A Global Britain report by Catherine McBride

GLOBAL BRITAIN

About the author…

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Catherine McBride is an experienced economist, working in corporate governance, competition economics, global trade, financial regulation and public policy. Catherine gained her bachelor's degree from the University of Sydney in the mid 80s, was a trader in equities, derivatives and commodities during the 90s and noughties, and following the EU referendum worked for the Financial Services Negotiation Forum, Legatum Institute and the Institute of Economic Affairs, before becoming freelance.

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Global Britain Limited
Registered office: Lynton House, 7-12 Tavistock Square, London WC1H 9BQ
Registered in England No 03502745

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Executive summary

Do we really need a National Food Strategy?

- The National Food Strategy (NFS) is an independent report authored by a group of interested specialists with the intention of informing the UK Government's draft Food Strategy White Paper.
- The authors were led by Henry Dimbleby, co-founder of Leon restaurants and lead non-executive director of the Department of the Environment, Food and Rural Affairs (Defra) who had previously co-authored The School Food Plan.
- The strategy is intended to cover the entire food chain "from field to fork: the production, marketing, processing, sale and purchase of food (for consumption in the home and out of it), and the consumer practices, resources and institutions involved in these processes."
- The body of the report, however, is confused, contradictory and costly – being full of half-truths implying justification for recommendations in the appendices that seem predetermined.
- The report acknowledges problems with food inequality in the UK that are subsequently ignored in the recommendations: such as people without stoves or refrigerators for cooking or storing fresh food; with limited fuel budgets that deter slow cooking cheaper cuts of meat; or limited shopping options as supermarkets have moved out of town to superstores designed for middle class car owners.
- The report does not address successive government's green initiatives that have pushed up fuel costs for people on low wages making it more difficult for people in the bottom income quartile to eat the type of fresh food the NFS recommends.
- The NFS wants the UK's impoverished children, armed forces, hospital patients and prisoners to eat better quality meals – yet recommends that 10% of England's farmland is converted to environmental uses, demonizes the three countries that could supply the UK with less expensive food, including vegetable protein, and does not explain where the extra high-quality affordable food will come from.

Improving the national diet

- A National Food Strategy should be concerned with producing or importing enough food so the UK population can afford healthy food without requiring government assistance and free school meals.
- Instead, the NFS advocates adding to the financial stress, and cortisol levels, of the impoverished with taxes on salt and sugar that could increase the price and reduce the shelf life of manufactured food, when higher wages, cheaper imported meat and plant protein, or lower energy costs would be a more effective long-term solution to reducing UK obesity. The NFS admits the poorest 10% of people in Britain would have to spend almost three-quarters of their disposable income on food to eat in line with the Government's recommended 'Eatwell Guide'.
- The NFS wants to increase the income limit for free school meals to a household disposable income of £20,000. However rather than a single, one-size-fits-all, income limit – there should be a regional loading on the income limit which should be extended to children in Reception, Year 1 and Year 2 – at present all infant school pupils receive free school meals at taxpayers' expense. The UK population has many different food heritages and tolerances and so there is unlikely to be a single national diet that suits everyone. People should be encouraged to eat food that their grandparents and great grandparents would have recognised as food.

Agriculture, trade, and the environment

- Intensive farming, keeping thousands of animals in mega sheds, is a very efficient farming practice for producers, but may not be good for the environment unless the animal feed is produced locally.
- Feeding intensively produced farm animals for 2 months (broiler chickens), 7 – 9 months (pigs), or 4 years (dairy Cows) may result in more food miles from importing the feed than there would be from only importing the cuts of meat or animal products our population intends to eat.
- Imported meat fed on domestically produced feed could have a lower environmental footprint than home-grown meat raised on imported feed.
- Meat production is less expensive in Australia, Brazil and the US due to: economies of scale; lower relative currency rates; less expensive farmland; lower wages; and local feed production. These production factors have nothing to do with either animal welfare or environmental standards.

- UK animal welfare and environment standards are not better than the three countries the NFS has selected to denigrate because they could supply the UK with less expensive animal protein. Reading the NFS comparison of food standards chart carefully, farm practices are often exactly the same in the UK but the potential overseas supplier gets a red card while the UK gets a white card.
- Animals wandering in a field are not only recycling the grass and water they have consumed, they are also breaking up the soil, stirring up insects, spreading diversified seeds around and improving the total biosphere. Growing plants lay down carbon in their cells as they grow as well as using carbon dioxide to produce energy, so they use up more atmospheric carbon than mature plants.

Farming, environment subsidies, and land values

- The NFS wants one tenth of agricultural land in England to transition to woodland, restored peat, other semi-natural habits and energy crops by 2035 and proposes that the government subsidise this transition at £775 per hectare per year for 40 years.
- Total income from farming in the UK averaged £295 per hectare in 2019 and dropped to only £238 per hectare in 2020, so how can the Government justify paying farmers £775 per hectare *to not farm?* The NFS also warns the total budget of £2.4 - £2.5 billion is undervalued and that the government should commit to at least maintain current agricultural spending until 2029.
- Paying farmers to establish environmental programs assumes that farmers know how to re-establish a broadleaf forest or a wetland and that farmers are indifferent to what they farm. If this were true most UK graziers would have changed their production to a more profitable one.
- It would be more cost effective for taxpayers if unproductive farms were bought by the Government, amalgamated into a handful of larger national parks, which could be run by arboriculturists or biologists knowledgeable about managing forests, wetlands, peatlands, or heaths.
- The government should not subsidise energy crops as they are commercially viable – the corn starch is used to make ethanol; the oil is used for food; and the rest of the kernel is used as chicken feed.
- The Government and the Intercontinental Exchange (ICE) have established an Emissions Trading Scheme. Rather than subsidise farmers for carbon sequestration, the government should allow farmers to sell carbon credits on the ICE. The government should simply standardize the measurement of agricultural sequestered carbon. The most recent ICE carbon auction price (11th August) was £47.25 per tonne – a hectare of forest would need to sequester 16.5 tonnes of carbon to justify a £775 subsidy.
- The NFS recommends in Appendix 7, giving overweight patients prescriptions for free fruit and vegetables because increased fruit and vegetable consumption 'has been shown to be more effective at improving health than reducing consumption of foods high in fat and sugar.' This is a good idea but how does it tally with the NFS proposals to reduce the environmental footprint of our food? The UK imports 84% of its fruit, 46% of non-potato vegetables and 29% of its potatoes. Roughly two-thirds of UK fruit imports come from non-EU countries for climatic reasons, while most vegetable imports are grown in energy intensive vertical greenhouses in the Netherlands.
- The NFS's environmental recommendation that the UK should double its consumption of non-animal protein would only lower total UK emission by 0.5%. However, the UK grows few protein crops – producing only 160,000 tonnes of field peas (mostly for animal feed) and 544,000 tonnes of field beans. Most non-animal protein: Soybean, Chickpeas, Red Kidney beans, etc are imported so increased consumption of them may not lower food mile emissions. Similarly, the NFS's recommendation to lower methane emissions from ruminant animals would only lower total UK emissions by 0.7%

Conclusion

- If the aim of the Government is to feed the population as well as possible then they must stop limiting food imports from more efficient producers with quotas, tariffs, and arbitrary trade barriers, in the hope of protecting UK farmers that cannot produce enough affordable food to feed the population now, before the environmental reduction of farmland, despite being heavily subsidised.

I. Introduction – Do we really need a National Food Strategy?

WHY do we need a National Food Strategy (NFS) and what does it hope to achieve? A healthier population, with more 'equality' in food consumption and more self-reliant food production? Or is it just to disguise another green agenda costing the taxpayer billions? Unfortunately, the recent publication appears to be more the latter than the former.

