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MANUAL FOR TEACHERS & EDUCATORS

8 WAYS TO EAT TO SAVE THE PLANET

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INTRODUCTION

This report aims to analyze foods that are beneficial for both the environment and children. In recent years, there has been increasing attention to sustainability and health, and the choice of the foods we consume plays an important role in both aspects.
Several types of foods will be examined, including those that are sustainably produced and have a low environmental impact, as well as those that provide the necessary nutrients for healthy growth and development of children.
In addition, topics related to food education and the promotion of healthy eating habits for children will be addressed, as well as the importance of sustainable food production and distribution.
The report will also explore possible barriers and challenges to the implementation of healthy and sustainable eating, and some recommendations will be presented to promote positive change in food consumption for the benefit of the environment and children's health.

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DAIRY

Introduction

Dairy is very important for most if not all the countries of the EU, having a proud history of producing good food from farm animals. Animals and the by-products of various forms of farming have long sustained the people of this continent and is famous around the world for their dairy offerings. However, over time we come to realise that it is not always the cleanest when it comes to production methods. Pollution from raising livestock and the potential damage to the environment from the process of getting the food from the farm to the table needs to be examined and taken into account.

We will examine the challenges the dairy industry faces and how it contributes to the problem of pollution of the environment and sustainability.

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Type of food and harm caused by its production or processing

For a long time, dairy farming was the gold standard of food production, the way of sourcing and producing food for the world's population that was both nutritious and safe. But recently, concerns have started to be raised about its sustainability and friendliness to the environment.

It is estimated that Dairy farming accounts for 2.9% of total human induced greenhouse gas emissions, along with 19-24% of the total percent of the total ammonia emissions in the United States. It was also found by the Food and Agriculture Organization of the United Nations that milk production increased by 30% from the years 2005 and 2015, which increased the size of the global dairy herd by 11%. An increase in the output of milk equaled an increase in the size of any nation's herd. Water pollution is another silent but harmful risk of dairy farming. If the storage of manure isn't kept secure - or if it leaks from vats, etc - it can seep into local waterways.

If this happens it can make the community water supply unusable or even dangerous.

Another pressing side effect of too much dairy farming is deforestation. Animals that are reared to provide food for the community require large amounts of land where they can graze. Due to this, forests often must be cleared to make way for farmland with the resulting loss of valuable CO2 absorbing trees. The taste for milk in America, for example, requires 44,000 square miles of land just so the citizens can enjoy milk on a daily basis. In a study by the journal Science, they found that livestock produces just 18% of the consumed food calories but used 80% of the available land use.

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Processed food derived from it

The main foods derived from dairy farming are milk, cheese, butter, and yoghurt. Milk is taken via suction cups from the cow and then sent through stainless steel pipes where it is stored at 5 degrees or less in refrigerated vats. Within 48 hours of this the milk is then taken to a milk factory where it is pasteurised and homogenised. This is a time sensitive process and involves a number of different technologies. Raw milk is also consumable but far less often and by less people.

This is an energy and labour-intensive operation and often causes damage to the environment. Land is not allowed to recover, and cattle are often injected with medications such as steroids, anti-parasitic drugs, and other antibiotics, which in the long run may have a negative effect on human health. It can also lead to damage to the soil and biodiversity if these chemicals leak onto the surrounding land, killing flora and draining the land of its fertility. Public health may be at risk in some countries due to lax safety controls, while there is also some evidence of a rise in 'multi-resistant microbes' because of the amount of anti-biotics that are administered to cattle.

'Cheese may produce high levels of GHG from energy use, consume high levels of water, and have significant wastewater challenges.' Sciencedirect.com

Each processed food has a different yet similar shelf-life. These can differ depending on the type of packaging used (e.g. vacuum packed) and the type of production process – e.g. ultrapasteurisation. Shelf life of dairy products:

- Cottage Cheese: 21-28 days (other harder forms a lot longer)
- Yoghurt: 28 days
- Milk: 14-17 days
- Butter: 30-90 days

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Packaging

Dairy products are packaged using a vast array of materials. These include plastic, glass, polycarbonate and polyethylene containers, laminates, timber wood, and aluminium. Many of these materials are not bio-degradable and do damage to the earth – both the land and the sea – if disposed of in an irresponsible manner.
Single use plastic is one of the worst culprits for being environmentally damaging. Using this packaging just once is not worth the time and energy that was put into making it. Care needs to be taken and more effort needed to ensure that plastic is recycled (and can be recycled) and used more often to make it sustainable and to eventually dispose of it in a responsible and protective manner.

'Plastic packaging is extremely wasteful and impacts earth's ecosystems, on which we depend. Due to poor product design and lack of political infrastructure, the majority of plastic waste is sent to landfills or disposed of into the environment'. Supplychain.edf.org

The main issue with plastic is that it doesn't break down. Every piece of plastic ever made is still on the planet and much of this is dumped wrongly, resulting in it ending up in places like oceans where marine life ingest it and is then ingested by the human population, having a negative impact on overall health. It is estimated that only 9% of plastics are disposed of properly.

Transport

As dairy products need to be transported from farms (often located far away from the major population hubs) to towns and cities, they burn through a large amount of CO2 and emit a lot of damaging fumes and carcinogens into the atmosphere. Most of the delivery is done by fossil fuel forms of heavy transport, such as trucks or ships.

Not only this but very often multiple trips along the chain need to be done; farms to factories, to supermarkets and shops and finally to customers if deliveries are made to individuals. As many farms are inland, there are often large distances to be covered.

When transporting dairy produce, it is vital that the temperature is controlled, and the foods kept in a cold environment. This can lead to issues around food safety as many foods can spoil if not kept under optimal conditions.

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Conclusion

Livestock activity has a significant impact on virtually all spheres of the environment, including air, soil, water and biodiversity. This impact can be direct, through grazing, for example, or indirect, as in the case of the destruction of forests to expand the area under fodder crops.

The ecological footprint of the production and consumption of meat and other animal products in developed countries is a major contributor to the current climate crisis. The livestock sector contributes significantly to total human emissions of "greenhouse gases" (GHG).

To this must be added other emissions indirectly related to livestock activity, such as those caused by deforestation or the transport of goods. Industrial meat has a high environmental cost because it accelerates climate change, biodiversity loss, and the pollution of an increasingly scarce resource: water.

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FISH

Introduction

There are multiple perspectives on the matter of fishing, aquaculture and the harm caused to the environment. Therefore, this report will have to be divided into smaller sections to advocate for the variety of topics and perspectives. To create an overview for the reader, this report will focus on three main issues; types of food and the harm caused by its production or processing, processed food derived from it, and how fish is packaged. There is no one true answer, but instead many paths to go down when looking into fishing and its impact on both social and environmental issues. Therefore, this report will generalise and only highlight some of the biggest impacts caused by fish.

