

Agroecology for Sustainable Food and Farming

MEETING NOTES

The Rise of Intensive Agriculture in the UK

Wednesday 5th September, 4.30-6pm, Committee Room 18, Palace of Westminster

Panel

Philip Lymbery - CEO, Compassion in World Farming

Richard Young – Policy Director, Sustainable Food Trust

Bibi Van Der Zee – Editor of ‘Animals Farmed’ Series, The Guardian

Chair: Kerry McCarthy MP and Baroness Miller of Chilthorne Damer

Richard Young

When thinking about intensive agriculture our first thoughts go to livestock production – but this conception must be broadened. There were genuine reasons why Britain was short of food after World War 2, and in response to this several factors had to be introduced to alleviate this shortage. But these factors made the rise of intensive agriculture possible. Two prime examples are growth motivating antibiotics and synthetic vitamin D, which allowed animals to be raised entirely indoors.

However, once these inventions have proliferated it's difficult to 'put the genie back in the bottle' because the proceeding agricultural methods depend on, and were only made possible by, those previous technological advancements. But such 'intensive' inventions have not only been applied to livestock production, but also areas such as oil seeds and crops. We currently use 3.5x more nitrogen than the earth can support (which is a topic which the Environmental Audit Committee is also currently undertaking an inquiry on). This is a problem because even if we stopped intensively farming livestock, a large proportion of our food would still be being produced intensively using nitrogen – which is a finite resource due to run out by 2050. Therefore, a different way of both rearing livestock and producing crops is required.

A major problem with realising this has been the growing consumer opposition to grazing animals, due to negative media coverage and concerns around methane. But ploughing the land to plant crops which is currently used to graze livestock will have a huge negative environmental impact; reducing biodiversity, soil health and more. Though vegan farmers exist, many non-meat and dairy farmers continue to rely on animal by-products such as manure to fertilise their fields, or to rotate crops and livestock to ensure soil health doesn't decline. And one must also consider the fact that for much land unfit for crops, rearing livestock is the only way to produce food from that land whilst maintaining the integrity of the natural environment – because simply put humans can't eat grass.

Furthermore, regarding methane – it is certainly a problem, but the carbon which ruminants are putting into the atmosphere is only recycled carbon – cows can only excrete methane which they have previously consumed. Methane does have a high environmental impact over 10 years, but it's short lifecycle means that it is quickly broken down. Before fossil fuels methane wasn't a problem – and the focus on ruminants has diverted attention away from fossil fuels which are the actual biggest cause of emissions. Half a tonne – 500kg – extra emissions are generated by a red meat eater in a year. But the carbon footprint of one overseas trip is 550kg. This just serves to put the various issues into perspective. It is therefore my view that we need to continue to consume meat, but only meat that has been sustainable reared on grassland.

Neither are the health issue surrounding meat necessarily as pressing as previously thought. A study published by the Lancet just last week concluded that meat from grass fed animals is a healthy food – and though it shouldn't be eaten in vast quantities, it is a healthy part of a balanced diet.

The related issue of animal versus plant fats is interesting in this respect. We moved away from eating animal fats in the 1980's as a result of media pressure, so now we primarily eat vegetable fats. But instead of animal fat discontinuing production – as it is an unavoidable by-product of meat – we are instead paying subsidies towards the conversion of these animal fats into biofuels in the UK, whilst we import palm oil for plant-based fats from abroad. In this respect it is important to not just look at the type of food being produced, but the context and location in which it is produced – as previously mentioned with air travel, reducing 'food miles' can produce just as many environmental benefits as changing the types of foods produced. Increasing demand for palm oil contributes to deforestation, whilst UK-produced edible animal fats are thrown away and are unable to be replaced by a local non-meat based alternative. Even 'healthy' oils like rapeseed require the vast quantities of pesticides to be grown – so they are evidently not the sustainable alternative to animal fats which they are widely considered to be.

In conclusion, it is crucial that we re-visit our assumptions about what constitutes sustainable food and farming. To stop climate change we must have more livestock on grassland than we do currently, but this must be alongside a 75% reduction in intensively reared pigs and poultry. But regardless, even if we can feed the world sustainably the population will continue to increase so rapidly to the extent that we may be simply unable to keep up – not to mention the infrastructure demands alongside this. Any sustainable food and farming system must therefore be accompanied by responsible family planning and population management policies.

Philip Lymbery

The intensification of agriculture in the UK started 70 years. Whilst it may have been the 'high tech' way of the future then, now it is outdated. Intensive agriculture is an approach from a different century; attempting to solve problems which differ hugely from the ones we now face.

