

YAC attack!

Britain's Agricultural Revolutions

For hundreds of thousands of years our ancestors were hunter-gatherers. They would rely on wild animals for meat, at first simply scavenging from carcasses that they found and then learning to hunt for themselves.



Artist's impression of a Mesolithic hunter-gatherers' camp © Alan Sorrell

of just a few families, but feeding everyone would still have been a struggle. Then, one of the most important changes in human history began; the introduction of farming.

The change from a hunter-gatherer to a farming way of life marks the start of the Neolithic or New Stone Age and is sometimes known as the 'Neolithic Revolution'. It was not a change that happened quickly; it is estimated that it took around 2000 years for the idea of farming to spread across the whole of the British Isles! In fact, the concept of farming that reached Britain between about 5000 BC and 4500 BC had spread across Europe from origins in Syria and Iraq between about 11000 BC and 9000 BC.

The ancestors of cattle, goats and sheep were farmed and wild boars were domesticated. Crops were introduced as the new farmers, many of whom had originated from the continent, brought with them the first seed grains of wheat and barley. Once harvested

the grain needed to be stored and this, coupled with caring for their livestock, encouraged people to settle in one place.

An example of later Neolithic 'Meldon Bridge' pottery © Tyne & Wear Museums



What effect did it have?

- The population of Britain grew. Now that people were settling rather than moving around, it was more practical for women to have babies more frequently. Also, with more predictable and reliable sources of food, people had a greater chance of survival. Soon the small hunter-gatherer groups developed into larger settlements and villages
- Technologies, such as food storage and irrigation were developed
- There was an increase in disease because as groups settled, people, waste and animals were in closer proximity to one another
- No longer spending all of their time searching for food, the Neolithic people had time to develop new skills. For example the earliest pottery in Britain, (referred to as Grimston-Lyles Hill tradition) dates to the early Neolithic.

British agriculture's second revolution

Farming in Britain underwent many changes after the Neolithic Revolution but there was no greater period of change than during the British Agricultural Revolution. This term describes a period of agricultural development in Britain during the 18th and 19th centuries.

In 1750 the English population was about 5.7 million. Never before had the population surpassed this because of famine (agriculture just couldn't cope with demand) and in the 14th century, the plague. However, unexpectedly, the population kept growing after 1750 and had reached 16.6 million by 1850 - agricultural output had to expand with it!

As the demand for food increased, people began to make improvements to the types of machines used on farms. The seed drill and threshing machine were amongst the first new inventions to help farmers. Inventions such as these, along with the enclosure of fields and the introduction of a four-crop rotation system, helped agriculture to develop rapidly.

Farmers also made new discoveries such as the importance of nitrogen in soil to produce healthy crops (which led to the development of fertilisers) and the benefits of selective breeding (encouraging two particularly good examples of an animal to mate). In fact, such was the enthusiasm and need for making farming more efficient that 'model farms' were established. A model farm was an experimental farm that was set up to allow the farmer to research new ideas and develop even more efficient ways of working. Everything was carefully considered including the layout, techniques used and even the standards of living for the farm workers. There is an excellent example in Wales called Leighton Farm, you can see in the image just how carefully designed the complex was.

They may seem very different but the developments in farming during both of Britain's agricultural 'revolutions' were hugely important and completely changed Britain and the way its inhabitants lived.

Leighton Farm
Photographed by Ken Saito
© CPAT



Iron Age Grainstore

You will need:

- Plastic half pint or pint glasses (you could also use small plastic bowls)
- Air drying clay
- A variety of grains, for example oats, buck-wheat and bulgar-wheat
- Optional: Hay/straw (we used animal bedding)
- Optional: Twigs
- Sticky labels (if you fancy doing some experiments with this activity)

Method

1. Begin by lining the containers that you are using with a layer of clay about 2-3cm thick. Make sure it is pressed right up to the container's surface.
2. Leave your clay to dry.
3. Now it's time to fill your containers, this is where you can experiment! Try...
 - a. using a number of different grains to see if some stored better than others
 - b. leaving some of the containers outside to get wet, frosty etc. to see if this made a difference
 - c. different ways of sealing the grainstores to see what effect this had (see below)



We labelled each container to show what grain it contained, how it had been treated and how it had been sealed

4. Add the grain to the containers. You can either fill the container to one centimetre below the rim and put a clay 'lid' straight on top of the grain or leave a 2cm gap and cover the grain with a layer of straw or straw with twigs over the top before adding the clay lid.
5. Label the containers if necessary and store wherever you decide; inside, outside or both.
6. Now you have to be patient! After a period of between 3 months



to a year, excavate the containers carefully to see if the grain has survived. Ideally it should look just as you left it – there should be no mould or sprouting. You can compare which grain has survived best. For example, has being exposed to the elements (as real grainstores would have been) had an effect? Does packing your store with hay make a difference?

How did it work?

Archaeological evidence brought to life by experiments done at Butser Ancient Farm have shown that in the Iron Age, one of the most effective



Storage pits at Worlebury Hillfort. Recent tree clearance of part of the site has revealed some of the 93 storage pits first discovered in the 1850s © Martin Bodman

ways of storing grain would have been using pits in the ground. Our activity is inspired by the method that we think people used.

The pit would have been dug into the ground keeping the access hole as small as possible. As the pit was dug deeper it was widened out. Some pits were up to 6ft wide at the base and 6-15ft deep. Grain was then poured in from the top. When the pit was full of grain, the hole at the top was sealed with a layer of clay. The clay would overlap onto the surrounding ground so that the pit was completely sealed. This stopped light, air, and water getting in.

After time, the grain that touched the internal surface of the pit would start to absorb moisture from the ground. The grain that was moist would then try to germinate. To do this it needed oxygen but because the pit was sealed, there would have only been a limited amount available. As the grain started to grow it would produce carbon-dioxide. The result was that the oxygen was used up, the carbon-dioxide spread amongst the grain, and the whole lot would go into hibernation mode. These conditions are known as 'anaerobic'. As a result, the grain didn't rot because of the lack of oxygen. In the spring when the grain was needed for seed, the clay was removed and the grain was taken from storage and sown into the newly ploughed fields.

Top Tip!

- This activity is a great opportunity to have a go at section drawings. Visit www.yac-uk.org to find out how.