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Type of food and harm caused by its production or processing

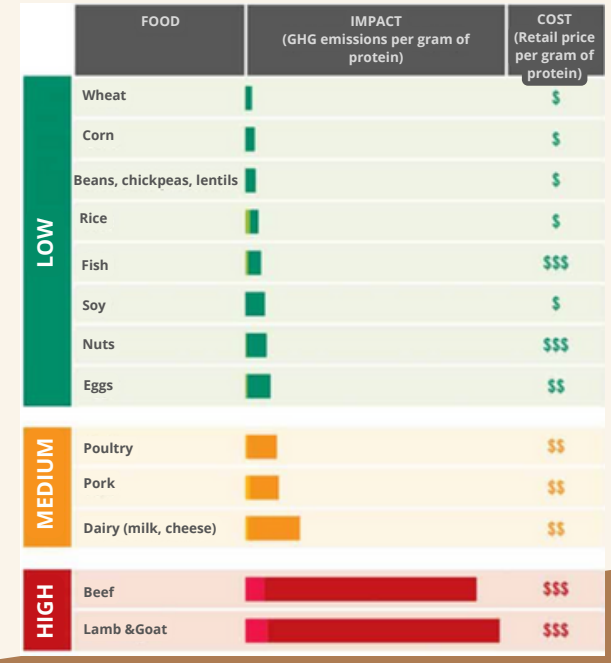
Methods of commercial fishing

Trawling, which is a net dragged along the ocean floor, is one of the most popular methods used in commercial fishing. It is very effective and low-cost for fishermen. However, there are many negative side-effects of trawling. It is one of the most harmful methods used by fishermen, since it disturbs the ocean floor leaving many scars and destroying the eco-system at the bottom of the ocean floor.

”Bottom trawling reduces the complexity, productivity, and biodiversity of benthic habitats–damage is most severe in areas with corals and sponges. When disturbed by bottom trawling, as much as 90 percent of a coral colony perishes, and up to two-thirds of sponges are damaged. Additionally, a review of damaged areas seven years later revealed no new growth. Even in soft sediment habitats, bottom trawling can cause irreversible damage.”1

CO2 impact of fish and seafood

Fish is one of the most carbon-efficient sources of protein on the planet, especially wild-caught fish. The cause of this is that wild-caught fish are not fed and therefore there is no carbon footprint behind the wild-caught fish. If we look at the carbon footprint behind commercial fishing emissions, it is higher. The reason for this is that fishers sail in fuel driven boats to fish at sea and that the boats emit the carbon.



Source: https://sustainablefisheries-uw.org/seafood-101/cost-of-food/

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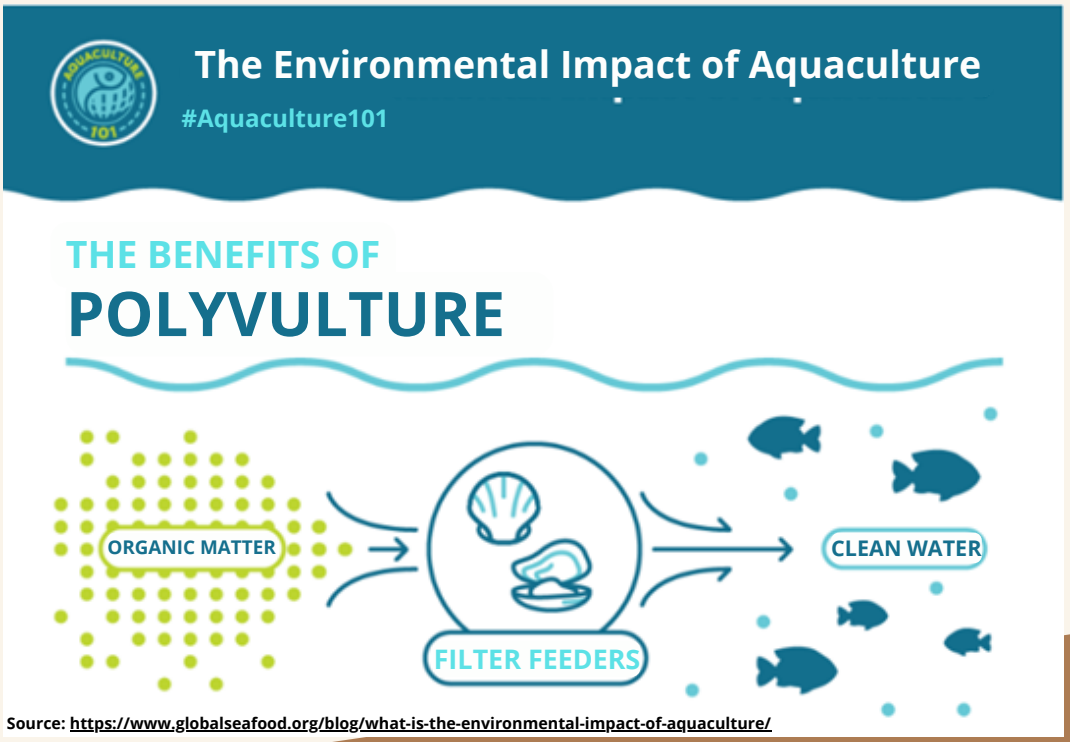
Seafood farming

On a side note, farming seafood is found to be very efficient in comparison to other sources of proteins such as chicken, pork or beef. Seafood is fed with various proteins and are efficient in using the proteins. The measurement of how much feed it takes to produce protein is 1:1 with seafood. In comparison, beef's feed conversion ratio is about 10:1.2 This means that humans get as much protein from consuming seafood as the seafood are fed.

Seafood farming can be used to keep the naturel environment and the oceans healthy. Seafood such as mussel and clams naturally clean the water that they live in. Mussels live on plankton and other micro animals in the water, which is then filtered through the mussels and removes potential harmful debris, such as agricultural runoff. One mussel can filter up to 15 gallons or 56 litres water per day.3 Seafood doesn't emit any carbon, but actually takes carbon out of the environment as it grows.



Source: https://www.globalseafood.org/blog/what-is-the-environmental-impact-of-aquaculture/

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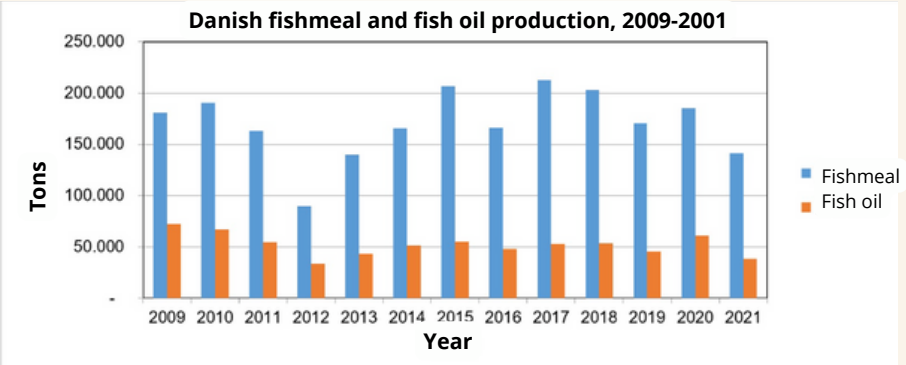
Processed food derived from it

First and foremost, there are different ways of preparing and processing fish or seafood for human consumption. Fish is highly perishable and should therefore be preserved as soon as the fish is harvested or pulled out of water. Different cultures have different ways of preserving fish, such as salting, drying or smoking. However, there is a huge waste when it comes to processing fish and seafood, which can be avoided.

