5. Agriculture & Fishing

This chapter

Some of the most important activities in the primary sector are the ones that provide us with food: **agriculture** and **fishing**. In this chapter, we will learn about:

- different **types of agriculture**, and how they can have a **big impact on the landscape and the environment**
- agriculture in Europe and in Spain
- the **fishing industry** and problems of overfishing

We will also find out a bit about **forestry**.

What types of agriculture are there?

Agriculture or **farming** means ***cultivating the soil, growing crops and raising animals to produce food***. There are **three main types** of farming:

arable farming: ***growing crops***

pastoral farming or **livestock farming:** ***raising animals***

mixed farming: ***growing crops and raising animals on the same farm***

FARMING METHODS

Farming uses various **inputs**, including:

- **manual labour:** work done by people
- **mechanisation:** using machines to do work instead of manual labour
- **water:** naturally through rainfall or using irrigation
- **chemicals:** herbicides, pesticides and fertilisers
- **scientifically-developed seed varieties** that give higher yields or are resistant to pests

We can classify farming methods depending on the **inputs** they use:

- **Intensive farming** tries to ***maximise production and profits by using lots of inputs***.
- **Extensive farming** ***uses far fewer inputs***. This reduces costs, but it often means that yields are lower. Extensive farms are often very big.

TERMINOLOGY

Yield: the amount of a crop that is produced per unit of land or input.

Pest: an insect or other animal that attacks crops or farm animals.

Weed: a wild plant that grows where it is not wanted.

(Farm) produce: products from farming including cereals, vegetables, meat, milk and eggs.

Relief: the shape of the land, including altitude, and whether it is flat or hilly.

Questions

1 3

1. Match up these types of farming with their descriptions:

1)	subsistence farming	a)	it uses lots of inputs
	pastoral		the farmer

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IS THE PRODUCE SOLD?

- In **subsistence farming**, the ***produce is eaten by the farmer's family, or by other people in the same community***.
- In **commercial farming**, the ***produce is sold***. It can either be **sold locally** or **exported**.

PHYSICAL AND HUMAN FACTORS

The type of farming varies greatly from place to place, depending on physical and human factors. The main ones are shown in the table.

Physical factors	Human factors
• climate • relief • soil type	• the amount of capital the farmer has to invest • the cost of manual labour and technology • subsidies and environmental policies • the demand for the produce

Questions 1 3

1. Match up these types of farming with their descriptions:

1)	subsistence farming	a)	it uses lots of inputs
2)	pastoral farming	b)	the farmer grows food to sell
3)	arable farming	c)	raising animals and growing crops
4)	intensive farming	d)	growing crops
5)	commercial farming	e)	the farmer grows food for his own family
6)	mixed farming	f)	raising animals

Farming in poorer countries

In poorer countries, **most farms are small**. They are either:

- **subsistence farms**
- **commercial farms** that produce food to sell **locally**
- **commercial farms** that produce **cash crops** for **export**, for example: *tea*, *coffee*, *tobacco*, *cocoa*, *spices*, *nuts* or *flowers*

TERMINOLOGY

Cash crop: a crop that is sold.

Plantation: a large commercial farm that grows a particular cash crop.

There are also some large **plantations** owned by big companies, and in some places, there are **nomadic farmers**.

CASE STUDY: SUBSISTENCE FARMING IN ETHIOPIA

Ethiopia is in the tropics in East Africa, so it has a **tropical climate**.

- At **low altitudes**, it is **very hot** with **low and irregular rainfall**. **Drought-resistant crops**, including sorghum and millet, are grown here. There are also **nomadic pastoral farmers**.
- At **higher altitudes**, it is possible to grow crops like wheat and barley, which need a **cooler climate**.
- **Corn** (maize) only grows in areas with **higher rainfall**.
- Other important crops in Ethiopia include pulses (like beans and lentils), yams and sweet potatoes.

About 85% of the Ethiopian labour force is involved in agriculture. Most people are **subsistence farmers**, but some people produce cash crops to sell locally or for export.

Most Ethiopian farmers **cannot afford machinery**, so most work is done with **simple tools** using **manual labour and animals** (see picture). Farmers cannot irrigate their fields, so they need good weather. If there is a **drought**, their crops die. Another big problem in Ethiopia is **soil erosion**, due to overgrazing and deforestation.