So, what is wrong with the National Food Strategy?

We could start with the clever use of a distractive first recommendation to introduce a tax on salt and sugar that was likely placed to misdirect the media away from the NFS's recommendation 14 – for a Good Food Bill – that seems to have little to do with improved nutrition, food availability or even good food (whatever that means) but is an extension of state control in our lives and more enforced environmentalism.

The NFS also recommends granting more power to the Food Standards Agency, who it believes should have a statutory duty to consult with the Office for Environmental Protection, the Climate Change Committee, and the Office for Health Protection. These organisations are referred to in that order in the NFS as it believes that 'the key issues affected by our food system are: climate change, the environment and public health.' The NFS claims a reference made in a Department of Health and Social Care policy paper regarding 'reducing the number of adults living with obesity, halving childhood obesity by 2030 and reducing inequalities' should be made binding. And yes, *there is no explanation* as to which particular inequalities they want to 'bindingly' reduce – genetic susceptibility to develop diabetes, perhaps?

The NFS even complains that the current government Eatwell guide doesn't take sustainability into account – but why should it? It doesn't take cost into account either and the 'inequality' it wants reduced is probably the main reason people don't follow the Eatwell guide. Buried in the appendices on page 221 the NFS admits: *'The poorest 10% of people in Britain would have to spend almost three-quarters of their disposable income on food in order to eat in line with the Government's recommended Eatwell Guide.'* Taking sustainability into account would, if anything, make following the Eatwell guide even more expensive.

There are other distractions in the National Food Strategy such as the quoted praise from UK media stars, celebrity chefs, and green activists of the sort usually reserved for the back cover of a new airport thriller. Some of the praise comes from people who have become household names by promoting the baking of cakes – did they even blush at the irony?

Other people more knowledgeable than the author of the NFS, tactfully refer to the report as a 'wake-up call' rather than a solution. For example, Professor Tim Spector whose own books: *The Diet Myth* and *Spoon-fed* are far more informative about what we should be eating and how our food is produced than the NFS. It is such a pity the authors of the NFS didn't read them or even look into Spector's ZOE organisation. A group that could have told the NFS: people have different metabolic rates and react to sugar differently, about diets to reverse Type II Diabetes – oh, and ZOE programs are tailored to the individual. So, a single national, one-size-fits-all, food strategy probably isn't the answer to the UK's obesity problem.

Feeding the children

We could ridicule the NFS for the misinformation in the body of the text, which appears to be policy-based evidence making, while the report's Appendices explaining the recommendations are precise, costed, contain solutions not justified by the body of the text, and appear to have been written by a different hand.

For example, the ludicrous charts of the height of 5-year-olds in some of the world's most affluent (European or majority European heritage) nations. Interestingly the Figures 5.3 and 5.4 are not specifically referred to in the text but prominently placed taking up most of page 60. I imagine these charts are meant to plant the seed in the reader's mind that affluent populations have taller children because they are better fed, while UK children are amongst the smallest on the chart because they are … not well fed? There's no other obvious explanation.

I am all for feeding healthy food to children, but no amount of GDP per capita has managed to turn the nationally short population of Bahrain (not on the chart) into the nationally tall population of the Netherlands (on the Chart). Could it be possible UK 5-year-olds, have a lower average height than Dutch or Icelandic 5-year-olds due to the UK's various genetic heritages from thousands of years of immigration, and not because their parents neglected to feed them?

For such a chart to prove any correlation between national children's height and nutrition it would need to include the heights of poorer nations as well. Montenegro, Serbia, and Bosnia Herzegovina did not make the chart because they are amongst the poorest nations in Europe but unfortunately for the authors of the NFS, these nations are also amongst the tallest. Yes, Montenegro's population is taller than the Netherlands – average male height is 183.4cm and average female height is 169.4cm (The Netherlands is merely 180.8 and 167.5 respectively). Or the NFS authors could have included the Maasai people of East Africa, also a very tall population. Perhaps the NFS didn't want to mention them because the Maasai are apparently tall because of their high calcium intake from a diet heavily depend on milk and meat. While this would have helped justify recommendations 3 – 7, it would not have been very helpful to the NFS's later environmental and anti-meat recommendations.

If the authors of the NFS had wanted to prove better diets produce taller children, then they could have used Japanese statistics that show between 1900 and 1980 the Japanese average height increased by about 10cms due to a better (higher protein content) diet. But Japanese average height has remained static since 1980, despite the massive increase in Japanese GDP during the 1980s – nutrition can only do so much; genetics are also a determinate of height. Japan's figures are useful because they have been notoriously slow to welcome immigration and so the population's genetic makeup has remained roughly the same – just their diet improved.

But the NFS had recommendations to prove, so why get hung up on the facts? Better quality school meals will make our children taller, or at least – if people can be convinced of this, then they may be willing to pay more for school meals. And not just for their own children's school meals, under the NFS's proposals there will be more free school meals as well.

The NFS wants to increase the income limit for free school meals to a household disposable income of £20,000. Based on ONS figures, this would mean free school meals would be given to all children in the lower two quartiles in: Northern Ireland, the North East, the North West and the West Midlands, and almost all children from the lower two quartiles in Yorkshire, the east Midlands and Wales. While it is easier for the government to set a single, one-size-fits-all, income limit – it would probably be worth putting a regional loading on this – for example the national minimum wage is

£8.91 per hour for over 23-year-olds while the London living wage is estimated to be £10.85 per hour – almost 22% higher.

At the moment, there are 1,633,698 pupils receiving free school meals in the UK, just under 20% of students in government schools. This number includes all Reception, Year 1 and Year 2 children in state funded schools as well as older pupils whose parents have an after-tax income of less than £7,400. Would it not make more sense to increase the income limit but to also apply it to infant school pupils as well?

However, there are other problems with food inequality in the UK, which are pointed out in the body of the paper but ignored in the recommendations – there are people in the UK who:

- do not own stoves or refrigerators for cooking or storing fresh food;
- have limited fuel budgets that do not extend to slow cooking cheaper cuts of meat;
- have limited shopping options as supermarkets have moved out of towns into superstore warehouse villages designed to serve middle class car owners.

For these people, the economies of scale of mass production makes a fast-food meal cheaper and easier to obtain, than a meal they could produce at home. Although the NFS doesn't want to admit it – fast food is a very efficient way of feeding people.

But if the authors of the NFS had read Prof Spector's book, *The Diet Myth*, they would also know high levels of the hormone cortisol – possibly caused by the financial stress of low wages or irregular employment – may be another cause of obesity in the UK. Rather than adding to the financial stress of the impoverished with taxes on salt and sugar and fuel – higher wages and/or cheaper food and/or lower energy costs could be just as useful in tackling UK obesity.

Although it was hoped without the unlimited supplies of legal EU immigration, wages in the UK would rise. There is now, unfortunately, a steady stream of illegal immigration that will keep wages for less skilled employment, low or even lower. Meanwhile successive government's green initiatives have pushed up fuel costs making it harder for people on low wages to run refrigerators, freezers, or stoves. These costs probably don't figure in the budgets of the authors of the NFS, but they do make it even more difficult for people in the bottom quartile of incomes to eat the type of fresh food the NFS recommends. In August, Ofgem announced that it will be raising its cap on standard variable rate default tariffs by 12% on 1st October, this price cap increase is due to wholesale energy price rises but will make it even harder for people on low incomes to follow the Eatwell guidelines let alone consider the environment or animal welfare issues when they shop for food.

