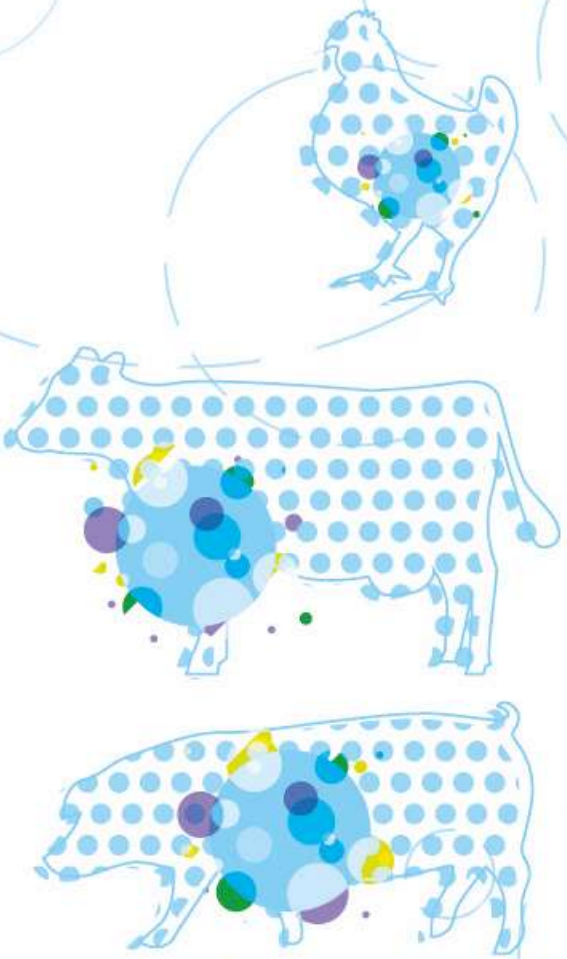
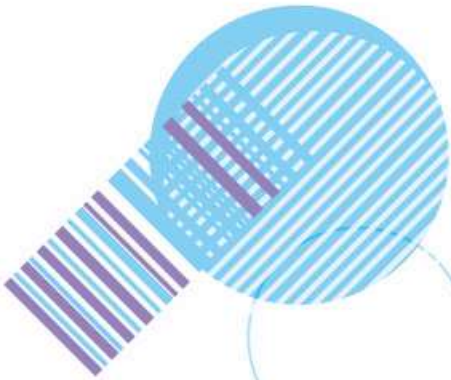
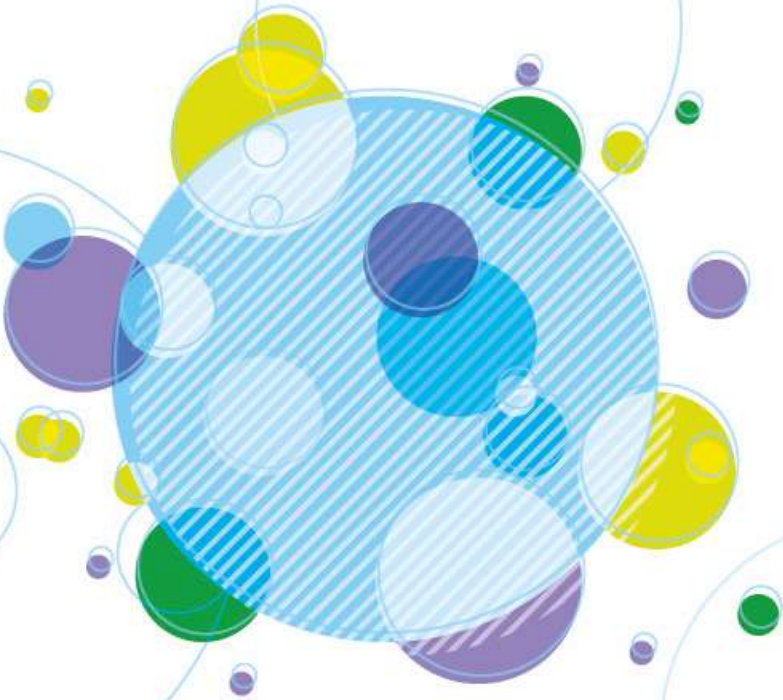




Is the next pandemic on our plate?

Our food system, through the lens of COVID-19



COMPASSION in world farming
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Contents

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Introduction

COVID-19 has highlighted the dangers of ignoring potential crises until they are hard upon us. Other crises – climate change, antibiotics resistance, biodiversity loss, and water scarcity and pollution – are rapidly coming down the line. In each case we are doing far too little to tackle these pending disasters. And in each case our food systems play a major part in generating these problems.

If in the years to come we want to avoid further pandemics and dangerous levels of climate change and if we want to retain effective antibiotics and restore soil fertility, we must change the way we farm and what we eat.

1

The links between wild and farmed animals and disease in humans

Introduction: As we now know only too well, serious diseases can jump from wild animals to humans. In addition, the crowded, stressful conditions of factory farms can be the perfect breeding ground for infectious diseases, some of which are zoonotic i.e. they can be transmitted to people. Foodborne diseases are a significant cause of morbidity and mortality. The high level of disease in factory farming leads to routine use of antimicrobials to prevent these diseases. This drives antimicrobial resistance in animals, which in turn can be transmitted to people so undermining the efficacy of these crucial drugs in human medicine.

