

The Rise of Farming

Teacher Notes

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1. Notes accompanying the PowerPoint presentation

The Powerpoint presentation can be used without notes, using the text on the presentation itself. However, these notes give more information than is on the presentation, and therefore give a fuller coverage of this topic.

Slide 1: 10000 BCE

The last Ice Age has declined from its maximum in c. 18000 BCE, and is more or less at its end. The climate is mostly as it is today, but not everywhere. For example, at this date the area covered by today's Sahara Desert is lush and green, covered by streams, lakes, forests and grasslands.

Hunter-gatherers

Hunter-gatherers roam the world. For food, they hunt wild animals and forage for edible nuts, berries, roots, and the seeds of some wild grasses.

In most places, hunter-gatherers live in small bands, of up to about 30 people. Even with such small numbers, they soon exhaust the food supplies in a particular locality. They therefore have to move regularly from place to place to keep themselves fed.

This nomadic lifestyle means that they live in temporary encampments. They build flimsy shelters made from branches, or find caves to inhabit. Most bands probably have a number of locations which they visit each year, scattered across a large territory.

Favoured places

In some favoured locations, different kinds of environment are very close together. This means that people living there can benefit from more abundant and varied food resources. For example, in coastal areas and on river banks and lake shores, they can catch fish and collect shellfish, as well as hunt and gather land-based animals and plants.

In other instances, where forests and grasslands meet, people can pick the plentiful fruits and berries of the forest, and catch the small game that live there, as well as collect the seeds and hunt the larger grazing animals of the grasslands.

Permanent settlements

In places where there is an abundance of food resources, people are not forced to live such a nomadic way of life. They can build more permanent settlements, where in some cases they can live all the year round.

This leads to major changes in their lifestyles. Staying in one place all the time allows them to put a lot of effort into making large things, as they don't then have to carry them about or leave them to be stolen by other groups.

For example, they can

- construct permanent buildings using stone or mud-brick, making more comfortable dwellings;
- protect themselves with stout defensive palisades and walls;
- dig pits to store seeds in, to eat at a later date;
- use heavy grindstones for grinding seeds into flour;
- make pottery, to carry water, olive oil, plant seeds and other commodities in;
- if on the coast or lake shore, they can build boats for fishing and travel. A string of such comparatively large and stable hunter-gatherer communities are nourished by the rich and self-replenishing supplies of sea food along the coasts of East Asia, from Vietnam in the south to Korea and Japan in the north.

The Middle East

The outstanding examples of such food-rich locations are to be found in the highland regions of the Middle East. These run across present-day Syria, southeast Turkey, northern Iraq and western Iran.

Here, the wealth of natural food resources has allowed some groups of hunter-gatherers to live in permanent settlements. They harvest the many kinds of wild edible grasses which grow in the region, such as wheat and barley. They harvest the seeds with stone sickles, store them in deep pits, and pound and grind the seeds using heavy stone tools. They also hunt game and collect berries and fruits.

In this way settlements are developing which are much larger and more permanent than the usual hunter-gatherer bands.

Slide 2: 9000 BCE

Many permanent or semi-permanent communities in the Middle East highlands have been harvesting, storing and processing wild grass seeds for food for more than a thousand years. Because of the high nutritional value of these seeds, this practice has been becoming more and more important for them, and hunting and gathering less so.

in fact these communities now deliberately plant and cultivate these grasses close by their settlements. This has allowed them to select the best plants (the ones easiest to harvest and with the biggest grains) for replanting. This in turn is leading to the emergence of fully domesticated strains of wheat and barley.

Beans, peas and other vegetables are also now being cultivated and bred for size and other desirable traits.

Slide 3: 8000 BCE

The cultivation of fully domesticated wheat and barley has now spread throughout the highland regions of the Middle East. More plants are also being cultivated, especially peas, beans and vegetables.

The domestication of animals

It is also probably around now that the first animals are being domesticated. The particular animals selected for domestication are those large enough to provide plenty of meat and other things useful to humans: skins for clothing, bone for tools and teeth for decorative necklaces and bracelets.

