



INDUSTRIAL ANIMAL AGRICULTURE WILL PUT SEVERAL SUSTAINABLE DEVELOPMENT GOALS OUT OF REACH

Innovative approach to food & farming required

“the view has emerged that humankind will not be able to feed itself unless current industrial modes of agriculture are expanded and intensified. This approach is wrong and counterproductive and will only serve to exacerbate the problems experienced by the current mode of agriculture ... there is a need to encourage a major shift from current industrial agriculture to transformative activities such as conservation agriculture (agroecology)”

Hilal Elver, UN Special Rapporteur on the right to food¹



SDG 1: END POVERTY

1.4: Ensure the poor and the vulnerable have equal rights to economic resources, as well as ownership and control over land and natural resources and other basic services

Industrial animal agriculture is associated with reduced employment and hence greater poverty which has cascading harmful effects on rural communities and contributes to rural abandonment

“The social benefits of agriculture can be eroded as production becomes more concentrated and intensive. Intensive agricultural systems are associated with negative effects on employment, wealth distribution, ancillary economic activity in rural areas [and] service provision in rural areas (such as schools and health facilities).”

The High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security²

The FAO recognises that industrial livestock production “may occur at the expense of diminishing the market opportunities and competitiveness of small rural producers”.¹ The World Bank has recognised that intensification of livestock production carries “a significant danger that the poor are being crowded out.”²

Industrial agriculture needs less labour than agro-ecological systems. As a result, it leads to a loss of jobs for landless workers. In addition, it out-competes previously self-sufficient, small-scale farmers forcing them to leave rural areas to look for work in cities.

Concomitant with livestock intensification and the growing of cereals and soy for animal feed are the degradation of soils and land as well as water and air pollution. These result in erosion of the natural resources on which local farmers depend. Conflicts with industrialised animal operations over land and forest resources threaten the ability of smallholders and indigenous peoples to overcome poverty. Local people are vulnerable to ‘land grabbing’ by powerful companies who wish to use the land to grow soy and grain for animal feed.³

The profits of industrial animal farming do not ‘trickle down’ to local communities; instead they are concentrated in the hands of a small number of major commercial interests, and its products go to feed well-off urban populations.

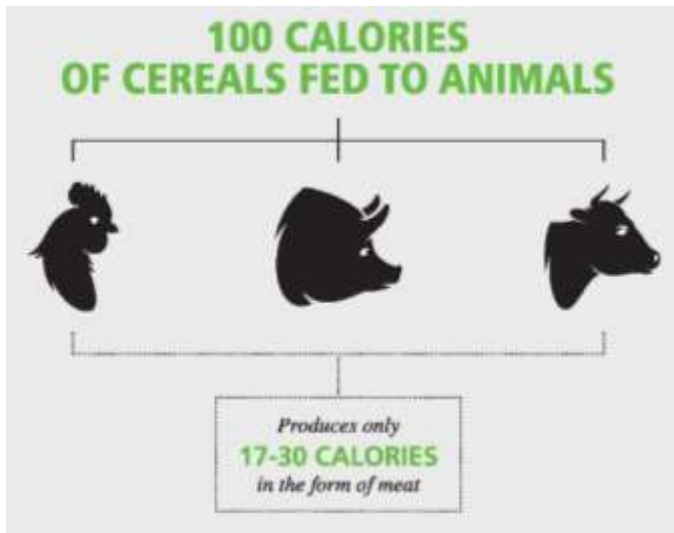
·Meeting this Goal: We should move to agro-ecological farming which can increase productivity and provides more employment than industrial farming; both these factors can help lift rural populations out of poverty. In addition, agro-ecology reduces farmers’ reliance on costly external inputs thus improving the livelihoods of the poorest farming households. See also the ‘Meeting this Goal’ section for SDG 2.3.



SDG 2: END HUNGER, ACHIEVE FOOD SECURITY

Industrial animal agriculture undermines food security by using human-edible crops as animal feed

Industrial livestock production is dependent on feeding human-edible cereals to livestock who convert them very inefficiently into meat and milk.



For every 100 calories fed to animals as cereals, just 17-30 calories enter the human food chain as meat.^{4 5} Globally 36-40% of crop calories are used as animal feed.^{6 7}

If the cereals that will be fed to animals in 2050 on a business-as-usual basis were used instead for direct human consumption, an extra 3.5 billion people could be fed annually

United Nations Environment Programme, 2018⁸

Further use of cereals as animal feed could threaten food security by reducing the grain available for human consumption

UN Food and Agriculture Organization, 2014⁹

Meeting this Goal: We should aim for a 50% reduction in the use of human-edible crops as animal feed: livestock's primary role should become the conversion of materials that we cannot consume into food we can eat.