Industrial livestock production (factory farming) is a major cause of air pollution which results in serious respiratory disease which is harmful in itself and makes people less able to survive COVID-19. High levels of consumption of red meat, made possible by industrial animal agriculture, contribute to many non-communicable diseases.

Our cruel abuse of wild and farmed animals is damaging our health and will continue to do so unless we fundamentally reassess our relationship with animals; and recognise our ethical obligations to treat them with respect.

Wet markets: COVID-19 is caused by a virus, SARS-CoV-2, that is thought to have jumped from wild animals, very possibly bats, to humans through an intermediate host, i.e. another animal species with which humans come into close contact.

One hypothesis is that the transmission of the virus to people occurred at a 'wet' market in China. In these markets, numerous wild animal species – many raised in farms – are kept in crowded, unhygienic conditions and are slaughtered on site. The close proximity between animals and humans at such markets provides the perfect opportunity for pathogens to spread. Butchering the animals in filthy conditions provides ample opportunities for the direct exposure of vulnerable human tissues (skin, wounds, mucosa) to the pathogens.

SARS-CoV-2 would not be the first virus to jump from wild animals to people probably as a result of keeping animals in unsanitary conditions in wet markets. A similar coronavirus was responsible for the outbreaks of Severe Acute Respiratory Syndrome (SARS) from 2002 to 2004 which resulted in 774 human deaths. SARS originated in bats and was transmitted to humans through contact with an intermediate host species, the Himalayan palm civet, in a Chinese wet market.[1] [2]

The last global pandemic before COVID-19 originated in farm animals. The 2009 swine flu pandemic killed between 151,700 and 575,400 people worldwide.[3] Pigs can be infected by avian influenza and human influenza viruses as well as swine influenza viruses. When influenza viruses from different species infect pigs, the viruses can reassort (i.e. swap genes) and new viruses that are a mix of pig, bird and human viruses can emerge.[4] The 2009 pandemic started in La Gloria, Mexico, just five miles from a major concentration of industrial pig farms.

Factory farming: The stressful, crowded conditions of factory farming also play an important part in the emergence, spread and amplification of pathogens, some of which are

zoonotic.[5] [6] A range of studies link the emergence of infectious disease with industrial production. A Joint Scientific Opinion by the European Medicines Agency (EMA) and the European Food Safety Agency (EFSA) states that "the stress associated with intensive, indoor, large scale production may lead to an increased risk of livestock contracting disease."[7]

Otte *et al* (2007) state: "The proximity of thousands of confined animals increases the likelihood of transfer of pathogens within and between these populations, with consequent impacts on rates of pathogen evolution."[8] The US Council for Agriculture, Science and Technology warns that a major consequence of modern industrial livestock production systems is that they potentially allow the rapid selection and amplification of pathogens.[9]

The intensive poultry sector asserts that bird flu (avian influenza) is mainly spread by wild birds. However, a statement by the Scientific Task Force on Avian Influenza and Wild Birds makes it clear that this is not the case.[10] Their statement stresses: "Typically, highly pathogenic avian influenza (HPAI) outbreaks are associated with intensive domestic poultry production and associated trade and marketing systems".

Low pathogenicity avian influenza (LPAI) viruses circulate naturally in wild birds;[11] such LPAI causes little harm to the birds. It is industrial poultry production that facilitates the evolution of LPAI to high pathogenicity avian influenza. Industrial poultry production, in which thousands of birds are packed into a shed, gives a virus a constant supply of new hosts; in this situation highly virulent strains are likely to rapidly emerge.

Both swine and bird flu can infect people. The 1918 influenza pandemic was the most severe pandemic in recent history; it led to an estimated 50 million deaths worldwide. It was caused by an H1N1 virus with genes of avian origin.[12] Even where they do not infect humans, disease outbreaks can lead to the culling of millions of farm animals often in inhumane ways. During the current African Swine Fever outbreak, tens of millions of pigs have been slaughtered; with reports that they are often burned or buried alive.

The link between industrial livestock production and antimicrobial resistance in humans: The World Health Organisation (WHO) has warned of "a post-antibiotic era, in which many common infections will no longer have a cure and once again, kill unabated".[13]

Globally, around 70% of all antimicrobials are used in animals raised for food, mainly to prevent disease and to promote growth rather than to treat sick animals.[14] Antimicrobials are regularly used in industrial livestock systems to prevent the diseases that would otherwise be inevitable where animals are confined in crowded, stressful conditions that undermine their immune systems. To prevent this, antimicrobials are routinely given to whole herds or flocks of healthy animals via their feed and water. The WHO stresses that the high use of antimicrobials in farming contributes to the transfer of antimicrobial resistant bacteria to people, thereby undermining the treatment of serious human disease.[15]

An OECD report found that without action to stem antimicrobial resistance, 2.4 million people could die from superbug infections in Europe, North America and Australia between 2015-2050.[16] In the 33 countries examined in the report, infections with resistant microorganisms in the next 30 years could cost up to US$3.5 billion per year.