After World War 2 attention was focused on increasing productivity, because food production was not increasing in line with the population. This resulted in the introduction of monocultures, confining animals to crates and plenty more. Now half of chickens are grown indoors, and many pigs are kept in farrowing crates so small that they can't turn around. The creep into intensive indoor systems is everywhere. We may think that we would never devolve into USA-style mega farms, but in Britain we already have more than 700 mega farms – and this number is rising.

70% of British countryside is used for agriculture. What happens to food and farming in Britain matters hugely beyond the actual fields. For example, wildlife such as barn owls used to be a huge part of people's childhoods and a common sight on farms, but now only 1 in 75 farms in the UK have a breeding pair. This mirrors a wider decline in bird numbers across the UK which has amounted to the loss of a breeding pair every minute. Nearly 90% of once abundant species have disappeared – sky larks, lapwings, hedgehogs and even water voles; the latter declining as quickly as the east African rhino. The disappearance of farm animals into crates mirrored the disappearance of farm wildlife, and both were precipitated by the shift to intensive farming.

In opposition to widely held assumptions, factory farming is not a space saving exercise. Huge tracts of land elsewhere have to be reserved to grow the animal's feed - currently half of UK farm land is used for this purpose. Accompanying the intensive farming of animals is the intensification of the farming of crops. As the animals disappear and the plants are used to grow animals, fields became larger and trees, hedges and the surrounding wildlife disappeared. As a result of these intensively farmed crops being primarily fed to animals, the majority of calories grown are being utilised in a way which is extremely inefficient, or simply wasted if the resulting meat is discarded. Intensive farming even endangers wild animals entirely separate from our farming systems. Wild birds such as penguins and puffins, for example, have been made vulnerable due to being robbed of their primary food source when huge amounts of fish are scooped up to make fish meal to feed pigs. Similarly, bee populations have declined as meadows and flowers are replaced with mono crops. Intensive agriculture even put the health of the soil at risk. The UN warned several years ago that we have

60 years of harvests left unless concerted effort is made to improve soil health. As a result, the sad reality is that a child born today won't reach retirement age before witnessing the end of the food system as we know it unless drastic changes are implemented in the immediate future. For these reasons and more, factory farming cannot be classed as efficient – but rather inefficient and damaging in a multitude of ways.

Whether we voted for Brexit or not, the UK's exit from the European Union represents a once in a generation opportunity to rethink how the UK produces its food and what food should be produced. So the question is: what should we do? Change needs to start at weaning ourselves off our reliance on factory farming, chemical monocultures and the production of animal feed.

Tim May, a farmer in Basingstoke whose farm is 10 times larger than the UK average, used to farm in intensive, pesticide-heavy ways. But he quickly saw declining yields as the soil, wildlife and natural environment became tired. So instead he decided to introduce cattle, sheep and chickens to the grass land – all of them not fed a single grain. If Tim is able to successfully transition to extensive, sustainable methods of farming then it is evidently possible for all farmers.

For these reasons and more it is imperative that the UK Government gives clearer signals and support for farmers to move away from intensive agriculture; taking a leadership role to save our soil, rescue our wildlife and get our animals out of crates.

Bibi Van Der Zee

The 1990's felt like a turning point for environmental journalism – books such as Felicity Lawrence's 'Not on the Label' and research by Tim Lang caused what felt like a turning point for issues that had been bubbling under people's subconsciousness for a long time – generating a much wider and more nuanced public understanding. However, as quickly as this understanding began to be disseminated, the noughties and the financial crash caused these issues to again slide down the agenda in favour of other more immediately pressing financial and social issues.

The 'Animals Farmed' series was a response to The Guardian asking 'what is it important to cover?' and what is having an impact on the environment, human health, animal welfare and society. But these impacts extend beyond the UK – the intensive farming model is being rolled out across the world. For example, a documentary was recently released detailing efforts to promote intensive chicken rearing to farmers in Kenya.

When we began the series some readers were worried that we were just going to bash farmers who were simply out there doing a job; feeding people who would otherwise not have had access to protein at the same rate or in the same form. This was in opposition to those who were supportive of the series on animal welfare and environmental grounds. This is because, for most, knowledge of practices such as gestation crates is present in some form, but this knowledge is purposefully ignored in order to continue acting as usual. But the issue with how to bring this knowledge back to the foreground through journalism is that you can't run a story saying that 'these things happen' if they have already been occurring for a considerable amount of time. This doesn't count as 'news' even if people's attitudes and behaviours may change as a result of the story being published. Instead we're required to find 'news stories' - using new facts, figures and information to write an important story that is, most importantly, connected to the present.