Fishmeal

Fishmeal is made by small fish, recycled fish trimmings, bycatch etc. which is dried and grinded into powder. It is estimated that 25-35% of fishmeal is made from by-products that were earlier thrown away. This makes sure that the whole fish is used and decreases the amount of by-products that go to waste.4 The fishmeal is very high in protein and is for that reason used to feed farm animals such as pigs, chicken and farmed fish. It contains important nutrients to speed the growth of these farm animals.

In 2015, Denmark was the world's largest producer of fishmeal, by producing approximately 183 million tons of fishmeal each year.



Source: https://www.fao.org/flw-in-fish-value-chains/resources/articles/fish-by-products-utilization-getting-more-benefits-from-fish-processing/en/

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Packaging

Transportation

Typically the fish industry uses a lot of nonrecyclable materials with a high CO2 emission, such as Styrofoam® (foamed polystyrene) boxes and plastic. Foamed polystyrene and plastic make up almost 95% of the world's marine litter.5 When foamed polystyrene ends up in the oceans it dissolves into thousands of small pieces and ingested by wildlife. This gives the wildlife health problems such as, reduced fertility, a false sense of fullness and digestive obstructions. These side-effects are not only limited to animals, but also to humans through the consumption of fish.

However, foamed polystyrene has many benefits for the fish industry since it is a cheap material, durable, thermal, and easy to make.6

Out at sea

When we look at packaging fish, we cannot look aside from the pollution that the fishermen at sea leave behind them in the ocean. This phenomenon is known as "ghost fishing gear". Ghost fishing gear is abandoned fishing gear from the industry, such as fishing nets, ropes etc.
"Between 500,000 to 1 million tons of fishing gear are discarded or lost in the ocean every year. Discarded nets, lines, and ropes now make up about 46% of the Great Pacific Garbage Patch."7

The main issue with ghost fishing gear is that wildlife, such as turtles, sharks, seabirds and so on, get caught in old nets which leads to death because of slow suffocation. Ghost nets harm coral reefs as well, since they can break corals or block sunlight to the corals.

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Conclusion

There are a lot of different perspectives on fishing and how harmful it is to the surroundings. This report can conclude that fishing can be harmful, but it is primarily the by-products, such as transportation, packaging and fishing equipment that damages the environment most. Also, the methods of fishing, such as bottom trawling, are damaging for the oceans eco-system and have created many unreversible injuries to the seabed. Fish themselves are not harming and some seafood actually have a CO2 positive effect.

There is huge potential in fish and seafood as a source of protein that is much less harmful for the environment than ex. beef or pork. Also, there is a way of making fishing more sustainable by reusing fish waste and process it into fishmeal.

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VEGETABLES

Introduction

The production of vegetables is one of the most polluting and damaging sectors for the planet, along with animal husbandry. In the first part, we will examine the main consequences and harm caused by the production of vegetables, and the problem of contamination of vegetables and pesticides of derivative products in Europe countries. Finally, we will get to the heavy consequences of packaging on the environment.

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Type of food and harm caused by its production or processing

Consequences of vegetable production

Pollution in agriculture is mainly caused by intensive farming. Vegetables, but also fruit, garden produce, and animal breeding are polluted when the cultivation of the land is not respectful of the environment and the ecosystem.

Intensive farming is a way of farming that exploits the soil to its maximum productive capacity without allowing the land to lie fallow. Fallow is an agricultural practice that consists of setting aside a plot of land to restore its fertility.

Intensive cultivation does not respect the timing of natural production. More is demanded from the soil than is possible, which leads to soil inefficiency. There is over use of chemical fertilizers due to fast production methods, and more waste and CO2 belched out into the environment. This also leads to poor food security for the individual.

Environment and pollution

The production of vegetables has a significant impact on the environment at the European level. The main aspects to consider are the use of natural resources, pollution, and climate change.

Firstly, vegetable cultivation requires extensive land, water, and energy resources. Intensive agriculture can lead to deforestation and the conversion of natural habitats, threatening biodiversity and ecosystem balance. The first source of pollution caused by intensive agricultural cultivation comes from the fossil fuels used by the vehicles working the land and transporting all the final products. These emissions consist of both gases (carbon dioxide, nitrogen oxides) and particulate matter (PM10, PM2.5).

Another type of pollution is caused by the various types of plant protection products, which are used to eliminate pests (fungi, bacteria, insects, etc.)

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In 2015, approximately 136 thousand tonnes of plant protection products were bought on the market. Of these, 51.1% were fungicides, 17.5% insecticides and acaricides, 17.1% herbicides and 14.3% miscellaneous.
Furthermore, it must be considered that these products are often air-dispersed to treat all crops, but by doing so, the air is flooded with chemicals that are a danger to flora and fauna as well as to all people living nearby.
To make plants grow better, these fertilisers contain nitrogen compounds that also cause secondary pollution with the proliferation of ultra-fine dust in the air.
Another source of fine dust is the combustion of agricultural residues (an estimated 0.1% of agricultural emissions), which also releases large amounts of carbon dioxide.
Overall, it has been estimated that agriculture was responsible for 6.9% of total greenhouse gas emissions in 2015, expressed in the CO2 equivalent, and is therefore the third largest source of greenhouse gas emissions after the energy sector and the industrial process sector. In terms of PM10 particulate matter, agriculture also ranked third for emissions and second for Benzopyrene emissions.

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Processed food derived from it

Contamination of vegetables

In 2020, close to half of the fruit and vegetables consumed in the EU was polluted with one or more pesticide residues. The percentage of vegetables and fruit in European shops without detectable pesticide residues went slightly down to 54,6%, reinforcing the trend of recent years towards higher and higher levels of pesticide residues.

In 2020, a quarter (27%) of fruit and vegetables consumed in Europe contained multiple residues of pesticides. This very high figure of 27% remained unchanged in comparison with 2019. This cocktail can be up to 14 pesticides in a pear or 15 pesticides in a rice sample.

The highest frequency of multiple residues in unprocessed products was reported for sweet peppers/bell peppers, apples, oranges, pears, strawberries, table grapes, mandarins and peaches. All are common products, consumed daily by European consumers.

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Packaging

The main problem with packaging for vegetables that end up on the market and especially in supermarkets is the plastic. Plastic is highly polluting, non-compostable and non-biodegradable. Even for packaging, the agro-food sector is responsible for more than ¼ of CO24 emissions. It absorbs about 42% of the total packaging production. If the beverage sector (23%) is added to this, it accounts for two thirds of the packaging produced. This is a sector that continues to expand due to the growth of single portion packs and convenience foods.
Product packaging generates more plastic waste than any other industry. In Europe, it accounts for 59% of all plastic waste, by weight. In the United States this share is probably closer to 65%, according to experts. The global packaging market is a 640 billion per year industry, and is growing at 5.6% per year. Plastics account for a third of this, making packaging the largest market sector for plastics in the US.