Foodborne disease: The most common causes of foodborne disease and mortality include campylobacter and salmonella.[17] [18]

Campylobacter is a particular problem in meat poultry: Intensive breeds are much more susceptible to infection than more robust slower growing breeds.[19]

Salmonella is mainly caused by eggs and egg products: The risk is higher with larger flock sizes and with battery cage systems.[20]

E. Coli is a greater risk in intensive feedlots for beef: Callaway *et al* (2009) state: "Transmission from one animal to another is more likely as a result of high stocking densities in feedlots. Also, feedlot cattle are fed a diet of grain to fatten them for slaughter quickly. This diet promotes the growth of E. coli, including EHEC, in the hindgut, leading to increased colonisation and shedding of EHEC, which can then spread to other animals".[21] Rearing cattle on diets high in fibre (e.g. grass) substantially reduces the risk of infection.

Air pollution: Agriculture is a major source of three important air pollutants: ammonia, particulate matter and nitrous oxide. Air pollution is a serious problem for human health as it contributes to conditions such as bronchitis, asthma, lung cancer and congestive heart failure. Studies show that in some countries – including Denmark and the UK – agriculture is responsible for a larger proportion of the health problems arising from air pollution than transport or energy generation.[22] [23] Agriculture's emissions largely result from livestock and fertilisers; a substantial proportion of these are used to grow crops for animal feed.

Research shows that a 50% reduction of global agricultural emissions, notably of ammonia, could prevent the mortality attributable to air pollution by ~ 250,000 people per year worldwide.[24] New studies conclude that exposure to air pollution increases mortality from COVID-19.[25] [26]

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> **The proximity of thousands of confined animals increases the likelihood of transfer of pathogens within and between these populations, with consequent impacts on rates of pathogen evolution.**
>
> "
>
> **Otte et al in *Industrial Livestock Production and Global Health Risks***

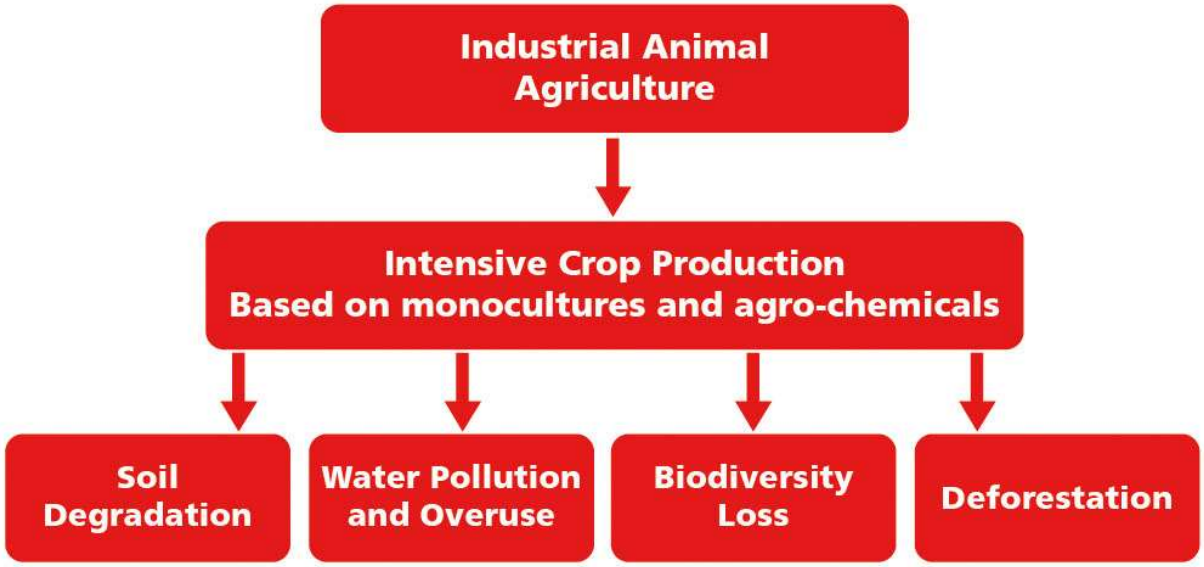
2

The industrial livestock – intensive arable – environmental degradation nexus

Few policymakers recognise that industrial animal agriculture plays a major part in several environmental crises i.e. pollution and overuse of water, soil degradation, biodiversity loss, and deforestation.

Industrial animal agriculture is dependent on feeding human-edible cereals and soy to livestock. 57% of EU cereals are used as animal feed.[27] Globally the figure is 40%.[28] 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,[29] soil degradation,[30] [31] biodiversity loss,[32] and air pollution.[33]

Figure 1: The industrial Livestock – intensive arable – environmental degradation nexus



Water: The UN has said that "intensive livestock production is probably the largest sector-specific source of water pollution".[34]

Industrial livestock production generally uses and pollutes more surface and ground-water than grazing systems.[35] This is due to industrial systems' dependence on grain-based feed.[36] Huge quantities of nitrogen fertilisers are used to grow this feed. However, only 30-60% of this nitrogen is taken up by feed crops; 40-70% of the nitrogen is lost to water or the atmosphere.[37] Also, the feed given to industrial livestock has high levels of nitrogen. Pigs and poultry assimilate less than half of the nitrogen in their feed; most is excreted in their manure. The nitrogen that is not absorbed by the crops or the animals runs off or leaches to pollute rivers, lakes and groundwater.

In marine ecosystems the excess nitrogen leads to a surge in plant growth. When these plants die their decomposition consumes oxygen, leaving areas largely depleted of oxygen.

The body of water can no longer support fish and becomes a 'dead zone', destroying the livelihoods of fisherfolk.

