LIVESTOCK and LAND USE

- A recent UK study showed that consumers use food as though we have the resources of six planets
- 30% of the Earth's entire land surface is used for rearing farmed animals
- 70% of all agricultural land in Britain is used as pasture to feed animals
- 30% of the land suitable for growing crops is used to produce feed for farmed animals

Land degradation and desertification

- 20% of the world's grazing land has already been designated as degraded due to the rearing of animals for their meat (FAO 2006)
- Overgrazing is to blame for 35% of soil degradation (UNEP)
- More than a third of the world's agricultural land suffers desertification through forest clearing for grazing, overgrazing, overcultivating croplands to feed farm animals as well as people, and due to poor irrigation techniques

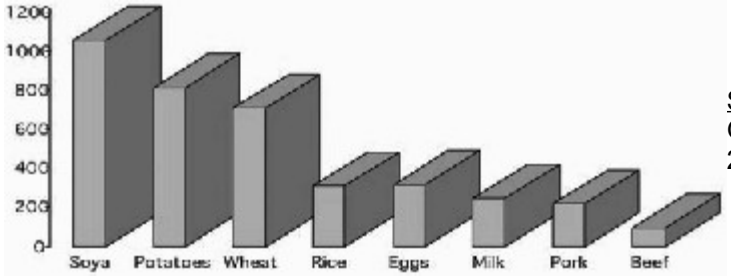
Deforestation

- An area of rainforest equivalent in size to fifty football fields is felled every minute to provide land to grow animal feed and for grazing of cattle
- Livestock production is responsible for 70% of Amazon rainforest deforestation (FAO 2006)

Livestock are inefficient converters of plant protein!

- 89-97% of gross energy and 80-96% of protein contained in the cereal grain fed to animals is not converted into edible fat and protein
- Cattle require at least 7kg of grain to generate 1kg of beef

Pounds of protein produced per acre of land:



Source: McCance and Widdowson, 2002, Gerbens-Leenes et al 2002, FAOSTAT data 2006

Feeding the world with compassion

- While 840 million people don't have sufficient food, we continue to waste valuable agricultural land by obtaining only a small fraction of its potential value
- People are under-nourished and starving, despite the world producing enough food to feed twice its human population
- Yet a third of the grain we grow is fed to farm animals…

An area of land the size of 5 football pitches will support 2 people with meat, 10 with maize, 24 with grain, and 61 with soya!

The solution

- If the available land is used to feed people directly, much less land would be required
- Someone living on a vegetarian diet in the UK requires less than half the area of land to grow their food than someone following a conventional meat-containing diet
- Someone living on a vegan diet requires less than an eighth of the land needed to feed a meat-eater

"Within as little as ten years, the world will be faced with a simple choice: arable farming either continues to feed the world's animals or it continues to feed the world's people. It cannot do both." (George Monbiot, April 2008)

Durham University Animal Rights (http://www.dur.ac.uk/animal.rights), June 2008. For a full list of references please contact animal.rights@durham.ac.uk. Printed on recycled paper. Please pass on to others or recycle.

LIVESTOCK'S ECOLOGICAL "HOOFPRINT"

- There are 20 billion farmed animals on the planet and around 6.7 billion people; global meat production has doubled since the 1970s and is expected to double again by 2050 to meet the demand of a population of an estimated 9 billion people
- Although livestock numbers have declined in the UK and Europe, meat and dairy consumption certainly hasn't, suggesting that more is imported from outside Europe
- Livestock farming has been ranked by the United Nations amongst the top three causes of all major environmental problems (UN FAO 2006)
- "The livestock sector has such deep and wide ranging impacts that it should rank as one of the leading focuses for environmental policy." (UN FAO 2006)
- "The increase in meat consumption suddenly looms as one of the biggest environmental crises that we are now facing" (Jonathan Porritt, Chair of the UK government's Sustainable Development Commission 2004)

How do livestock contribute to global warming?

