

Environmental responsibility: Animal primary production and environmental impacts

Food production is dependent on natural resources such as available land, soil, water, nitrogen and phosphorous. Production also consumes other resources like fuel. There is always an environmental impact from food production.

HKScan takes environmental responsibility from "field to table" and works to inspire farms to adapt environmental conscious production practices, beyond national legislation. HKScan also cooperates with research institutes to develop better practices.

Animal primary production and environment

Most significant global environmental impacts of animal production comprise climate change, biodiversity loss, freshwater use, eutrophication, land use change and use of pesticides.

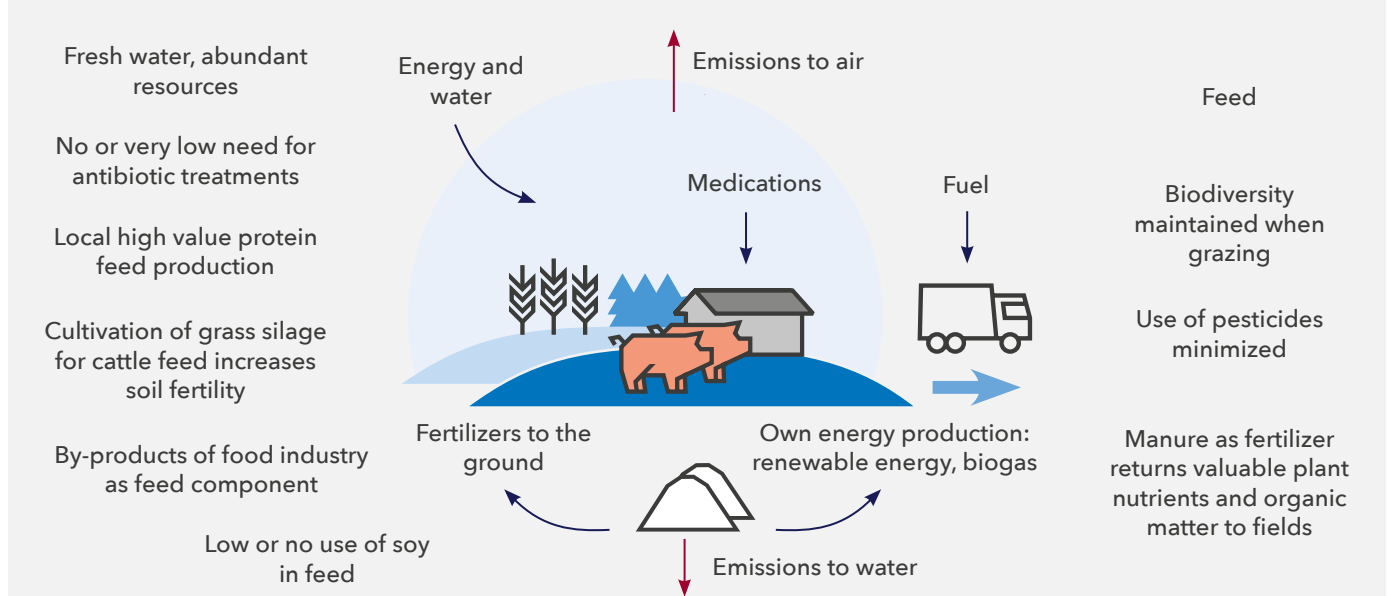
The environmental impact of animal production in different countries varies due to different climate conditions, soil or agricultural practices. In HKScan's Nordic production countries challenges as overgrazing, biodiversity loss, deforestation and depletion of water resources are very rare.

Especially in the Nordic countries, there are lots of fields that grow permanently grass. These areas are not suitable for growing food for human purposes, for example because of difficulties in cultivation, low crop level or soil forms. Permanent grasslands and cultivated grasslands as part of crop rotation are both efficient carbon sinks and produce valuable grass feed for cattle. Pesticides are not commonly used. The natural pastures belonging to the Nordic cultural landscape also act as carbon sinks and grazing cattle maintain the biodiversity. When assessing environmental impacts cattle and grass belong together.

Farmed animals are part of the farm's circular economy system and prerequisites for a functional nutrient cycle.

*** ENVIRONMENTAL IMPACTS ARE DETERMINED BY THE LOCAL ECOSYSTEM**

CIRCULAR ECONOMY: ANIMAL PRODUCTION



"I think there is a lot of people who still believe that animal parts not used for human food are taken to a land fill. Today, the case is the total opposite. For example, pig by-products have over 200 different uses. You can make gelatin out of pig rind, candles out of the fat and sausage casings from its bowels."