Degraded soils: The UN Food and Agriculture Organization (FAO) calculates that soils are now so degraded that we have only about 60 years of harvests left.[38] Driven in part by industrial livestock's huge demand for cereals, intensive crop production seeks to maximize yields which has caused compaction, declining soil biodiversity and loss of soil organic matter.[39] [40] This has degraded soils to the point where poor soil quality is constraining productivity. [41]

Biodiversity loss and deforestation: The UNCCD states that livestock production is "perhaps the single largest driver of biodiversity loss".[42] Intensive agriculture has played a major role in the decline in pollinators such as bees through its use of insecticides and herbicides.[43] [44]

More than 75% of global soy production is used as animal feed.[45] The growing demand for land:

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

leads to expansion of farmland into forests and other natural ecosystems[46] with massive loss of wildlife habitats and biodiversity.

3

Factory farming – undermines food security and is resource-inefficient

Industrial animal agriculture is dependent on feeding human-edible cereals to livestock who convert them very inefficiently into meat and milk. For every 100 calories of human-edible cereals fed to animals, just 17-30 calories enter the human food chain as meat or milk.[47] [48] For every 100 grams of protein in human-edible cereals fed to animals, just 43 grams of protein enter the human food chain as meat or milk.[49]

> **"I know of no other animals that are more consistently curious, more willing to explore new experiences, more ready to meet the world with open-mouthed enthusiasm. Pigs are incurable optimists and get a big kick out of just being."**
>
> **Lyall Watson in *The Whole Hog***

The European Commission's Joint Research Centre states that the "use of highly productive croplands to produce animal feedstuffs … represents a net drain on the world's potential food supply".[50] The FAO has said "When livestock are raised in intensive systems, they convert carbohydrates and protein that might otherwise be eaten directly by humans and use them to produce a smaller quantity of energy and protein. In these situations, livestock can be said to reduce the food balance".[51]

4

Animal machines or fellow creatures?

Factory farming inflicts lives of utter desolation on animals. Worldwide millions of sows experience near-permanent 'lockdown' being kept for most of their adult lives in crates so narrow that they cannot even turn round. All they can do is take one or two steps forward and backward and – with difficulty – lie down and get up.

Globally, tens of millions of egg laying hens are confined in tiny, harsh cages, not even able to stretch their wings. Huge numbers of pigs and meat chickens are crammed into barren overcrowded, sometimes filthy, sheds. Factory farming treats animals not as living creatures capable of feeling fear, pain and pleasure, but as mere units of production created solely to engender profit and cheap food.

Many are trapped not just in cages and crates but even by their own bodies. We have bred them for such fast growth and high yields that many suffer from pain, lameness, bone fractures and ill-health. The ancestor of today's hens, the red jungle fowl, lays 12-20 eggs per year whereas modern hens have been selectively bred to lay around 300 eggs a year.[52] [53] To produce this huge number of eggs, hens have to draw on the calcium in their bones making them very vulnerable to bone fractures.[54]

Whereas a cow would naturally produce around 1,000 litres of milk for her calf during her ten-month lactation, today's dairy cows have been selectively bred to produce up to 12,000 litres over their ten-month lactation. These high-yielding cows often only live to their third lactation – at around 5½ years old – before being so worn out and unhealthy that they have to be culled. Naturally, a cow can live for 20 years. Modern meat chickens have been bred to reach their slaughter weight around three times as quickly as in the 1950s. Their legs often cannot properly support the rapidly growing body and as a result over 25% suffer from painful leg disorders.[55] [56]

Industrial livestock production flies in the face of the growing recognition that animals are sentient beings and that each is an individual with their own distinct characteristics. Animals have been placed in this world for their own sakes, to live their own lives, not just for our convenience. Industrial production takes a mechanistic view of animals as tools that can be made ever more efficient. This is unworthy of our finer, more generous instincts as humans. Let us recognise that animals are not pieces of machinery; they are our fellow creatures entitled, like us, to experience the joy of living.

We have an ethical responsibility to transform our relationship with farm animals. We must ensure that each has a good life. This entails going beyond minimising negative experiences. Rabobank, a global leader in agriculture financing, highlights the importance of "promotion of positive experiences" and states that this "refers to improving welfare above the survival minimum by providing animals with enriching opportunities to engage in behaviours that increase their comfort, confidence and capacity to make rewarding choices."[57]

Let's ignore the siren call of factory farming and build a food system that is healthy, socially just, environmentally regenerative and respectful of animals.
As we move away from wet markets and the use of wildlife for food, some will call for these food sources to be replaced by factory farming. But this too is a hothouse of disease and, with its high use of antimicrobials, threatens human medicine while providing food of low nutritional quality.

5

Regenerative farming

Intensive farming is undermining the natural resources on which the future health of agriculture depends. We need to move to forms of farming that work in harmony with natural processes such as agroecology, circular agriculture, and agro-forestry. Through the use of rotations, legumes, green manure and animal manure, they can build soil quality. This produces healthier plants less susceptible to diseases and pests, so minimising pesticide use. Soils with high levels of organic matter can store carbon and improve water retention so reducing flooding risks and enhancing plants' ability to withstand drought. Such forms of farming can restore biodiversity enabling pollinators, farmland birds and other wildlife to flourish once again.

