

The Agricultural Revolution

Amanda Zarder

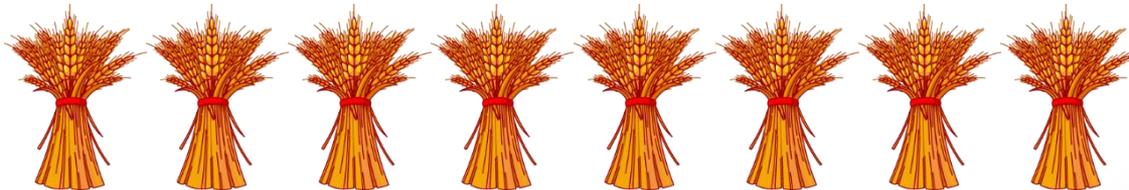
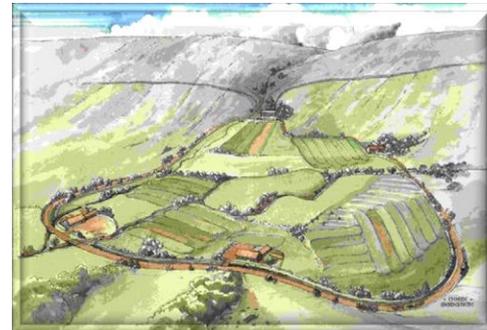
Food Shortages

At the end of the seventeenth century, approximately **eighty percent** of individuals **depended on agriculture** for their livelihoods. This percentage was even higher in Eastern Europe.

While Europe's population grew, **output** had remained **relatively the same** for hundreds of years; a farmer was lucky to yield six bushels of grain for their efforts.

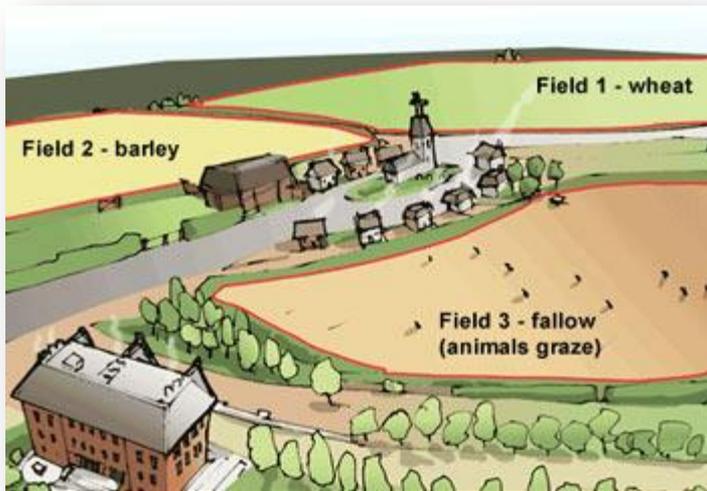
This was made worse by the fact that harvests were **bad once every eight or nine years**. Multiple poor harvests led prices to skyrocket.

People were forced to eat **famine foods** during hard times- nuts, bark, and grass are a few examples, while some instances of cannibalism were also recorded. **Poor diets overall resulted in more sickness and death.**



The Open – Field System

The **open-field system**, an accomplishment in medieval times, was the way in which land was divided up.



Soil could become dry and of poor quality if it was used for planting too much, so fields were left **fallow** for certain periods of time in order to allow nutrients to remain in the soil. The planting cycles were in **two or three-year rotations** depending on the soil's original quality.

Available lands were divided into larger fields, which then were divided into strips of land. There were no fences or means of enclosure and peasants farmed this land together.

Peasant Hardships

Peasants in **Eastern Europe** were treated worse than those in the west, as serfdom was not found there.

That being said, life was difficult for most peasants across Europe at this time.

Note that places where serfdom was a part of life benefitted little from the Agricultural Revolution and did not advance as much as Western Europe did.



In France, for instance, peasants had to pay royal taxes, the church's **tithe**, and dues to the lord. On top of all of this, they had to set aside some of the seed from their crops in order to plant the following year.

The Basics

Who?

European Farmers
(Middle and Upper
Class)

When?

1600 - 1830

What?

- ❖ Enclosure
- ❖ Selective Breeding
- ❖ New Inventions and Techniques
- ❖ More Output

Why?

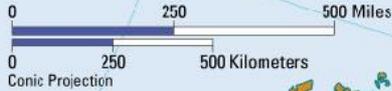
- ❖ Population Growth
- ❖ Need for More Output

Where?

Mainly Holland
and Britain



Europe, 1650



- Austrian Hapsburg lands
- British Stuart lands
- French Bourbon lands
- Prussian lands
- Russian lands
- Spanish Hapsburg lands
- Boundary of Holy Roman Empire



The Low Countries

The agricultural revolution has its roots in the **Low Countries**, as Holland's **middle-class society** was ahead of its time in the seventeenth century.