Such animals cannot be too large and fierce. Sheep, goats and pigs are ideal. Cattle are also suitable, though the bulls can be dangerous. The domestication process requires animals to be bred smaller and tamer than their wild cousins. Just as with grasses, the Middle East is home to the world's largest numbers of wild goats, sheep, cattle and pigs.

These developments are bringing about a strong increase in the population of the region.

Slide 4: 7000 BCE

Farming continues to make progress in the Middle East, but is also beginning to appear in the parts of the world as well.

The Middle East

Farming has brought about a marked expansion of population in the highlands of the Middle East. Most farming communities, however, are small villages. They are widely dispersed across the landscape. They depend on mixed farming: cultivating crops of wheat or barley, growing peas, beans and vegetables, and raising sheep and goats and, less commonly, cattle and pigs. Hunting is still an important activity.

A number of large communities have appeared by this time, however. Two examples well known to archaeologists are Jericho, in modern Israel, and Çatalhöyük, in southeast Turkey. Both are home to more than a thousand people.

The beginnings of irrigation agriculture

This early agriculture is limited to the cooler and rainier highlands of the region. This is because the grain crops need plenty of rainfall over several months of the year to grow properly.

Around this date, however, some farmers are moving onto the flood plains of the rivers Tigris and Euphrates. These low-lying plains have much less rain than the uplands, and away from the rivers are bone dry. This makes the land unsuitable for growing crops.

These farmers are therefore having to dig irrigation channels to bring water from the rivers to their fields. and artificial ponds to store it so that it can be fed to the crops throughout the growing season.

Once the fields are well-watered, the settlers find that the soil is very fertile indeed. This is because it is made up of rich mud brought down from the mountains by the flooding rivers.

Nomadic pastoralists

In other dry environments, not fortunate enough to have rivers running through them, some groups have taken to specialising in herding animals. To do this they have had to return to a more mobile lifestyle.

Perhaps it is these groups which develop techniques for milking cattle and goats - a valuable addition to people's nutrition. If so, they soon spread to the more settled populations. The making of butter and cheese from animal milk makes diets more varied.

Europe

The past centuries have seen groups of farmers from southern Turkey or Syria settle on the island of Cyprus. About now they also begin colonizing the island of Crete.

To succeed in their new homes, these migrants have to bring the full range of domesticated plants and animals with them in their boats.

South Asia

Like the highlands of the Middle East, the northwest of the Indian subcontinent is home to strains of wild wheat and barley, and animals like sheep, goat and cattle.

Early farming is beginning to develop here. It seems probable that, just as in the Middle East, this is due to large, semi-permanent communities of hunter-gatherers gradually domesticating suitable plants and animals.

East Asia

By this date, the domestication of plants is probably beginning in China. It is doing so in two separate locations, and is based on two types of wild grass.

The Yellow River region

No evidence has yet been uncovered here for cultivation going back this early. The fact that it is fully-formed a thousand years' later, however, means that the long process of domesticating a grass called millet has probably begun by now.

The Yangtze Valley

Wild rice is a marshy grass which thrives in the warm, wet climate of the central Yangtze river basin. It has long been an important part of the hunter-gatherer diet. At around this date groups of hunter-gatherers begin to develop techniques for cultivating it.

Slide 5: 6000 BCE

The Middle East

At around this date, the farming populations of the Middle East are taking to making pottery. This is a very useful technology, as it allows the secure storage and transport of many commodities. (It also allows archaeologists to date finds much more accurately than before, as the changing styles of pottery design and decoration lets them track the rise and decline of cultural changes.)

Farmers also develop techniques in harnessing cattle for plowing. This makes agriculture much more productive, as it helps break up the soil for planting and brings fresh soil to the surface. Also, now that animals have been domesticated, farmers can spread their fields with animal dung. This again increases the fertility of the soil.

Another technological development is the invention of spinning and weaving to make clothes. From this time on, animals - especially sheep - are bred for their wool.