Studies indicate that livestock only enhance food security when they convert materials that we cannot consume – grass, by-products, food waste, crop residues – into food we can eat.[58] [59] The link between animals and the land should be restored through rotational integrated crop/livestock systems where animals are fed on pasture and crop residues. During the grazing part of the rotation soil fertility is built through animal manure, the inclusion in the grass of leguminous plants such as clover, and the ability of the roots of the grasses to collect minerals from deep in the soil. This means that the arable part of the rotation can be undertaken without chemical fertilisers.

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>
> **Factory farming treats animals not as living creatures capable of feeling fear, pain and pleasure, but as mere units of production created solely to engender profit and cheap food.**
>
> **Many are trapped not just in cages and crates but even by their own bodies. We have bred them for such fast growth and high yields that many suffer from pain, lameness, bone fractures and ill-health.**
>
> "
>
> **Peter Stevenson, Compassion in World Farming**

6

Achieving social justice

In the UK, the poorer people are, the worse their diet, and the more diet-related diseases they suffer from".[60] This is likely to be the case in many countries.

As we come out of COVID-19 there is likely to be a reappraisal of many aspects of our society. One such rethink should insist on policies that ensure that everyone including the most disadvantaged can access nutritious food that enhances, rather than undermines, their health and well-being. The *International Panel of Experts on Sustainable Food Systems* stresses that "cheap calories can no longer be a substitute for social policies, which must be rebuilt and redesigned to tackle the root causes of poverty and promote access to healthy food for all".[61]

7

Producing nutritious food

We have developed a food system that does the precise opposite of what it is meant to do – it makes people ill. The prevalence of diet-related non-communicable diseases – including coronary heart disease, stroke, and diabetes – associated with high-calorie, unhealthy diets is increasing.[62] Globally 2.1 billion adults are overweight or obese and the global prevalence of diabetes has almost doubled in the last 30 years.[63] Unhealthy diets are the largest global burden of disease and pose a greater risk to morbidity and mortality than does unsafe sex, and alcohol, drug, and tobacco use combined.[64]

Leading dietary risk factors for ill-health include low intake of fruit, vegetables and whole grains and high intake of salt, sugar-sweetened beverages and processed and red meat (which includes pigmeat).[65] The high levels of consumption of red and processed meat that have been made possible by industrial livestock production contribute to heart disease, obesity, diabetes and certain cancers.[66, 67, 68, 69]

Free-range animals – who consume fresh forage and have higher activity levels – often provide meat of higher nutritional quality than animals that are reared industrially. Pasture-fed beef has less fat and higher proportions of the beneficial omega-3 fatty acids than grain-fed beef. [70]

Meat from free-range chickens contains substantially less fat and generally a higher proportion of omega-3 fatty acids than meat from chickens reared industrially. The fast growth rates of today's chickens have a detrimental impact on the nutritional quality of the breast meat with increased fat content and less and lower quality protein.[71]

Free range eggs have a better nutritional quality than cage eggs.[72] This arises from the diet of free-range hens who are able to consume seeds, green plants, insects and worms. Compared with cage eggs, free range eggs have higher levels of vitamin E and omega-3 fatty acids as well as a healthier ratio of omega 3 to omega 6 fatty acids.[73 74]

8

Reducing meat consumption: benefits for health, climate and environment

Many studies recommended that for the sake of our health we need to reduce meat consumption, and move to predominately plant-based diets with increased consumption of fruit, vegetables, whole grains, legumes and nuts and reduced consumption of sugar, salt and highly processed food.[75] [76]

Reducing meat consumption would also reduce greenhouse gas (GHG) emissions and benefit the environment. Research shows that reducing consumption of meat and dairy is essential if we are to meet the Paris climate targets.[77] [78] [79] [80] This is because animal products generally generate substantially higher emissions per unit of nutrition produced that plant-based foods.[81]

A study published in Nature shows that globally, business as usual in food production and consumption will lead to an 87% increase in GHG emissions by 2050 (compared with 2010).[82] The study reports that only dietary changes towards more plant-based (flexitarian) diets could reduce food-related GHG emissions in 2050 to below their current level. Dietary shifts could contribute up to a fifth of the mitigation needed to meet the Paris below 2°C target.[83]

A statement signed by over 11,000 scientists states: "Eating mostly plant-based foods while reducing the global consumption of animal products … can improve human health and significantly lower GHG emissions. Moreover, this will free up croplands for growing much needed human plant food instead of livestock feed".[84]

Studies show that halving meat and dairy consumption would lead to substantial reductions in the use of cropland and water, major falls in nitrogen and GHG emissions, reduced deforestation, and a decrease in the use of pesticides and energy.[85] [86] [87] [88]

> **"Unhealthy diets are the largest global burden of disease and pose a greater risk to morbidity and mortality than does unsafe sex, alcohol, drug, and tobacco use combined."**
>
> ***Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017.***
> **The Lancet 2019**

9

Moving to 'health-oriented' systems for rearing animals

The Joint EMA/EFSA Scientific Opinion states: "measures must be implemented that improve animal health and welfare and thereby reduce the need for antimicrobials in the first place." Heath-oriented systems should be used in which good health is integral to the system rather than being propped up by routine use of antimicrobials.