Handing out more free school meals and teaching children to cook at school are admiral ideas but they will not solve an obesity problem caused by poverty, unless schools are teaching children to cook the family dinner so they can carefully carry it home after school. In an affluent country like the UK a free school meal should not be a child's only meal. Higher wages and cheaper energy, however, coupled with cooking lessons and imported cheaper ingredients: would be a more permanent solution to the UK's obesity problem.

Intensive agriculture, trade and the environment

But despite being called the National Food Strategy and starting with a focus on sugar and salt consumption and free school meals, this is just a diversionary tactic to distract the media – the second half of the report is centred on the environment and food production and here the NFS comes to an unexpected conclusion – that it is environmentally preferable to keep farm animals in a shed. This conclusion is well known to the commercial food industry but is surprising because the

NFS's author is the founder of a chain of organic restaurants that presumably don't serve intensively farmed protein.

But like the NFS's implied misinformation regarding the potential of good nutrition to increase the height of British children, they may have only considered part of the issue of intensive farming and the environment. Although keeping animals in mega sheds with over a million chickens, or 20,000 pigs or a thousand dairy cows, is a very efficient farming practice for producers, whether it is also good for the environment will depend ultimately on where the animal feed comes from.

Soy is a nutritious feed – full of protein but it doesn't really grow in the UK. At the moment, Europe imports over 12 million tonnes of soybeans each year, most of it will be used to feed (intensively) farmed animals, and most of it comes from the US, Brazil or Canada – all between 3000 and 5,300 nautical miles away from Europe. Feeding intensively produced farm animals for 2 months (broiler chickens), 7-9 months (pigs), or 4 years (dairy cows) may mean there are more food miles from importing the feed than there would be from only importing the cuts or products of the animal your population intends to eat.

Both Australia and New Zealand have perfected the system of dividing an animal carcass into 40 different cuts and selling these to different markets. The UK generally only buys the most expensive cuts of meat. This lowers the cost of transport of finished meat and depending on the exporting country's feed source, this process could give imported meat a lower environmental footprint than home grown meat raised on imported feed. Especially if at least some part of the homegrown animal's carcass will end up in the renderers bin and other less desirable meat cuts exported, possibly even back to countries close to the one that originally provided the animal feed.

This is why there has recently been a proposal for feeding European farm animals' protein derived from insects and non-ruminant rendered animals. Provided the insects are locally produced, it could lower the carbon footprint of the feed for intensive, indoor reared animals. But there is another side to this story. Animals wandering in a field are not only recycling the grass and water they have consumed, they are also breaking up the soil, stirring up the insects, spreading diversified seeds around and just generally improving the total biosphere. Was this considered in the NFS? I doubt it. The accountants contributing to this paper appear to be simply looking at inputs and outputs without considering where those inputs come from or any indirect benefits of keeping animals in a field.

But it also helps to look at both sides of a climate debate. Growing plants are laying down carbon in their cells as they grow as well as using carbon dioxide to produce energy, so they use up more atmospheric carbon than mature plants. While the environmental debate seems to be focused on planting trees – grasses also use up carbon. After an animal eats grass, the pasture regrows using atmospheric carbon, while the digested grass is recycled back into the soil in the animal's dung. This carbon cycle has worked for hundreds of years. When farm animals are kept in a shed and a tractor is used to cut grass or grain, which are then transported to the shed to feed the animals, and the excreta of the animals is then transported back to the field and used as fertilizer – we haven't really changed the system – just added another layer of transport.

It is considered more efficient farming economically because the sheds are usually close to the end market, every blade of grass or grain in a field is harvested and animals usually eat all of the feed they are given in the shed. Whether this process is also good for the environment will depend on where the food is grown. For example, according to the AHDB the UK imported 4,675,035 tonnes of non-cereal feed ingredients in 2017-18 and 70% of it came from non-EU countries. The UK produced

3,962,000 tonnes of meat in 2018, according to DEFRA. While some of the imported animal feed will have been used to feed dairy cows and egg-laying hens, this level of feed imports doesn't look justifiable from an NFS focused on climate change and the environment.

Trade and animal welfare

Although it was meant to be about the *national* diet, some parts of the NFS try to demonise international agriculture, even after recommending we provide better quality free meals to about 40% of UK school children, as well as better quality meals to the armed forces, hospital patients and prison inmates. All exceptionally good ideas but where will all of this high-quality affordable food come from, if not from trade?

I suspect the trade chapter of the NFS was written by the EU's PR company because it produces a table of animal welfare allowed in the UK, the US, Australia and Brazil, but doesn't mention animal welfare in the UK's biggest food supplier – the EU. I wonder why they didn't include the area that provides the UK with 26% of its food, but did include 3 countries that don't even have trade deals with the UK?

Although the UK has agreed a deal in principle with Australia – it hasn't been signed or ratified yet and includes tiny quotas for Australian animal protein products. (But strangely no quotas for Australia's famously high sugar and high fat chocolate biscuits: Tim Tams.) Technically the EU had agreed a deal with Brazil, but it hadn't been ratified before the UK left the EU, while the US UK trade deal was shelved after last year's US election.

So why has the NFS devoted a whole page, to a chart of comparative animal welfare and environmental statistics from three countries with whom the UK does not have a trade deal? More mysteriously, why has the NFS neglected to include the EU on this chart or even New Zealand which also provides the UK with twice as much meat as the US, Brazil and Australia combined?

It would be a mistake for anyone reading this report to assume the EU was left off the chart because UK animal welfare standards are the same as the EUs – they are not. And while some EU countries, for example Demark, apparently keep special herds of pigs that can be sold in the UK because they meet UK animal welfare standards – that is not how this chart compares farming practices. It happily gives red cards to countries for animal farming practices even though those animals would never be exported to the UK. In some cases, the country in question is a net importer of the product, but that hasn't stopped the EU PR department giving the country a red card.

There are other problems with this chart: It only lists processes that would be considered 'good' in the UK and overlooks the UK practices that are 'not so good' even if necessary, when very large numbers of animals are confined in the intensive farm sheds the NFS espouses as environmentally sound. So the UK's legal mutilation of chickens is ignored (beak trimming, comb removal, spur removal, toe removal etc), while the paper prefers to concentrate on the size of chicken cages or mega-shed floorspace. The chart also emphasises the lack of 'federal' laws in the US and Australia when both countries have State agricultural regulations. For example, the use of bovine hormone implants is illegal in the Australian state of Tasmania although legal in the State of Western Australia, not that this matters as it is illegal to import beef produced from cattle given hormone implants into the UK. But hey ho, the whole country still gets a red card from the EU PR department for having the audacity to produce meat for other markets. This is an absurdly unjustified 'animal welfare' issue coming from a country that happily injects microchips into their family pets – about the same relative size as a hormone pellet.

Even the Australian animal welfare process of mulesing lambs to prevent them from being eaten alive by maggots comes under attack. This process is usually done at the same time as tail docking and castration. UK lambs also have their tails docked and are castrated (without anaesthetics) but on the NFS chart the UK gets a white card, while the same process gets Australia a red card. For full disclosure, I have held lambs while they are being mulesed – it is nothing like the coloured photoshopped pictures you can find on the internet. As the process is designed to stop flystrike, letting a young lamb wander around the outback with a bleeding behind, would only attract more flies not to mention dingoes or septicaemia. The process is more like a grazed knee and is reserved for wool producing Merino sheep that will never be served on a British plate although their wool could be used for a very fine Savile Row suit. Australian farmers look after their stock because their animals are their assets – Australian farmers don't have government subsidies to fall back on if they allow their animals to die of flystrike, septicaemia or get eaten by dingoes.

