Ecological Consequences of Meat Consumption

The following quantities of foodstuffs can be produced on the same amount of land:[1]

Content:

Worldwide meat production continues to increase

Although the consumption of meat in industrialised countries has been decreasing for years, consumption globally has continued to grow. In 2005, 267 million tons of meat were produced worldwide. Meat production has more than doubled since 1970.[2] Meat production worldwide could rise to around 300 million tons by 2016, according to forecasts by the Organisation for Economic Co-operation and Development (OECD).[3]

There were approximately 1.6 million pigs and over 1.5 million cows in Switzerland in 2007.
In the same year, 252,800 calves were slaughtered.[4]

In Switzerland alone, 465,000,000 kg of meat were consumed in 2007 (excluding blood, bones etc.)[4] This has enormous ecological consequences that unfortunately have received very little attention up to now.

Meat production worldwide:

1950: 44 m tons
1990: 170 m tons
1994: 194 m tons
1997: 210 m tons
1999: 217 m tons
2002: 242 m tons
2003: 254 m tons
2004: 260 m tons
2005: 267 m tons

Source: FAO

Use of Land

On the same amount of land needed to produce one kilo of meat, 200 kg of tomatoes or 160 kg of potatoes could be harvested in the same time span. In Switzerland, approximately 67% of agricultural land is used for keeping livestock and the production of animal feed. This corresponds with the worldwide average.[5]

In the USA, 230,000 km² of land are taken up with the production of hay for farm animals, and only 16,000 km² (= 7%) are used for growing plant foods for humans.[6] The enormous amounts of land needed for meat production also damage the rainforests: 40% of all rainforest in Central America has been cleared or burned down within the last 40 years, mainly to gain land for grazing and the cultivation of fodder.[7]

The Food and Agriculture Organization (FAO) of the United Nations ascertained in their 2006 study that 70% of deforested Amazon rain forest was used for cattle pasture, and that most of the remaining 30% was planted with cattle feed. In the same study, the FAO found that 70% of land used for farming worldwide is employed for rearing cattle.[9]

1.5 million tons of meat were imported into the EU in 2004. Over one third of this came from Brazil.

Water Consumption

It has been predicted that, in future, wars will not be fought over oil, but over water. An average household needs around 2–5 litres of water for drinking, and 100–500 litres for everything else (such as showering, washing etc.). This is nothing in comparison to the 2,000–5,000 litres needed every day for the production of foodstuffs for an average family.

Animal factories may look as though they save space at first sight: in actual fact, enormous amounts of land are needed for the cultivation of fodder.

One could shower every day for a year with the same amount of water needed to produce one kilo of meat.[8]

In the fight against world hunger, the focus is often put upon the supply of food, while water, essential to the production of food in the first place, is ignored. Therefore, a water conference was held in Stockholm in 2004, concerned solely with the supply of water for humans.[10] Interesting conclusions were brought to light: whether a family requires 2,000 or 5,000 litres of water daily to produce their food depends very much on their type of nutrition.

Worldwide, approximately 1,200 m³ of water are required per person per year for the production of foodstuffs. In the poorest regions of the world, where people can hardly afford ani-

mal products, the amount of water needed is around 600 m³. In comparison, regions that consume the most meat (the USA and EU) require circa 1,800 m³ annually per person.

