

Rice and corn: History, cultivation techniques

INTRODUCTION

Cereals have been a dominant part of our food since farming began.



Rice is the staple food for a large part of the world's population, and corn has become paramount, particularly in the variant of maize for animal feed.



In this chapter, we are going to review the history and techniques of rice and corn cultivation.

THE HISTORY OF RICE

Rice is one of the oldest subsistence food crops. It was first cultivated in Asia 8000 years BCE. Rice is referred to in historical, social and religious documents. Its importance is evident in the fact that, in Oriental languages, the words 'rice' and 'food' are often synonymous.

Rice was not cultivated in Europe until 320 BCE. The Portuguese and the Spanish brought it to America. Today, rice is grown everywhere, but especially in humid and sunny regions.

There are many varieties of rice, classified according to the size of the grains. It perhaps comes as no surprise that rice with the longest grains is called long-grain rice, some of which is naturally aromatic, such as Basmati rice.

THE HISTORY OF CORN

When Christopher Columbus and his crew reached the 'New World' in the 15th century, they encountered corn, a plant that was entirely new to them.

Corn as we know it today, did not exist in a natural state. It was the result of numerous selections and the crossbreeding of a wild grass called teosinte, a plant grown as forage in Mexico about 9000 years ago.

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Over the years, pre-Columbian civilisations selected the best plants and thus the size of the cobs and the number of kernels per cob gradually increased.

We can probably thank the first selected mutation for the fact that the kernels, when ripe, remain firmly attached to a rigid cob. This facilitates harvesting, but makes corn unable to disseminate by itself.

The second mutation removed the hard protective shell around the teosinte grain. Just like wheat, corn now has a 'naked grain', exposed to insects and fungi, but easier to digest, without having to husk it.

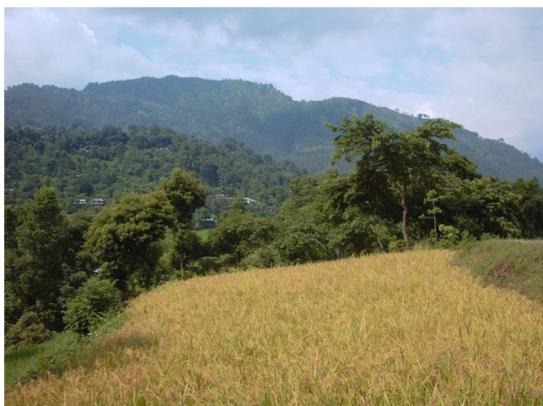
Corn was initially grown in subtropical or tropical climates, but the development of hybrid varieties meant that it can now be planted practically anywhere in the world.

Corn is available in more than 200 varieties throughout the world, classified according to the properties of the kernels: **Sweetcorn** is either sold on the cob or the kernels are tinned; soft grain flour corn is used to make **cornflour** or **dent corn**, which is high in starch.

There are also new varieties of corn that have been genetically modified to improve their resistance to certain pests and herbicides.

CULTIVATION TECHNIQUES

Rice is mainly cultivated in one of two ways.



Irrigated rice cultivation is when rice plants are submersed in water. This is an intensive growing technique and the most efficient form of rice cultivation, and therefore also the most common. Half of the world's rice-growing areas use this technique and produce about 75% of the world's rice. Irrigated rice cultivation requires costly landscaping to obtain a perfectly flat paddy field and to control the level of water.

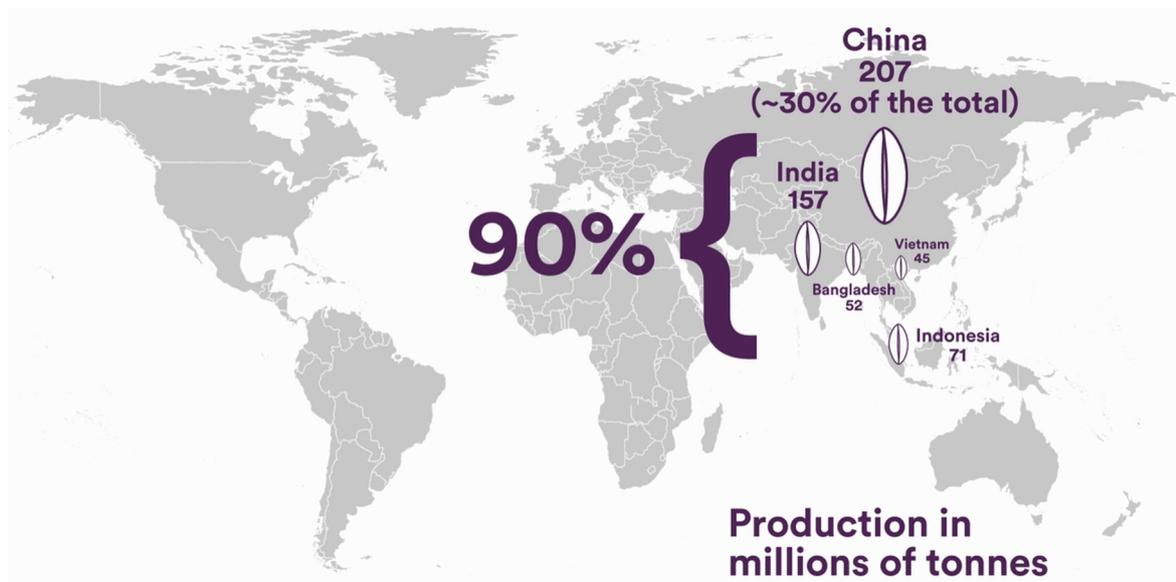
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The remaining 25% comes from rainfed rice cultivation. This is an extensive growing technique, without submersion of the rice plants. Here, the paddy fields are not irrigated but, instead, are watered by rainwater or ground water, and hence require less development. This form of rice farming predominates in areas with limited water resources, in Africa for example. As the yield depends on rainfall, rainfed rice cultivation faces the risk of droughts.