This would build good health by:

- ***avoiding overcrowding:*** high densities are a risk factor for the spread and development of infectious disease; such densities can allow rapid selection and amplification of pathogens;[89] [90] [91]
- ***reducing stress:*** stress tends to impair immune competence, making animals more susceptible to disease;[92]
- ***enabling animals to perform natural behaviours:*** inability to engage in natural behaviours is a major source of stress in intensive systems;[93]
- ***ending the early weaning of pigs:*** this is stressful due to premature removal from the sow, change in diets, mixing with unfamiliar pigs and being moved to a new environment;[94]
- ***avoiding excessive group size:*** The O' Neill *Review* states: "large numbers of animals living in close proximity ... can act as a reservoir of resistance and accelerate its spread. There are often many opportunities in intensive farming environments for drug-resistant bacteria to be transferred between, for example, thousands of chickens being reared in the same indoor enclosure";[95]
- ***maintaining good air quality:*** poor air quality is a risk factor for respiratory disease;[96]
- ***encouraging a move away from genetic selection for high production levels:*** these involve an increased risk of immunological problems and pathologies.[97]

10

Transforming our relationship with nature & Doughnut Economics

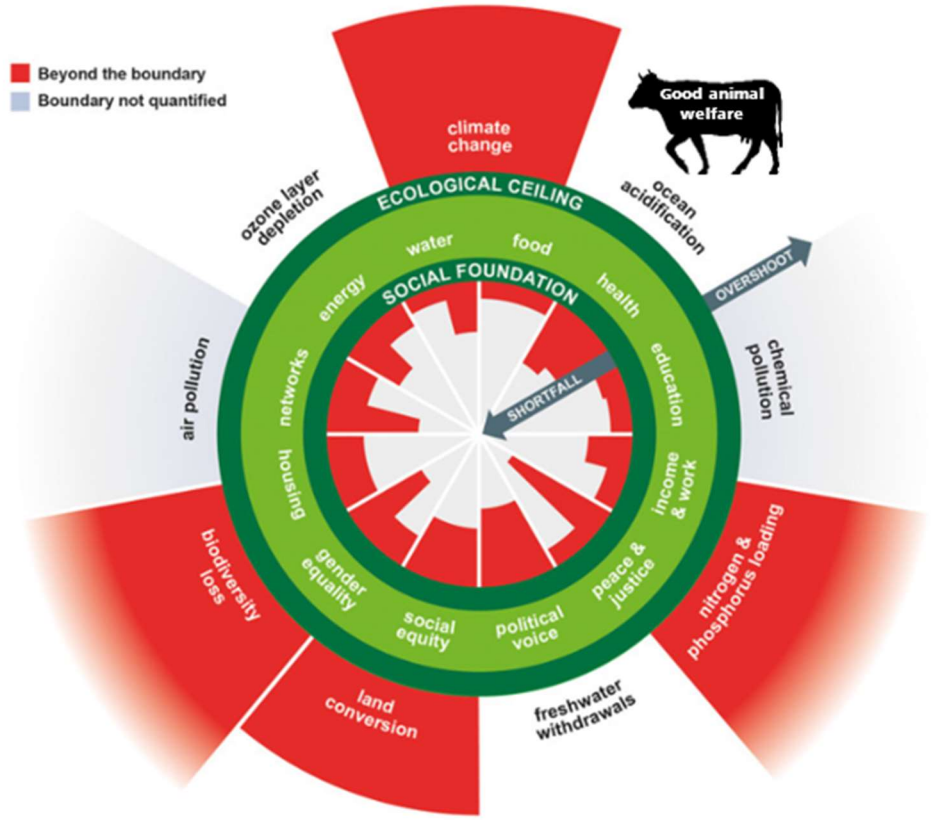
Dr Mark Jones, Head of Policy at the Born Free Foundation has – rightly – said "We need to dig deep and reset our fundamental relationship with the natural world, rethink our place in it and treat our planet and all its inhabitants with a great deal more respect, for its sake and for ours." To accomplish this, a fresh approach to economics is needed – and this is provided by Doughnut Economics.[98]

Our current economics model is predominantly quantitative in its focus on growth and Gross Domestic Product. It pays little attention to the need for growth to proceed in ways that do not damage natural resources nor to whether that growth really fulfils people's needs and wants.

In contrast, Doughnut Economics focuses on achieving core societal objectives while not exceeding planetary boundaries. It provides an excellent model for charting our post-COVID-19 economics future. We have only one cause for concern. Among its 21 planetary boundaries and societal objectives there is no room for animal well-being. COVID-19 has taught us that ignoring how we treat animals is dangerous. Accordingly, we propose – in Figure 2 below – the addition of a 22nd element to Doughnut Economics: Good Animal Welfare. Perhaps this could be referred to as Doughnut Economics**+.**

Figure 2: Doughnut Economics+

https://www.kateraworth.com/



11

Transforming our food economics

Globally economies have hit hard times due to COVID-19 and this situation will worsen. Calls to change the way we farm animals will be met by claims that factory farming is needed to provide cheap food.

> **"In many countries there is a worrying disconnect between the retail price of food and the true cost of its production. As a consequence, food produced at great environmental cost in the form of greenhouse gas emissions, water pollution, air pollution, and habitat destruction, can appear to be cheaper than more sustainably produced alternatives."**
>
> **UN Food and Agriculture Organisation, 2015. Natural capital impacts in agriculture**

But the low cost of animal products is achieved only by an economic sleight of hand. We have devised a distorting economics which takes account of some costs such as housing and feeding animals but ignores others including the detrimental impact of industrial agriculture on human health and natural resources.