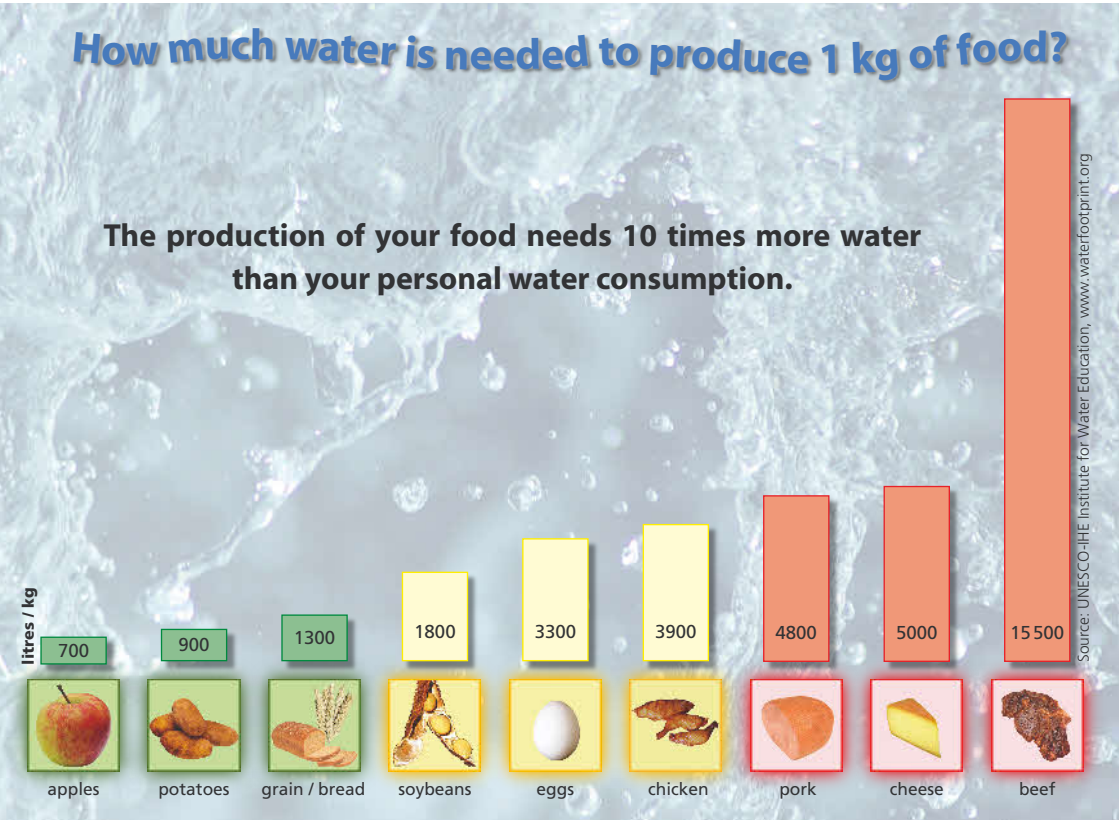
A direct comparison shows the impact of meat consumption even more clearly:

A adequate diet consisting of 80% plant-based foods and 20% meat (in industrialised countries the proportion of meat is actually 30–35%)[11] requires 1,300 m³ of water per year, while a purely vegetarian diet requires around half this amount.[12]

The increasing consumption of animal products leads to ever-larger quantities of water being needed in agriculture. Water is already being pumped up from depths of over 1,000 metres in certain parts of India. One generation ago, hand-dug wells were sufficient for farm irrigation. Today, 95% of these small pumps have run dry.[13] This situation is echoed across other Asian countries.

Food wastage

7–16 kg of grain or soya beans are needed to produce 1 kg of meat. This can easily be defined as one of the most effective ways to waste foodstuffs. The artificial extension of the food chain due to the transformation of grain into meat causes a huge loss of nutrients, including 90% of protein, 99% of carbohydrates and 100% of fibre, among other things.



In addition to this, only a small portion of the body of a slaughtered animal consists of meat – 35% of the weight of a cow or 39% of a calf (excluding bones).[14]

Nevertheless, 66% of the grain in Switzerland is still being fed to animals (2004).[15] In the USA, 8 billion slaughter animals eat their way through 80% of the grain harvest. 90% of the world's soya beans serve as animal fodder.[16] In total, approximately half of the grain produced worldwide is fed to animals so that their meat can be eaten.

If Americans ate 10% less meat, the quantity of the grain saved could protect around one billion people from starvation. In Switzerland alone, about 1,600,000 tons of concentrated feed (mostly grain) are fed to livestock.[17] Switzerland may be able to afford this waste; however, the figures are not much different in developing countries. The FAO reported that in 1981, 75% of the grain imports into the Third World were used for fodder. The domestic cultivation of foodstuffs also competes with the worldwide production of animal feed: in Egypt over the last 25 years the cultivation of corn as fodder has been given priority in fields that used to produce staple foods such as wheat, rice and millet.

The proportion of land planted with grain used for fodder has thereby increased from 10% to 36%.[18]

A similar thing has happened in other countries where meat consumption has grown.

In 1950, 170 kg of grain per head was adequate to nourish the population of Taiwan. By 1990, meat and egg consumption had multiplied sixfold. The grain requirement per head has increased to 390 kg due to this extension of the food chain.

Increasing amounts of grain and pulses are being fed to slaughter animals.