Mesopotamia

By now, farming settlements are dispersed across the flood plains of the rivers Tigris and Euphrates. This is the land of southern Mesopotamia ("the Land between the Rivers"). Here, agriculture depends on irrigation - the construction and maintenance of channels and ponds to bring water from the rivers to what would otherwise be dry land. This practice allows the fertile soils of these plains to be brought under intensive cultivation.

Europe

During the past thousand years, farmers have been establishing settlements along the coasts and islands of the Mediterranean Sea. They now reach as far west as Spain and Portugal.

They have travelled by boat in small hops, carrying their plants and animals with them. A generation or so later, some of them have moved on again, to establish a new settlement further west.

These early European farming settlements have tended to be in places favourable to farming, and not favoured by the previous hunter-gatherer populations. The two groups have therefore probably been able to live side by side for a long time, only gradually merging to form a unified society. Hunting and fishing remain important in many areas, long after domesticated crops and animals, and pottery, have been introduced.

Africa

By this date, what is today the Sahara Desert is drying out. The hunter-gatherer populations are starting to move outwards into neighbouring lands.

South Asia

By 6000 BCE farming has become fully established in what is today western Pakistan. The dry climate means that cattle herding is an important activity, and hunting and gathering remain important.

East Asia

The Yellow River region

By 6000 BCE, millet-farming villages are dispersed across the Yellow River region of northern China. These communities practice a mixed economy in which millet cultivation and stock-raising are combined with hunting, gathering and fishing.

The villages contained sunken houses with walls made from wood and clay, and roofs made of thatch. The inhabitants of these villages would have numbered in the low hundreds. Cord-decorated pottery is made and spinning and weaving cloth are practiced.

The Yangtze Valley

By 6000 BCE, wet-rice cultivation - the growing of rice in flooded “paddy fields” - has become fully established in the central Yangtze valley. As yet it remains only one part of a varied economy, which includes hunting small animals and foraging for plants.

Along with traditional stone tools recalling earlier hunter-gatherer times, these people make wooden spades to cultivate the soil, and possess pottery and weaving technologies. They live in villages surrounded by defensive ditches, and their houses are raised on piles or posts above flood levels.

Slide 6: 5000 BCE

The Middle East

The population across the Middle East has grown strongly in the past thousand years, judging by the frequency and scale of archaeological finds here.

This may have been caused by the more intensive use of domesticated animals. Cattle are now being used as plow animals. Prior to this, fields had to be prepared by hand-held digging sticks, but now, with the plow, deeper, fertile soils can be tilled much more efficiently, and new land opened up for farming.

Peoples of this time may also have shifted their diet towards one rich in dairy products - milk, butter and cheese. This will have boosted their nutrition and health levels.

Also, the manure from animals is probably used more to help fertilize fields, and the wool of sheep and goats spun and woven to make textiles.

Early towns

Most Middle Eastern villages remain small, with less than 120 inhabitants. On the flood plains of southern Mesopotamia, however, the extremely productive irrigation-based agriculture is causing the population to expand, and some settlements here are growing into small towns. Farmers produce more than they need themselves, and this “surplus” goes to sustain a growing class of non-farmers who live in the towns - chiefs, priests, craftsmen and so on.

Europe

East and central Europe

Farming has continued to spread across Europe. In the east, farming communities have moved up the Balkans into central Europe. The new arrivals move along the river valleys, seeking out forest clearings, close to rivers and lakes and easily-tilled soil. There they build settlements consisting of two or three huge timber-built longhouses.

These farmers produce a distinctive banded pottery, from which archaeologists can trace the expansion of their culture over a large area of Europe, from Ukraine in the east to north-eastern France in the west.

Western Europe

In Western Europe, farming settlements spread up the Atlantic coast, from Spain and Portugal to France and the British Isles.

Farming populations, once established on the coast, gradually spread inland. Genetic evidence suggests that, over the course of several generations they have either absorbed the hunter-gatherer groups they encounter, or these latter have adopted the farming lifestyle from the newcomers. One way or another there is a mingling of populations.

Africa

Egypt is now being settled by farmers from two directions.