These various detrimental impacts are referred to by economists as "negative externalities". They represent a market failure in that the costs associated with them are borne by third parties or society as a whole and are not included in the costs paid by farmers or the prices paid by consumers of livestock products. In some cases, the costs are borne by no-one and key resources such as soil and biodiversity are allowed to deteriorate, undermining the ability of future generations to feed themselves.

Many studies have calculated these costs; a summary of these is included in our report *Paying for the true costs of our meat, eggs and dairy*.[99] A recent report calculates that the investment costs of transforming our food systems would amount to $300-350 billion annually up to 2030.[100] However, these costs would be far outweighed by annual savings of an estimated $5.7 trillion a year by 2030 and $10.5 trillion a year by 2050 arising from avoiding 'hidden' costs such as those arising from diet-related ill-health, harmful farming practices, and GHG emissions. In addition, by 2030 annual business opportunities of $4.5 trillion are associated with moving to better food systems.[101]

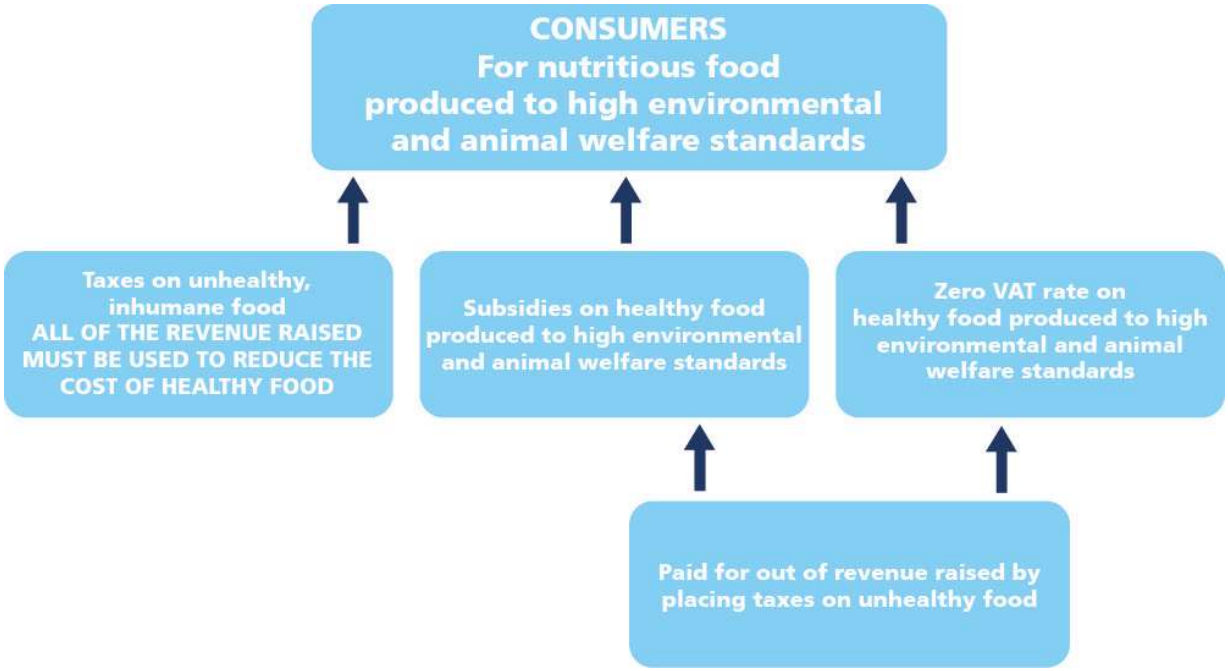
Olivier De Schutter, former UN Special Rapporteur on the right to food, stresses that "any society where a healthy diet is more expensive than an unhealthy diet is a society that must mend its price system." [102] This applies equally to a society where environmentally damaging, low animal welfare food is cheaper than food that respects natural resources and animals' well-being.

Mending our price system: using fiscal measures to support healthy, humane and sustainable food

Taxes could be placed on unhealthy, environmentally damaging food – including industrially reared meat. All the revenue raised must be used to lower the cost of healthy, sustainable food. The WHO points out that for poor socioeconomic groups a food tax may lead to dietary shifts and so to improved dietary health provided that untaxed, healthy alternatives are available.[103]