Despite steadily increasing harvests, Taiwan can only meet this rising demand through imports. While Taiwan was a grain exporter in 1950, in 1990 it had to import 74% of the quantity needed, mostly in the form of fodder.[19]

Similar figures apply to the former Soviet Union: meat consumption has tripled since 1950; the demand for fodder has quadrupled.

In 1990, cattle in the former Soviet Union consumed three times as much grain than the people. Imports of grain used as fodder reflect this, with an increase from almost zero in 1970

to 25 million tons per year in 1990. Through this, the Soviet Union became the world's second largest importer of fodder.

Forest Destruction through Liquid Manure

Scientific research clearly indicates that today's mass keeping of livestock is one of the main causes of forest destruction. Biologist Dr. Hans Mohr[20] states in "Spektrum der Wissenschaft", January 1994:

"An essential insight gained through ten years of research on forest damage is that the amounts of nitrogen, in particular ammonia[21], which stems primarily from agriculture, being released into the atmosphere must be reduced. [...] The disposal of the steadily increasing quantities of liquid manure and human excrement remains the cardinal problem."

Today, human excrement is mostly disposed of by sewage plants; animal excrement, however, is still poured or sprayed on to fields. The result of this is that 75% of nitrogen (N) in the form of ammonia (NH_3), today still considered to be mainly responsible for the destruction of forests, is caused by livestock emissions.[23]

Around 90% of ammonia emissions from agriculture come from liquid manure and dung.[22]

Nitrogen, actually an essential nutrient for meadows, forests and water-based life, can lead to over-fertilisation if found in excess. However, this was only noticed when it was already too late. Forests initially grew faster

Conventional slurry spreading releases huge amounts of ammonia (NH3) into the air. Approximately half of the agricultural ammonia emissions are due to this process.

with a higher nitrogen supply, and only showed the first signs of damage once the soil was already over-saturated with nitrogen.

"Forest eco-systems are no longer balanced and are reaching a state where they will be damaged. Their stability is endangered"[24]

Richard Volz from the forest conservation divison at BUWAL (Swiss Agency for the Environment, Forests and Landscape) in the magazine Umwelt (Environment) 2/2004: „Stickstoffbelastung: Nährstoffe aus der Luft machen Waldböden sauer." (Nitrogen pollution: Nutrients in the air are turning forest floors)

In 1992, the German Bundestag's Research Committee into the Preservation of the Earth's Atmosphere reached the same conclusion. On the subject of ammonia (NH_3), they published the following text in "Climatic Changes Threaten National Development":

"NH_3-emissions are nationally (West Germany), continentally (Western Europe) and globally to be assigned 90% to agriculture and 80% to the keeping of livestock. 528,000 tons of

NH_3 are emitted annually in the Federal Republic of Germany. Ammonia originates in the cattle stable area, in pastures and through the storage and spreading of organic fertiliser. [...] Ammonia and nitrogen release could be decreased by reducing the number of livestock, making changes in feeding and reducing the use of liquid manure as fertiliser. [...] This would be desirable not only in ecological, but also in economic respects."[25]

Air pollution due to animal husbandry

Ammonia from animal faeces does not only play a deadly role in acid rain. Secondary aerosols form in the atmosphere through ammonia, endangering human health in the form of particulate matter (PM10) or fine dust. The Director of the Swiss Ministry for the Environment, Forests and Agriculture, Philippe Roche, reckons with 3,700 deaths annually due to fine dust in Switzerland. He estimates the additional health-related costs to be around 4.2 million Swiss francs per year.[26] Despite its large contribution to the problem, animal husbandry is seldom mentioned in the fight against fine dust. The reaction of Swiss President and Environment Minister Moritz Leuenberger at the press conference on particulate matter on 2 February 2006 shows how difficult politicians find it to address this topic. When asked about the contribution of animal farming to the fine dust problem, he merely replied that "it is an awkward topic".