One of Ethiopia's main **exports** is **coffee**. The majority of the coffee is grown by **small farmers**, but there are also a few large coffee plantations. The international market for coffee is very competitive. Multinational companies don't mind where in the world the coffee comes from, they just want to buy it at the cheapest price. This means that **farmers often get a very low price**, even though the final product is sold at a high price in Europe or North America.

Questions

2. Which of these inputs do most farmers in Ethiopia use?
   a) machinery
   b) manual labour
   c) irrigation
3. Do farmers grow the same crops everywhere in Ethiopia? If not, why not?
4. Why don't Ethiopian farmers get a higher price for their coffee?

CASE STUDY: DARJEELING TEA

A lot of the world's tea is grown on huge plantations by workers who get very low wages. It is sold at a low price to big international companies. However, the situation is very different in **Darjeeling in northern India**.

In the 1850s, the British started producing tea commercially in Darjeeling. Now there are many **small and medium-sized tea producers** owned by Indian companies.

Darjeeling tea is very **high-quality**; in fact, it is often described as the "champagne" of teas. Tea that is labelled as Darjeeling tea has to come from Darjeeling, and meet strict quality standards. A lot of the tea produced is **organic** (see page 52). Together, these things mean that Darjeeling tea producers can get a **much better price** for their product. The tea workers get **better pay and working conditions** in Darjeeling than elsewhere.

Farming in richer countries

In richer countries, almost all farms are **commercial**. More and more agricultural land is being taken over by **agribusinesses**. These are ***very large commercial farms that are run by big companies***. These companies invest money in **modern technology** and **machinery** to make the farms **as efficient as possible**. Agribusinesses are very common in many richer countries, including the US. The type of farm depends on the relief, soil and climate type. We will look at two examples.

CASE STUDY: ARABLE FARMING IN THE US

On the central plains of the US there are many **large commercial arable farms**. Some of the main crops are corn (maize), soya beans and wheat. These crops need **good soil** and **warm summers** with **sufficient rain**.

The farms aim to be **as efficient as possible**. They do this by:

- ***only growing one crop*** – this is called **monoculture**
- using **machines** to plough the soil and to sow and harvest crops
- using **seed varieties** that give high yields and are resistant to pests
- using **pesticides** and **herbicides** to kill pests and weeds
- using **chemical fertilizers** – this means they can **produce bigger yields** and **plant crops more often**

In order to use machines efficiently, the **land must be fairly flat** and the **fields must be very large**. Fences and hedges between smaller fields are removed, which has a big impact on the landscape (see picture). It also increases soil erosion.

Although large arable farms use machinery and chemicals, **the overall level of input required is low compared with the yields produced**. **Very few people** are needed and **irrigation is not normally used**.

CASE STUDY: CATTLE RANCHING

In the US, as well as in Brazil, Argentina and Australia, huge **cattle ranches** produce **beef**.

- The cows **live outside** most of the time.
- Cattle ranching uses **land that is not good enough to grow crops**. The soil does not need to be very fertile, but there must be enough rain for grass to grow.
- **Very few people** are needed to run a cattle ranch. The biggest ranches even use aeroplanes to keep track of their cattle, so they only need a few people to look after thousands of animals.

Questions

1 3 5

7. In what ways are large arable farms efficient?
8. What physical factors are required for:
   a) growing crops such as wheat?
   b) cattle ranching?
9. Many modern farming techniques can cause environmental problems. Try to work out which problem is caused by each of the techniques.

1)	Pesticides and herbicides	a)	When they are washed into rivers they cause too many plants and algae to grow; this kills fish.
2)	Chemical fertilizers	b)	Hedges have to be removed; this reduces biodiversity and increases soil erosion.
3)	Monoculture	c)	They kill many plants and animals, even ones that aren't pests.
4)	Large fields	d)	Only having one crop reduces biodiversity and makes it easier for pests and diseases to spread.

10. Why do you think farms in richer countries have fewer workers than farms in poorer countries? Give at least two reasons.

CASE STUDY: ORGANIC FARMING

Organic farming is ***farming without using pesticides, herbicides or chemical fertilizers***. Instead, it uses traditional techniques like crop rotation. Pests are controlled using natural predators, such as ladybirds.

There are strict rules on how organic livestock farmers should look after their animals.

As it doesn't use chemicals, organic farming is **better for the environment** than conventional farming. Some people think that not using chemicals also makes the food healthier.

