

FARMING POLICY AFTER BREXIT

A REPORT FOR THE GREENS



The Greens | **EFA**
in the European Parliament

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INTRODUCTION

Objectives

The objective of this report is to identify policy options that as far as possible provide environmental, social and economic benefits. The major benefits sought will be:

Environmental: protection and improvement of soils; enhancement of biodiversity; protection of valued landscapes and wildlife habitats; reduction of carbon emissions, and increased sequestration of carbon; reduction of artificial fertilizer use coupled with more efficient use of farmyard manure and slurry; reduced pesticide use; wise water management; reduced reliance on imported commodities which cause environmental degradation elsewhere in the world.

Social: reversing the decline of family farms; more and better land-based jobs and livelihoods; increased opportunities for physical outdoor work, for those whose aptitudes lie in that direction; increased vitality of villages and rural areas; provision of healthy food; enhanced animal welfare.

Economic: Greater food security through increased home production of temperate commodities; reducing the imbalance between rural and urban economies by improving remuneration for land-based work; avoiding the “dumping” of surplus produce on vulnerable peasant economies.

Expressed concisely, the mission is to ensure that farming in the UK provides environmental benefits, supports thriving farming communities and supplies a substantial proportion of the UK’s food.

Structure

The report is structured as follows:

Chapters 1, 2 and 3 examine in more detail the benefits sought by a Green Party farming policy.

Chapters 4 and 5 examine the current structure of agricultural trade and farm support.

Chapters 6 to 9 propose financial and other measures that could be adopted to bring these about.

Chapter 10 looks at the political feasibility of these proposals.

Proposals

The main proposals are as follows:

- (i) A tariff regime consistent with WTO rules should be applied to food imports and exports;
- (ii) Financial support for individual farms should be provided through a single agency, the Whole Farm Management Scheme (WFMS), with the objective of providing environmental, social and economic public benefits.
- (iii) Direct payments should be scrapped and replaced by a Special Payment, selectively applied to agricultural sectors in need of support, rated according to the number of workers, but tapered and capped.
- (iv) An agricultural extension service should be revived, based around agricultural colleges as in the USA, able to advise farmers and landowners of all kinds on agricultural matters, including the WFMS.
- (v) Twenty per cent VAT should be applied to meat products.
- (vi) A “polluter-pays” approach should be adopted in respect of the labelling of food products, instead of the current “caveat emptor” system.

Altogether there are 45 recommendations.

1. ECOLOGICAL FARMING AND THE YIELD GAP

This chapter looks at difficulties associated with the yield gap between ecological and industrial farming methods, and weighs up the Land Share v Land Spare debate.

Agroecology

The most recent *State of Nature* report concludes that:

“Intensification of agriculture has had the biggest impact on wildlife (over the last 40 years) and this has been overwhelmingly negative. Over the period of our study (c. 40 years), farming has changed dramatically, with new technologies boosting yields, often at the expense of nature.”¹

Over the same period, the number of people working in agriculture has roughly halved.² The most promising approach for reversing these trends and achieving the goals listed in the introduction is by providing support for various forms of ecological farming which are more environmentally friendly and often more labour intensive than current “conventional” industrial farming.

However it is not simply a matter of providing fiscal and regulatory support for environmentally friendly farming methods. Poorly designed policies to support ecological farming could have the opposite effect from that intended and in some circumstances could serve to exacerbate harmful environmental impacts.

This is partly because many forms of ecological farming currently have yields that are lower than those of industrial farms; a drop in yield on farms that have converted to agro-ecological methods could give rise to increased production, and increased environmental impact elsewhere.

The objective must therefore be to identify ways of farming ecologically that can equal or even surpass the yields currently achieved by industrial agriculture. In academic literature this win/win scenario has been given the name “ecological intensification.”³ This is not to be confused with “sustainable intensification” which signifies a drive to increase yields on industrially farmed land through increased specialization and techniques such as precision farming, automation and so called “smart farming”.

This is a crucial distinction which bears looking at in some detail. It lies at the heart of the ongoing debate between advocates of Land Sparing and advocates of Land Sharing. The Green Party needs to take stock of this debate.

Land Sharing v Land Sparing

A number of influential academics and researchers argue that the best way to achieve ecological goals such as increased biodiversity and carbon sequestration is to increase productivity on prime agricultural land so as to release or “spare” other agricultural land for wildlife conservation, rewilding, tree-planting, biofuels etc. By contrast, Land Sharing involves farming in a more agro-ecological fashion that provides environmental improvements but is, at present, less likely to increase yields.

