

Animal based diets and climate change

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WHAT'S THE PROBLEM?

We are always being told that we need to be more energy efficient. Be it through faulty boilers, inefficient light bulbs, over-filled kettles or driving to the paper shop, most of us are guilty of wasting energy in one way or another.

Over-consumption of energy is a major problem because the vast majority of the energy we use still comes from fossil fuels. The burning of oil, coal and gas result in the emission of carbon dioxide, the major greenhouse gas, and is the main contributor to human-induced climate change (see Global Warming).

While this is undoubtedly the most important implication of energy consumption, it is not the only problem. Other environmental consequences of the burning of fossil fuels include air pollution from toxic gases, acidification of land and water, contamination of ocean environments through oil spills and destruction of habitats through mining and drilling. Exploitation of fossil fuels all too often has serious implications for indigenous people, whose land rights are frequently ignored and lifestyles destroyed by the construction of mines and pipelines.

With little serious investment in alternative renewable energy sources such as wind, wave and solar power, the onus has been shifted to the consumer to try to cut individual energy use. We can switch our power supply to companies that deal in renewable energy sources and we can choose to minimise our 'fossil footprint' through reducing the amount of energy we consume. One of the most energy-intensive aspects of modern life is industrial agriculture, and small changes in the food we eat every day can have a significant impact on the amount of energy we use throughout our lives.

Environmentally conscious consumers are becoming more and more aware of the benefits of buying locally produced food to cut down on 'food miles' (the distance travelled - usually by lorry - by our food before it reaches our plates) and eating seasonally to reduce the energy used to create artificial climates in greenhouses. But the impacts of the type of food eaten are often overlooked by environmental pressure groups.

THE LIVESTOCK CONNECTION

"The industrial system is a poor converter of fossil energy. Fossil energy is a major input of intensive livestock production systems, mainly indirectly for the production of feed."

A study conducted by the US Department of Agriculture concluded that their results "pointedly reveal the high level of dependency of the US beef cattle industry on fossil fuels. These findings in turn bring into question the ecological and economic risks associated with the current technology driving North American agriculture."

This same technology is being adopted as a model for industrial livestock production throughout the world. The study's review of energy inputs versus energy outputs in food calories showed that while corn and barley produce about five times as much food energy as the energy used in production, beef production uses about three times as much energy as the food energy produced. This means that corn and barley production is around 15 times more efficient in terms of fossil fuel input than beef production.

Studies conducted in The Netherlands suggest that, inefficient as it is, beef production is less of a waste of fossil fuels than some other types of meat production. Brand & Melman calculate that 1kg

of beef requires a fossil energy input of 15.5 Megajoules (MJ), poultry meat 18.1 MJ/kg, pork 18.9 MJ/kg, and veal production a massive 46.8 MJ/kg. These figures are calculated for liveweight rather than edible protein, so the real energy input per kg of meat will be quite a bit higher. Similar studies conducted in Canada found even higher energy inputs.

The vast majority of this energy is used in producing, transporting and processing feed. Little wonder, then, that the WorldWatch Institute has stated that "American feed (for livestock) takes so much energy to grow that it might as well be a petroleum byproduct."

Pimentel and Goodland argue that aquaculture (fish-farming) is even more feed and energy intensive than terrestrial agriculture. Cultured fish have to be fed grain (as well as animal waste) and large amounts of energy are used in aquaculture to pump water. According to their calculations, it takes about 34 kcal of fossil energy to produce 1 kcal of catfish protein. Contrast this with estimations that corn and barley produce about 5 times as much food energy as they use in terms of fossil energy.

A plant-based vegan diet uses substantially less energy than a diet based on animal products. This energy is virtually all derived from fossil fuels, making meat and dairy consumption a contributing factor in air pollution, acidification, oil spills, habitat destruction and global warming.