Knowledge box 8

Geography Plus: Food for Thought

These knowledge boxes provide background information for teachers to help develop knowledge for teaching **Food for Thought**.

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What is the future for our food?

This is a very complex question. It may well be possible in the future to produce compressed food in the form of tablets but an interesting point to consider is how important is the look, taste and colour of food to us? Pose the question to your pupils: would they be happy to have some tablets to take at mealtimes or would they prefer a plateful of their favourite food?

One of the most important aspects of modern-day farming is that of economic value. In order to make a profit farmers have to produce larger and larger yields of high-quality crops to meet market requirements. This involves farmers in costly investment all through the year and, as the example of the pea harvest in lesson 8 shows, sharing costs is one way of making farming more economically viable.

Farmers in the UK are also turning to other ways of using their land profitably, such as rearing horses, developing camping and caravan sites, creating nature reserves or even selling land for housing development. In the past, farms provided a place of employment for many local people but today farms are often only managed by the family and perhaps one other farm hand. Government financial support can also influence what farmers choose to grow and these subsidies are changed from year to year. Linseed oil plants and rape seed have had subsidies recently and were responsible for the swathes of yellow fields over the past few years. Infections and illnesses in animals such as BSE and foot and mouth diseases have taken their toll and many farms have ceased production as a result.

New ways of farming

Intensive farming

This is an agricultural system which aims to get maximum yields from the available land, whether through growing crops or rearing livestock. However, it does rely on the use of pesticides, chemical fertilisers and a number of other chemicals to aid growth at every stage. There are significant concerns about the long-term effect of using so much artificial support to increase yields not only on the land itself but on people who eat the products too. There is also concern about the development of genetically modified (GM) crops which alters the way

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crops are grown. The risks are not clear at present as these type of growing crops are still under scientific investigation.

Organic farming
This produces quality food without using pesticides or chemical fertilisers. While this method produces fresh produce, sometimes the shape and size of individual potatoes, tomatoes or apples are not always identical and supermarkets are reticent to buy these as they say their customers want perfect and evenly shaped fruit. Much of the organic sales are through farm shops or specialist organic shops.

Hydroponics
This is a method by which plants are grown not in soil but in water containing dissolved nutrients in huge greenhouses. This technique eradicates diseases caused by soil organisms but is very expensive as the plants need constant monitoring and costly minerals which are added to the water. It does have great potential for 'farming' in places where the soil is poor quality or non-existent. These hydroponic greenhouses can be located in urban areas and even on the tops of buildings so have great potential for future production of food throughout the year close to where the markets are based.

Thanet Earth – a case study
It might be appropriate for some of your pupils to study the topic of future food production a little further and Thanet Earth provides an excellent case study to investigate how agriculture may look in the future.

Thanet Earth is a vast new farming operation in East Kent which grows tomatoes, peppers and cucumbers hydroponically under glass. There are seven greenhouses each the size of ten football pitches so you can imagine the enormity of the project. The siting of these massive greenhouses initially caused objections by local people as they were concerned they would be an eyesore. One of the planning consent conditions was that if the plant closed the land had to be restored to its original agricultural state. One of the important benefits was the provision of 550 jobs which had a big impact on employment in the local area.

When plants are grown hydroponically, rockwool, a fibrous material like housing insulation, is used as a root anchor instead of soil. Computers control the exact amount of water and nutrients supplied to each plant and artificial lights are used to 'trick' plants into growing for up to three months longer than using traditional methods. 55% of the water needed is provided by rainwater collected from the roofs of the greenhouses and 20% comes from recycling the water used each day. Growing under glass in this way is a tightly-controlled system where the risks from diseases and the weather are greatly reduced. Natural predators such as spiders are introduced to control any pests which are detected and bees are introduced to pollinate the flowers.

Market gardening on this scale is enormous and could be a prototype of what could be developed around the UK in the future. More information and video clips of this project can be found at *www.thanetearth.com/about-us.html*.