Over 20 million hectares of tropical rainforest have been converted into cattle pastures since 1970.
Worldwatch Institute, 1991

Water Pollution

Ammonia does not only have terrible consequences for forests and the air, but also for water. Among other things, over-fertilisation causes the unnaturally strong growth of algae, which in turn extracts oxygen from the water. Animal-factories, which today require much less land than previously, produce such a large amount of liquid manure that the ground water is seriously threatened. For example, 890,000 tons of feed are needed to „produce" pork for the Swiss population, and 2.5 million m^3 of liquid manure are created in the process.[28]

In the USA, pollution through faeces from animal factories is 130 times as high as the pollution from humans.[27]

The Swiss Sempach and Baldegg lakes already need to be given "artificial respiration" with a huge oxygen blower and in many agricultural areas in Switzerland the population is not able

to drink the ground water directly due to the high nitrate pollution.[29]
Over 50% of water pollution in Europe is caused by the mass keeping of livestock. Nitrate from agriculture has already penetrated so far into the ground water that some of the mineral water brands no longer comply with guideline values for drinking water.[30] In the USA, agriculture contributes more to water pollution than all the American cities and industries together.[31]

Over-acidification of the soil

Ammonia and nitrogen oxide (NO_x) also contribute substantially to the over-acidification of the soil. This problem had reached such proportions in Holland by 1989 that a ministerial department took on the problem. The results of the Dutch Institute for Health and the Protection of the Environment read:[32]
"Nitrate from liquid manure that is released as ammonia into the air is an environmental poison that causes so-called acid rain and other deposits containing acid. In Holland, most of the precipitation comes from ammonia gases out of cow sheds – they cause more damage to the country than all of the automobiles and factories."
Even forests that are not fertilised directly have three times as much nitrogen in the soil than 50 years ago due to the pollution of the ground water. The Federal Office for Agriculture estimates that 90% of all forest floors in Switzerland exhibit a critical value of nitrogen oxides.

Appearances can be deceptive – the Sempach lake has had to be artificially oxygenated since the 1980s.

The Greenhouse Effect

Up until now, traffic and industry have been held almost exclusively responsible for the greenhouse effect. Here too, the influence of animal husbandry has also been neglected for a long time. The head of the Wuppertaal-Institute for Climate, Environment and Energy, Ernst U. v. Weizäcker commented: "Cattle breeding's contribution to the greenhouse effect is about the same as that of all automobile traffic, if we take into consideration the clearing of forests for cattle and for fodder. [...] And the transformation of savannas into deserts, the erosion of mountain areas,

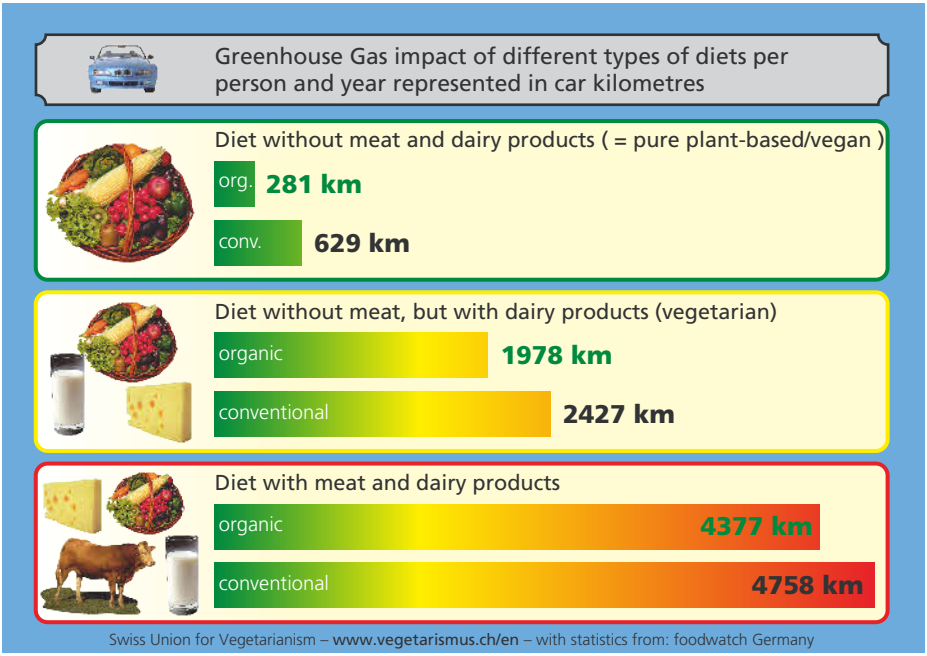
The production of one kilogram of beef causes as much environmental pollution as driving a car for 250 kilometres.[34]

the excessive need for water for cattle, and the gigantic energy requirement for keeping animals fattened are simply added reasons why we damage the environment further with each additional pound of beef."[33]