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Conclusion

In summary, we can state that the damage caused by the agri-food sector, and in particular by vegetables is mainly due to the environmental pollution. Moreover, the intensive cultivation and the use of chemical fertilisers causes the impoverishment and destruction of the soil. It leads to air pollution, harmful foodstuffs and poor human health protection.
Furthermore, the use of plastics for the sale of vegetable products is one of the biggest and harmful problem for the planet.

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GRAINS

Introduction

The agricultural sector, the production of grain and vegetables, is one of the most polluting and damaging sectors for the planet, along with animal husbandry. The issue is vast and complex. We will address here the most emerging issues in the domain of agricultural grain production. In the first part, we look at the main causes of environmental pollution for the planet, in the wheat production process. Then, the processed food derived for it will be discussed, the problem of imported wheat to achieve high production numbers, and the damage on environmental safety.

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Type of food and harm caused by its production or processing

Some of the main environmental impacts associated with wheat production include:

Use of pesticides and fertilisers: The use of chemical pesticides and fertilisers can lead to soil and groundwater pollution. When these chemicals are overused or misapplied, they can leak from cultivated fields into waterways, causing damage to aquatic ecosystems and wildlife.

Water consumption: The cultivation of wheat requires a significant amount of water for irrigation, and in some regions, this can result in the depletion of valuable water resources and the drying up of local water sources.

Soil erosion: the practice of ploughing and the cultivation system can increase the risk of soil erosion. When soil is exposed to weathering, such as rain and wind, fertile soil can be washed away, reducing soil fertility and causing sedimentation in surrounding areas, including water bodies.

Greenhouse gas emissions: The grain production process and its transport can contribute to greenhouse gas emissions, such as carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). These emissions contribute to climate change and global warming.

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Processed food derived from it

The European Union (EU) is a major agricultural and cereal-producing power with 27 member states. It is the world's second-largest consumer of wheat after China and also the world's largest wheat producer, although Russia challenges this position. The EU is the second-largest wheat exporter after Russia but ahead of the United States. The main products derived from wheat are pasta, bread and all types of cereals - the base of the individual's food pyramid. It's important to note that the specific production levels and varieties of wheat-derived food products can vary by country and region within Europe.

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The imported wheat

To produce more and satisfy a larger market, producers buy foreign wheat, often imported from Canada, containing glyphosate that is toxic to health. Durum wheat is used to make semolina, a special flour with a typical yellow colour, which is the only ingredient needed, along with water, to make pasta.

For many years now, around 99% of pasta has been produced using semolina, which is obtained by mixing good, healthy wheat with imported wheat, which is not of high quality, and is often harmful. With the ratification of the free trade treaty between Europe and Canada (CETA), it is even more difficult to control the quality of wheat imported in Europe.

According to the alarm launched by Coldiretti,

"Foreign cereals found to be irregular for pesticide content are practically three times as many as national ones, confirming the higher quality and safety of products, based on the report on the official control of pesticide residues in food disclosed on 8 June 2017 by the Ministry of Health". The organisation points out that "samples found to be irregular for an outlawed pesticide content are 0.8% in the case of foreign cereals, while the percentage drops to just 0.3% in the case of domestically produced ones."

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Packaging

The issue of checking the food suitability of packaging materials and containers is regulated by a series of European standards and interventions by the Ministry of Health (in force since 1973) in the work of regulatory approval within the EU.
The main problem with packaging in the food sector is plastic. This problem is present in all Europe and in the global production.
Product packaging generates more plastic waste than any other industry. In Europe, it accounts for 59% of all plastic waste, by weight. In the United States this share is closer to 65%, according to experts. The global packaging market is a 640 billion per year industry, and is growing at 5.6% per year. Plastics account for a third of this, making packaging the largest market sector for plastics in the US.

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Conclusion

In summary, we can state that, pollution in the agri-food sector, particularly of grains is harmful to the environment, air, water and land, to animal species, to the preservation of biodiversity and to the individual. The damage is mainly due to intensive cultivation and production, which is totally inappropriate, especially for small ecosystems. The causes of the pollution of grains are also the use of pesticides and fertilisers, the soil erosion and the greenhouse gas emission.

In addition, another source of pollution is packaging. The use of plastics for the sale of products in the large food chains for all grain derivatives is one of the most pressing problems, not only in Europe, but worldwide.

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DRINKS

Manufacturing

Fruit juices are usually described as:

- From concentrate
- Not from concentrate
- Freshly squeezed

Fruit juice from concentrate
Juice is extracted from the fruit and the water content is reduced—by evaporating off the water naturally present—in the country of origin. The concentrated juice is usually frozen and shipped to the country of use for packing. Fruit juice packers then reconstitute the juice by adding back the water.
Not from concentrate juice
Juice is extracted from the fruit in the country of origin and then lightly pasteurised and frozen, chilled or transported in a germ-free environment to the country where it will be packed.
Freshly squeezed juice
Juice is extracted from the fruit and used immediately.

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JUICES

Enviormental impact

Since more than half of the raw materials used to make juices become by-products, the global orange juice industry alone produces up to 20 million tons of solid and liquid waste per year.
Global orange juice consumption exceeded 1.5 million metric tons from October 2019 to September 2020, and it was a relatively slow year compared to the period from October 2016 to September 2017, when more than 2 million metric tons were consumed. Unfortunately, gulping down that amount of juice, regardless of flavour, has its repercussions. For starters, The Coca-Cola Company and PepsiCo - the two worst plastic polluters in the world - are the owners of the main juice brands in the US: Tropicana, Minute Maid, Simply Orange and V8. And the troubled parent companies are but a scratch on the surface of the juice's carbon footprint.

To understand the full environmental impact of juices, one must take into account the resources required to grow the produce, the food waste associated with extracting the juice, the materials used to package it, and the energy required to ship and store the juice.
Learning more about the impact of the fruit juice industry, we must ask whether pre-squeezed and blended foods are worth the sugary hit.
Constituting 90% of the US citrus juice market, orange juice has a carbon footprint of about 200 grams per glass. A 2009 collaboration between PepsiCo and Columbia University's Earth Institute to calculate Tropicana's carbon footprint found that half a gallon represented 3.75 pounds of carbon dioxide, or the same amount emitted in a 8 kilometer journey by car. A subsequent study on Florida orange juice, published by the University of Florida, estimated that the carbon footprint of a half-gallon was nearly four times lower, but did not account for distribution, packaging, and disposal.

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Environmental impact

The state of Florida, whose citrus industry is the second largest in the world, produces 547 million gallons of unconcentrated orange juice and about 537 gallons of frozen concentrated orange juice per year. The cultivation process alone represents 60% of the carbon footprint of orange juice. Gasoline use (for machinery), nitrogenous fertilizers, and water—the average tree requires about 30 gallons a day—make up most of that.

In the 2019 book "Climate-Smart Food," author Dave Reay said that climate change will likely increase the risk of pests and diseases and create more drought- and heat-related problems for fruit crops, likely leading to even greater use of water, fertilizers, and pesticides.