The Land Sparing case is most convincingly argued in respect of less developed countries where the “yield gap” (the difference between local agricultural yields and potential yields) is large and where the local flora and fauna is still largely adapted to relatively wild habitats (as opposed to Europe, where they have evolved in symbiosis with agricultural ecosystems).⁴

However a recent paper published in *Nature* argues that Land Sparing in the UK could increase forest cover from 12 per cent to 30 per cent, restore 700,000 hectares of wetland peat and “meet government targets of 80 per cent greenhouse gas reduction by 2050 for the farming industry.”⁵ Such dramatic improvements will require yields of crops such as wheat, barley and oilseed rape almost to double by 2050 - a highly optimistic scenario given that yields have only increased marginally over the last decade. Nonetheless, more modest yield gains on the best agricultural land may still enable significant environmental gains to be made elsewhere, and it is this argument that provides the ecological justification for the drive for the so-called “sustainable intensification” of agriculture. The fact that the 21 authors of the paper represent institutions such as Cambridge, Exeter and Aberdeen University, Rothamsted Research centre, the Royal Society for the Protection of Birds and the Forestry Commission suggests that the Land Spare agenda is going to carry considerable traction within mainstream policy circles (although it will meet with resistance from farmers whose land is being “spared.”)

The arguments against Land Sparing, and in favour of Land Sharing are more diffuse and include the following:

- (i) Increasing productivity will involve increased use of pesticides, fertilizers, genetic engineering and other questionable technologies on the land that is farmed (though advocates of Land Sparing argue that increases in efficiency will mean that there will be fewer harmful inputs per unit of food produced than at present).

1 RSPB et al, *State of Nature*, 2016, rsbp.org

2 House of Commons Briefing Paper, *Agriculture: Historical Statistics* Jan 2016. DEFRA, *Agriculture in the UK 2015* Table 2.5. Methodologies have changed over time so it is impossible to give a precise figure)

3 R Bommarco et al, “Ecological Intensification: Harnessing Ecosystem Services for Food Security”, *Trends in Ecology and Evolution*, Vol 28:4, April 2013

4 B. Phalan et al, “Reconciling Food Production and Biodiversity Conservation: Land Sharing and Land Sparing Compared”, *Science*, vol 333, 2 Sept 2011.

This paper which argued for the benefits of Land Sparing in Ghana and India was vigorously challenged by a letter signed by 21 scientists in a subsequent issue of *Science*: J Fischer et al, “Conservation: Limits of Land Sparing”, *Science* vol 334, 4 Nov 2011.

5 A. Lamb et al, “The Potential for Land Sparing to Offset Greenhouse Gas Emissions from Agriculture”, *Nature Climate Change*, Vol 6, May 2016.

(ii) Land Sparing will result in a further reduction in the number of farms and farm workers, and in economies of scale that would very likely involve the corporatization of the farming industry and the disappearance of family farms. Some parts of the country would be deprived of any agricultural activity. The shock to the rural economy and rural culture would be severe. In this respect “smart farming”, and “sustainable intensification” are far from being either smart or sustainable.

(iii) Much of the UK’s wildlife biodiversity has evolved in symbiosis with traditional farming methods — for example the flora and fauna associated with traditional hay-meadows⁶ - which therefore need to be retained and/or revived. If hyper-intensive farming of some areas allows wide expanses of agricultural land to be spared for forestry, there may be some benefits, but this might result in a further decline of biodiversity.

(iv) An increase in productivity would result in cheaper food, animal feed and other agricultural produce which, in a market economy, might result in more food and feed being produced rather than a reduction in the area being farmed (the rebound or Jevons effect). Conversely, a move towards agro-ecological farming would be likely to increase the price of agricultural produce (and hence wages for smaller and more ecological farmers). Since the demand for animal feed is more elastic than demand for human food, this would tend to lower consumption of meat, especially grain-fed meat - resulting in reduced carbon emissions and probably increased health benefits in terms of obesity etc. Researchers have argued that in some circumstances land sharing “may be more beneficial to biodiversity than intensive farming . . . as long as demand reacts to prices and extensive farming is more costly.”⁷

(v) A focus on agro-ecological farming might prompt an increase in research which might, over time, lead to yields increasing to levels approaching those of intensive industrial farming - resulting in a measure of land-sparing combined with more environmental farming methods. There is a measure of contradiction between this argument and argument (iii). However an increase in agro-ecological yields would occur sometime after (and partly as a result of) increases in food prices, by which time a desired decrease in meat consumption might have become culturally acceptable.

