

# Food security and Farming

## Factors affect food security

- Food security is a measure of the availability of food required to support people of a household, region, country or any specified area.
- It is a measure of how much food there is, if it is of suitable quality and whether people can access it.
- Having fully stocked supermarket shelves is something that perhaps some of us might take for granted. However, this high level of food security is not experienced by all people.
- In some parts of the world there is a shortage of food, which can result in starvation and death. The United Nations estimate that over 700 million people face hunger each year. They also estimate that each year three billion people cannot afford a healthy diet.
- Food security is reduced by:
  1. the increase in human population, as birth rates are increasing and many people have better access to medical care
  2. Changing diets mean scarce food resources are transported to be sold to other areas from areas which need them .
  3. New pests and pathogens that attack crops and farm animals.
  4. The effects of climate change are making farming more difficult in many areas, eg famine in some countries if it doesn't rain for a long time.
  5. Increased costs of farming
  6. Armed conflicts which affect how available food is

## Farming Techniques

- **Food production** can be made more **efficient** by limiting the **energy transferred** from the farmed animals to the **environment**. This means that more energy is used for **growth** and so more food is produced. This could include limiting an **animal's movement** to ensure no **energy** is **wasted** on unnecessary **muscle contractions** or controlling the **temperature** of the surroundings so the animal uses less **energy** on **thermoregulation**.
- Some farmers also give their animals **high protein foods** to increase their growth. This kind of farming is called **factory farming** and is quite **controversial**.
- Some people think keeping animals in **small cages** or **pens** is **unethical** because it is **unnatural** and often **uncomfortable** for the animals. It also enables **diseases** to spread rapidly through the populations.

- Farmers will give animals **antibiotics** in their food to combat this issue but it will most likely lead to the **evolution of antibiotic resistant bacteria**.
- Modern methods of **crop production** also come with some issues.
- Large amounts of **fertiliser** are used to **increase production** but this can run into rivers and lakes, causing **eutrophication** (increased growth of algae on the surface of the water). This blocks **sunlight** from reaching **aquatic plants** and causes the **death of aquatic life**.
- **Crop farming** also reduces **biodiversity** because each farmer will only grow one type of **crop** in a field and will often **remove hedgerows** that provide **habitats** for many species.

## **Sustainable Fishing**

- The amount of **fish** in the sea is **declining** due to **overfishing**.
- We are fishing so much that **fish populations** do not have time to **reproduce** and **recover** their numbers. This can have **knock-on effects** on the whole **food chain** and cause certain populations to disappear altogether in some areas.
- In order to carry out **sustainable fishing**, **fish stocks** need to be **maintained** by ensuring the amount of **fish caught** is no more than the amount of **new fish born**.
- **Overfishing** is prevented using **fish quotas** which limit the **size** and **amount** of fish that can be caught in certain areas.
- The **size** of the **holes** in **fishing nets** is also controlled to prevent **young fish** being killed before they reach **breeding age** and to prevent **unwanted fish species** being caught.