The greenhouse effect is caused by the three gases methane, carbon dioxide and nitrogen oxide, among other things. All three gases originate through animal husbandry on a large scale. The 1.3 billion cattle kept worldwide (and the consumers of their meat) alone are responsible for 12% of annual methane gas emissions. Breeding of livestock creates 115 million tons (115,000,000,000 kg) of methane gas per year. This becomes even more critical when one considers that one molecule of methane contributes 25 times more to the greenhouse effect than one molecule of carbon dioxide.[35]

A UN-Organisation addressed the ecological consequences of meat production for the first time in 2006. The result was a 400-page report showing the devastating global effects of meat production on the environment:[36]

- 70% of deforested Amazon rain forest is used for cattle pasture, and most of the remaining 30% is planted with cattle feed.



The numbers are based on the «foodwatch-Report über den Treibhauseffekt von konventioneller und ökologischer Landwirtschaft in Deutschland» ("foodwatch report about greenhouse gas emissions of conventional and organic agriculture in Germany").

- Today the cattle industry is the main reason for forest clearance in the Amazon rainforest.
- The FAO expects that the global production of meat and milk will double during the first half of this century.
- Farm animals have a bigger impact on global warming than transportation worldwide.
- 68% of worldwide ammonia emissions are caused by the cattle industry. This contributes to acid rain.
- Farm animals use up approximately 8% of the global drinking water and thereby belong to the biggest water consumers. In comparison, direct human water consumption (drinking water, showers, industrial uses etc.) amounts to around 1%.
- 70% of the world's agricultural land is used for livestock farming.
- 33% (= 471 million hectares) of the cultivated land worldwide is used for growing cattle feed.
- 26% (= 3,433 million hectares) of the planet's surface (excluding expanses of water and ice) are utilised as grazing areas for farm animals.

Rajendra Pachauri, Chairman of the Intergovernmental Panel on Climate Change: ***"Please eat less meat — meat is a very carbon intensive commodity."***

In order to reduce greenhouse gas emissions by 60 to 80% in the long run, the production of meat and dairy products would also need to be reduced, since cattle breeding in particular is very damaging to the planet. [37]

In order to reduce the impact of our diet on the climate, environmental groups often suggest eating regional and organic produce. However, organic food alone is not the answer to the climate problem. German scientists found in studies that whether consumers chose organic or conventional products was less relevant for greenhouse gas emissions than the quantity of beef and dairy products they consume.

This becomes even clearer when compared to emissions caused by driving a car: a conventional organic diet including meat, milk and eggs causes the release of as many greenhouse gases per person per year as a 4,377 km car journey. Switching to a vegan diet with organic products would only get you 281 km on the same journey. The conclusion is clear: **the fewer animal products that are consumed, the better it is for the climate.**

Antibiotics and Hormones

One aspect has been neglected so far in the discussion of the ecological consequences of meat production above. The breeding of species for increased performance, the abnormal food they are fattened up on and the unnatural conditions they are kept in cause more and more animals to become ill. In many countries today it is forbidden to give preventive antibiotics to healthy animals. This ban is necessary as antibiotics (as well as certain hormones) were often misused by farmers as performance-enhancers. However, the use of antibiotics on sick animals is still allowed. The current treatment of farmed animals means that almost every animal needs to be treated with antibiotics.

Although the preventive use of antibiotics on healthy animals has been banned in Switzerland since 1999, a study carried out in 2004 showed that 90% of calves in Switzerland had been treated with antibiotics.[38] The use of antibiotics on dairy cows is also frequent, as the heavy demand on the sensitive udders of high output dairy cows often leads to infection (mastitis).[39]

Dairy cow udders often require medication against infection due to the extreme demands placed on them. This medication filters directly into the eco-system.

There have long been limits on the levels of antibiotic residues allowed in animal products intended for human consumption. In April 2005, a study published by the Consumer Protection Ministry in Nordrhein-Westphalen, Germany announced that antibiotics had been found in grain plants for the first time.[40] Excrement from animals treated with antibiotics is sprayed on the fields and through this spreads into the eco-system. Although the values measured were below the permitted limit for human foodstuffs, the constant absorption of small amounts of antibiotics causes bacteria to become resistant to the antibiotics normally used to kill them. Over time, these antibiotics lose their effectiveness. As a result, ever stronger medicines need to be developed which upset the natural balance even more.