There is also a definite hierarchy of animals in the NFS animal welfare stakes. So while extensive mutilation is fine for UK chickens and not even mentioned on the NFS chart, and tail docking and castration is fine for UK lambs and given a white card on the chart, but tail docking of UK pigs is banned unless it is necessary to stop tail biting in confined pens (apparently this is necessary for about 70% of UK pigs), as is castration of UK pigs even though these practices are considered normal in the EU (supplier of 40% of UK pork – but not included in the NFS chart). Instead the chart is not troubled by pig mutilation but only concerned with sow stalls, which were banned in Australia in 2017 according to Australian Pork '*The Australian pork industry committed to voluntarily phasing out sow stalls by 2017*' but for some reason this information didn't make the NFS chart. Nor did the information from the RSPCA website that sow stalls can still be used for 4 weeks in the EU, despite being 'banned' by the EU in 2013.

The paper is also worried about ractopamine being fed to pigs even though it is banned in the UK, so pork from pigs fed ractopamine can't be imported into the UK. Another ludicrous thing about this erroneous chart is Australia won't be exporting pork to the UK – because it imports pork. But it still gets a red card from the EU PR department.

The worst piece of propaganda on the chart is the use of the absolute area of trees felled in 2018 in each country to create agricultural land. It is ludicrous to compare the absolute area of felled tree for agriculture in the tiny UK with the area cleared in three of the largest countries on earth – the US, Brazil and Australia. The area of felled trees for agriculture quoted by the NFS amounts to only 0.0003% of US land, 0.001% of Australian land and 0.098% of Brazilian land. They also don't mention the UK cleared its farmland many centuries before 2018, nor that the UK has recently felled an ancient forest for a railway (HS2) rather than for farmland nor that the UK is introducing Biomass electricity – a process that burns wood (imported from the felled forests of the US and the EU) to produce electricity.

They also didn't mention the US, Brazil, and Australia are replanting forests as well as clearing them. For example, between 2014 and 31 October 2020 Australia planted 27.1 million trees and has pledged to plant one billion trees by 2030 – this will cover about 400,000 hectares. But still the NFS gives Australia a red card for the 7,620 ha that were felled in Australia in 2018 for Agriculture.

The same use of absolute numbers comes in handy when the EU PR team is comparing transportation times for farm animals. In the UK you can transport animals for 12 hours – which on this tiny island would get you from Inverness to Dover but in the other three massive countries – 28 hours gets the US a red card, as does 48 hours in Australia for adult cattle, while Brazil gets a red card for simply not having a maximum journey time. The authors of the NFS assume without a

government regulation there would be no incentive to get animals to market quickly. The reality is journey times will depend on the distance covered but if a payment lies at the end of the journey, then most drivers won't dally. And as animals are sold by weight and can't eat on the journey, farmers won't want the journey to take longer than necessary either. Most cattle journeys in SE Australia will be less than 10 hours. Only taking cattle to Darwin would need 48 hours and this would only happen if there were no closer ports. These are just the practicalities of having a large country not a sinister anti-animal welfare plot. In many parts of NSW, graziers can still walk their cattle to market if they desire – most country roads still have wide grassy verges of communal land for this purpose.

The NFS chart is also concerned with antibiotic use for growth promotion in farm animals but fails to mention some countries in the EU (did I mention they supply the UK with 26% of its food) have much higher antibiotic use than the three countries being demonised. In fairness, the NFS does mention Australia's antibiotic use is mostly in chickens and pigs but fails to mention neither of these animals are major export industries for Australia.

Meanwhile according to the latest European Medicines Agency report on the use of antimicrobials in farm animals, Spain still uses 219.2 mg/PCU yet supplies the UK with 33,500 tonnes of pork (5 year average) and Poland which still uses 167.4 mg/PCU supplies the UK with 92,500 tonnes of chicken (5 year average). These two countries, along with other EU members Malta, Hungary, Italy, and Portugal are amongst the world's highest users of antimicrobials in farm animals. But this information does not appear in the NFS's handy 'cut-out and keep' guide to animal welfare in countries that hardly trade with the UK.

It is worth noting antibiotic use is highest in intensively farmed animals kept in confined spaces with little ultraviolet light. Animals that predominately roam in fields eating grass are unlikely to be given antibiotics other than for medical reasons.

Despite being amongst the World's largest beef producers, the three countries demonised by the NFS: the US, Australia and Brazil, together only provided the UK with 2% of its imported beef over the last 5 years, Australia provided only 13% of the UK's imported lamb, Brazil provided only 1.4% of the UK's imported chicken, and the US provided only 0.2% of the UK's imported pork. Imports were limited by EU regulatory trade barriers, quotas, or tariffs but outside of the EU, the UK should be importing more meat from these countries not discouraging it for arbitrary reasons.

The NFS admits on page 237 the cost of producing meat in the UK is 2 to 4 times more expensive than in Australia but then continues with its narrative about how '**Cheap, low-standard food** would quickly capture a greater proportion of the [UK] market than locally produced food'. Meat production is less expensive in Australia (and Brazil and the US and in many other countries) due to: economies of scale; lower relative currency rates; less expensive farm land; lower wages; better weather; better soil; etc, etc. The infantile idea perpetuated by the National Farmers Union, and now the NFS, that international comparative food costs reflect standards rather than the cost of the production factors is beyond economic illiteracy – it is economically moronic.

But this animal welfare propaganda also implies the UK could only trade with a country that follows UK rules exclusively even for animal products destined for other markets. The NFS disregards the fact the UK happily buys Danish bacon and ignores the tail docking and castration the Danes inflict on their pigs intended for Germany or Poland — markets that insist on castrated pork. But when some cattle are given hormones in the US or Australia – both countries are given a red card – even though it is illegal to import beef produced using hormone implants into the UK. Why shouldn't the

US or Australia be able to produce meat for their other customers that prefer hormone produced meat – it is leaner after all.

When did the UK become the world's animal police? And what exactly qualifies them for this position? They microchip their dogs, dock their lambs tails and can legally mutilate their chickens. The UK did not follow all of the EU's regulations even when it was a member, so why does the NFS want the UK's other potential trading partners to follow all of the UK's rules?

More absurd is the NFS is proposing we feed the UK's impoverished children with better quality meals yet devotes a chapter demonizing the three countries that could supply the UK with less expensive food, including vegetable protein: The US and Brazil are the world's largest exporters of soybeans and Australia is the world's largest exporter of chickpeas. Yet all three countries have been specifically denigrated by this report for very spurious reasons, including for the treatment of animals that would never be exported to the UK, while the UK's similar treatment of the same animals is overlooked.

Trade and the environment

Viewing the Australia deal where the UK put small quotas on the meat Australia can produce more efficiently than the UK, I am not sure future trade deals with other major agricultural producers will be much better. Restrictions on trade seem inevitable because the NFS doesn't seem to understand keeping animals in sheds is only more environmentally efficient if you are producing the feed locally and intending to eat most of the animal.

For example, it takes roughly two and a half times as much feed by weight to produce a finished pig, approximately 300kg of feed will produce a 120kg pig, that would produce a carcass weight of roughly 100kg. So, if you need to import the feed, from an environmental point of view at least, it would be better to simply import the finished meat. Especially if your market prefers the loin or the bacon but does not consume the leg meat or the trotters. The meat that your population eats may well be less than half of the weight of the cleaned carcass. Why transport six times as much feed from Illinois, USA, when you just could import the cuts of pork your population wants to eat, directly from Iowa – the State next door?