2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers

Industrial animal agriculture out-competes small-scale food producers, thereby undermining their livelihoods

At the 10th Global Forum on Food and Agriculture in 2018 the Director General of the FAO said:

*“FAO estimates that more than half of the world’s rural poor are livestock farmers and pastoralists ... We need to make sure that smallholders and pastoralists will not be pushed aside by large capital-intensive operations.”*¹⁰

The 10th Global Forum was attended by 69 Agriculture Ministers from across the world. Their Communiqué, rather than promoting industrial livestock, supports:

- “integrated crop-livestock-forestry systems, and pasture and rangeland restoration”;
- “agro-ecological methods” and
- “traditional animal husbandry systems such as pastoral farming”.

Meeting this Goal: Small-scale farmers should be helped to provide improved health and nutrition for their animals through better disease prevention, the expansion of veterinary services and the cultivation of fodder crops such as legumes.

Better animal health and nutrition result in increased livestock productivity and longevity. This will improve smallholders’ purchasing power, making them better able to buy the food that they do not produce themselves and to have money available for other essentials such as education and health care.

Studies in Africa show that agroecology can more than double crop yields while substantially reducing pesticide use.^{3 4} With sufficient access to veterinary services and with improved management regarding animal health and animal welfare, global animal production could, according to the OIE, be increased by around 20%.⁵ This would enable small-scale producers to increase their productivity without industrialization.

Improving the livelihoods of small-scale farmers will also contribute to SDG 1 (ending poverty).

Water harvesting in Ethiopia: Improving the lives of people & farm animals

- In the dry season, there is no rain for around 6 months
- Farmers often had to sell their livestock as they could not afford to feed them and needed the money from the sales to buy food for their families
- A few years ago the Government helped farmers with the cost of water harvesters
- Water harvester is a large, deep hole dug into the soil - lined with a geo-membrane to stop leakage. It stores rainwater for reuse
- Livestock no longer have to be sold during the dry season as year-round availability of water has boosted crop yields up to ten-fold. It has also improved food security, nutrition and farm animal welfare and reduced poverty in small-scale farming in the highlands of Ethiopia.

Case study: <https://www.ciwf.org.uk/media/3819837/ethiopia-case-study.pdf>



Water-harvesting structure slightly filled following the beginnings of the rainy season



Silvopastoral systems for cattle in Latin America with feed at 3 levels

Alongside pasture at ground level, they also provide shrubs (preferably leguminous) and trees with edible leaves and shoots.

Such systems do not need synthetic fertilisers (due to the leguminous shrubs), produce more biomass than conventional pasture and so result in increased meat and milk production.⁶



Cattle browsing Leucaena in a silvopastoral system, Caribe, Colombia

Photo ©Walter Galindo, CIPAV

Resource-conserving agriculture increases yields in developing countries

Although industrial agriculture may initially increase productivity, it causes so much damage to soils, water and biodiversity that in the medium-term it undermines productivity.

In contrast to this, studies show that resource-conserving agriculture can deliver substantial and enduring productivity gains. One study examined the impact of 286 projects in 57 poor countries.⁷ The projects included integrated pest and nutrient management, conservation tillage, agro-forestry and rain water harvesting. These projects increased productivity on 12.6 million farms while improving critical environmental services. The average crop yield increase was 79%, while the African projects showed a 116% increase in crop yields. All crops showed water use efficiency gains. Of projects with pesticide data, 77% resulted in a decline in pesticide use by 71% while yields grew by 42%.

An analysis of 40 projects in 20 African countries has been carried out.⁸ The projects included crop improvements, agro-forestry and soil conservation, conservation agriculture, integrated pest management, horticulture, livestock and fodder crops. Crop yields more than doubled on average over a period of 3-10 years.



2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

Industrial animal agriculture undermines the key resources on which long-term productive farming depends

Industrial livestock's huge demand for feed has fuelled the intensification of crop production which, with its use of monocultures and agro-chemicals, has led to overuse and pollution of ground- and surface-water,¹¹ soil degradation,^{12 13} biodiversity loss,¹⁴ and air pollution¹⁵; these aspects are examined in more detail below in our comments on other SDGs.