Throughout the world, there are approximately 160 million hectares of land allocated to rice cultivation. This is equivalent to 38 times the surface area of Switzerland.

Asia produces some 90% of the world's rice, including 30% in China alone.



Corn has become a symbol of intensive farming in Western Europe, the US and China, but it is also extensively cultivated in western South Africa, and semi-extensively in Argentina and Eastern Europe.

The total area devoted to growing corn in the world is slightly larger than that of rice, adding up to about 177 million hectares, or 42 times the surface area of Switzerland. The US is the largest producer and devotes around 39 million hectares to farming corn.

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Rice was first grown...

- 2000 years ago
- 10 000 years ago
- over 15 000 years ago

Which of these varieties of rice does not exist?

- Long grain rice
- Sticky rice
- Split grain rice

What proportion of rice cultivation uses irrigation?

- 25%
- 50%
- 75%

Almost 90% of the world's rice is grown in Asia.

- True
- False

Christopher Columbus brought corn from its native American soil to introduce it in Europe.

- True
- False

Corn as we know it today, did not exist in the wild.

- False
- True

Corn originates from a plant called...

- cornflour
- theobromine
- teosinte

Corn is a plant that is unable to self-propagate.

- False
- True

Which country produces the most corn?

- The United States of America
- China
- Ukraine

Answers

Rice was first grown...

- 2000 years ago**
Wrong! By then, rice was already a staple foodstuff in many countries.
- 10 000 years ago**
Well done! Rice was already known as a wild plant when Asian populations started to grow it 8000 years BCE, which was 10 000 years ago.
- over 15 000 years ago**
Wrong! At that time, agriculture had yet to be developed.

Which of these varieties of rice does not exist?

- Long grain rice**
Wrong! Long grain rice is in fact very common. Basmati rice, for example, is a long grain rice known for its aromatic fragrance.
- Sticky rice**
Wrong! Sticky rice, also called glutinous rice, is very popular in Asia. It is an ingredient of the popular Japanese rice cakes called mochi.
- Split grain rice**
Well done! Unlike long grain rice and sticky rice, this variety does not exist, at least not yet!

What proportion of rice cultivation uses irrigation?

- 25%**
Wrong! This corresponds to the proportion of rainfed rice cultivation, which simply relies on rainfall to water the rice.
- 50%**
Wrong! Try again.
- 75%**
Well done! Irrigated rice cultivation entails flooding the rice paddy. This method is very efficient, but the land requires a lot of preparation to obtain a perfectly flat paddy.

Almost 90% of the world's rice is grown in Asia.

- True**
Well done! That includes 30% in China alone.
- False**
Wrong! Try again.

Christopher Columbus brought corn from its native American soil to introduce it in Europe.

- True**
Well done! Christopher Columbus and his crew reached the New World in the 15th century, where they encountered corn, a plant unheard of in Europe at that time.
- False**
Wrong! Try again.

Corn as we know it today, did not exist in the wild.

- False**
Wrong! Try again.
- True**
Well done! Pre-Columbian civilisations developed corn by selecting and crossbreeding a wild grass. Without their work, corn would simply not exist.

Corn originates from a plant called...

- cornflour**
Wrong! Cornflour is made from the starch in kernels of corn and is used for thickening sauces.
- theobromine**
Wrong! Theobromine is a substance found in chocolate.
- teosinte**
Well done! Teosinte is a grass with small, seeded ears. Over time, the selection of the best mutations of this plant and successive crossbreeding resulted in the creation of corn.

Corn is a plant that is unable to self-propagate.

- False**
Wrong! Try again.
- True**
Well done! The first selected mutation of teosinte, the parent plant of corn, gave bigger kernels that remained firmly attached to a rigid cob. As the kernels cannot detach themselves naturally, corn depends on humans for its propagation.

Which country produces the most corn?

- The United States of America**
Well done! The US is the biggest producer of corn, accounting for almost 30% of corn production worldwide in 2014.
- China**
Wrong! China accounted for 20% of total corn production in 2014, which puts it in second place.
- Ukraine**
Wrong! Ukraine is the third biggest producer of corn, with 7% of the world's corn production in 2014.

Chopped up words

[11-13 years old and 14-16 years old]

Put two or three groups of letters together to make words.
Be careful, one group is used twice to make two different words.

GRA	EAL	EUR	ERS	BOI	PEO
TECH	STAR	ION	ECT	NI	INS
CON	PLA	PAR	CER	EVO	OPE
SEL	PRO	SES	LUT	ESH	ING
LED	PLE	THR	NTS	CES	QUE
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Answers

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SUM	CH				

Answers:

Processes	(PRO / CES / SES)	Threshing	(THR / ESH / ING)
Grains	(GRA / INS)	Starch	(STAR / CH)
Technique	(TECH / NI / QUE)	People	(PEO / PLE)
Europe	(EUR / OPE)	Parboiled	(PAR / BOI / LED)
Plants	(PLA / NTS)	Evolution	(EVO / LUT / ION)
Cereal	(CER / EAL)	Selection	(SEL / ECT / ION)
Consumers	(CON / SUM / ERS)		

The 'ION' group is used twice.