However, **yields are lower**, so less food can be produced from the same amount of land. This makes the food **more expensive**.

In 2011, **Spain had the largest area of organic agricultural land in the EU**. 6.5% of its total agricultural land was organic. The most important organic crops in Spain are cereals, olives, nuts and grapes. Organic meat and vegetables are also produced.

- In 2011, about half of Spain's organic produce was **exported**, mainly to countries in the EU, such as Germany and France.
- In 2010, **only around 1% of food sales in Spain were organic**. Some of the most popular organic products were baby food and olive oil.

The fishing industry

In many countries, people eat a lot of seafood (fish and shellfish). The **total amount of seafood caught in the world** grew very quickly during the 20th century, from about 20 million tonnes in 1950 to over 90 million tonnes in 2000. This was mainly due to:

- population growth
- bigger ships starting to fish further from land

TERMINOLOGY

Fishing ground: an area of water where fishing takes place.

High sea: the area of sea that is not controlled by any country.

Fishing fleet: all of the fishing boats.

TYPES OF FISHING

Most fishing is done in the sea. There are **three main types** of sea fishing:

Coastal fishing is carried out ***near the coast*** by **small boats** that only go out for a day at a time. The fishers **eat the fish themselves** or **sell it locally**.

Offshore fishing involves going ***further out to sea*** in **larger boats**. They are at sea for a few days or weeks. The fish is kept fresh in ice until it can be **sold commercially**.

Deep sea fishing involves going ***very large distances***, sometimes for months at a time. They use **very large ships** with high-tech equipment. The ***fish is processed on the ships***, so they are often called "**factory ships**". The processing can include filleting, freezing, preserving and canning. Spanish deep sea fishers travel as far as Africa and South America.

WHERE DO PEOPLE FISH?

The best sea **fishing grounds** are in relatively shallow water, near the coast, above the continental shelf.

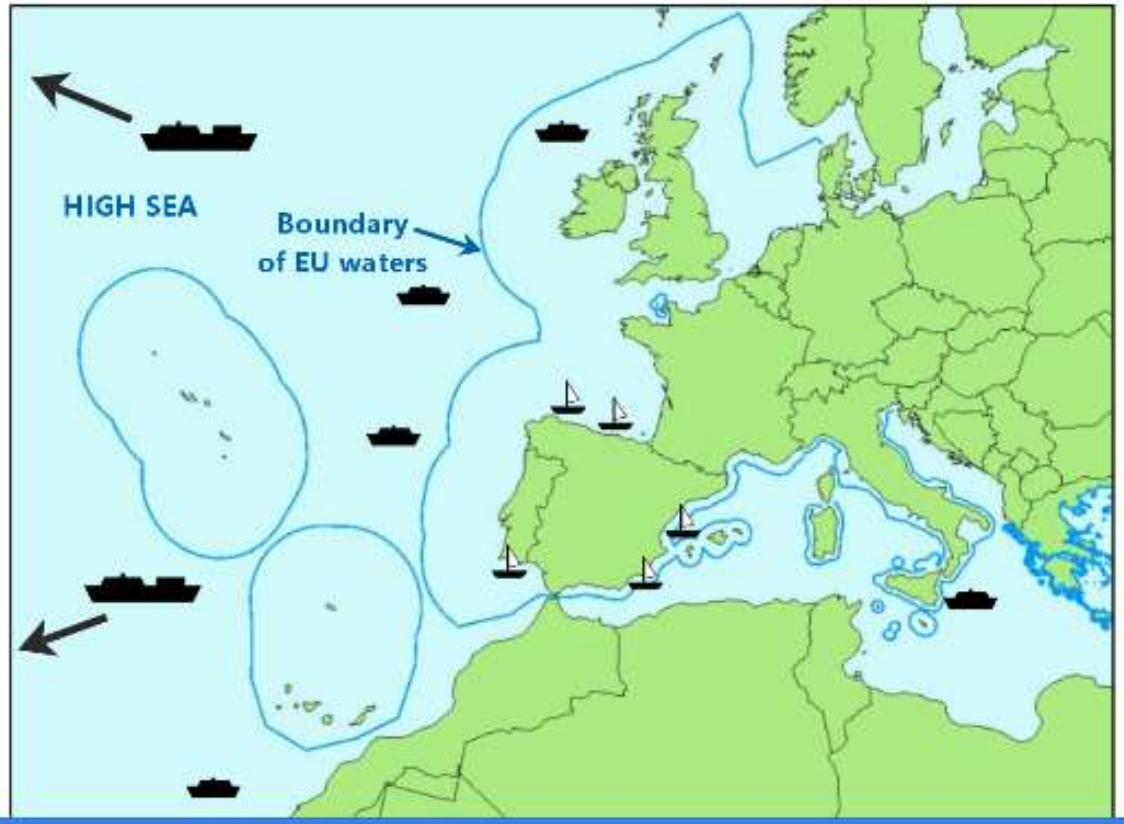
- Each country with a coast has its own **territorial waters**, where it has the right to fish. This area extends for 200 nautical miles (about 370 km) from the coast.
- In the EU, there are **joint EU waters**, where all EU states are allowed to fish.
- The EU has also signed agreements that allow it to fish in **other countries' waters** and in the **high sea**.