Several studies argue that the only sustainable, efficient role for livestock is to convert materials we cannot consume – grass, by-products, crop residues and unavoidable food waste – into food that we can eat.^{16 17 18} Research shows that this approach would result in reduced use of arable land, freshwater, energy and pesticides as well as reduced GHG emissions, nitrogen and phosphorus surpluses, deforestation and soil erosion.¹⁹

Meeting this Goal: "High-input, resource-intensive farming systems, which have caused massive deforestation, water scarcities, soil depletion and high levels of greenhouse gas emissions, cannot deliver sustainable food and agricultural production. Needed are innovative systems that protect and enhance the natural resource base, while increasing productivity. Needed is a transformative process towards 'holistic' approaches, such as agroecology, agro-forestry ... and conservation agriculture, which also build upon indigenous and traditional knowledge."

UN Food and Agriculture Organization, 2017⁹



SDG 3: ENSURE HEALTHY LIVES

3.4: By 2030, reduce by one third premature mortality from non-communicable diseases

The high levels of consumption of red and processed meat that have been made possible in the West and some emerging economies by industrial animal agriculture contribute to heart disease, obesity, diabetes and certain cancers^{20, 21, 22}

“WHO and other health agencies are advising populations to reduce meat consumption as part of an overall healthy diet.”

World Health Organization, 2017²³

Meeting this Goal: Encourage consumption of less but better meat and dairy products in many parts of the world. However, people with low consumption of animal-derived foods are not expected to reduce their intake. The developing world should aim for a balanced intake of animal-source foods and should not adopt western diets as these have an adverse impact on health.

Generating disease

Industrial livestock production plays an important part in the emergence, spread and amplification of pathogens, some of which can be transmitted to people.^{24 25}

Antimicrobial resistance



Industrial livestock production tends to rely on routine use of antimicrobials to prevent the diseases that are inevitable when animals are confined in overcrowded, stressful conditions.²⁶ Overuse of antimicrobials in industrial animal production contributes significantly to antimicrobial resistance in humans.²⁷

SDG 6 & 14: WATER & AQUATIC ECOSYSTEMS



6.3: By 2030, improve water quality by reducing pollution

6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals

6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes



14.1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

Industrial livestock production generally uses and pollutes more surface- and ground-water than grazing systems.²⁸ This is due to industrial systems' dependence on grain-based feed which is grown with synthetic nitrogen fertilisers.²⁹ Further intensification of animal production will result in increasing use and pollution of water per unit of animal product.³⁰

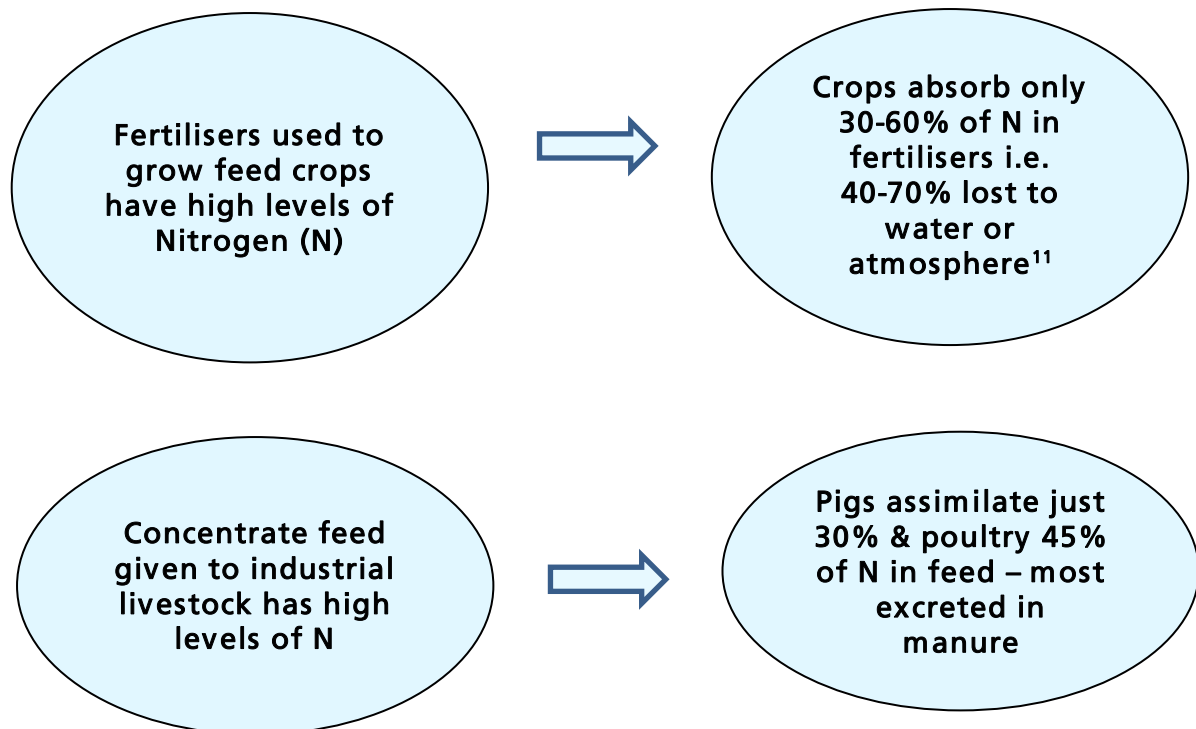
“Intensive livestock production is probably the largest sector-specific source of water pollution”