Same with Beef from Australia, fed on Australian grass, where only the parts of the animal that will be consumed in the UK are imported. Similarly in Brazil – where soy is transported 1000 miles from Mato Grosso near the Bolivian border to the port of Santos and then 5300 nautical miles to the UK, to feed animals that will only be partly eaten by UK consumers, while the rest is reexported to poorer nations.

It would be much better for the environment if the UK's intensive animal sheds were moved to Brazil, or the US or Australia and only the meat that will be consumed in Britain transported to the UK, leaving other cuts to be sold elsewhere or eaten by the local population.

But instead of promoting this idea – the NFS spends a chapter specifically demonising the US, Australian and Brazilian farm practices. If the environment is their main concern, then the conclusion of the NFS should be the reverse – the UK should import meat from countries that grow feed for intensive animal production or from countries with enough land to keep large herds of animals in a field.

Instead, the NFS is trying to uphold the illusion of constructive employment of UK graziers even though DEFRA figures show for the most part they rely on state funding and the majority of UK LFA graziers make less income from agriculture than their average Basic Payment subsidy.

Just reducing the amount of plastic, we use to wrap our food maybe as beneficial to the environment as the proposals in this 'Not actually about Food Strategy'. Or we could follow another Australian example and put a refundable deposit on plastic bottles. We could even go further than the Australians and add another deposit for the bottle cap, for coffee cup lids and for other plastic packaging.

II. Farming – why do we do it?

The NFS should be concerned with producing or importing enough food so the UK population can afford healthy food without requiring government assistance and free school meals. Surely this is the whole point of farming? But no – in the eyes of the author of the NFS, farming is about environmental management – feeding the population appears to be a secondary consideration, if that. And no prizes for guessing that turning our farmers into 'custodians of the environment' will also require even more taxpayer funding.

When the NFS gets to Recommendation 8 regarding farm subsidies it gets very confused – having sung the praises of intensive agriculture due to its lower land use, now they are worried lower government subsidies will cause farmers to farm more intensively to make up for lost revenue but that intensive farming has had a devastating effect on biodiversity.

Apparently, the Government has pledged 30% of England's land will be protected for nature by 2030. However, England has the largest amount of the UK's fertile arable farmland, suitable for crop production. The NFS estimates 'roughly one tenth of agricultural land in England will need to transition to woodland, restored peat, other semi-natural habits and energy crops by 2035'. Wait ENERGY CROPS! – do they mean crops for making biofuel? If so, this requires prime arable land, land not even vaguely in the same category as marginal farmland that could be used for replanting forests or restoring wetlands.

There is no need for the government to support land used to grow biofuels. Although the US government gives biofuel producers a tax credit, this is to encourage fuel blenders to use ethanol. Many people in the US are opposed to this tax credit as it mainly benefits multinational petrol companies. The corn used to produce ethanol is the same as other corn – the starch is used to make ethanol; the oil is used for food; and the rest of the kernel is used as chicken feed.

While other countries have left payments for carbon capture to the free market, the NFS wants to make this a government obligation to pay farmers for carbon sequestration – both landowners and tenant farmers. And then the Government will sell Carbon Emission certificates to businesses, tax drivers for the carbon they produce and tax importers for the carbon they didn't produce but would have if the imported goods had been made locally. Surely it would be easier to let the carbon emitters buy carbon credits on the ICE from the farmers sequestering carbon.

The Government and the Intercontinental Exchange (ICE) have established an Emissions Trading Scheme so there is no need for the Government to subsidise farmers for carbon sequestration - let farmers sell their sequestered carbon on the ICE and let the market determine the price. All the government should do is standardize the measurement system for agricultural sequestered carbon. This might even encourage UK farmers to use other agricultural futures to hedge their crops.

Farm subsidies

Instead, the NFS advocates for farm subsidies to continue because they believe some UK farmers have seen their income eroded over the past 50 years due to declining lamb consumption. The NFS believes this change in consumer taste is 'beyond the farmers' control' but other businesses are able

to modify their output when consumer tastes change. There is no reason to assume UK farmers could not do this too – they just didn't need to – EU Common Agricultural Policy (CAP) subsidies have protected them from market forces for almost 50 years. Outside of the EU, other farmers have had to change their production to follow the market. Many Merino wool producers in Australia shifted to growing cotton in the 1970s and 80s to compete with manmade fibres. Similarly, after all Government subsidies were removed in the 1980s, New Zealand farmers turned unprofitable sheep farmers into vineyards.

However, the NFS believes continuing to subsidise UK farmers is necessary because despite knowing the UK was leaving the EU since 24th June 2016 – apparently UK farmers have not had time to adjust their business models and 40% of farms still rely on the basic farm payment system to survive.

But DEFRA figures tell us many farmers have in fact adjusted their business models: but have adjusted production down. According to DEFRA's publication Agriculture in the UK 2020: Utilized agricultural land has fallen by 1.5% since 2019; croppable area has decrease by 1.8%; cereal crops area was down 5.4%; Oilseed crops planted down 24%; cattle numbers down 1.3%; pig numbers down 0.5%; and sheep down 2.6%. This would be a rational decision because farm subsidies in the UK are based on land size regardless of production outputs. Although it is possible the drop in production was weather or Covid related.

However, with UK farmers lowering their production, 10% of England's farmland converted to environmental uses and the NFS denigrating three major agricultural producers that could provide the UK with food, where is all the affordable, high-quality food required to achieve the NFS recommendations going to come from?

How much do we subsidise farmers?

The NFS claims at the current level of funding, around £3.34 billion annually – simply removing the Basic Payment (£2.8 billion in 2020) would cause 40% of UK farmers to go bust by 2027 but the top farmers would still be making £30 to £50 for every £100 of inputs. Well maybe it is the latter type of farmer we should be trying to encourage rather than continuing to prop up farmers that cannot survive without subsidies. A farm cannot be considered a private business if its profits come solely from the government's purse. The coal mining industry was left to market forces, so why not agriculture?

Yes, without subsidies many farmers would have to sell their farms – but according to Savills Estate Agents, on average British farmland sells for £6,690 per acre, (£16,518.52 per hectare), the average prime arable land sells for £8,701 per acre (£21,483.95 per hectare) while average Grade 3 grassland is worth £5,384 per acre (£13,293.83 per hectare). So farmers should not be left destitute. This also begs the question: Why is the government subsidising farmers who cannot make a profit from their farms but are happily sitting on assets worth hundreds of thousands or even millions of pounds? However somewhat unsurprisingly, the NFS is not asking this question but proposing the government *increase* farm subsidies.

In 2020 total subsidies were £3.310 billion and there were 17.3 million hectares of utilised agricultural land in the UK, so government subsidies averaged at £191 per hectare however subsidies are not distributed evenly – smaller farms, younger farmers, and farms with poor quality land receive a higher rate per hectare. *(See figure 1)* While farmers who partake in Environmental schemes received additional Agri-environment payments.

