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Is Animal Agriculture the Greatest Pollutant of the 21 st Century?

The use of animals for food is a familiar and inherent part of human life. Our ancient ancestors consumed animal food sources such as meat, fish, dairy, and eggs for thousands of years before our existence. Therefore, it is difficult for some people to understand how seemingly 'natural' animal food sources, once essential to our survival, are today being scrutinized and identified as 'killing our planet'. However, the population of the planet has rapidly grown, and present-day humans consume far more animal products than humans of the past. Factory farming has made animal products more accessible and affordable. Environmentalists warn that animal agriculture is detrimental to the planet and requires drastic, immediate, and worldwide action but little seems to change. Animal agriculture is today, the greatest pollutant of air, land, and water.

Quotations and research data originated from several recent online scholarly articles, journals, books, and government websites relating to animal agriculture and the pollution it causes. All sources used are currently accessible through Google Scholar search engine, are less than five years old and have free public access. There were several potentially informative sources to this research study that were not accessible without payment, thus somewhat limiting relevant sources. Some of the texts cited received no funding but others acknowledged funding sources. Therefore, bias is a possibility.

The first major concerning issue of animal agriculture is animal waste and its connection to air pollution. All living organisms naturally produce waste products but at the scale animal agriculture takes place today, vast quantities of waste are produced that our planet cannot cope with. Animal waste emits methane (CH₄), nitrous oxide (N₂O), and carbon dioxide (CO₂). Ruminant livestock such as cows, bovine, sheep, and goats are commonly used for both meat and milk and produce additional methane to other animals through a process of enteric fermentation (a digestive process) therefore causing even higher levels of

greenhouse gas emissions than other animals. Some animal waste is admittedly useful for application to soil. Cows, goats, sheep, horses, and chickens all produce manure which is naturally nitrogen and phosphorous rich. These substances aid the growth of plant crops. For a sparsely populated planet Earth, a hundred or more years ago, these gases caused no problem.

However, high levels of methane, nitrous oxide, and carbon dioxide, that a much more densely populated planet Earth generates, causes significant harm. Methane, nitrous oxide and carbon dioxide are 'greenhouse gases' and they provide a heat-reflective and insulating layer which helps to keep our planet at a suitable temperature for life to flourish, but too high concentrations of these gases in our atmosphere results in over insulation and consequently, global warming. "Animal agriculture is a major producer of greenhouse gas emissions, equivalent to 14.5% of global emissions, which is approximately the same size as the transportation sector" (Kristiansen et al.). Add to this figure the transport of animals for trade, for slaughter, for processing, to the stores and finally to the consumer's plate, then we can reasonably assume that animal agriculture is responsible for an even larger percentage of

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greenhouse gas emissions. This sizable percentage of all greenhouse gas emissions is rapidly set to rise. It is predicted that "With roughly 83 million people being added to the world's population every year, the upward trend in population size is expected to continue" ("World Population"). More people will require more food and more animal food sources will emit

more greenhouse gases that can potentially destroy the ozone layer beyond repair.

A second issue that became apparent during this research is that animal agriculture is responsible for vast areas of land destruction in the form of deforestation. Deforestation is the main contributor to global warming and involves the clearing of large areas of trees and other plant life and the death of millions of wild animals and the destruction of their habitats. “It is estimated that 25% of the world’s total greenhouse gas production comes from deforestation” (Bennett 5). Yet, contrary to popular belief, these large areas of trees and other plant life are primarily cleared to raise farm animals. People do not often connect deforestation to animal agriculture, often blaming it upon, for example, ‘greed for palm oil’, ‘forest fires’, and ‘infrastructure developments’. Although, these three are contributors to deforestation, they are certainly not the main cause. “Agriculture is one of the most significant causes of deforestation” (Bennett 2).

However, many people are unaware of any link between animal agriculture and deforestation. Moreover, fast-food companies have long been part of this destructive process. “Fast food companies have been contributing to deforestation in places like the Amazon rainforest for quite some time, and only in relatively recent years have their actions been acknowledged by mainstream media” (Bennett 4). With an estimated quarter of greenhouse gases caused by deforestation due to animal agriculture, it seems strange that the media are only recently beginning to report this.

Thirdly, animal agriculture brings forth the problem of mass water pollution. Water is essential to all life, and no living organism can survive without it. As previously mentioned, animal agriculture results in vast amounts of animal waste and according to the National Ocean Service ‘Most ocean pollution begins on land’ (NOAA). Admittedly, there are other pollutants of bodies of water, but historical patterns of organic river pollution have shown that “The impacts of intensive livestock farming are significantly more widespread than those of urban populations” (Wen et al. 2). Subsequently, high levels of naturally occurring pathogens in animal waste, such as ‘e-coli’ and ‘salmonella’ in animal manure are reaching bodies of water. New emerging pollutants are also a concern. “The livestock industry pollutes freshwater with antibiotics, hormones and chemical substances among others, depletes freshwater availability” (Kristiansen et al.). Both these new and already well-known pollutants

are not just harmful to human health but also aquatic life. "Nitrogen and phosphorus in animal manure contribute to nutrient loads in surface and groundwater, harming aquatic ecosystems and human health" (Godfray et al.).

Furthermore, water processing involves a labor-intensive process and people in developing countries are commonly reported to be unable to access clean, safe freshwater. Of course, much of this processed fresh water is needed for crops but when we consider that most of this water is allocated to farmed animals and the crops they eat, it does not seem to make sense. Farmed animals and the crops that feed them receive plenty of fresh water to satisfy developed countries' taste for animal food products in the form of meat, dairy, and eggs whilst people in developing countries are struggling to access fresh water and are sometimes forced to consume life-threatening contaminated water. If we were to all consume the plant crops directly, vast amounts of freshwater would be conserved.

It seems clear that when we add together the volumes of air, land, and water pollution animal agriculture is responsible for, it is the most significant environmental concern of the 21st century that is rapidly worsening. Admittedly, extensive coverage of animal agriculture related pollution is not possible in one paper, but the findings of this research indicate that animal agriculture is no longer a natural and harmless practice. In trying to support the heavily animal based feeding of a population of over seven billion people, extreme levels of pollution have occurred. Animal agriculture is responsible for vast land degradation, deforestation, ozone layer destruction leading to global warming and limiting human and wildlife access to clean, freshwater whilst killing aquatic life. The most simple and effective solution is the elimination or at least the reduction of animal food sources but change and acceptance of this is too slow. Many people are continuing to live as their ancestors did and not understanding that they live in a very different world to their ancestors. Alternatives to animal foods must be sought to replace animal foods as we cannot continue the mass consumption of animal foods without causing the irreparable destruction of our planet. No nutrient exists that cannot be obtained from a non-animal source; thus, the consumption of animal products is completely unnecessary. The world is evolving and the growth of human populations is rapidly accelerating. The question is, can we change our dietary habits and preferences fast enough to survive?

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