Apples—although they require more water than citrus, with a single tree needing 50 gallons on a hot day—are thought to have a lower climate impact than apricots, peaches, grapes, oranges, bananas, pineapples, kiwis, and pears.

Do not forget the food waste generated by the discarded pulp and shells. Since more than half of the raw materials used to make juices become by-products, the global orange juice industry alone produces up to 20 million tons of solid and liquid waste per year. When food waste ends up in landfills, it decomposes and produces methane, a potent greenhouse gas that is believed to have more than 80 times the warming power of carbon dioxide. Citrus fruits generate a lot of waste due to their abundant peel and pulp.

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Transportation and distribution

Of course, the carbon footprint of juices varies depending on where the fruit is grown. Crops in drier climates require more water, farms further away lead to higher transport emissions, etc. According to Tropicana's press release on the 2009 study, transportation and distribution accounted for 22% of the carbon footprint of its orange juice (the full study was not made public).

Despite the fact that Florida's official tourist office claims that 90% of the orange juice in the United States is made from Florida oranges, the country sources much of the fruit from Brazil. The South American country is the world's largest producer of oranges, supplying more than half of all bottled orange juice.

In addition to the fruit it imports for squeezing domestically, the United States also sources much of its concentrated orange juice from Mexico and Costa Rica, and its concentrated pineapple juice from Thailand, Philippines, Costa Rica, and Indonesia. Although non-concentrated juice has long been considered a healthier drink than concentrated juice, the latter weighs less (and therefore generates fewer emissions) because excess water is removed.

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Packaging

Fruit juices usually come in bottles and jugs made of polyethylene terephthalate (PET No. 1 plastic) or in plastic-coated paper cartons. While No.1 plastics are widely accepted by curbside recycling services, hybrid plastic-paper cartons typically used for shelf-stable products are only recycled through special schemes. According to Tropicana, packaging accounts for 15% of the beverage's carbon footprint, and consumer use and disposal for 3%.

Recently, the packaging company Tetra Pak has emerged as perhaps a more responsible manufacturer of beverage containers. However, Tetra Pak packages are notoriously difficult to recycle because very few facilities process them. The good news is that Tetra Pak has partnered with other carton manufacturers to form a Carton Council, whose goal since 2009 (the year that the council was formed) is to improve access to carton recycling across the US. As of 2018, the curbside recycling rate for cartons has tripled, from 6% to 18%.

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How to become a greener juice drinker

Just because bottled juice has a carbon footprint similar to that of a fossil fuel car, doesn't mean you should give up this beloved beverage entirely. There are many ways to be a better juice consumer.

Look for juices made from concentrates, which weigh less and generate less transportation emissions. Juices made from concentrates have a bad reputation because they can contain added sugars and chemical preservatives, but you can surely find varieties that do not.

Buy containers of glass instead of plastic. Glass can be repeatedly recycled without losing its integrity, whereas plastic is normally only recycled once. Tetra Packs are also a good option, but make sure you have access to carton recycling first.

Consider switching from orange to apple juice, as orange production has a higher carbon footprint than apple and also creates more waste.

Buy locally made juices to reduce transport emissions.

Whenever you can, make your own juice with local and organic products.

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SOFT AND ENERGY DRINKS

Manufacturing

Water supply and treatment: Water is the main ingredient in a soft drink. It comes from the municipal supply network, from a private well, or from springs. Drinking water undergoes various treatments to make beverages.

Preparation of the drink: Sugars or sweeteners and other ingredients such as juices, caffeine, flavourings or minerals are added.

A-Fizzy drinks add carbon dioxide and a preservative.

B-Beverages without gas: They undergo a pasteurization heat treatment, before or after packaging, to maintain their properties.

Filling and closing: The brewed drink is automatically dispensed from the filling machine to individual containers.

Tempered: To prevent it from condensing or deteriorating due to high temperatures.

Labeling: It indicates to us the name of the product, its ingredients, its nutritional content, reference intake, best before date, manufacturer or environmental information, among other things like storage, transportation and distribution.

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Packaging

In the soft drinks sector, the following types of primary packaging to contain the beverages are used:
- Glass bottles → The bars recycle them and the company takes them back to reuse.
- PET plastic bottles.
- Steel or aluminum cans.

Plastic bottles pollute because they contain oil.
Aluminum cans release less waste into the oceans, but the production of each can sends roughly twice as much carbon dioxide into the atmosphere as each plastic bottle.
It is said that glass bottles pollute when they are made as they produce too much energy.
Soft drink containers in some european countries are currently 22% lighter per liter than in the year 2000, all of them being recyclable and/or reusable. While the cans, PET containers and glass bottles can be recycled, the latter can be also reusable.

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Transport

Greenhouse gases:
Transportation vehicles emit gases that trap heat in the atmosphere and therefore contribute to global warming, predominantly carbon dioxide.
In each part of the world there is usually a distribution point from where we distribute the products to commercial shops and bars etc.
An example is the factory in La Rinconada (Seville, Spain), which is the largest production center in Europe (Coca Line).
Then, at each strategic point in the world, there are factories where they only distribute to consumers, that is, they are only distribution factories.
Pepsi is organized in the same way for the distribution of products.

Sales process

Once the product is in the supermarket, contamination continues to increase since when it comes to selling them, most containers have price tags, price reduction stickers, etc, which are made of plastic.
At the cash register, 60% of customers buy plastic bags to carry their food.

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WATER

Manufacturing

Water purification process

This can be carried out in a cistern or a tank treated with Sodium Hypochlorite, which prevents the formation of microorganisms in the stored water, it must remain for at least two hours. It then goes to sand and gravel filters, where the larger solids or particles are separated. The filtered water is forced through an Activated Carbon Filter, which eliminates the odors and flavors present produced by the organic matter and the chlorine. Later, it is put through the polishing filters that retain any carbon particles that are present in the water.
The next step consists of passing the water under an ultraviolet lamp that inhibits the production capacity of bacteria that could be present in the previous processes, leaving the water completely pure.
Finally, to prevent the formation of contaminating microorganisms, an ozone source is applied. The steps in full:

- Storage
- Sand Filter
- Activated carbon filter
- Polishing Filter
- Ultraviolet Light
- Ozonator

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Bottling and packaging process

Bottling process:
The bottle is required to be labeled and treated before bottling. This process consists of three stages:

1. Rinser
2. Filler
3. Threading capper

Rinser: cleanliness is guaranteed before the filler. Filler: bottles are filled with purified water. Screw capper: a lid is placed on the mouth of the container to prevent it from spilling or contaminating the water. The lid is placed tight, achieving a hermetic seal, and under these conditions the product then goes to be packed.

Packing process
The steps to follow are:

1. Encoded
2. Boxed in
3. Thermo wrap

Using a full bottle conveyor, they are transferred from the filler to the next phase, which is coding. This is achieved by means of an ink injector, which is the same one that will register on the lid or label, the batch and the expiration date of the product. Once ordered, the product goes to the packer in a tray or box and a plastic film that is shrunk in a shrink tunnel gets applied to the box for subsequent marketing.