By this time, the Low Countries were home to enclosed fields, crop rotation, the use of manure, and a diversity of crops.

Agriculture became **commercialized**. Clothes, milk, and cheeses became more easily produced by the Dutch and led to their popularity among other countries.



Dutch Cities



One factor that led to the Dutch becoming the frontrunners of the revolutions was their very **dense population**, as this meant that they had more people to feed. They needed to find a solution to their food shortages.

Connected with the previous factor was the subsequent growth of cities in the Low Countries. In the Netherlands' "**Golden Century**" the population of Amsterdam grew from 30,000 to 200,000.

This gave Dutch peasants more opportunities to sell their products at markets and allowed each area to focus on their specialties. **The Dutch truly were the seventeenth century's agricultural experts.**

Crop Rotation

New patterns of crop rotation emerged as farmers realized that some crops- including peas, beans, turnips, and potatoes- actually benefitted the soil. A **four-crop rotation** was developed over time. This meant that fields were not left fallow and increased agricultural output.

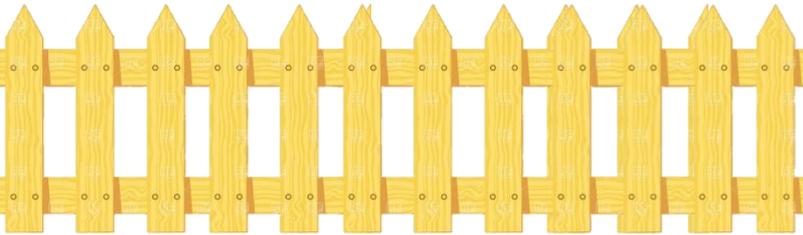
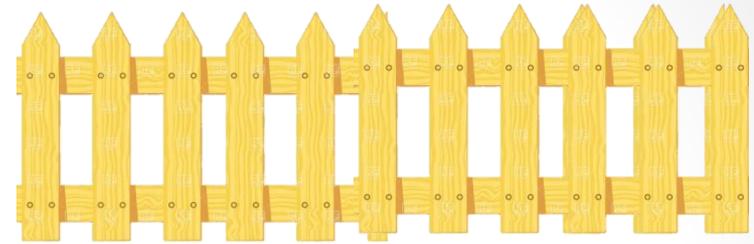
Some of these crops were given to livestock, increasing the:

- ❖ size of herds
- ❖ the amount of meat
- ❖ the amount of fertilizer



The Enclosure Movement

More and more farmers wished to experiment with their crops, however were prevented from doing so due to the openness of their lands.



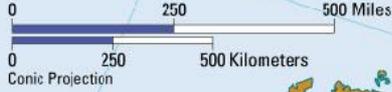
Farmers began to consolidate their landholdings into one compact area and then building fences around this land.

Poorer peasants, who had few areas of their own and depended on common lands often **opposed the enclosure of lands**. Some **larger landowners also opposed it** because it was risky and required a large investment. ***The middle class farmers were thus the main implementers of enclosure.***





Europe, 1650



- Austrian Hapsburg lands
- British Stuart lands
- French Bourbon lands
- Prussian lands
- Russian lands
- Spanish Hapsburg lands
- Boundary of Holy Roman Empire



Students of the Dutch

The English first learned quite a bit from the Dutch in the first half of the seventeenth century, as the Dutch began to teach the English how to drain marshland.

One prominent engineer, Dutchman **Cornelius Vermuyden**, directed huge draining projects in Yorkshire and Cambridgeshire and he and his workers ended up reclaiming forty thousand acres and farming in the way of the Dutch.



“Turnip” Townshend

Viscount Charles Townshend is one of the most important figures in bringing the agricultural revolution to England. An ambassador to Holland, he brought back information about **turnips and clover**. He is said to have talked about turnips so much after his retiring that he gained the nickname “Turnip” Townshend.

Using what he had learned in Holland, Townshend was very successful. Those who had leased his lands had great output and thus **earned more income**.

Others began to see this and began to get in on the profits. By 1740 many members of the English **upper middle class and some aristocrats** benefitted from improvements in agriculture.



Britain and Enclosure

Those who enclosed their lands experimented and their profits improved. More output could be achieved with the same amount of labor, creating a **labor surplus**. This surplus of labor and the movement of the peasant class to the cities would **greatly contribute to the Industrial Revolution** that would begin in Britain.

While enclosure had begun to occur in Britain since the time of the Tudor monarchs, as time went on more legislation was passed regarding this issue. The English government passed the **Inclosure Act of 1773** in order to allow farmers the right to enclose their land and remove the right of commoners' access.