UN World economic and social survey¹⁰

Meeting this Goal: Globally a 53% reduction in the consumption of animal-source products (compared with business-as-usual projections for 2050) would produce a 21% reduction in the use of water and a 46% reduction in nitrogen surpluses.¹¹

Industrial animal agriculture is a key driver of Nitrogen pollution which has a detrimental impact on SDGs 2, 3, 6, 13, 14 & 15

Industrial livestock production involves a double burden of nitrogen losses: firstly when fertilisers are applied to feed crops and then when these crops are fed to animals.



UNABSORBED NITROGEN:

- Washed into rivers & lakes: **harms SDG 6**
- Leaches from soil into ground water: **harms SDG 6**
- Damages marine ecosystems: **harms SDGs 6 & 14**
- Causes air pollution: **harms SDG 3**
- Leads to soil acidification & loss of soil biodiversity: **harms SDGs 2 & 15¹³**



SDG 12: ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

12.3: By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

There is increasing recognition that the use of human-edible crops to feed animals is a form of food loss (see above section on SDG 2 and food security)^{31 32}

12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

Governments should develop programmes to increase public awareness of the implications of different livestock farming methods and consumption levels for human health, the environment, food security, climate change and animal welfare.

Such programmes could include information such as that set out in the below example ^{33 34 35}

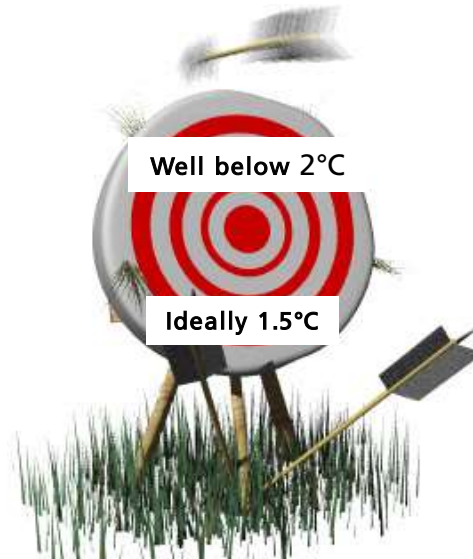




SDG 13: TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Livestock and diets: Climate change's forgotten sector

WE CAN'T MEET THE PARIS TARGETS WITHOUT A REDUCTION IN MEAT AND DAIRY CONSUMPTION



To meet the Paris Agreement's targets, all sectors need to **reduce** their emissions.

However, research shows that on a business-as-usual basis emissions from food and agriculture will **increase** substantially and could make it very difficult to reach the Paris targets.^{36 37}

Supply side measures will not on their own be able to achieve a sufficient reduction in farming's GHG emissions; indeed they may well not be able to prevent an increase.^{38 39}

Demand side: *It is unlikely that global temperature rises can be kept below 2°C without a reduction in meat and dairy consumption.*⁴⁰ Studies show that a significant reduction in meat consumption is essential if food-related emissions are to decrease.^{41 42 43}

Meeting this Goal: "The world's current consumption pattern of meat and dairy products is a major driver of climate change and climate change can only be effectively addressed if demand for these products is reduced"

Hilal Elver, UN Special Rapporteur on the right to food¹⁴



SDG 15: PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

15.3: By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

Livestock's huge demand for feed & land drives both the expansion of cropland and pastures and the intensification of crop production

Increasing demand for land:

- to grow soy and cereals for increasing number of industrially farmed animals, and
- as pasture for cattle

leads to expansion of farmland into forests and savannahs with massive loss of wildlife habitats and biodiversity as well as release of stored carbon into the atmosphere.

It also pushes small farmers and pastoralists into marginal lands thereby undermining livelihoods. Also, overgrazing of marginal lands leads to desertification.





Industrial livestock's huge demand for cereals has fuelled the intensification of crop production. This, with its use of monocultures and agro-chemicals, has led to the degradation of soils and land.