Farming populations from the Middle East have settled the Nile Delta of northern Egypt. They have brought with them a mixed farming economy based on the cultivation of wheat and barley, plus a whole range of other plants such as peas, beans and other vegetables and fruit; and the raising of cattle, sheep and goats. They also have skills in pottery, and spinning and weaving.

Meanwhile, the Sahara Desert has continued to get drier and drier. It is now a much more hostile environment than a few thousand years before. Groups of hunter-gatherers have been moving into the lush Nile Valley to survive.

They soon adopt the farming techniques which have come in from the north. Having cleared the tangled marshy reeds they find, a bonanza awaits them. Every year, the spring floods of the River Nile bring water and fertile mud northwards from the interior of Africa. These get dumped it on the land on either side of the river. The people build dykes and ponds to keep some of the floodwaters back for the growing crops. This turns the Nile Valley into one of the most productive farming areas in the world (as it is to this day).

South Asia

Farming villages are now spread across the northwest regions of the Indian subcontinent. Here, there is a strong emphasis on herding cattle. These are not the domesticated cattle which originated in the Middle East, but an indigenous kind

(today called Zebu cattle). This strongly indicates that the process of domestication took place independently in this region.

East Asia

The Yellow River region

Millet-based farming is leading to population growth in the Yellow River region. Villages are getting larger and their societies are growing more complex. Rich grave goods point to the existence of powerful chieftains. Settlements are surrounded by ditches and wooden palisades, showing the need for defence in warlike times.

The Yangtze Valley

The farmers in this region soon benefit from the nutritious qualities of the rice they grow, and populations are growing strongly here. Rice farming is spreading out from the core lakeland areas of the central Yangtze Valley. It moves eastwards towards the sea and westwards into inner China.

During this time the domesticated strains of rice reach full development.

South America

On the Pacific coast of Peru and Ecuador, hunter-gatherer societies are beginning the shift towards farming. Collecting shell-fish and catching sea and river fish adds to land-based resources. and large, permanent villages have appeared. The people here have invented pottery, and cultivate plants such as squashes and gourds.

Slide 7: 4000 BCE

The Middle East

On the flood plains of southern Mesopotamia, the extremely productive irrigation-based agriculture is leading to continued population growth. Settlements are continuing to increase in size and complexity, with some towns now approaching the size of cities. Some probably have nearly ten thousand inhabitants by this date. Their rulers control the surrounding countryside, and are now at the centre of what would later be described as “city-states”.

Their societies are also becoming more complex. This is made possible by the huge “surpluses” produced by the farmers, over and above their own needs. These support the temples and their priesthoods, the kings and their officials, the temple craftsmen, the kings’ soldiers, and the traders who organize the growing commerce of the city-states.

The growing power of these city-states can be seen in the fact that some of the irrigation channels have grown into the earliest canals. They take the floodwaters of the Euphrates and Tigris to water dry areas several kilometres distant from the rivers.

Europe

The plow has been introduced to Europe. This allows heavier soils to be brought into cultivation (of which Europe has an abundance). At the same time, the milking of cows is now practiced, as is the spinning and weaving of wool.

These developments are causing farming populations to grow, and expand outwards from their earlier homelands. These are expanding across the north European plain, and even up into the cold climate and poor soils of Scandinavia.

As farmers from central Europe spread westwards, and from the Mediterranean and Atlantic spread northward and eastward, the spaces between these populations dwindle and finally disappear. The remaining hunter-gatherers across Europe are now being absorbed into the world of the farmers.

European farming cultures of this period have taken to displaying their new-won dominance by erecting large monuments, including mound-graves and stone circles (such as Stonehenge, in southern England).

Africa

Egypt

The population of the northern Nile Valley (present-day Egypt) has been growing strongly. Given that the surrounding land is becoming increasingly desert-like, this population cannot expand outwards, and therefore has to rely on more and more intensive farming. This is based on the multiplying irrigation channels and ponds.

Villages have become clustered closer and closer together, and come under the firm authority of powerful “water-chiefs” based in local towns. It is they who manage the sharing of the water-resources amongst the villages, and see to the upkeep and expansion of the irrigation systems.