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Packaging

Rigid or soft bottles: The rigid ones tend to be more durable and resistant to blows and perforations, but they are less adaptable in our day to day. The soft ones are less durable and less neutral in terms of the taste of the water and occupy very little when liquid is no longer stored.

There are seven types of plastic or metal which are used to house water. The best known are:

- Mineral water bottle: Polyethylene. It is the most commonly used option, due to its low cost, ease of purchase and lightness when empty. They are single use, because when they are filled or crushed they can release particles into the water.
- Roll bottle: The least known, most neutral in taste and lightest of all the reusable bottles. They are multilayer polyethylene.
- Soft bottle: Flexible polyurethane, designed for trail running. Easy pressure, very compressible and twistable.
- Hydration bag: Housed in the back of a backpack, its suction tube allows you to hydrate while walking or running, without removing the backpack.
- Aluminum bottle: the classic canteen, but more sterilized and lighter.
- Stainless steel bottle: the most resistant, healthy and heavy.

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Environmental Impact

Currently, about 5 million people in the world die because of drinking contaminated water, a situation that is especially exacerbated in those contexts of social exclusion, poverty and marginalization.
Main causes that have impacted water quality:

- Industrial waste: Industry is one of the main factors causing water pollution. Unfortunately, thousands of companies are still unaware of the proper handling and care that should be made of this resource. Huge quantities of pollutants derived from industrial processes are still dumped into rivers, seas and canals. and are most affected by these bad practices.
- Rising temperatures: global warming also influences water pollution. How is this possible? The explanation is simple: when an ecosystem suffers from temperatures above normal, the water sources decrease their amount of oxygen, which causes the water to alter its composition.
- Use of insecticides in agriculture: The vast majority of agricultural processes of our time use fertilizers and chemical products for the cultivation and production of food. These products are filtered through underground channels that, in most cases, end up in the water networks that we use for our consumption.
- Deforestation: Excessive felling of trees contributes to the drying up of rivers, lakes and other water sources. In addition to this, the clearing of forests does not in all cases include the removal of the roots of the trees that are on the banks of the rivers, which causes the appearance of sediment and bacteria under the soil and the consequent contamination of this precious resource.

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- Oil spills: We cannot forget a practice that has traditionally caused water pollution in various parts of the planet: oil spills and their derivatives. These spills are due to the inefficient transport of oil and the filtration of products such as gasoline, which is generally stored in underground tanks; in many cases, the tanks are leaking and it seeps into surrounding bodies, including sources of water fit for human consumption.

Sparkling water: Sparkling water is made by adding carbon dioxide under pressure. The result is that the water contains carbonic acid. It is prepared by adding carbonic acid and carbon dioxide in an exothermic reaction in pressurized storage tanks so that there is no depressurization and dissociation of the minerals. From this process, calcium carbonate comes out as residue.

Difference between sparkling water and mineral water: The difference lies entirely in carbon dioxide: in one it is "manifested", while in the other it is "inserted" artificially. In mineral water, CO2 is present in the water directly from the source, in sparkling water it is added in the bottling process thanks to the addition of sodium bicarbonate, sodium chlorite, potassium citrate, potassium sulfate or, most commonly, carbon dioxide.

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DISTILLED BEVERAGES

Manufacturing

1. Phases to manufacture Rum.
2. Manufacture of Whiskey.
3. Bottling of liquors.

1. Phases to manufacture Rum.

The following are the different stages through which the distillation of rum passes:
First, we obtain the raw material, which in this case is cane juice (which comes from the sugarcane crop), which is extracted by cutting and squeezing the cane in mills. When the sugar cane is collected, those that are not destined for the making of rum, are destined to be turned into table sugar.
The juice that is extracted is mixed with water and heated to a boil. The product obtained is filtered to remove residues, and excess water is removed with evaporators.
Then the yeast is added and the preparation must be kept warm. Sugar or sucrose is transformed into CO2 and ethyl alcohol, ethanol and the resulting gases are recycled and used in the formation of ecological fertilizers that are used to fertilize sugarcane crops, thus creating a cycle. The use of wild

yeasts improves fermentation.
The types of rum are determined depending on the fermentation. If it is a short process with a duration of twelve hours, or one or two days, it will be a fairly light rum. To obtain a heavier rum, it can be enhanced with the residues of previous distillations or skimming.
In distillation, the liquid is heated so that the alcohol evaporates and these resulting vapors are condensed and are what produce the liquor.
After the aging takes place, the rum is left for two years in a barrel to improve its flavor. And depending on the rum you want to get, you leave it for more or less than two years.
Finally, we have the filtration that removes particles from the liquor and improves its colour.
Once the desired rum is obtained, we bottle it and proceed to its commercialization.

Therefore, thanks to the recycling of gases and residues produced by rum, we can obtain organic fertilizers and thus avoid environmental pollution.

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2. Manufacture of whiskey.

The Scotch whiskey industry is embracing non-fossil fuels and investing heavily in renewable technologies in Scotland.

This has contributed, together with the improvements introduced in energy efficiency, to the change of fuel and the decarbonisation of the network, and to the sector reducing greenhouse gas emissions by 22% since 2008.

3. Bottling of liquors.

Aware of the importance played by containers for storing liquor, it is known that:

White glass bottles are characterized by being containers suitable for any type of distillate, available in more than 5 different models.

Other bottles have been designed to enhance the beauty of a brand. Straight lines, elongated necks and soft shoulders are some of the most characteristic features of these bottles.

On the other hand, we have a selection of high-end bottles, designed to satisfy the most sophisticated demands of the Premium market. The material used, cosmetic glass, makes it a high-quality bottle suitable for exclusive distillates.

Closure systems:

Liquor bottles have three different types of closure system depending on their mouth:

- Cork Mouth; within this model we can differentiate several types:

21mm and 23mm entry cork - these “carnette” mouth stoppers, as they are also known, are typical of more exclusive liquor bottles. Perfect for customizing a brand. Standard cork - this 18.5mm closure system is the most common. It can be synthetic and found in a wide variety of colours.

- Boca Presión Guala DOP Irrellenable; this type of mouth is characterized by being a non-refillable closing system and manual application through a dry stroke.
- Threaded Mouth; in glass containers for distillates, we find two types of screw caps.

Colour:

The white and green glass bottles, with more competitive prices, are more flexible containers that adapt to the needs of the spirits market in Spain.

The extra-white bottles have the characteristics of cosmetic quality: glass with a high level of gloss, extra-fine texture and flawless glass. They are available in a wide variety of models. This material is used mainly for distillates of exclusive Premium brands.

Ability:

There is a wide variety of capacities for glass liquor bottles. We have containers ranging from miniature 40ml formats to more powerful containers of up to 1 liter.

The main objective is to make available to all customers an easy way to buy quality liquor bottles, without giving up design and customization, thanks to the wide variety of models, sizes, and closure systems that exist.