Degradation of soils reduces their fertility and their ability to store carbon which is essential to mitigate climate change. It also weakens soils' capacity for retaining water. This exacerbates flooding and diminishes plants' ability to withstand droughts; SDG 2 calls for agricultural practices that strengthen capacity for adaptation to extreme weather, drought and flooding. Degraded soils are vulnerable to erosion which leads to loss of nutrients and hence to eutrophication of rivers and other aquatic ecosystems.

Research clearly shows that the intensification of agriculture is a major factor in the degradation of soils.^{44 45}

Meeting this Goal: If less grain was needed as animal feed, arable land could be farmed less intensively. This would enable the quality of agricultural soils to be restored by methods such as the use of rotations, legumes, green manure and animal manure.

TIME'S RUNNING OUT FOR OUR SOILS



The UN FAO has calculated that we have about 60 years of harvests left.¹⁵

Sustainable Agriculture Tanzania: Morogoro case study

- Since agroecology was introduced they have produced improved yields, better nutrition and good livelihoods
- Soil health and fertility have been built by composts and crop residues
- Terracing of steep land to prevent soil erosion
- Use of beneficial insects and intercropping to repel insect pests
- Retain water in soil through mulches; water use has been reduced by 59%
- Reduced use of agro-chemicals e.g. pesticides to almost zero
- They use inputs that are produced on the farm rather than relying on inputs brought in from far away
- Have revived and regenerated degraded land



Photo © Sustainable Agriculture Tanzania



Halting biodiversity loss

Threatening the survival of wildlife: elephants and earthworms

Studies show that population and species extinctions are proceeding rapidly and a sixth mass extinction may already be underway.⁴⁶ Human pressures including agriculture are an important factor in this. Ever more forests and savannahs are being destroyed to grow soy and cereals for industrially farmed animals. This is eating into wildlife habitats driving many species – including elephants and jaguars – towards extinction.⁴⁷

Moreover, the chemical soaked monocultures that have arisen in part to satisfy the industrial sector's growing demand for feed crops have devastated birds, butterflies and pollinators.⁴⁸ Both the numbers and diversity of earthworms are being reduced by intensive agriculture;⁴⁹ earthworms are essential to human life as they play a key part in maintaining soil health and fertility.

Intensive agriculture has also played a major role in the decline in pollinators such as bees through its use of insecticides and herbicides^{50 51} and its monocultures that lead to loss of floral abundance and diversity. Moreover, habitat destruction limits nesting sites for wild pollinators.



Meeting this Goal: If animals were mainly fed on materials that cannot be eaten by people, cropland could be farmed less intensively and – provided there was no increase in pasture - the expansion of farmland into wildlife habitats could be halted. This would allow biodiversity to be restored and wildlife to flourish once again.

Brazil – land of the Jaguar

- Fifth largest country by landmass, home to 200 million people
- Greatest biodiversity in the world
- Home to half of the 15,000 jaguars remaining in the world
- Experiencing an explosive growth in agriculture
- Rainforest & savannah converted for soya, sugar, corn & beef
- Soya expanding by hundreds of thousands of hectares per year
- Jaguars shrinking in number & distribution
- Soya largely used for industrial animal feed.



We are returning to SDG 12 as the Goal of Responsible Consumption and Production brings together much of the changes that are essential if we are to move to food and farming that can meet the SDGs

Responsible production: *Redefining the role of livestock*

Studies show that livestock are only efficient when they convert material we cannot consume into food we can eat. So the following are efficient:

- Rearing animals extensively on pasture or other grasslands
- Use of by-products e.g. brewers grain, citrus pulp
- Use of unavoidable food waste – but it must be properly treated
- Use of crop residues
- Rotational integrated crop-livestock systems

Responsible consumption

A reduction in meat and dairy consumption would deliver multiple co-benefits. It would:

- help feed the growing world population as a much greater proportion of crops would be used for direct human consumption ► SDG 2
- allow cropland to be farmed less intensively so enabling biodiversity, soils and water quality to be restored ► SDGs 2.4 & 15
- reduce the incidence of heart disease and certain cancers (this applies to reduced consumption of red and processed meat) ► SDG 3
- make it possible to meet the Paris climate targets ► SDG 13
- reduce pressures on wildlife as habitat destruction could be reversed ► SDG 15.5
- enable animals to be farmed extensively to high welfare standards ► Paragraph 9 of the 2030 Agenda includes in its vision a world “in which wildlife and other living creatures are protected”.

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INDUSTRIAL ANIMAL AGRICULTURE WILL PUT SEVERAL SUSTAINABLE DEVELOPMENT GOALS OUT OF REACH

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