(vi) A sizable area of Britain’s farmland is used for activities that are neither agricultural nor designed to provide environmental benefits (notably horseculture and golf). Arguably this land should be “spared” for environmental purposes, in preference to productive farmland.

Recommendation:

1. Land Sharing, for the above economic, social and environmental reasons, is more in tune with Green philosophy than Land Sparing. The Land Sharing approach should be robustly supported in Green Policy. However certain measures may have to be adopted to ensure that support for Land Sharing and agro-ecological agriculture does not have perverse or harmful impacts.

Food Prices

There are two matters of prime concern that need to be considered when implementing policies for more ecological farming.

The first is to ensure that if one consequence of lower-yielding, more ecological farming is higher prices for food, and for meat in particular, that these do not impact unduly on the poor. There are a number of measures that can be taken to address this, ranging from a universal basic income scheme, via various forms of income support, to the promotion of alternatives to current excessively carnivorous habits - but most of these are outside the scope of this report.

It should be borne in mind that food prices in the UK are lower than in any country in the world except the United States.⁸ The lowest earning 20 per cent of UK consumers spend about 15 per cent of their income on food.⁹ Moreover agriculture and fisheries are responsible for a relatively small proportion of what consumers spend on food. The food processing, wholesaling and retail industries together earn about six times as much money as farming and fisheries.¹⁰ An increase in farmgate prices is therefore likely to have a relatively minor impact on the cost of food in supermarkets.

The Yield Gap

A second matter that requires attention is the yield gap between agro-ecological agriculture and “conventional” industrial agriculture. The yield for many organic crops is up to 35 per cent lower than for chemically grown crops. Environmental stewardship schemes frequently require measures to be taken which explicitly lower the yield, such as lower stocking rates, or which could easily lead to lower yields, such as buffer strips around fields, delaying haymaking to allow flowers to seed, sowing grain crops in spring etc.

Reductions in yield resulting from a move towards more environmentally friendly farming, in the face of increasing consumer demand for food both nationally and globally, would be likely to trigger increased production elsewhere — in which case there may be no net environmental benefit, and even an increase in harmful impacts. If, for example, such displaced production involved ploughing up permanent grassland for arable production elsewhere in the UK, then net environmental benefits in terms of biodiversity and carbon emissions would probably be negative.

6 G Peterken, *Meadows*, British Wildlife Publishing, 2013. C. Fenuik, “Reconciling Food Production and Biodiversity Conservation in Poland”, Cambridge University Research Project, 2013, http://skorasp.republika.pl/ClaireFeniuk_ProjectSummary.pdf

7 M Desquilbet, “Land Sharing vs Land Sparing for Biodiversity: How Agricultural Markets Make the Difference”, *EAAE 2014 Conference*, Ljubljana, 26-29 Aug 2014. http://ageconsearch.umn.edu/bitstream/182809/2/Desquilbet-Land_sharing_vs_land_sparing_for_biodiversity-143_a.pdf

8 E. Downing, *EU Referendum: Impact on UK Agricultural Policy*, House of Commons Briefing Paper, 7602, 26 May 2016.

9 DEFRA Food Statistics Pocketbook 2016.

10 Ibid.

A more serious, and more likely form of displacement would occur if a reduction in agricultural yields through a shift towards ecological agriculture in the UK resulted in an increase of imported food.¹¹ This would undermine the UK's trade balance, its food security, its farming industry and its rural economy. It would counteract the effect of any increase in agricultural prices that might result in lower meat consumption and lower feed production. And it would almost certainly result in net environmental harm on a global scale since imports would, all other things being equal, be most competitive from areas with low environmental regulation - notably South American soya and South East Asian palm oil. In effect, outsourcing production to other countries through the application of high environmental standards in the UK is a form of ecological colonialism: protecting our rural environment at the expense of that of other countries. We might call this effect "ghost environmental impact", or "ghost impact" for short (from G. Borgstrom's expression "ghost acres".) According to a study published by the Royal Society in 2016, 70 per cent of the agricultural land area currently used for feeding the UK's population is located abroad (up from 57 per cent in 1987). The figure is so high partly because land abroad is mostly lower yielding than land in the UK.¹²

For this reason, any strategy that might result in a reduction in agricultural yields has to be carefully thought through, and must take robust measures to protect the UK economy from cheap food and feed imports, especially from countries with lower environmental standards than those that have been established largely through EU legislation. Food sovereignty is not only a call to protect the indigenous farming industry; it is indispensable to ensure that environmental measures taken in the UK are not undercut by lower standard imports.

