

## 5. Ecology and food economy

### 5.1 The rise of agriculture: Challenges for our diet and the environment

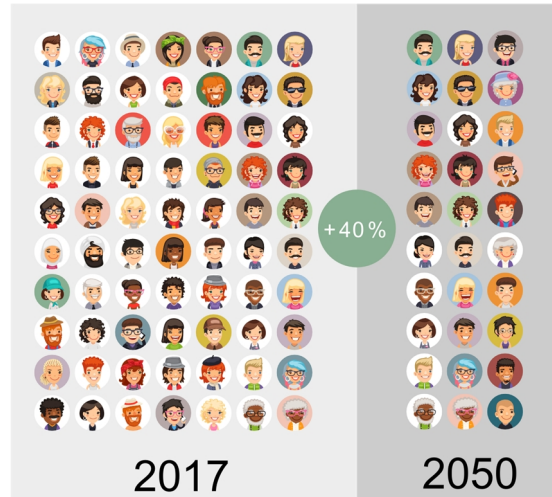
#### 5.1.2

## Feeding the planet: Challenges and accountability

Today, the Earth is home to more than seven billion people and the population is continuing to grow.

Latest estimates predict that, in 2050, world population will have reached 10 billion.

So the question we have to ask is how can we feed 40% more people with our available resources?



Until today, technical advances have made it possible to produce more.



Processing and preserving techniques have also improved. Sterilisation and artificial cold production allow food to be stored longer.

Also, in recent decades, international trade has intensified: Food is now transported quickly, by road, rail, ship or air.

These innovations allow industrialised countries to be 'food secure', meaning that they have stable access to food, both in terms of quantity and quality.

However, such food security is not guaranteed in all parts of the world, and some populations still lack resources and access to food. This is particularly the case in several sub-Saharan African countries, where diets mainly consist of cereals, roots and tubers that are poor in nutrients and often in insufficient quantities.

**World population**  
**11%**  
suffers from  
undernourishment

**39%**  
suffers from  
overeating

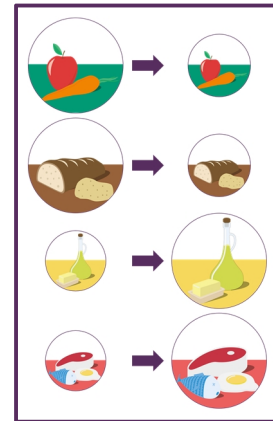
As you can see, this means that there is an unequal redistribution of food in the world.

According to the FAO, the Food and Agriculture Organization of the United Nations, 11% of the world's population still suffers from undernourishment, although this figure is decreasing. On the other hand, 39% of the population is suffering from overeating, and this figure is increasing.

## NUTRITION TRANSITION

Alongside this imbalance and population increase, certain populations are witnessing drastic changes in their diet.

A growing proportion of the world's population is adopting the diet of western countries, a diet very rich in animal proteins and fats. When a group of consumers changes its eating habits like this, we call this **nutrition transition**.



## THE CHALLENGES OF STOCKBREEDING

The increased consumption of meat and animal products requires increasing the number of animals bred and producing plenty of cereals to feed them.

It is estimated that it requires 10 kg of plant protein to produce 1 kg of animal protein.

Hence, stockbreeding has the disadvantage of requiring a considerable amount of land, both directly and indirectly, to produce the cereals and plants it requires. As such, it plays a significant role in deforestation.

Stockbreeding also consumes large quantities of water. For example, a cow consumes about 100 L of water per day to produce 30 L of milk, whereas a human being consumes one to two litres of water per day. Water is also required to clean stables and to irrigate the crops grown to feed the animals.

On another note, stockbreeding, particularly of ruminants, produces a large amount of greenhouse gases. These contribute to global warming, responsible for climate change and its significant consequences.

In addition to the increase in population, this change in diet means that, by 2050, agricultural production will need to more than double if it is to meet the food needs of people and livestock. Under current conditions, and without harming natural resources, is this actually possible?

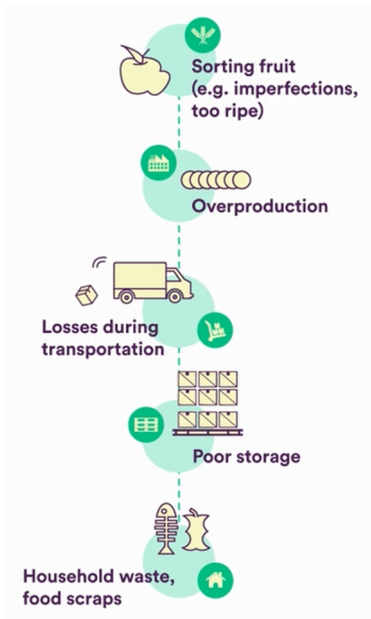
## LOSS AND WASTE

One avenue to explore is to determine how to reduce losses, when producing, harvesting, processing, transforming, transporting, preserving or storing food.

In Switzerland alone, two million tonnes of food are lost or wasted every year. This corresponds to the freight in 120 000 lorries, which, if lined up one behind the other, would equal a traffic jam from Geneva to Madrid.

# alimentaryum academy

The same is true at the global level. One third of foodstuffs are lost, amounting to approximately 1.3 billion tonnes a year. This is practically the equivalent of a full meal per person per day!



Food is wasted throughout its journey, from production through to consumption.

The first losses take place during farming, where products are thrown away if they do not meet the standard appearance or size. Other losses occur during industrial processing and transportation as, for example, food is discarded if it has been damaged during delivery.

Finally, households are the cause of half of all food waste, for instance when we buy more than necessary and the excess ends up in the bin.

In conclusion, we are confronted with a growing world population, which consumes increasing amounts of products of animal origin, and which produces its food by using methods not yet adapted to preserving natural resources, and wastes nearly one third of all foodstuffs.