Figure 1

	Basic Payment subsidy by type of farm							Average 2013-2020
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Cereal Farms	£36,000	£33,900	£30,900	£35,300	£40,200	£36,400	£38,100	£35,829
General Cropping	£32,900	£36,900	£36,700	£41,600	£47,900	£45,300	£43,400	£40,671
Dairy	£24,800	£23,400	£20,300	£25,300	£29,200	£30,700	£30,100	£26,257
Grazing Lowland	£15,000	£14,600	£12,900	£15,300	£16,500	£15,800	£15,800	£15,129
Grazing LFA	£16,600	£15,500	£17,700	£22,800	£25,900	£24,000	£25,500	£21,143
Specialist Pigs	£7,300	£7,900	£10,400	£10,700	£8,700	£12,600	£13,500	£10,157
Specialist Poultry	£6,900	£8,000	£7,100	£7,700	£8,600	£10,600	£10,300	£8,457
Mixed	£25,200	£22,200	£21,400	£27,700	£33,600	£32,400	£32,700	£27,886
Horticulture	£3,800	£3,700	£3,900	£3,900	£4,600	£3,500	£4,000	£3,914
All types	£22,900	£22,400	£21,100	£25,200	£28,800	£27,300	£27,800	£25,071

Source: Defra Farm Business Income by Farm Type, England - Table 2

To put this into context, Defra calculates in 2019, the UK produced a total income from farming of only £5.169 billion, from 17.5 million hectares of utilised agricultural land. This averages at £295 per hectare – admittedly some farmers will be making much more than others. Dairy farmers are the most profitable, while mixed farms, lowland grazing and LFA grazing farms have on average lost money from farming every year in the last seven. *(See figure 2)*

Figure 2

	Income from Agriculture only							Average 2013 - 2020
Farm Sector	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Cereal Farms	-£5,500	-£9,500	-£16,900	-£14,300	£1,600	£10,200	£800	-£4,800
General Cropping	£17,100	-£5,900	£100	£5,800	£16,000	£38,900	£16,100	£12,586
Dairy	£53,000	£49,900	£12,700	£15,000	£79,500	£36,300	£43,200	£41,371
Grazing Lowland	-£7,900	-£7,000	-£10,900	-£8,700	-£6,100	-£15,800	-£16,300	-£10,386
Grazing LFA	-£13,200	-£11,800	-£10,700	-£9,400	-£12,500	-£21,500	-£16,600	-£13,671
Specialist Pigs	£51,600	£35,700	£3,700	£40,300	£16,300	-£1,000	£15,000	£23,086
Specialist Poultry	£124,100	£79,900	£68,000	£26,100	£59,900	£36,900	£44,900	£62,829
Mixed	-£10,400	-£14,500	-£19,200	-£12,600	-£7,300	-£5,100	-£29,000	-£14,014
Horticulture	£14,100	£15,600	£17,100	£26,100	£26,700	£34,500	£18,600	£21,814
All types	£6,600	£2,100	-£5,500	-£2,500	£10,400	£6,200	-£100	£2,457

Source: Defra Farm Business Income by Farm Type, England - Table 2

Incredibly in 2020 UK income from farming had dropped to only £4.119 billion, and utilized farmland to only 17.3 million hectares, so average farm income was only £238 per hectare – just £47 more than the Basic Payment subsidy. This may be more to do with Covid than UK farmers' ability to make money – but it shouldn't be dismissed entirely, farm income has been this low before. According to the ONS, in 2016 total income from farming was £4.1 billion and in 2015 it was £4.3 billion.

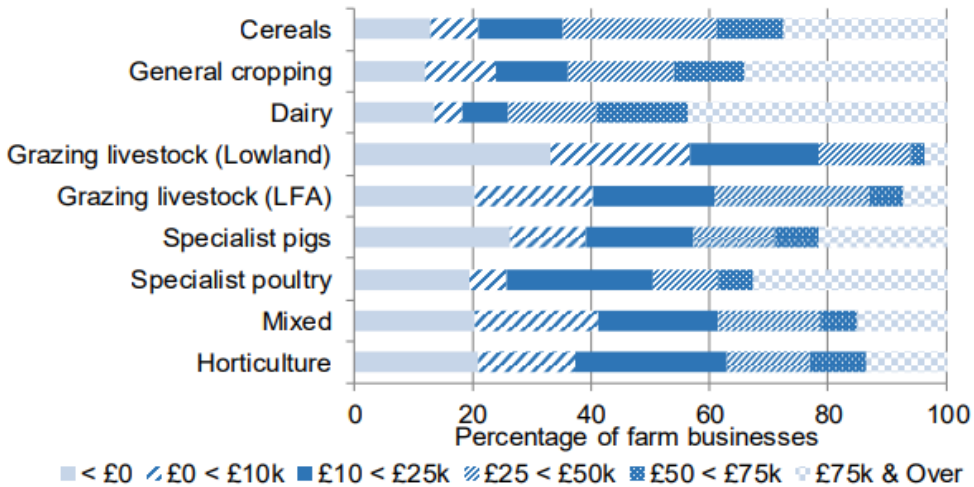
Land valuation and removing the subsidy

Correctly, the NFS calls for the UK's less productive land to be put to environmental uses. I have also suggested this, as opposed to the EU Common Agricultural Policy (CAP) which rewards farmers with less productive land with higher Basic Payments – a sort of socialist levelling up of natural disadvantages. Higher 'Less Favoured Area' (LFA) CAP payments meant there was little incentive for farmers on poor land to stop farming and no incentive for them to ever sell their farms – their farm gives them a guaranteed income provided they meet minimum production levels. Poor land sells at a premium to the income it can generate due to these government subsides as well as benefiting from UK farmland's exclusion from inheritance tax – a perfect example of a perverse incentive.

Simply removing the payment scheme altogether would encourage farmland to be valued on its income generation capability, as other businesses are. It would still have a premium due to its tax benefits, but the loss of subsidy would discourage many lifestyle and weekend farmers. Thus, making farmland more affordable for genuine farmers as opposed to being priced beyond their reach by lifestyle farmers with other sources of income. For a great example of this situation, it is worth watching a few episodes of *Clarkson's Farm*. The young people who know how to drive his tractors and tend his sheep will never be able to afford their own farms, while lifestyle farmers, like Clarkson, can buy a subsidised store of wealth to pass to their children inheritance tax free, they may even be able to write off their farm loses against other income.

Removing the subsidies would also allow the free market to determine which farms are economically unviable and therefore better turned over to environmental uses. However rather incredibly, the NFS proposes not only continuing these subsidies but increasing them. Most of the Less Favoured Area land in the UK is only being farmed now because of the subsidies. DEFRA figures show 60% LFA grazing farms made less than £25,000 yet the Basic Payment subsidies for LFA graziers averaged £25,500. Incredibly about 20% of LFA grazing farms and over 30% of Lowland Graziers even manage to make a loss with the subsidies. *(See figure 1.2 Source:* Farm Business Income by type of farm, England, 2019/20 *)*

Figure 1.2 Distribution of Farm Business Income by farm type [a], 2019/20



How do we solve this problem of uneconomic farms? The answer is obvious – stop subsidising farmers and let the market determine which ones should be converted to woodlands, peatlands, and semi-natural habitats. (And no, I didn't leave energy crops out by accident – you can't grow energy crops on LFA grazing land, energy crops need prime arable land.)

III. Land Use

According to the NFS, as the bottom 20% of UK farmland only supplies the country with 3% of its calories it is therefore expendable and should be used for environmental purposes. But is it wise to measure land by calories? The land in question is mainly used for animal protein production, not high calorific grain nor even higher calorific sugar beet. Why they have done this is anyone's guess. They seem to assume all calories are created equal. But people primarily eat meat for protein, iron, omega 3, and Vitamin B12. And didn't the NFS want the UK population to cut down on the sugar? Yet under their calories/hectare valuation method – sugar beet farms would be the most valuable.