The Steps Needed for Enclosure:

- ❖ Petition Delivered to Parliament
 - ❖ Signed by:
 - ❖ Landowners
 - ❖ Tithe Holders
 - ❖ People Affected
- ❖ Goes Through Bill Stages
 - ❖ Committee Hears Objections
- ❖ Pass Through Houses of Parliament
- ❖ Gets Royal Assent
- ❖ Commissioners Distribute Land in Question

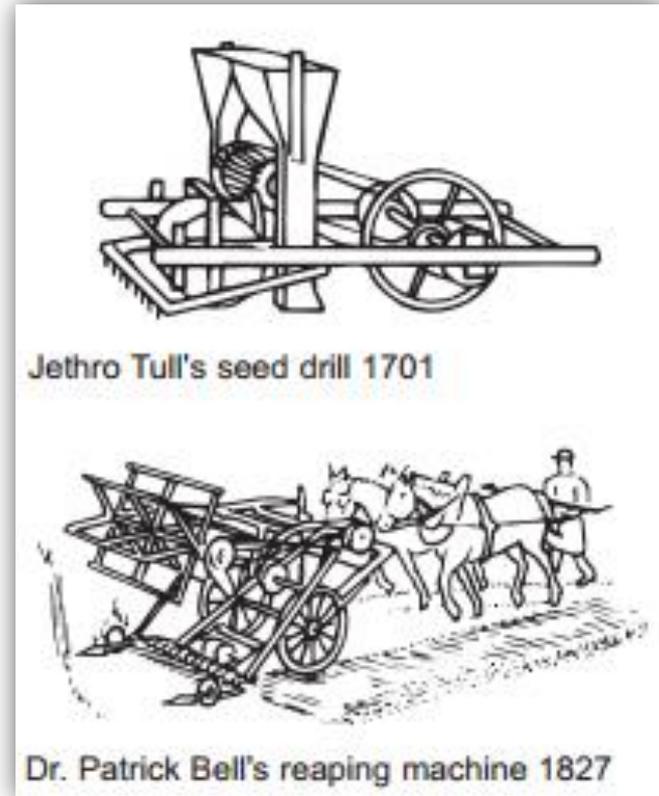
Some consider this to be the beginning of commercial farming in Europe.

New Inventions

Englishman **Jethro Tull** attempted to do empirical research in order to improve agricultural output. He advocated the use of **horses** instead of oxen and also encouraged the sowing of seed by drilling into the soil rather than planting by hand. His **seed drill** allowed for crops to be sown in regular rows.

Englishman Thomas Dobbs and Scotsman **Dr. Patrick Bell** both created **reaping machines**, which allowed for crops to be harvested at a faster rate.

Scotsman **Andrew Meikle** improved the threshing machine in 1786, which separated the ears of corn from the plant's stalks.



Jethro Tull's seed drill 1701

Dr. Patrick Bell's reaping machine 1827

Selective Breeding

Robert Bakewell is regarded as the pioneer of selective breeding by many.

Inheriting his farm from his tenant farmer parents, he led the way in grassland irrigation and the diversion of rivers and construction of canals to water fields.

His most important achievement, however, was the work he did **selectively breeding** desirable specimen of a species together, sometimes inbreeding, until he had a breed of livestock that produced more desirable product.

Fun Fact: This artificial selection inspired Charles Darwin's theory of natural selection and even cited him in Darwin's *On the Origins of Species*.

INCREASE IN WEIGHT OF MARKET ANIMALS

Cows (beef and milk)



1710

370 lbs

1795

800 lbs

Sheep (mutton and wool)



1710

38 lbs

1795

80 lbs

1 lb = 0.454 kg

Importance

By 1870 English farmers were producing **300% more food** than those living in 1700, despite the number of farmers working only increasing by 14%.

These farmers' work fed the increasing urban population and allowed for a **surplus of labor**. This would cause Britain to be the home of the **Industrial Revolution** in the nineteenth century.

Some of the landless lower classes moved into the **cities** and many became workers in the **textile industry** and other growing lines of work.

More food also led to better diets and helped the population of western nations increase.

This time marked the beginning of a **market-oriented estate agriculture** and the **emergence of a landless rural proletariat**.

The Malthusian Trap

The **Malthusian Trap**, named after economist **Thomas Robert Malthus**, suggests that incomes and livelihoods did not improve before this time because technology only increased the population and did not increase the quality of life. Europe found itself stuck in this trap for centuries.

After the onset of the Agricultural Revolution and huge growth in productivity, however, **nations began to “break free” from this trap**. It was suggested that this could lead to political upheavals, and there was an instance of this. ***The French Revolution occurred around the same time as the Agricultural and Industrial Revolutions.***



Classes in Britain

- ❖ Rent Land from Large Landowners
- ❖ Hire Wage Laborers
- ❖ Sold Output on Cash Market
- ❖ Implemented New Techniques

Large Landowners

- ❖ Rent Land to Tenant Farmers

Prosperous Tenant Farmers

- ❖ Own Land
- ❖ Declining in Numbers

Independent Peasant Farmers

Landless Cottagers

- ❖ Poor
- ❖ Labor for Wages