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LIQUORS AND CREAMS

Manufacturing

The production of distilled spirits includes the following phases;
reception of cereals, grinding, cooking, fermentation, distillation, conservation, mixing and bottling.
The grain elevator receives and weighs the grain that arrives and places it in the appropriate containers. Grinding consists of grinding the grain necessary for the vat to brew the beer, the key to the fermentation process.
The starch is solubilized using steam jet cookers.
Enzymes are added to break the starch into smaller molecules, thereby reducing the viscosity of the dough.
The type of distillation depends on the liquor you want to obtain. Clay stills are generally used when the product is to be given a special "character", as is the case with cognac and whiskey, while, in general, continuous multi-column distillation is used to produce more neutral liqueurs, which are used as mixtures or as neutral cereal liqueurs.
A very important aspect of the operation of a modern distillery is the recovery of by-products.
The bottling rooms are separated from the rest of the facilities, to protect the product from any possible contaminants. The highly automated filling operation requires continuous efficiency control. The empty bottles are transported by conveyor belts to the filling machines. Packaging is the final stage before storage. This process has been automated, although there is a small amount that is packaged manually, depending on the size of the bottle and the type of container. The packaged products then enter the stacking machine, which automatically stacks the boxes on pallets, which are moved by forklift trucks to the warehouse.

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Environmental impact

Beverage production requires pure water and refrigeration systems.
The most commonly used chemicals to meet these requirements are chlorine and anhydrous liquid ammonia and are considered extremely harmful substances. Chlorine is often purchased and stored in pressurized metal cylinders of various sizes.
A large, uncontrolled release of anhydrous ammonia produces airborne concentrations large enough to explode violently.
Emergency systems for detecting leaks and automatic ventilation mechanisms, as well as barrier equipment, are often used in conjunction with evacuation and response procedures.
Carbon dioxide, the most used for the application of pressure and for carbonation, and carbon monoxide emitted by internal combustion engines, are present in most beverage factories. Filling areas are often the most prone to high carbon dioxide levels, especially during product changeover procedures.
Carbon monoxide is found in forklifts or similar equipment.
If the accidental release of hazardous chemicals such as anhydrous ammonia or chlorine is excluded, the main harmful release from beverage production is wastewater. Normally, this wastewater is treated before it enters the rivers, hence the appearance of problems is rare.
Sometimes a batch of product in poor condition has had to be discarded, which, depending on the ingredients that were part of the composition, has been transferred outside for treatment or has been diluted with a large volume of water before releasing it to the waste system. Spilling a large amount of acid drink into a river or lake can kill many fish, and this should be avoided.

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Coffee

Manufacturing

Drying and husking the cherries
First, the coffee cherries must be harvested, a process that is still done manually. Next, the cherries are dried and husked using one of two methods. The dry method is an older, primitive, and labor-intensive process of distributing the cherries in the sun, raking them several times a day, and allowing them to dry. When they have dried to the point at which they contain only 12 percent water, the beans' husks become shriveled. At this stage they are hulled, either by hand or by a machine.
In employing the wet method, the hulls are removed before the beans have dried. Although the fruit is initially processed in a pulping machine that removes most of the material surrounding the beans, some of this glutinous covering remains after pulping. This residue is removed by letting the beans ferment in tanks, where their natural enzymes digest the gluey substance over a period of 18 to 36 hours. Upon removal from the fermenting tank, the beans are washed, dried by exposure to hot air, and put into large mechanical stirrers called hullers. There, the beans' last parchment covering, the pergamino, crumbles and falls away easily. The huller then polishes the bean to a clean, glossy finish.
Cleaning and grading the beans
The beans are then placed on a conveyor belt that carries them past workers who remove sticks and other debris. Next, they are graded according to size, the location and altitude of the plantation where they were grown, drying and husking methods, and taste. All these factors contribute to certain flavors that consumers will be able to select thanks in part to the grade. To make instant coffee, manufacturers grind the beans and brew the mixture in percolators. During this process, an extract forms and is sprayed into a cylinder. As it travels down the cylinder, the extract passes through warm air that converts it into a dry powder.

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To make instant coffee, manufacturers grind the beans and brew the mixture in percolators. During this process, an extract forms and is sprayed into a cylinder. As it travels down the cylinder, the extract passes through warm air that converts it into a dry powder.
Once these processes are completed, workers select and pack particular types and grades of beans to fill orders from the various roasting companies that will finish preparing the beans. When beans (usually robusta) are harvested under the undesirable conditions of hot, humid countries or coastal regions, they must be shipped as quickly as possible, because such climates encourage insects and fungi that can severely damage a shipment.
When the coffee beans arrive at a roasting plant, they are again cleaned and sorted by mechanical screening devices to remove leaves, bark, and other remaining debris. If the beans are not to be decaffeinated, they are ready for roasting.

Decaffeinating

If the coffee is to be decaffeinated, it is now processed using either a solvent or a water method. In the first process, the coffee beans are treated with a solvent (usually methylene chloride) that leaches out the caffeine. If this decaffeination method is used, the beans must be thoroughly washed to remove traces of the solvent prior to roasting. The other method entails steaming the beans to bring the caffeine to the surface and then scraping off this caffeine-rich layer

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Roasting

The beans are roasted in huge commercial roasters according to procedures and specifications which vary among manufacturers (specialty shops usually purchase beans directly from the growers and roast them on-site). The most common process entails placing the beans in a large metal cylinder and blowing hot air into it. An older method, called singeing, calls for placing the beans in a metal cylinder that is then rotated over an electric, gas, or charcoal heater.
Regardless of the particular method used, roasting gradually raises the temperature of the beans to between 431 and 449 degrees Fahrenheit (220-230 degrees Celsius). This triggers the release of steam, carbon monoxide, carbon dioxide, and other volatiles, reducing the weight of the beans by 14 to 23%. The pressure of these escaping internal gases causes the beans to swell, and they increase their volume by 30 to 100%. Roasting also darkens the color of the beans, gives them a crumbly texture, and triggers the chemical reactions that imbue the coffee with its familiar aroma (which it has not heretofore possessed).

After leaving the roaster, the beans are placed in a cooling vat, wherein they are stirred while cold air is blown over them. If the coffee being prepared is high-quality, the cooled beans will now be sent through an electronic sorter equipped to detect and eliminate beans that emerged from the roasting process too light or too dark.
If the coffee is to be pre-ground, the manufacturer mills it immediately after roasting. Special types of grinding have been developed for each of the different types of coffee makers, as each functions best with coffee ground to a specific fineness.

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Instant coffee

If the coffee is to be instant, it is brewed with water in huge percolators after the grinding stage. An extract is clarified from the brewed coffee and sprayed into a large cylinder. As it falls downward through this cylinder, it enters a warm air stream that converts it into a dry powder.

Packaging

A coffee capsule can take 500 years to decompose since it is made of aluminum and plastic, which is why they are designing compostable capsules (which are made of another, less polluting material)

Coffee cups take between 30-50 years to degrade, in many places they give paper or cardboard cups, but they are usually made of plastic and pollute the environment a lot since they contain dangerous toxins such as PCBs, dye phthalates, Bisphenol A or PBDEs. among other substances, and all these materials also emit pollutants into our body in small doses.

Paper cups also contain a percentage of plastic, but in less quantity, so we should use paper ones and avoid plastic ones where possible.