All medicines and hormones (those used frequently in the USA to increase milk and meat output) that are given to animals end up in the eco-system sooner or later through meat, milk, eggs or excrement. The long-term consequences of this are impossible to predict.

A Way out through Seafood?

The days when small boats went fishing in the sea are long gone. Exploitation of the oceans increased eightfold between 1950 and 2005, and in 2005 more than 141 million tons of marine animals were caught. Today, four

times more fish is eaten worldwide than in 1950.[41] In order to satisfy this enormous demand, kilometre-long nets are used. As fish numbers are steadily decreasing due to heavy overfishing, attention has turned to fish farms in recent years. The same ecological problems have arisen here as with the other species discussed above.

One example: A farmed salmon weighing approximately 4 kilograms will be made to eat around 400 grams of antibiotics by the time it is slaughtered. A variety of chemicals, including antibiotics, pesticides and fungicides are used on salmon farms. In addition, it will need to be vaccinated against disease to enable it to cope with living in close proximity to so many other fish. As the antibiotics and other medicines / chemicals are poured directly into the water with the fish food, their rapid spread into the eco-system is unavoidable.

In their natural environment, wild salmon live on crayfish and shrimps, which gives their meat the typical light pink colour. Living in cages in a fish farm is so unnatural to them that their flesh does not turn pink (as consumers now expect it to be). To overcome this, the fish are usually fed artificial colouring in their food. The diseases of the farmed fish spread to their wild counterparts, thereby decimating the wild salmon population.

Even in the oceans, animals are not safe from the consequences of humans' consumption of meat.

Fish food for farmed fish comes from the sea. For every kilogram of farmed fish produced, 2 kilograms of wild fish are taken from the sea as food.[42] The same applies to other seafood such as crabs, prawns etc.

In addition to this wastage, fish populations in the sea also suffer from the fact that one third of fish catches worldwide are processed into fishmeal, and two thirds end up in the food troughs of slaughter animals on land.[43]

In recent years, the quantities of prawns consumed in Europe have increased considerably. This has led to the creation of large farms on sea beaches in Asia where mangrove forests previously stood. The mangrove forests have an important ecological function as they act as a buffer against

flood waves. The Asian tsunami in 2004 was so devastating partly because the majority of protective mangrove forests had been felled to make way for seafood farming.
For instance, there were originally over 500,000 hectares of mangrove forests in the Philippines. Today there are just 36,000 hectares. The rest (around 93%) have been replaced by crab farms for export to the rest of the world.[44]
Due to over-fishing, fishing techniques have also had to become much more radical. In order to catch the last few fish, dynamite is sometimes used. This reckless procedure, as well as vast drag-nets stretching across the sea beds, is destroying coral reefs. Along with many other ecological consequences, the loss of the coral reefs reduces the slowing effect that these normally have on tidal waves.[45]

Economics

How is it possible that meat consumption is still increasing worldwide, despite the tremendous disadvantages of a meat-orientated society shown above?[46] Apart from the various psychological and social reasons, mostly caused by advertising (e.g. the claim that meat gives you strength), there is one aspect that should not be underestimated: money.
At first glance this seems to be a contradiction, as under normal conditions a branch of the economy destined to destroy foodstuffs and resources would have collapsed long ago. The costs created on a worldwide basis by today's meat production are no longer in proportion to its alleged benefits.

Costs are shifted to the taxpayer

One reason why the meat industry still exists is that the revenues are being transferred into private ownership while the costs are still being shifted on to the public (and therefore the taxpayer). According to estimates by the renowned Worldwatch Institute in Washington, the price of meat would have to be doubled or tripled if one took into consideration the full ecological costs, including the burning of fossil fuels, lowering of the ground water level, chemical pollution of the soil and release of gases such as ammonia and methane.[47] let alone the resulting costs to the public health system.