Mika Tuomola
R&D Manager, Biotech
HKScan Group



Grazing as a conservator of biodiversity

Grazing supports animal welfare in many ways when the number of animals is compatible with the available pasture area. Often, valuable heritage landscapes have arisen through centuries of pasturing. For many plants, butterflies and beetles, pasture is the best environment. Grazing is an essential part of preserving biodiversity.

Work to prevent eutrophication

Nutrient runoff from agricultural land is a source for eutrophication of waterways. To prevent eutrophication, protection zones of vegetation are placed between fields and waterways,

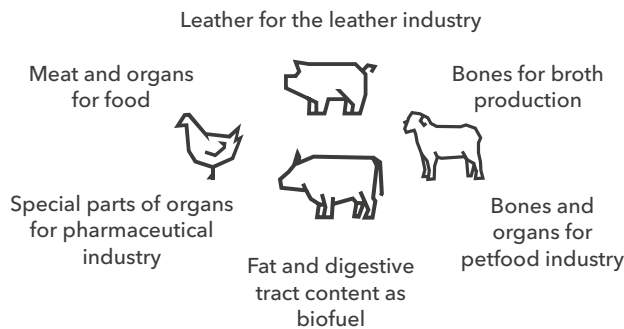
to bind releases of nutrients. Modern technology facilitates that the application of manure or fertilizer is in relation to what the crop consumes.

Meat is only one of products from an animal carcass

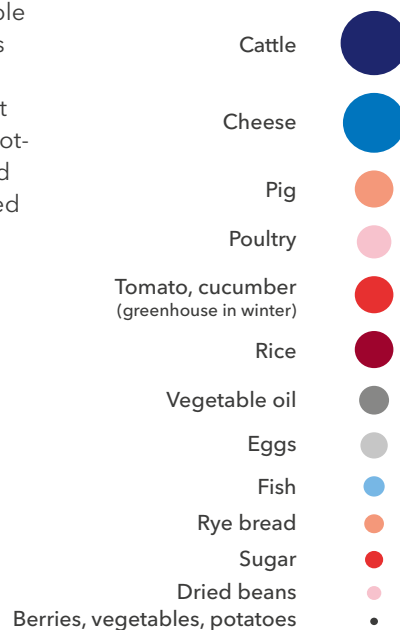
The aim of HKScan's circular economy approach is to utilize all parts of the animal. Some 60% of pigs is used as food and remaining 40% in other ways. The corresponding share of food use for broilers is about 50% and for cattle and lamb about 40%.

In addition to food industry, climate impact from farm animals is divided also into other industries like leather, feed and pet food.

Medicinal uses include for example pharmaceuticals for osteoarthritis deriving from chicken cartilage and heparin isolated from pig gut mucosa as a constituent in anti-clotting medicines. Any un-processed animal-derived material is directed to biogas production.



Estimated contribution of different foods to climate change*



*) Nissinen, A. Salo, M. ja Grönroos, J. 2010. Ilmastodieettipuntari - mihin sen antamat ilmastopainot perustuvat? (pdf) Versio 23.4.2010. http://ilmastodieetti.fi/Ilmastodieettilaskurin-perusteet_2010-04-23.pdf

DISTRIBUTION OF CLIMATE IMPACT EXAMPLE FROM FINLAND

At present, there are no fully standardised evaluation methods used for lifecycle calculations in food production. The background variables used may differ, in addition, variations come from actual differences, for example, in animal rearing and in the climate and soil conditions in different areas. The greenhouse gas emissions from rearing domesticated animals vary in different parts of the world, depending on local production conditions and production efficiency. Often, the impact of land use and changes in land use are omitted from the calculations.

GREENHOUSE GAS EMISSIONS BY SECTOR*

- Energy supply: 53%
- Domestic traffic: 21%
- Processing industry: 11%
- Agriculture: 12%
- Waste management: 3%

*) Statistics Finland: air emissions (25.4.2018), five biggest sector

EMISSIONS FROM AGRICULTURE ARE DIVIDED INTO THREE PARTS

- 1 Emissions from agriculture: 40%
 - Cultivation of organic soil: 19%
 - Use of synthetic fertilizers: 21%
 - Manure processing and its use as fertilizer: 12%
 - Digestive system of animals: 28%
 - other: 5%
- 2 Energy production and use 10%
- 3 Land use and changes in land use 50%

