form of a written document, a detailed poster or a recorded oral presentation to the group. A direct comparison of the environmental impacts between global and local food markets with reference to climate change, soil fertility and pest infestation could be best achieved by producing a table of comparison providing points of comparison under those headings.

National Unit Support Notes (notes)

Unit title: Sustainable Food Production

Outcome 3: Identify challenges to moving from the Global to a Local Food market

The challenges faced by producers and consumer could be presented as a report of the results of questionnaires, if these were conducted to obtain the evidence for this Outcome. Equally they could be listed together with brief explanations of each challenge. The reports could be in the form of a written document, a detailed poster or a recorded oral presentation to the group.

Whatever form the reports take, they must reflect the level of the qualification at SCQF level 6.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Opportunities for 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 social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core and other essential skills

There is no automatic certification of Core Skills or Core Skills components in this Unit, however there may be opportunities to develop the Core Skills of *Communication*, *Numeracy*, *Information and Communication Technology (ICT)*, *Problem Solving* and *Working with Others* all at SCQF level 6.

If evidence is produced for the three Outcomes in the form of a report there will be clear opportunities to develop either Written or Oral Communication and potentially the Using Graphical Information component of the *Numeracy* Core Skills.

The research elements included throughout the Unit provide opportunities to develop the Accessing Information component of *Information and Communication Technology (ICT)* and depending on the format of evidence produced could also provide opportunities to develop the Providing/Creating Information component also.

Similarly the gathering and presenting of evidence for this Unit could provide opportunities to develop the Core Skills of *Problem Solving* (Critical Thinking and Reviewing and Evaluating components) and *Working with Others*.

In addition to the Core Skills noted above the Unit also provides clear opportunity to develop other essential skills, in particular in the areas of Employability, Sustainable Development and Citizenship.

National Unit Support Notes (notes)

Unit title: Sustainable Food Production

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 4.

History of changes to Unit

Version	Description of change	Date

© Scottish Qualifications Authority 2014

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Business Development and Customer Support team, telephone 0303 333 0330.

General information for learners

Unit title: Sustainable Food Production

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit is designed to enable you to compare the global food market with local food markets in order to provide a background and a context if you are considering becoming a local food producer, working in local food production or are interested in sustainable rural development.

The Unit covers three main areas and each of these areas is the subject of a separate Outcome. By way of an introduction you will compare the characteristics of the global food market and local food markets, tracing the historical origins of the former and the subsequent, recent 'rediscovery' of the latter. You will then compare the relative sustainability of the two markets under the headings of 'Economic', 'Social' and 'Environmental'. Finally, you will consider the challenges, for producers, in moving from the global to a local food market. By the end of the Unit you will be expected to make your own judgement about the relative merits of the two markets.

You will have the opportunity to carry out independent research throughout the Unit, particularly in **Outcome 1**, and then to report back your findings to your peers. **Outcome 2** will give you the chance to debate many issues surrounding the concept of sustainability and to discover the work of groups and individuals who have adopted their own positions. You will be able to draw and state your own opinions on these issues. In **Outcome 3** you will be looking through the eyes of producers who are trying to move from the global into a local food market and also consumers who are trying to consume more local food. This will best be achieved by meeting with and talking to local consumers and finding out first-hand about the challenges they face. You may find that devising questionnaires will be a useful way to gather information.

The Unit will be assessed Outcome by Outcome and you will be required to produce separate reports to summarise your findings. The reports could be in a variety of forms, for instance a written document, a detailed poster or a recorded oral presentation to the group. You will need to consider what would be the most appropriate format to convey your findings from each Outcome.