State-subsidised madness

Although the majority of the costs of meat production are passed on to the general public (i.e. taxpayers), this is not enough to keep meat production profitable. The industry is distorted by heavy subsidies to ensure that the production of meat is attractive to companies.
16% of all manufactured goods and services in the USA are supported by subsidies. In the EU the figure is 32% and in Switzerland 68% of all income from agriculture is directly or indirect-

ly attributable to subsidies. This is the highest proportion worldwide! It is only due to these additional payments that animal farming is "profitable".[48]

Livestock farming is supported financially on an international basis, and thereby kept alive. Between 1963 and 1985, the World Bank pumped 1.5 billion dollars into livestock farming in Latin America alone, the majority of which went to large cattle farms.[49]


Photo: © www.soylent-network.com

Notes:

1. Including land used for growing cattle feed. Source: EarthSave Foundation. The values can vary greatly according to cultivation or breeding methods.
2. Worldwatch Paper 171: Danielle Nierenberg: *"Happier Meals – Rethinking the global meat industry"*, 2005, ISBN 1-878071-77-7, page 9.
3. Landwirtschaftlicher Informationsdienst (Agricultural Information Centre), www.lid.ch, 26.9.2007
4. Proviande annual report 2007
5. Worldwatch Paper 171, page 7.
6. "MEAT – Now, It's Not Personal! But like it or not, meat-eating is becoming a problem for everyone on the planet", from *World-Watch-Magazine* July/August 2004, www.worldwatch.org
7. ibid.
8. ibid.
9. FAO, "Livestock's long shadow", 2006
10. Stockholm International Water Institute (SIWI): "Water – More Nutrition per Drop; Towards Sustainable Food Production and Consumption Patterns in a Rapidly Changing World", 2004. www.siwi.org.
11. Rockström, J.: "Water for food and nature in drought-prone tropics: vapour shift in rain-fed agriculture". Philosophical Transactions: Biological Sciences, 29 December 2003, vol. 358, iss. 1440, pp. 1997-2009(13), Royal Society.
12. "Water – More Nutrition per Drop" and: Rockström, J., Gordon, L., Folke, C., Falkenmark, M., and Engwall, M.: "Linkages among water vapor flows, food production, and terrestrial ecosystem services", 1999, Conservation Ecology 3(2):5.
13. Spiegel online: "Grundwasserspiegel sinken dramatisch", 26.8.2004.
14. Swiss Co-operative for Slaughter Animals and Meat Supply.
15. Situationsbericht des Schweizerischen Bauernverbandes (Situation report by the Swiss Farmers' Association) 2007.
16. EarthSave Foundation.
17. Bundesamt für Statistik (Swiss Federal Statistical Office), Futtermittelbilanz (Animal feed balance sheet) 2004
18. Worldwatch Paper: "Taking stock: Animal Farming and the Environment" by Alan B. Durning and Holly B. Brough, 1991. page 36.
19. "Taking stock: Animal Farming and the Environment"
20. H. Mohr belongs to the German Academy of Naturalists and the Heidelberg Academy of Science, where he has led the research into nitrate assimilation since 1986.