Spanish fishing grounds for coastal, offshore and deep sea fishing are shown on the map below.

Did you know?

The fishing industry is very important in Spain:

- Spain has the biggest fishing fleet in the EU, and it catches the second largest amount of fish.
- The amount of fish consumed per person is the second highest in the EU, after Portugal.
- Around 36,000 people work in the Spanish fishing industry.



Questions 1 3 5

29. Roughly how much more seafood was caught in 2000 than in 1950?
    a) 2.5 times as much
    b) 4.5 times as much
    c) 6.5 times as much
30. How do coastal fishers use the fish they catch?
31. How do offshore fishers keep their fish fresh?
32. What kind of fishing uses factory ships?
33. Where are the best fishing grounds?
34. Where are all EU states allowed to fish?

What is mining, and why is it important?

Mining is ***extracting minerals, ore and fossil fuels from the ground***.
It is part of the **primary sector**. Mining is very important to the economy because:

- it provides us with **raw materials** for almost all goods that we make
- it provides us with our **main sources of energy**

The table shows some of the **most important products** from mining.

Product	What it is used for
Iron	Used to make steel. Steel is used in roads, railways, bridges, buildings, cars and military equipment.
Aluminium	Aeroplanes, cars, packaging and construction.
Copper	Electrical wires; water and gas pipes.
Cement	Used to make concrete. Concrete is used in buildings, roads and dams.
Uranium	Fuel for nuclear power stations.
Coal	Used to generate electricity, for heating and to make steel.
Oil	Fuel for vehicles, such as cars and trains.
Natural gas	Used to generate electricity and for heating. Also used as fuel for vehicles, particularly buses.
Precious metals, like gold and silver	Jewellery, decorations and electronics.
Gems, like diamonds and sapphires	Jewellery and decorations. Diamonds are also used in industry for cutting, grinding and drilling.

TERMINOLOGY

Ore: rock or soil that contains metal.

Mineral: a valuable or useful inorganic substance that is dug out of the ground. Metals and many rocks are minerals.

Raw materials: the basic materials, such as metals, wood and stone, that are used to make goods.

Did you know?

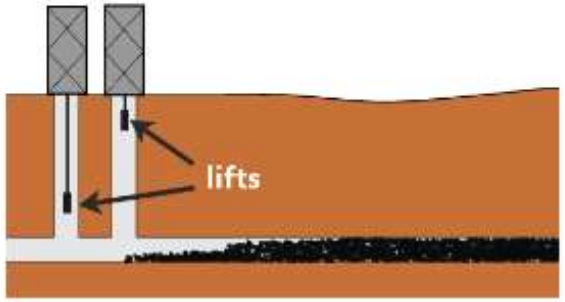
Since the Stone Age, people have used minerals to make tools and weapons. One of the first minerals to be used was flint, because it was strong and hard.

TYPES OF MINING

There are **two main types** of mining:

Surface mining

In surface mining, you remove anything that is above the product that you want to mine. You can then dig out the product itself.



Underground mining

In underground mining, you dig down to reach the product, without removing what is above it. Lifts take the workers down into the mine.

Questions 1 3

1. Why is mining important to the economy?
2. What is the difference between an ore and a metal?
3. Which metal is used in water and gas pipes?
4. What is natural gas used for?
5. Write down four minerals that are used in jewellery.
6. Which type of mining normally has most impact on the landscape?