Equally, however, journalists must report fairly on what they witness and listen to all sides of an issue, regardless of where this may lead. It is undeniable that some intensive farmers do care about their animals and the environment – so the issue should not be separated into two entirely distinct sides. But the main takeaway from the series – and the theme that appears to underpin many of the problems we are currently facing – is that the public want cheap food and politicians are unable to tell people that they can't have it. Exciting new opportunities such as fake meat could potentially provide solutions, but it's difficult to feel optimistic about the rate at which change is needed versus the rate at which change will most likely occur.

Question & Answer session

Q: Food should be affordable, but it is perhaps too cheap. Whilst the price of food has gone down, the price of other essentials such as utilities has gone up. The discussion needs to be broadened beyond the unfair

demand that people should spend more on their groceries – when they are often unable to – to include getting rid of waste such as shareholder dividends and private profits and tackling issues like wage stagnation. People are not being paid enough to be able to buy good food.

Philip: When considering the price of food we must also consider the externalities related to that food production. We ‘pay’ for cheap meat 3 times – once over the counter, once through the subsidy system (with more than 3 billion directed to agricultural subsidies every year) and once to rectifying the human health, environmental and social problems that arise because of it. The latter is by far the largest bill, and though not factored into the cost at the point of sale will mostly be paid by the poorest in society. Things are not going to change overnight, but Brexit should be used as an opportunity to redirect these 3 bills towards support for public goods, organic and free range.

Bibi: The issue of wages is not too big; if anything it’s central to the problem of intensive agriculture. Cheap credit was used to pacify the public with regard to declining median wages, and cheap food was part of the pact made between the public and politicians. The Government will not be able to get rid of this part of the pact without also changing the rest of the system as well.

Richard: Using true cost accounting, reviewing over 500 pieces of research and accounting for all externalities, we found that intensive farming costs the UK £1.33 billion per year. And this is without even factoring in the different components such as biodiversity loss, which when added amount to over £5 billion a year. When all these costs are totaled it almost equals the amount which the public pays for food each year. The reason why the public can’t pay more for food is that they’re already paying for it twice indirectly. Taxpayers money should be directed at making farmers operate in more environmentally beneficial ways, which will cause the public to possess more money with which they can then buy higher quality food.

Q: The organic system of food production is the system which, intrinsically, naturally delivers the most public goods. The question is thus not whether the organic system should be adopted, but how do we get the public to buy more organic food?

Richard: I am an organic farmer. In the 1990’s, myself and others couldn’t see any reason for why all farmers shouldn’t farm organically, but as idealism gave way to realism it’s undeniable that organic farming does cost more money and land. Unless subsidies are provided specifically for the production of organic food it’s unlikely that the UK will ever witness a huge increase in production, simply because the public are unwilling to pay the premium. But simultaneously, it is not an option to simply continue producing food in the way in which we are currently because that is far beyond the planet’s capacity. The Sustainable Food Trust encourages and supports everyone who wants to move to a more organic system of food production. In truth, most farmers want to farm organically, but they’re trapped in their current farming methods and don’t know how to do anything else.

Q: The current agricultural system and successfully combating climate change are fundamentally incompatible. Intensive agriculture is dependent on fossil fuels. It’s therefore not just farming subsidies which must change, but energy subsidies as well – supporting renewable energy sources which can power the food and farming sector.

Bibi: The 4th paragraph of the Paris Agreement casually states that climate change should be combatted ‘without disrupting farmers’ – and as a result this is now a global political priority. The science surrounding the amount of emissions which meat and dairy produce is unclear, and politicians need these facts to be extremely clear in order to then be able to act on it. It therefore makes sense why, politically, not much has yet been done.

Q: Pulses are a solution to several of the issues mentioned – they fix nitrogen in the soil, don’t require fertilisers, are a cheap source of protein, are socially acceptable to eat and provide a wide array health benefits. Much more support should therefore be given to pulse farmers – pulse production in the UK reduced 25% last year purely because farmers have not received any Government support for continuing to do so.

Q: The UK eats twice the global average of meat and dairy, and the production of this results in huge amounts of emissions. We should still eat meat and dairy, but we should agree to eat ‘less and better’.

Bibi: In the EU Parliament there are several groups which are sponsored by agricultural groups. These work to shut down all discussion on eating ‘less and better’. Opposition to this kind of thinking is prevalent everywhere - even Gove said that red meat is a fantastic part of a balanced diet and a good source of protein – but it is undeniable that it is what we should be promoting.