He has honorary doctorates from the Universities of Strasbourg and Limburg.
21. Ammonium (NH_4^+) is formed in the air from ammonia (NH_3).
22. Hans Mohr in "Spektrum der Wissenschaft", January 1994, page 50, and "Announcements regarding the rules for maintaining clean air LRV NR. 13" from the Swiss Ministry for the Environment, Forest and Countryside (BUWAL), 2002.
23. From "Umwelt", 2/04, "Nährstoffe aus der Luft machen Waldböden sauer" (Nutrients in the air are turning forest floors acidic) Bundesamt für Umwelt, Wald und Landwirtschaft (BUWAL) (Swiss Agency for the Environment, Forests and Landscape).
24. ibid.
25. Joint declaration of 27 members of the Committe of Inquiry on which all governing parties and 14 scientists are represented.
26. „Feinstaub macht krank" (Dust particles cause disease), BUWAL, 2005, www.buwalshop.ch.
27. "MEAT – Now, It's Not Personal!"
28. Calculated by "Konsum und Umwelt", WWF Switzerland, magazine No. 1/94
29. From "Umwelt", 2/04, "Nährstoffe aus der Luft machen Waldböden sauer" (Nutrients in the air are turning forest floors acidic) Bundesamt für Umwelt, Wald und Landwirtschaft (BUWAL) (Swiss Agency for the Environment, Forests and Landscape).
30. According to the TV-show "Meat Eats People" by WDR (West German Television) from 12/17/1987.
31. Cross, Russell H., Byers, Floyd M., a.o.: "Current Issues in Food Production A Perspective on Beef as a Component in Diets for Americans", April 1990, page 5.26
32. "Taking stock: Animal Farming and the Environment"
33. Jeremy Rifkin: "Beyond Beef: The Rise and Fall of the Cattle Culture", Campus Publishing,1992.
34. According to a Japanese study on the environmental impacts of cattle. (www.wissenschaft.de/wissenschaft/news/280720.html), in Animal Science Journal (www.blackwell-synergy.com/doi/abs/10.1111/j.1740-0929.2007.00457.x)
35. Jeremy Rifkin "Beyond Beef: The Rise and Fall of the Cattle Culture", Campus Verlag, 1992.
36. FAO, "Livestock's long shadow", 2006
37. foodwatch-Report "Klimaretter Bio?" (Organic: A Climate Saviour?): www.foodwatch.de/kampagnen__themen/klima/klimastudie_2008/index_ger.html
38. "90% of Swiss calves are given antibiotics", Vegi-Info 2004/2, page 4.
39. "Stopping lactation through antibiotics". www.intervet.de/News/Fokusthemen/Antibiotisches_Trockenstellen/Einleitung.asp.
40. "Germany: Antibiotics from the keeping of animals found in plants and foodstuffs for the first time", 25.5.2005, EVANA.
41. The Worldwatch Institute, State of the World 2008. www.worldwatch.org/node/5561
42. Rosamund Naylor.: "Effect of Aquaculture on Global Fish Supplies", Nature, 29. June 2000, pages 1017-1024.
43. Worldwatch Paper 171, page 25.
44. John Robbins: "The Food Revolution" (German edition), Nietsch-publishing, ISBN 3-934647-50-2, page 314.
45. "Tsunami-Leid: Nur eine Laune der Natur?" ("Tsunami suffering: just a whim of nature?"), *Vegi-Info* 2005/1, page 20, and www.evana.org.
46. Even though changes are noticeable (due to health reasons), worldwide meat production is not decreasing. The steadily increasing surplus of the meat producers is exported at ridiculously low prices to developing countries instead and there they drive the meat consumption higher. At the same time, local markets are being destroyed by this cheap meat.
47. "Taking stock: Animal Farming and the Environment"
48. Bundesamt für Statistik (Swiss Federal Statistical Office), "Subventionen in der Landwirtschaft" (Subsidides in the agricultural industry).
49. "Taking stock: Animal Farming and the Environment"

Vegetarianism prevents:

- **Animal factories:** the fewer people who eat meat, the fewer animal factories are needed.
- **Animal suffering:** in order to meet the demand for cheap animal products, painful methods of treating animals are routinely adopted (such as cruel transportation conditions, mass keeping of livestock in cramped conditions etc.).
- **Pointless slaughter:** millions of people prove daily that a vegetarian diet is not only possible but also healthy, with a large variety of delicious plant-based dishes.
- **Contradictory ethics:** torturing and killing animals to satisfy one's own palate cannot be squared with any ethical standards.
- **Illness:** today's western lifestyle with its high levels of animal-based «nutrition» is partly responsible for many of society's illnesses.
- **Food wastage:** feeding valuable foodstuffs to slaughter cattle in order to eat their meat causes a loss of 90% of the calories involved. This extension of the food chain through animals wastes huge amounts of grain and pulses.
- **Environmental pollution through animal husbandry:** the excrement of slaughter cattle pollutes the soil, ground water and lakes and oceans through over-fertilisation and over-acidification.
- **Wasting money:** Meat production is uneconomical and can only be maintained with huge financial subsidies. The production and processing of animal products is supported every year through enormous contributions of taxpayers' money as it is completely unprofitable on its own.

2009 • 5000 • 2. English edition

Further reasons for a vegetarian way of life and support in making the change to vegetarianism are available from the European Vegetarian Union (EVU), www.euroveg.eu or one of the vegetarian organisations in your country (see the list on our website).

The EVU is an umbrella organisation for vegetarian societies and groups in Europe. We support and represent member societies on a European level, and offer a platform for close cooperation; we raise public awareness of, and promote vegetarianism, vegetarian issues and the benefits of a vegetarian lifestyle.

As a result of perseverance and dedication, the EVU has become a successful vegetarian Union with about 200 members from more than 30 countries who all share one common goal:

a world without slaughter but with respect for life in all its forms.

This brochure is a translation from the German original text from the Swiss Union for Vegetarianism. You can find this article also on this webpage: www.vegetarismus.ch/info/eoeko.htm

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