One of the EU's definitions of LFA land is a gradient of over 15% – easy for animals to forage but not so great for tractors, topsoil, or rainwater absorption. So, it is unlikely this land could be used to produce feed for intensively farmed animals either, as the NFS suggests. But surefooted animals can scale these hills and cut their own grass. And although the NFS wants this unproductive land to be used to replant broadleaf forests – some highland escarpments may be treeless for a reason: high winds or a low water table may be keeping the land treeless. But that doesn't mean the heather and native grasses won't be full of biodiversity – but just not the type of biodiversity needed by the NFS's environmental box ticking exercise.

What is incredible about this plan to convert farmland to environmental uses is the NFS is proposing that we, the taxpayers, pay these non-farmers a 'fair' wage for this 'work'. So how much are they proposing we should pay? Why a mere £775 per hectare, per year, for 40 years.

The NFS claims this is justified because there is no commercial value in broadleaf forests and no viable carbon sequestration market in the UK, but the Government has established an Emissions Trading Scheme with the Intercontinental Exchange (ICE), so if Broadleaf forests can sequester carbon, then they should have a commercial value.

Since the ICE contract started trading in May this year, the price per tonne has varied between £42 and £47.25. A forest will absorb between 12 and 15 tonnes of carbon per hectare per year depending on the age of the tree and the type of trees. According to Farm Carbon Toolkit, the maximum carbon absorption will be achieved by 'teenage' trees between 10 and 40 years old. This makes a hectare of forest worth between £504 and £709 per hectare at ICE prices – not as high as the NFS proposed subsidy level but more than the average farm return of £300 per hectare now.

If this pay-off is too distant for farmers, then the Government could buy the unproductive farmland, plant the new forests, and incorporate them into the National Parks scheme. Instead of suggesting this, the NFS claims 75% of sites of special scientific interest in English National Parks are not being protected 'sufficiently' but they don't say exactly what (or who?) they are not being protected from? So instead of enlarging and improving our National Parks, the NFS wants the Government to pay farmers to stop farming and instead sequester carbon and promote biodiversity. So, the NFS proposal would turn a thousand small farmers into a thousand very small national park keepers.

But for the record: insects, worms, snails, slugs, hedgehogs, badgers, and squirrels can be found in most fields (and many gardens) in the UK without the need to rewild them. And all plants absorb carbon dioxide, not just wild ones.

The costs of the land use plan – Recommendation No 8

There are several problems with the NFS's recommendation.

Firstly, farmers may know a lot about farming but that doesn't mean they know about re-establishing a broadleaf forest or a wetland. I suppose the NFS believes as the Government is paying the piper it should be entitled to call the tune. However, it is more likely a highland grazier who knows a lot about sheep, may not be equally knowledgeable about establishing a forest or rewilding project.

Secondly, why would a farmer want to do this? The National Food Strategy seems to believe not only are farmers infinitely knowledgeable about different types of farms, but they are indifferent to what they farm. If this were true, most graziers would have changed their production model to a more profitable one years ago.

Thirdly, and most importantly, why would taxpayers agree to pay several thousand farmers £775 per hectare to plant forests when forests and carbon sequestration have a commercial value and if not, then the farms in question could be bought by the government, amalgamated into a handful of larger national parks, which could be run by arboriculturists who actually know about trees or biologists or limnologists who know about managing wetlands, or peatlands or heaths?

The NFS calculates its proposal would create 400,000 hectares of broadleaf forests, 325,000 hectares of peatland and 200,000 hectares of 'farmland dedicated to nature' – apparently by this they mean wetlands, reed beds, marshes and large bodies of water: i.e., no longer farmland unless the farmers are growing rice.

The NFS claims this will only cost the taxpayer £500,000,000 to £700,000,000 per year but 925,000 hectares @ £775 per hectare is £717,000,000 so their top estimate is closer to the mark (but still £17m short). The NFS also mentions in passing, that although the total budget of £2.4 - £2.5 billion will be needed for their proposed environmental and productivity improvements *'the total budget required is likely to be substantially greater*.' And so, the government should commit to at least maintain current agricultural spending until 2029!

When total income from farming only averaged at about £295 per hectare in 2019 and dropped to only £238 per hectare in 2020, how could anyone justify taxpayers paying farmers £775 per hectare to not farm and grow broadleaf forests instead? Especially if farmers could sell their carbon credits in the market?

Apparently, the NFS believes this payment is justified because only 88% of farmers take holidays – they try to sell this as a hardship by reversing the statistic to 'one in eight farmers never take holidays' – Well Boo Hoo, I wonder what proportion of the people whose children presently receive free school meals take holidays? The after-tax income limit is only £7,400. Or to put that in terms the NFS could understand – less than the annual subsidy they recommended for 10 hectares of unproductive land. I am sure the people whose children are eligible for free school meals will be happy to know that taxpayers have more than quadrupled the subsidies given to non-farmers. If only the people living in housing estates in London or Liverpool could afford to buy themselves a non-farm.

The NFS has already identified the land it believes will be most suitable for environmental uses. It would be interesting to see who owns this land now and whether the land is actually divided into 50-hectare farms, as in the example given on page 228 of the NFS, or if it is made up of larger land holdings. If this LFA land is truly only 50-hectare farms, then they are too small to ever be viable

grazing farms and should be amalgamated into national forests or sold to form larger farms. According to the AHDB yearbook, the average grazing herd in England is only 27 animals, this is too small to be viable without subsidies, while the subsidies give graziers just enough to keep their farms going but not enough to improve them.

Establishing an agricultural bank or lending scheme to make long-term, low interest loans to farmers to expand their farms, or for productivity improving equipment or even to change production would be more useful. Unviable farm size is also one of the main reasons why UK graziers cannot compete with US, Australian or Brazilian graziers.

The NFS neglects to mention the UK's food distribution system which may be a contributing factor in keeping farmers poor and making healthier protein, fruit, and vegetables too expensive for some consumers. We could help our efficient farmers by buying from them directly. While UK farmers could help themselves by setting up cooperatives – giving them more bargaining power with larger supermarket chains. New Zealand's Anchor Butter is still owned by a farmers' cooperative, and their products are exported to 80 countries.

What effect would the NFS have on total emissions?

Surely the National **Food** Strategy should be proposing ways to produce or import more affordable food for the nation. If our farmers can also produce Carbon Credits, great. Just let the market determine what carbon sequestration is worth. The most recent clearing price from the ICE Emission Trading Scheme was £47.25 per tonne, so a hectare of land would need to sequester 16.5 tonnes of carbon to justify the proposed £775 per ha subsidy.

The NFS claims its environmental plan will have public benefits of £4 billion per year but they do not show how this was calculated. Nor whether this is a net benefit after considering the money taxpayers will be paying non-farmers each year.

Some of the environmental solutions the NFS proposes will have little or no effect on the UK's total greenhouse emissions. Agriculture only produces 10% of UK carbon emissions and the reductions the NFS proposes, such as doubling the amount of protein we eat from non-animal sources, will only reduce agriculture greenhouse emissions by 5% by 2035, so only reduce total UK emissions by 0.5%. Another NFS proposal for reducing the methane emission of ruminant animals would reduce agricultural emissions by 7%, so only reduce total UK emissions by 0.7%.

It is possible the authors of this report would prefer the public lived on laboratory-produced meat-like substances. They certainly suggest that the government subsidize this technology in their recommendation 11 regarding agricultural innovation, even though these developments are getting enough investment from ESG funds, billionaires such as Bill Gates and Jim Mellon as well as from countries with very high populations and limited farmland such as Singapore or limited rainfall and animal feed such as Israel.

It is surely counterproductive for taxpayers to be subsidising some farmers to farm; subsidising other farmers even more to not farm; and then also subsidising the development of a product intended to replace farming. Perhaps the Department for the Environment, *Food* and Rural Affairs is merely hedging its bets, however there is another option – trade. More commonly known as letting consumers decide.