A sophisticated material culture is developing, as the agricultural surplus produced by the farmers gives rise to non-farming classes such as temple priests, craftsmen, soldiers and officials. There are growing trading contacts with the Middle East.

Nubia

Further south, farming populations have been moving into Nubia (modern Sudan). Here, the land is less fertile than in Egypt, and less favourable to the mixed farming of crop-growing and animal-keeping. The populations in Nubia focus more on herding sheep, goats and cattle.

East Africa

Farming has arrived in the Horn of Africa, probably from southern Arabia rather than from Egypt.

The local populations are also pioneering the cultivation of a range of indigenous plants, as wheat and barley are reaching lands too hot for them to thrive in. One of these is coffee.

South Asia

Groups of farmers are now probably settling the great flood plain of the Indus River (though the evidence for this will be buried under thick layers of river silt, preventing archaeologists from getting at it). Just as in Mesopotamia and Egypt, these peoples can only do this by adopting irrigation-based agriculture.

In the Ganges Valley, to the west, hunter-gatherer-fisher communities are exploiting their environment more intensively. In particular, they are relying on plant-based resources more than before. They are beginning the shift to farming.

East Asia

The Yellow River region

The fertile soils of the Yellow River region have given rise to a dense population, farming villages clustered close together, with some growing into small towns.

One interesting development that appears in the Yellow River region around now is pottery inscribed with symbols. These look very much like primitive versions of some characters which will feature in the later Chinese script. These were probably marks of ownership, or something similar, but it represents strong evidence that what later became the Chinese writing system had its roots in this early period.

The Yangtze Valley region

By this date, domesticated rice is developing into the two main strains of today, Indica and Japonica.

The people in the central Yangtze Valley live in large villages containing rectangular, multi-roomed houses, constructed of clay, bamboo and reed. These are located in swampy terrain, where the people grow rice in well-watered (paddy) fields, and raise cattle, sheep and pigs. The use of the plow indicates a further intensification of rice cultivation. Nevertheless, even at this date they supplement their diet by hunting small game, and fishing.

Wet-rice farming has now probably reached the Yangtze delta region. It is also moving upriver into the Three Gorges area.

Korea and Japan

Farming, based on millet cultivation, has come to the Korean peninsula from northern China.

In Japan, meanwhile, the very successful Jomon hunter-gatherer-fisher culture continues to flourish, even at this late date. It effectively keeps farming out of the island chain. The large coastal settlements, however, show many similarities with farming communities elsewhere – the earliest pottery anywhere in the world comes from Japan, dated to as early as 10500 BCE.

South East Asia

In an extraordinary development, the isolated populations of the interior New Guinea highlands have developed an agriculture of their own. This is based on the two kinds of cultivation: of the tropical taro plant, which takes place by draining swampy land in the valley bottoms, and of yams, bananas and sugar cane, by shifting cultivation on the surrounding hills.

The New Guinea lowlands, on the other hand, remain the domain of hunter-gatherers, and will do so until the 19th century. To the east, the Solomon Islands are also inhabited by hunter-gatherers. Further east still, the islands of the Pacific remain completely uninhabited by humans.

North America

In Mexico, maize has begun to be domesticated. This will be a long process, as domesticated maize is almost unrecognizable from its wild ancestor. It will not be completed until around 2500 BCE. Nevertheless, the start of the domestication of maize must have been linked to a significant shift towards a more settled way of life.

Once domesticated, maize will ultimately become the staple crop of the Americas.

Slide 8: 3000 BCE

The Middle East

Mesopotamia

By this date, true cities, some with populations numbering tens of thousands, have grown up on the southern Mesopotamian plain (Sumer). They are home to the earliest civilization in world history, that of the Sumerians. The surplus provided by the very productive farming of the region enables non-farming classes of people to live, such as craftsmen, traders, temple priests, government officials, soldiers, and of course rulers. These organize the building and adornment of temples, palaces, storehouses, defensive walls, much of the economic life of the city-states, and of course the religious rituals. In order to carry out these functions, the officials have developed the first writing system.

