

The following websites provide information on some of the threats to soil quality.

http://www.sepa.org.uk/land/soil/threats_to_soil_quality.aspx

<http://www.defra.gov.uk/food-farm/land-manage/soil/>

The following website allows you to find out how Department for Environment, Food and Rural Affairs (DEFRA) have promoted sustainability and handled the issue of overgrazing:

<http://archive.defra.gov.uk/rural/countryside/uplands/grazing.htm>

For a good overview of sustainable farming methods visit:
<http://www.sarep.ucdavis.edu/sarep/about/def>

This website also provides a good summary of what sustainable agriculture is.

The following website provides conservation activities and techniques that could be used on a farm

www.ukagriculture.com/conservation/conservation.cfm

Key Terms

Conservation

Sustainable Agriculture

Monoculture

Biodiversity

Crop diversification

Grazing management



Produce a poster showing how traditional farming practices (e.g. crop rotation and rotating grazing livestock) help conserve the soil and vegetation.

1. Give two advantages of crop rotation.
2. Explain how using different types (species) of livestock on the same land can help promote soil and vegetation conservation.
3. Suggest why there is often a conflict between productivity and conservation.



GCSE

FACT FILE

Agriculture and Land Use Conservation and Sustainable Agriculture

For first teaching from September 2013

For first award in Summer 2015



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Learning Outcomes

Students should be able to:

- Define the term conservation and understand how those working on the land can support conservation initiatives by practising sustainable agriculture, for example crop diversification, using animals to maintain soil and vegetation quality.

What is conservation and sustainable agriculture?

Conservation is a general term used to describe practices that help protect the environment.

Sustainable farming practices enable farmers to produce food in a way that will not harm their ability to do so in the future. It is a way of farming that will allow sustained production while preventing or limiting harm to the environment. In summary, sustainable agriculture ensures that current farming techniques do more good than harm to the environment.

Examples of sustainable farming practices

• Crop diversification

Depending on just one crop (monoculture) can leave farmers open to unnecessary risks. A slump in the market value for a particular crop would reduce farm income. Additionally, some crops are particularly at risk to pests

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and harsh weather conditions. A farmer with diversified production (i.e. growing a range of crops) can reduce (or spread) these risks.

For example, if only one crop is grown in a field (or farm) year after year, the soil may get depleted of the minerals that this crop requires in high quantities. Monoculture can also contribute to soil erosion – particularly if the land is intensely farmed. Another problem with monoculture is that pests that feed on a particular crop will build up as they have a regular food source. Some types of crop are at particular risk in certain weather conditions too. Our uncertain climate poses a risk to those crops that require a good summer and autumn for ripening.

• Using animals to maintain soil and vegetation quality

Grazing management on farmland is important for sustainability as overgrazing can lead to problems such as the ground cover (grass) becoming depleted. This both damages the vegetation and can cause soil erosion. Overgrazing can also lead to a reduction in biodiversity (range and abundance of the different species present) as certain species may be particularly favoured as a food source by the livestock and eliminated.

To remain nutritious, many grasses need regular grazing to avoid becoming lank. However, grazers that can eat vegetation very close to ground level, e.g. sheep, have a very different effect on the vegetation than those that do not eat as closely, e.g. cattle.

For this reason, many farmers do not keep the same type of animal grazing on the same land for too long.



Photos: James Napier



The photographs above show dairy cattle and sheep grazing in different fields – the grazing by each animal has a very different effect on the vegetation.

Note: It is important to remember that the livestock that can be kept on a particular field or farm may be dictated by the climatic conditions and soil and vegetation quality. For example, fields in many upland areas are suitable for sheep but not most breeds of cattle. Therefore, the ability to rotate grazing species may be limited.

Farmers can also sub-divide a field into sections, known as strip grazing, allowing animals to graze on only one section at a time. This ensures both:

- efficient use of the grass
- allows other sections of the vegetation to recover after being grazed.

However grazing does have benefits such as the creation of species rich meadows from arable ground also allows less competitive species to become established as dominant plant species are reduced.