But the NFS has vilified countries that could supply the UK with less expensive food – so I suppose the only countries the NFS considers to be legitimate trading partners would be members of the EU. Quelle surprise.

IV. Fruit and vegetables

There are other inconsistencies in the NFS report. Recommendation 7: to prescribe free fruit and vegetables to patients who need 'dietary support' because increased fruit and vegetable consumption 'has been shown to be more effective at improving health than reducing consumption of foods high in fat and sugar', seems to contradict imposing a sugar tax in recommendation 1. Also how does eating more fruit and vegetables tally with the NFS proposals to reduce the environmental footprint of our food? According to DEFRA's Agriculture in the UK 2020, the UK imported 29% of its potatoes, 46% of its other vegetables, and an incredible 84% of its fruit. Although the UK fruit production did increase by 16% in 2020 to just over £1 billion and UK vegetable production increased by 8.8% to £1.6 billion. The NFS does suggest that Defra should prioritise the growing of more fruit and vegetables, but UK fruit and vegetable imports are more to do with UK's climate and customer preferences than with the willingness of UK farmers to grow fruit and vegetables. Roughly two thirds of UK fruit imports come from non-EU countries, so presumably countries with very different climates to the UK's.

The UK's most valuable domestically produced fruit crop is strawberries, they accounted for 45% of total fruit production in 2020. While production of Dessert Apples, Culinary Apples, Pears, Raspberries and Strawberries make up over 83% of total UK fruit production – and the NFS may be interested to know of these fruits, only apples and pears are grown in orchards. Yet the NFS complains 'golf courses occupy five times as much of our land as orchards.' If you are worried about the UK's golf course to orchard ratio, it is worth noting the UK has around 9,400 hectares of (non-orchard) land used for growing soft fruit (strawberries, Raspberries, Blueberries, etc).

I don't play golf, but I do know many of the UK's most famous golf courses do not occupy prime agricultural land. Links courses, for example, have sandy soil and onshore coastal winds – both have kept the land tree free (and orchard free) for years – possibly forever. Other golf courses were once swamps. These could possibly be returned to wetlands (if they were not considered to be more valuable as golf courses) but are possibly also not suitable for converting to orchards.

V. Innovation

More commercially minded UK farmers could imitate the Netherlands' use of vertical greenhouses for growing vegetables and salad leaves, but these are very energy intensive and would negate many of the environmental initiatives recommended in the NFS. Besides if this solution were economic, I am sure the food industry would already be doing it without government assistance. For example, strawberry production in the UK has almost doubled during the last twenty years, because farmers now grow them in raised troughs in polytunnels. This extends the growing season from about 1 month to over 5 months. Growers have also developed robots to pick the fruit. A Cambridge based company, Dogtooth, is even developing a robotic picker that can work in a field.

The UK has a great history of innovation in farming technology as well as seed and animal development. While a member of the EU, the UK's use of many new developments was restricted by the EU's precautionary principle. Outside the EU, not only can the UK develop new technologies, but may even be able to use them.

The UK should also be collaborating with other countries. Many of the environmental issues identified by the NFS have already been solved by farmers and technicians in other countries. For example, Australian scientists have developed a seaweed-based animal feed that cuts down on methane emissions – although the NFS acknowledges this in the text, its preferred solution to methane emissions appears to be to cut down on animal-based farming instead.

VI. Conclusion

So, lets recap: The NFS thinks the population is overweight because we eat too much sugar and salt, so the NFS wants to tax sugar and salt to make foods containing them more expensive. The NFS claims the tax would fall on food manufactures forcing them to change their recipes. However, sugar and salt are used as preservatives in many manufactured foods, lower amounts in recipes could simply reduce the shelf life of many products. Reduced shelf life pushes up prices for consumers if food goes off before it is sold and/or eaten. The NFS identities food waste as an environmental problem but would its first recommendation not cause more waste and make food more expensive?

The NFS does not consider that some people eat sugary and salty manufactured food because there is no cheap easily available alternative. Making healthy food less expensive is another way to help people improve their diets but this would require an increased supply of protein, fruit and vegetables in order to lower the price. The increased supply could only come from increased local farm production or from imports. But the NFS doesn't like three of the countries that could provide the UK with more food. And the NFS wants 10% of UK farmland to stop farming to protect the environment. So, if anything, under the NFS proposals, the supply of healthier foods would fall, forcing prices to rise.

Consequently, the poorer members of the population will eat more low-quality cheap foods, full of sugar and salt and pay more for them, and the country will be back to where we started. But with an increased tax bill from: providing free school meals to many more children; providing better quality meals to the armed forces, hospital patients and prisoners; as well as increased subsidises for the farmers who have turned their farms into national parks and carbon sinks.

Seriously? This is the National **Food** Strategy?

An alternative plan

I am all for lowering the environmental impact of our food consumption and I completely agree we should be feeding our children the best food available – they are our future after all. But if we really need a National Food Strategy then it should be a free market one.

1. Following Michael Pollan, another food writer the authors of the NFS should read, rather than a one-size-fits-all policy, every child should be eating what their great, great grandparents would consider to be food. And in the UK's multicultural society – that won't necessarily be the same thing. So, the very idea there should be a single National Food Strategy was probably a fool's errand from the start.
2. If we know the worse eating habits are in areas with the greatest financial deprivation, then we should be alleviating the deprivation rather than increasing it with taxes on food and green taxes on energy.
3. The only workable solution to UK farming is the free market. The UK should follow New Zealand's example and move to end all agricultural subsidies. There is nothing wrong with UK farms that could not be fixed by farm consolidation or establishing farmers cooperatives. Unprofitable small farms will be sold to create larger (hopefully) profitable ones. That is the way business works. And UK farms are private businesses – not nationalised soviet programs – at least not yet.
4. The NFS neglects to mention the UK's food distribution system which may be a contributing factor in keeping farmers poor and making healthier protein, fruit and vegetables too expensive for some consumers. We could help our efficient farmers by buying from them directly, while farmers would have better bargaining power if they formed more marketing cooperatives.

5. Any LFA land that is not viable without subsidies should be bought by the Government and used to create National Forests, Peatland Reserves, or protected Wetlands. If National Forests are not protecting their land properly then we should improve National Forest management – not try to turn farmers into foresters.
6. The government should introduce a system of measurement for carbon sequestration and encourage farmers to use the Carbon Markets to sell their sequestered carbon as additional income to their income from farming.
7. Establish an Agricultural Bank for long term loans to farmers to expand their farms, or to buy productivity improving equipment or to change their production to areas that are more profitable but capital intensive such as dairy farms.
8. If the aim of the National Food Strategy is to feed the population as well as possible then the Government must stop limiting imports from more efficient producers with quotas, tariffs, and regulatory trade barriers. The UK can buy the additional food it needs from its friends and allies and should do so. The UK is happy to rely on the supply of many essential non-food items from less than friendly countries – so why are we limiting our food imports to protect UK farms that cannot produce enough food to feed the population now, even though they are heavily subsidised?

Feeding the population as well, and as affordably, as possible should have been the only aim of a National Food Strategy, instead the NFS has concentrated on taxing the poor, subsidizing agriculture, turning farmland into carbon sinks, and opposing trade with countries who could provide the UK with less expensive food.

There was once a saying that today's newspapers are tomorrow's fish wrapping – I imagine this proverb also extends to government reports. If so, I sincerely hope some UK chippie with a sense of humour has printed out a copy of the National Food Strategy and is using it for this purpose.

Catherine McBride
21 September 2021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