Europe

Farming has continued to expand into northern and eastern Europe.

Long-distance trade routes now criss-cross Europe. There is evidence for the presence of wheeled vehicles in eastern and central Europe, which will have aided the transport of goods along inland paths.

Africa

Egypt

The second civilization in world history has also appeared, in Egypt. Towns and cities have grown up along the banks of the Nile. They probably originally served as bases for local chiefdoms. A long struggle for power between them resulted in the rise of several powerful kingdoms along the northern Nile Valley, followed by the rise of a unified kingdom of Egypt by about 3100 BCE. Along with the rise of the first nation-state in history appears one of the greatest of all ancient civilizations.

Just as in Mesopotamia, the priests and officials in Egypt have developed a writing system to aid them in managing the food surplus produced by the farmers.

Sub-Saharan Africa

In West Africa, herding is the major activity, but there is also evidence for the cultivation of crops by this date.

South Asia

The Indus Valley

A number of large settlements have emerged on the flood plains of the River Indus. In these proto-cities, a third civilization (after those of the Sumerians and Egyptians) is taking shape.

Ganges Valley

Agriculture is now spreading in the Ganges plain to the east. As in other parts of the world, this seems to have been the result of indigenous hunter-gatherer communities incorporating farming skills into their activities.

The cultivation is based largely on wheat and barley, but also includes a range of indigenous plants, such as millets and tubers.

At this stage these communities are still fairly mobile, indicating that herding cattle was a major pre-occupation.

East Asia

In both the Yellow River region and the central Yangtze Valley, early walled and moated towns have appeared. The largest of these contain populations of thousands.

Technological advances in China around this time include the introduction of the potter's wheel and the production of high quality jade ornaments. Silk production also probably has its origins around this date.

South China and Taiwan

Wet-rice farming has expanded into the sub-tropical zone in south China, reaching the south coast hundreds of miles south of the Yangtze Valley. Here people have developed sea-going boats. This has enabled them to catch deep-sea fish, and also to make the crossing to the island of Taiwan.

Southwest China

Meanwhile, rice farmers are spreading along the Yangtze, westwards towards Yunnan. From there they will expand down into South east Asia, becoming the ancestors of farming peoples in Myanmar (Burma), Laos, Vietnam and Thailand.

South America

The large, primarily fishing, villages of the Peruvian coast are now also cultivating a range of plants, such as different kinds of beans, gourds, squashes, tomatoes and cotton.

In the Andean highlands, llamas and alpacas have been domesticated by this date.

Exchange networks link the highlands and with the coast, allowing both populations to benefit from a more varied diet.

Amazonia

In Amazonia, crop cultivation seems to have been practiced at this time by some groups, along with hunting, fishing and foraging. Indeed, pottery also seems to have been made here at this early date.

2. Questions

A. Short Questions:

1. Where did the earliest cultivation of crops take place? *(A: The Middle East)*
2. Where were animals first domesticated? *(A: The Middle East)*
3. Where was rice farming first developed? *(A: China - the Yangtze Valley region)*
4. What great area of land turned from green forests and grasslands into dry desert during the period covered by this presentation? *(A: The Sahara Desert)*
5. Where did the first civilizations in world history develop? *(Mesopotamia, in the Middle East)*

B. Analytical questions:

The information given within the presentation and notes will help to provide most of the answers. In some places, however, students may have to use some intelligent guesswork (or speculation, as it is called by historians) to fill in the gaps.

1. What factors led to the rise of farming?
During the millennia covered by this unit, what were the key developments in making farming more productive?
2. Why did farming first appear in the Middle East?
3. Why did farming expand around the world, at the expense of hunter-gatherer populations?
4. What happened to the hunter-gatherers - were they exterminated, absorbed, or pushed back from the territory they had previously occupied?
5. Why were the flood plains of large rivers home to the first civilizations in the world?
6. How many different times had farming been invented, and in what places?
7. Farming came to Egypt at a later date than to much of Europe. Why, then, had a great civilization developed there by 3000 BCE, but not in Europe?