- Livestock farming accounts for 18% of all greenhouse gas emissions, a staggering 4% more than all forms of transport combined (including aviation)! (UN FAO 2006)
- But the real global warming potential of meat and dairy production in Europe is even higher than these figures suggest if we include important indirect effects such as deforestation to clear land for pasture and feed crops

CO_2 (carbon dioxide) emissions

- Livestock farming is responsible for 9% of all CO_2 emissions
- Livestock farming involves changes in land use (deforestation to raise beef cattle or grow swaths of soya beans for turning into animal feed) and the use of fossil fuels for farm operations

CH_4 (methane) emissions

- Ruminant mammals kept as livestock (such as cows and sheep) are responsible for 37% of the total methane generated by human activity
- Belching out methane results from micro-organisms in the rumen which help digestion
- There are approximately 1.5 billion cattle and 1.7 billion sheep on the planet – a single cow can produce as much as 500 litres of methane per day!
- Methane is a particularly potent greenhouse gas – its 'blanket factor' is 23 times that of CO_2

N_2O (nitrous oxide) emissions

- Livestock farming is responsible for 65% of the total quantity of nitrous oxide produced by human activity
- The main culprits are manure and urine produced by the animals, the storage of manure in intensive rearing systems, and fertilizer used to grow the feed

Energy input

- In terms of fossil fuel input, corn production is around 15 times more efficient than beef production
- The fossil energy input needed to produce a day's food for a vegan is just under 10,000 calories, nearly 20,000 for a vegetarian, and a staggering 34,000 for a meat-eater…

Putting this into perspective…

- Producing your average Sunday joint of roast beef results in greenhouse gas emissions equivalent to driving from London to Manchester…
- Walking on energy obtained from eating beef produces eight times the carbon emissions than going the same distance by car…

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Why intensification is NOT the answer

- Some in the farming industry have suggested intensifying animal production (moving cows from the field into sheds) to increase yield per animal and hence reduce greenhouse gas emissions per unit of output
- However, this could lead to increased stress and ill-health, shorter productive lifetimes of dairy cows and breeding sows, and increased potential for the spread of infectious disease
- Another major trend in livestock intensification is the use of animal feed instead of allowing animals to graze, increasing demand for feed crops and further exacerbating the problem
- An important factor to take into account is the heat and electricity used by slaughterhouses and factory farms

It's not all bad!

- Methane leaves the atmosphere in as little as ten years while CO_2 remains for many times longer, so switching to a diet low in (or free from) meat and dairy could present a quick and effective way of reducing anthropogenic climate change!

What can we do?

- Diets high in meat and dairy have much lower energy efficiency and greater global warming potential compared to diets high in plant-based foods, so the best thing we can do is reduce or eliminate meat and dairy from our diets
- Compassion in World Farming estimate that to reduce our impact on climate change we will all need to reduce consumption of meat and dairy products in line with government carbon reduction targets (a third by 2020 and 60% by 2050)

"Please eat less meat: meat is a very carbon-intensive commodity."
— R. K. Pachauri, Chairman of the Intergovernmental Panel on Climate Change (2008)

Livestock farming and water resources

- Livestock farming is the largest source of water pollution and the degradation of coastal areas and coral reefs
- Livestock farming is responsible for more than 8% of human water use (UN FAO 2006)
- Livestock farming also accounts for 70% of all freshwater withdrawn from lakes, waterways, and aquifers
- 16,000 litres of water are needed to produce 1kg of beef (this includes the amount required to grow feed), compared with 900 litres needed to produce 1kg of maize (although figures vary between climates and different technologies)
- Livestock farming also results in water pollution – animal waste, antibiotics, and hormones enter the water cycle alongside chemicals from tanneries, and fertilizers and pesticides used to spray feed crops
- This causes harm to river and stream ecosystems, and results in algal blooms that block waterways
- In the Gulf of Mexico, pollutants from animal waste have contributed to a 'dead zone' where there is not enough oxygen to support aquatic life
- By comparison, a day's food for a meat-eater requires over 15,000 litres (enough to take 300 baths), compared with 5000 litres for a vegetarian, and a mere 1150 litres for a vegan

Livestock farming and acid rain

- The animals we rear for meat also account for 64% of all the ammonia we impose on our atmosphere, also damaging the ozone layer and polluting soil and water