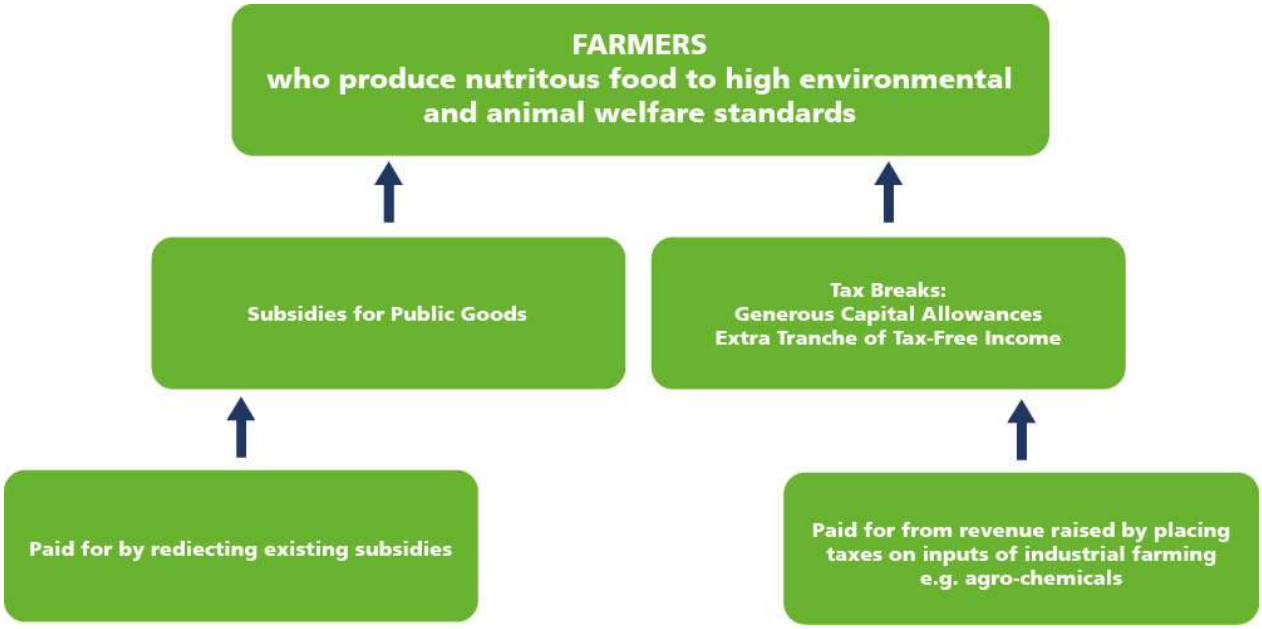
One radical approach would be to consider the creation of a *National Food Service*. This could provide healthy food – such as local, seasonal fruit and vegetables – free of charge to those on low incomes. Such food would be available at retailers who would receive the price for the food from the government. The cost of such a scheme would be balanced, perhaps to a high degree, by reduced healthcare costs and the benefit to farmers of being able to supply more high quality food.

Figure 3: Using fiscal measures to support consumption of sustainable, humane, nutritious food



Farmers who produce healthy, humane food should be supported by subsidies. This need not increase public expenditure; existing farm subsidies should simply be repurposed. Such farmers could also be supported by tax breaks. When calculating net profits for tax purposes, more generous capital allowances could be given to investments for high quality farming. Moreover, an extra tranche of farmers' income could be tax-free when they employ specified animal welfare or environmental practices. These tax breaks could be paid for by the revenue raised from placing taxes on the inputs of industrial agriculture such as chemical fertilisers and pesticides.

Figure 4: Using fiscal measures to support farmers who produce to high standards



12

Food: a tradeable commodity or a public good?

Food is largely regarded as a tradeable commodity with low price being seen as a key goal even though that low price is achieved by, for example, getting taxpayer-funded health services to meet the costs of treating the non-communicable diseases engendered by unhealthy diets.

Food systems must operate to meet the many inter-related goals set out in Figure 5. To achieve these goals, we need to change to viewing food as a common good.[104] A large number of lock-ins operate to impede such a change. These include:

A productionist approach which stresses the need to produce 60-70% more food to feed the growing world population. However, by halving all food loss and waste including that involved in feeding cereals to animals and over-consumption beyond one's nutritional needs, we could readily feed the anticipated world population in 2050 of 9.7 billion people.[105] We do not need to produce more food; we just need to use what we produce more wisely.

Current food systems primarily benefit large multi-nationals who provide inputs such as livestock feed (e.g. the major grain traders); animal genetics and pharmaceuticals; fertilisers, pesticides and commercial seeds; and farm equipment (including cages for factory farmed animals). These companies have a vested interest in promoting industrial agriculture. If we moved to regenerative agriculture, farmers would still be needed but the demand for the products of these multi-nationals would fall very substantially. These companies have immense political influence which they use to influence policymakers and to obstruct reforms. They are able to shape the narratives that entrench the status quo e.g. industrial agriculture gives us cheap food and is vital to feed the world.

Farmers have been swamped by huge retailers, food manufacturers and wholesalers, and foodservice operators; this leaves farmers as price takers. In the UK these companies generate 91% of the value produced by the agri-food sector; farmers contribute just 9%.[106] The various 'middlemen' sectors have important roles to play, but it is anomalous that they have come to dominate the food chain to such a high degree. Farmers should receive a much greater share of the revenue produced by the food chain. We need, for example, to embrace new online business models that link farmers much more directly to consumers allowing farmers to receive a greater share of the income generated by their produce and consumers to buy fresh, local, humanely produced food at lower prices.

Trade and competition law can obstruct moves aimed at introducing sustainable and humane food policies, for example by making it difficult for countries to require imports to meet the sustainability standards placed on domestic producers or preventing joint initiatives by food companies aimed at improving animal welfare.[107]

Figure 5: The interwoven objectives of good food systems

Conclusion

We must urgently move away from industrial livestock production (factory farming) to address the challenges raised by this report, if we are, as urged by UN Environment, to "build back better".[108]

Maintaining and further embedding a flawed food system based on the over production and consumption of animal products will lead to further pandemics, dangerous levels of climate change, undermine antibiotics and degrade soil fertility. An alternative food system can deliver a wealth of public goods and help to keep ourselves, our planet and the animals we share it with safe into the future.

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