Richard: The acceptability of condemning red meat, whilst praising white meat, has crept into mainstream discourse. But even though chickens don’t produce methane, they depend on grain as opposed to grass and are thus the main cause of reduced soil health, deforestation and so forth. Chickens and pigs are in direct competition with humans for grain whereas cattle can be only fed grass (if they are allowed to instead of grain) which humans are unable to eat at all. If we stopped growing soya to feed animals this wouldn’t lead to a reduction in the total amount of soya grown because we’d still be dependent on the oils derived from soya crops to produce a range of other foods. Simply put, you can’t have agroecologically sustainable food systems without the including graz livestock. This is because nitrogen is the main driver of food systems, and this has to come from either clover or artificial fertiliser. Even the most long-standing vegan farmers have to use dairy cow manure – because it is a necessity to be able to grow their plants. We should pursue a 25% reduction in meat consumption, and the only way to achieve this is to change the subsidy system to support farmers – having neat walls and hedges are useless unless they’re being used to keep livestock in. One good example would be to tax the use of nitrogen fertiliser and use that money to pay farmers to be soil stewards.

Philip: Reducing our consumption of meat and dairy is critical – and this reduction needs to be by at least 50% by the middle of the century. If not, our food alone will ensure catastrophic climate change. We waste between 4 and 5 billion people’s worth of food every year – this urgently needs to improve, alongside increasing the use of all animal by-products. In addition, it is a fallacy that protein has always been about meat, dairy and eggs. It’s not: overall these only contribute a third of our total protein, and over human history the majority of human protein has been provided by plants.

Q: To contribute to some extent to realising a more sustainable food system, we need to eat the whole animal and improve carcass utilisation. On certain farms every Tuesday afternoon is ‘dairy calf cull day’ – because there’s simply no-one that will take them. The same goes for retired or spent hens. These practices are a huge waste of usable meat.

Philip: We rear and slaughter 70 billion animals globally annually, but 12 billion of these are discarded.

Bibi: UK eaters are very ‘faddy’ – we like small packets with as little information as possible on where the product has come from. Children must understand where food comes from and be more comfortable with these ideas.

Richard: Vegetarians contribute to this issue of full carcass utilisation. One can drink milk but not eat meat, but the fact remains that you can’t get milk out of a cow without first putting a calf in her – and these calves must then either be used or thrown away. If you drink dairy you should also eat meat, and in much the same way people if eat eggs should also eat chicken.

Q: There are three major opportunities for what needs to happen to make our food and farming system more sustainable: (1) Public procurement of food and drink must improve – this improves human health whilst also helping local farmers. (2) Farmer-led R&D currently only gets a small fraction of the total R&D budget, but this should be much more and directed specifically at agroecological solutions. (3) Often in agricultural colleges and universities, agroecological methods and climate change are not integrated into a curriculum – this is a huge missed opportunity and should be rectified.

Philip: The Government’s public procurement standards are worse than McDonalds.

Q: We shouldn't be looking at all these issues separately. The current context provides a golden opportunity for joined up, systems thinking. We should look at the environment's natural processes and functions and seek to mirror it: less pollution, less waste and more efficiency. One such area is the use of antibiotics – recent research has suggested that eating meat which the animal has been fed antibiotics causes reactions in the gut biome – essentially starving the gut bacteria.

Philip: We should definitely be taking cues from nature and engaging in systems thinking. The only departure I would include is my support for cellular agriculture, i.e. growing meat from stem cells. When this takes off - productivity increases and prices plummet - it will ensure that factory farming as a sector is dead in the water within a couple of decades.

Bibi: With regard to artificial food and the gut biome: we're good at developing these new foods and putting them out there before we know fully what it does, but rigorous testing should accompany new foods the same way that it accompanies new medicines.

Additional Contributions

Q: A possible, more focused alternative to agroecological methods of land management is 'Conservation Agriculture' (CA). CA has 3 components: no till, soil mulch clover, and diversify crop species. This leads to a greatly reduced use of pesticides and herbicides, as well as enhancing soil fertility and water retention.

In 2015-16 CA was practiced in 78 countries; 42 more than in 2008-9, and accounted for 12.5% of total global cropland. It has been adopted in farms, both large and small, in South and North America, Australia, New Zealand, Asia, Russia, Europe and Africa. In the UK it has grown rapidly from 24,000ha in 2008-9, to 362,000 in 2015-16 as farmers have found that it increased their profits.

Q: The Rodale Institute compared conventional and organic farming systems by holding trials on its own farm in Pennsylvania, USA between 1981 and 2010. All crops, under both regimes, were thus grown under essentially the same conditions of soil and weather. The results found that:

- Organic yields match conventional yields
- Organic outperforms conventional in years of drought
- Organic farming systems build, rather than deplete, soil organic matter
- Organic farming uses 45% less energy and is more efficient
- Conventional systems produce 40% more greenhouse gases
- Organic farming systems are more profitable than conventional systems

The Rodale Institute Farming Systems Trial is America's longest-running side-by-side comparison of organic versus conventional farming. For more information visit <http://rodaleinstitute.org/our-work/farming-systems-trial>.



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