2.2 The agricultural revolution

At the time of the Industrial Revolution major changes in farming practices were already occurring throughout Britain. These changes completely revolutionised agriculture. Increases in farm production provided food for the growing population, particularly the expanding urban workforce.

Traditional open-field farming

The traditional open-field village was based on subsistence farming, producing only enough food for its inhabitants, who were peasants or tenants of the landowner. It usually involved the rotation of different activities across three large fields. One field would carry a crop of wheat or rye, and one a crop of barley, while one would be allowed to lie fallow. Each year the crops would be rotated, so each field would lie fallow for one year in every three. Each village household was allotted a number of strips in each field. These would usually be spread out so that everyone had equal access to the best land. There was also an open area of common land where everyone had the right to graze livestock and collect firewood. Grazing also took place in the fallow field, helping to fertilise it, making it ready for planting the following year.

Disadvantages of the open-field system

The open-field system had worked well for centuries, and in 1750 about half of all farming in England still relied on this approach. But the system had a number of disadvantages.

- It was very inefficient because:
  - one-third of the land was left unplanted each year
  - pathways separating the strips of land were not used for crops
time was wasted when each farmer had to look after a number of strips scattered across the different fields.

- Weeds and animal diseases could spread easily when everyone was sharing so much of the available land.
- There was very little opportunity to try new crops or new methods, because everyone had to grow the same crops and work together.

**Major changes to agriculture**

The agricultural revolution involved three main developments:
- enclosure of the open fields
- the adoption of new techniques of farming
- the change to a more business-oriented approach to farming.

**Enclosure**

Enclosure involved the consolidation of open fields into single farms, owned by one farmer, and separated from neighbouring farms by hedges or low stone walls. This process had begun as early as the sixteenth century, when some wealthy landowners began to enclose their land, voiding the rights of peasant farmers to pursue their traditional strip farming. If the newly enclosed farm was large enough, it could be subdivided and smaller farms leased out to these same peasants. The peasants were forced either to become paid employees on the enclosed farm or to seek work in nearby towns. Enclosure gave the farmer/landowner greater control over the total area of the farm; less productive land was wasted, and animals were kept separate from neighbours’ livestock.

**Adoption of new techniques of farming**

Increased control over their farms and stock allowed farmers to adopt new, more efficient methods of farming. These included the following:

- **Jethro Tull’s seed drill**

Traditionally seed was scattered by hand into ploughed furrows. This often meant a lot of wastage as the wind could blow much of the seed.
away or birds could eat it. In 1700, agricultural inventor Jethro Tull developed a horse-drawn seed drill that could plant three rows of seed at a time. A hole would be drilled for seeds to be dropped in, the hole covered and the drill moved forward to the next planting position. It is estimated that this invention produced a five times bigger crop for the same area of land than had been achieved using the old methods.

The Rotherham plough

In 1730 Joseph Foljambe patented the Rotherham triangular plough. This plough had an iron blade and was lighter and easier to handle than the rectangular wooden ploughs that had been used previously. Instead of being drawn by a team of four oxen, and requiring both a ploughman and an ox driver, the Rotherham plough could be drawn by two horses and handled by one person. The Rotherham plough proved to be quicker and more efficient, and significantly reduced costs for farmers.

Changes in crop rotation methods

As the open fields were enclosed, new systems of crop rotation were introduced. The most successful of these was the four-crop rotation system introduced on his own estates by Lord Charles Townshend, or ‘Turnip’ Townshend as he became known. His farm was divided into four fields, with wheat in the first, turnips in the second, barley in the third, and clover in the fourth. Each year the crops would be rotated by one field, so that in the second year, the first field would contain clover, the second wheat, the third turnips and the fourth barley. This rotation continued over a four-year cycle. The planting of clover and turnips following the crops of wheat and barley helped replace nutrients in the soil, and therefore helped produce better crops the following year. The clover was used as a nutritious summer food for livestock, while...
turnips could be fed to animals in winter. This meant that livestock no longer needed to be slaughtered before each winter, as had traditionally been the case.

Improved stock breeding methods

Farmers such as Robert Bakewell began selective breeding of sheep and cattle. Only the largest and strongest animals were mated, and this produced offspring with the best characteristics. Bakewell also cross-bred different types of sheep to produce the best breeds for both wool and meat production. His New Leicester breed, introduced in 1755, proved to be a great success.

A business approach to farming

Before the eighteenth century, farming activity was mainly directed towards satisfying local food and clothing needs. Any produce left over could be sold or traded at markets, but this would entail only a small proportion of farming output. The great improvements of the agricultural revolution not only increased the amount of food available to the farmers and their workers, but provided increasing surpluses that could be sold to feed the growing urban population. The rural population grew very slowly, but the output per person employed in agriculture rose dramatically. Exporting grain to other countries also brought profits to farmers who were prepared to innovate and embrace new methods of production.

The agricultural revolution produced great improvements in the quantity and quality of both crops and livestock. In 1705 England exported 150 million kilograms of wheat, but by 1765 this had risen to 1235 million kilograms. In 1710 sheep sold at market weighed an average 13 kilograms, while cattle weighed an average 167 kilograms. By 1795 this had risen to 36 kilograms for sheep and 360 kilograms for cattle.

ENCLOSURE  consolidation of open fields and common land into single farms owned by one farmer or landowner, and fenced off from neighbouring farms
FALLOW  land left unplanted
SUBSISTENCE FARMING  farming that provides only enough to satisfy the basic needs of life of the farmer or community