Coffee processing plants can discharge waste into rivers and cause pollution that affects water systems, kills wildlife, and disrupts ecosystems. The big problems derived from the current model of coffee consumption are deforestation for its crops and soil erosion.

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Environmental impact

Large amounts of water are consumed and almost 80% of it is considered of little economic value, therefore, it is considered a waste product, which is almost always dumped into rivers, polluting them and generating bad odours.
Coffee requires very particular conditions, which is why its cultivation is especially threatened by the climate crisis.

For some years now, production, particularly Arabica, has suffered the impact of the effects of climate change: the increase in temperatures and the alteration of rainfall regimes generate uncertainty in terms of crop yields and difficulties in maintaining quality. production, as well as causing an increase in pests and diseases.

Between now and 2050, temperatures could rise in the main plantation areas, with increased rainfall and increasingly arid dry seasons.
At the same time, coffee consumption is expected to increase during this same period due to changes in habits and the development of emerging economies.

To satisfy the new demand, the area available for plantations should be multiplied by 2.5, which increases the negative effects that are already being observed.

In order to extend the crops and increase production in the short term, the felling of shade trees is increased. This causes soil erosion, decreases climate regulation, and makes it difficult to maintain soil fertility and moisture and contributes to a loss of diversity.
They require a high use of synthetic chemicals, increase production costs, and replace traditional practices.

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MEAT

INTRODUCTION

The meat industry is one of the sectors that contributes most to climate change, usually for the worse. According to a study by the Food and Agriculture Organisation of the United Nations (FAO), the meat sector is capable of emitting more greenhouse gasses than all the world's transport combined (14.5% of emissions).

Many countries have already issued the climate strategies they will follow to meet the targets agreed in the Paris agreement, including the United States, Mexico, Germany and Canada. These targets do not include anything on the reduction of gasses produced by the livestock industry, a factor that has a major impact on environmental pollution. This problem becomes even bigger when we look at emissions indirectly related to the meat sector, such as those caused by deforestation for the cultivation of feed for livestock, or the transport of goods, either the transport of raw materials for livestock, or the transport of livestock to slaughterhouses. And even the transport of meat from the slaughterhouses to the different distribution points (supermarkets, butchers, etc.).

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THE MEAT INDUSTRY AND WATER

The environmental cost of the meat industry is very high, as it accelerates climate change, leads to a loss of biodiversity, and pollutes a fundamental resource for human beings that is becoming increasingly scarce: water. Livestock production is one of the world's largest consumers of water and is also responsible for water depletion. To better understand this reality, we will talk about the water footprint. The water footprint is the total volume of freshwater used to produce the goods and services consumed. In order to measure this index, three components are used: blue water (total volume of surface and groundwater consumed), green water (volume of rainwater stored in the soil) and grey water (volume of freshwater needed to assimilate the load of pollutants resulting from the production system). The global average water footprint of beef is 15,700 l/kg. In other words, to produce 1 liter of meat requires 15,700 liters of water, an inordinate amount. This is highly dependent on the production system from which the meat is derived and the composition and origin of the feed used. The proportion of this average is predominantly green water (94%).

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OTHER GLOBAL IMPACTS

Livestock production is one of the world's largest consumers of water and is also responsible for water depletion. To better understand this reality, we will talk about the water footprint. The water footprint is the total volume of freshwater used to produce the goods and services consumed. In order to measure this index, three components are used: blue water (total volume of surface and groundwater consumed), green water (volume of rainwater stored in the soil) and grey water (volume of freshwater needed to assimilate the load of pollutants resulting from the production system). The global average water footprint of beef is 15,700 l/kg. In other words, to produce 1 liter of meat requires 15,700 liters of water, an inordinate amount. This is highly dependent on the production system from which the meat is derived and the composition and origin of the feed used. The proportion of this average is predominantly green water (94%).

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PLANETARY BOUNDARIES

Scientists estimate that four of the nine limits have already been largely due to the environmental impact of livestock farming:

- Land use change
- Biosphere integrity or loss of biodiversity
- Biogeochemical flow (nitrogen and phosphorus pollution)
- Climate change.

Also, at the global level, livestock farming is seriously affecting a fifth boundary, freshwater use. Recent study suggests that this boundary is also reaching an unsafe zone. The sixth boundary, concerning new entities (or unknown impacts of new substances or life forms) that may affect the planet's ecosystems is closely linked to animal production systems. The impact of meat and dairy production has on the planetary processes that sustain life on Earth is so great that it threatens six of the nine key planetary boundaries.

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PACKAGING

Meat and meat products are subjected to several manipulations before reaching the final consumer. it is therefore important to choose correctly the preservation method to be used. Packaging has the function of preserving and protecting the product in order to maintain its integrity and quality.
At the latter, the safety, colour and freshness of the meat or meat products play a decisive role in the consumer's decision to buy the product. The most commonly used processes for packaging fresh meat and meat products are air permeable, modified atmosphere and vacuum packaging all of them based on plastic and polyethylene

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PLASTIC

The environmental impact of plastics is very aggressive, especially because of their slow degradability and chemical composition. Plastic pollution has become one of the most pressing environmental challenges of our time. In addition, the production and incineration of plastics is a major contributor to climate change.

Approximately more than 100 million tonnes of plastics are produced every year, so that plastic pollution in the environment, far from disappearing, is increasing.

Of these 100 million tonnes, 13 million tonnes end up in the oceans. And the worst thing is that there are no borders in the sea and that they will probably end up stranded anywhere in the world.

If we talk about what the environmental impact of plastic is, or how plastic affects the planet, we need to look at what happens on land, at sea and in the air.

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LAND

When a plastic container, bag or bottle falls to the ground, it quickly releases toxic substances that will damage its properties. Not only that, but they are likely to seep underground, affecting groundwater and soil nutrients.
As a consequence all the species that feed on that water or the plants that grow in it will end up damaged.

SEA

The environmental impact of plastic in the sea is perhaps the most visible. It can be said that the sea has become one of the world's largest dumping grounds for plastic. As a result, many marine animals become entangled, suffocate or even consume this type of plastic waste, which can lead to their death.
And, as if that were not enough, when plastic comes into contact with water, highly polluting and dangerous compounds such as bisphenol A are released, which kills many marine species.

AIR

If we talk about the environmental impact of plastic, and specifically in the air, we have to differentiate between its manufacture and its burning. These are the two main sources of pollution in this environment. In both cases, toxins are released that are quite harmful to our environment and our health.

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CONCLUTION

Livestock activity has a significant impact on virtually all spheres of the environment, including air, soil, water and biodiversity. This impact can be direct, through grazing, for example, or indirect, as in the case of the destruction of forests to expand the area under fodder crops.
The ecological footprint of the production and consumption of meat and other animal products in developed countries is a major contributor to the current climate crisis. The livestock sector contributes significantly to total human emissions of "greenhouse gases" (GHG).
To this must be added other emissions indirectly related to livestock activity, such as those caused by deforestation or the transport of goods. Industrial meat has a high environmental cost because it accelerates climate change, biodiversity loss and the pollution of an increasingly scarce resource: water.

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