

Where does our food come from?



W. Kirkis/UNEP

NORTH AMERICA

Cranberry
Sunflower
Turkey

CENTRAL AMERICA

Avocado
Maize
Tomato
Vanilla

SOUTH AMERICA

Cocoa
Peanut
Pineapple
Potato
Pumpkin

MEDITERRANEAN

Asparagus
Celery
Mint
Oat
Cabbage

MIDDLE EAST

Alfalfa
Barley
Fig
Goat
Lentil
Pea
Pig
Rye
Sheep



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Loss of diversity in vegetables*

Food	Per cent loss in 20th century
Asparagus	98
Bean	95
Carrot	93
Lettuce	93
Onion	94
Pea	94
Radish	94
Spinach	94
Squash	88

Source: WRI

* Varieties held at the US National Seed Storage Laboratory, Colorado State University

Food for thought

Crops were first developed in the Middle East about 11,000 years ago. Ever since, farmers have bred new crop varieties, resulting in great diversity.

About 3,000 plant species have been used as food at one time or another. Some 75,000 – more than a quarter of all known species – are edible. And yet only 15-20 are of major economic importance in today's globalized agriculture. Wheat, rice and maize provide half the world's food; along with barley, they occupy about 500 million hectares worldwide.

Since 1900, about 75 per cent of the genetic diversity of agricultural crops has been lost. India now has fewer than 50 rice varieties, where once it had 30,000.

It is a similar story for livestock. More than 40 mammal and bird species have been domesticated, 12 of them now important for global agriculture. Cattle, pigs, goats and sheep – the four main mammalian livestock species – have diversified into more than 4,000 recognized breeds, but many of these are also being lost.

Half of the animal breeds farmed in Europe in the 1900s are now extinct. Of the 3,800 breeds of cattle, water buffalo, goats, pigs, sheep, horses and donkeys catalogued by the Food and Agriculture Organization (FAO), 16 per cent have become extinct and another 15 per cent are considered rare.

Our food supplies depend on genetic resources, but these are disappearing as natural habitats are depleted, degraded and destroyed. The extinction of one plant can cause the loss of as many as 30 kinds of animals and insects that depend on it.

Gene banks have been established in about 60 countries but are costly. Their seeds are vulnerable to disease and cannot be stored indefinitely without deteriorating. Such banks may be useful as a genetic store, but they cannot compensate for the wild.

Variety – the price of life

Traditional crops and animal breeds are disappearing as intensive agriculture advances, particularly in much of the developing world.

As monocultures spread, the soil loses organic matter and, usually, fertility too. Pests become less diverse, but there are more of them. More pesticides and fertilizers are used to counter the changes. This can accelerate soil degradation, and it can make pests and diseases resistant to the chemicals used to fight them. The way to beat them is to interbreed crops every five to 15 years – often with wild strains.

This worked with stripe rust, a wheat disease that reached epidemic proportions in the United States in the 1960s. Montana was losing a third of its crop to the disease each year, but genes from a wild wheat in Turkey provided resistance to it and 50 other diseases, saving millions of dollars a year.

Similarly, the genetic make-up of maize was strengthened by the 1977 discovery of *Zea diploperennis*, believed to be maize's ancestor and described as the botanical find of the century. When bred with cultivated strains, it gives resistance to seven major diseases, including a leaf fungus that caused more than \$2 billion in losses in the Corn Belt in the 1970s. Even if only 1 per cent of US crops benefits from it, estimates suggest the savings would be \$250 million per year.

Unfortunately, as monoculture advances, destroying variety and thus important genetic resources, it kills off its potential saviours.

Where does our food come from?

HORN OF AFRICA

- Coffee
- Mustard
- Okra
- Yam

CENTRAL ASIA

- Almond
- Apple
- Carrot
- Cucumber
- Garlic
- Onion
- Spinach

INDIA/INDO-Malaya

- Ginseng
- Peach
- Radish
- Rice
- Soybean
- Tea
- Cardamom
- Turnip

SOUTHEAST ASIA

- Apricot
- Banana
- Eggplant
- Lemon
- Sugar cane
- Tangerine



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Farm animals and their risk of extinction during the 1990s

Animal	Number of breeds	Number of breeds at risk
Cattle	787	135
Sheep	920	119
Goat	351	44
Pig	353	69
Buffalo	72	2
Horse	384	120
Total	2 867	489

Source: FAO