Grades of Land

The issues discussed concerning the balance between yield and ecology apply differently according to the grade of agricultural land. Three main categories can be identified

- (i) High grade arable land, mostly in the centre and east of the country, produces very high yields of wheat, barley, rape, potatoes, sugar beet etc. Here there is huge room for ecological improvement, but care has to be taken to maintain yields.
- (ii) Large expanses of moorland and rough hill pasture, mostly found to the west and north of Britain have very low levels of productivity by comparison. Environmental improvements taken here, even if they take land out of production, will have a very small impact upon the amount of food produced nationally.
- (iii) In between lie considerable areas of grade 3 land, which usually have a history of mixed farming. They tend to be underfarmed today, with many holdings producing only sheep, beef or recreational horses, and some small fields more or less abandoned. In these areas there is potential for ecological intensification.

Agro-ecological programmes therefore need to be tailored to the demands and opportunities of these three main classes of land.

Recommendation 2

We recommend the following approaches which can be taken to prevent ghost impacts:

- (i) ensure that agro-ecological methods as far as possible do not involve a drop in yield, and invest in research aiming to improve yields;
- (ii) adopt different criteria for highly productive farmland and less productive farmland;
- (iii) take measures that will reduce demand for high impact products (notably meat);
- (iv) take measures to reduce food waste;
- (v) impose tariffs or import quotas, consistent with WTO rules;
- (vi) source imports from regions that farm sustainably.

¹¹ This is something which arguably may have already happened since the UK's self-sufficiency in food has, since 1984, declined more than its population has increased: see DEFRA Trade Stats, and Henri de Ruiter et al, "Global Cropland and Greenhouse Gas Impacts of UK Food Supply are Increasingly Located Overseas", *Interface*, Journal of the Royal Society, 6 January 2016, <http://rsif.royalsocietypublishing.org/content/13/114/20151001>

¹² De Ruiter, *ibid*.

2. ENVIRONMENTAL GOALS

This chapter lists and discusses the main strategies for achieving a more environmentally benign farming industry.

Reducing Meat Consumption

There are two main reasons for a reduction in meat consumption:

- (i) as described above, it will compensate for lower yields resulting from more environmentally friendly farming, and/or release land for uses such as reforestation or biodiversity;
- (ii) it will reduce the carbon emissions attributable to meat consumption, as well as other environmental impacts.

Preferably, reductions will apply to the systems of rearing livestock that have the highest environmental impact and carbon emissions - namely livestock fed inefficiently on grain grown explicitly for animal feed, and some beef and sheep enterprises. Ideally a meat reduction policy would distinguish between these and livestock needed anyway for some other purpose such as fertility building, food and crop-residue recycling, traction, conservation grazing, maintenance of genetic stocks, grazing around renewable energy installations etc.¹³

Recommendation 3

Policies should aim for a gradual reduction in meat consumption.

Soil Carbon Sequestration

Much attention has been directed recently towards the potential for soil carbon sequestration to absorb carbon emissions. There have been claims, notably from the Savory Institute, that improved grazing practices (holistic grazing) and a reversion to pasture-fed ruminants, will not only sequester sufficient carbon to counteract methane emissions from the ruminants so supported, but also could reduce atmospheric carbon dioxide to pre-industrial levels. Similar views were advanced by Graham Harvey in his book *The Carbon Fields*.¹⁴

Such extravagant claims have been rejected by the majority of scientific analyses.¹⁵ Leading UK soil scientists, mostly working in association with Rothamsted, consider that the potential gains from SCS are more modest and would only reduce excess global greenhouse gas emissions by 1 to 3 per cent.¹⁶ They make statements such as the following:

“We believe that there is too much emphasis on Soil Carbon sequestration, and too little attention to major climate threats.”¹⁷

The leading UK expert Pete Smith comments:

“Soil Carbon Sequestration is time limited, non-permanent, difficult to verify and no substitute for greenhouse gas emission reduction.”¹⁸

Nonetheless SCS can be one component in an array of measures that combine to reduce carbon emissions from agriculture. Arable soils under current farming techniques are often low in soil carbon. In particular, the use of artificial fertilizers and pesticides on arable land results in soil with a depleted carbon content (as well as erosion of the soil). It is these soils that offer the best opportunity for increasing carbon storage.

The measures most likely to increase carbon sequestration include conversion of continuously cropped arable land to woodland or coppice, to pasture, or to mixed ley farming. However all of these will normally result in a drop in agricultural productivity, to zero in the case of woodland, and are therefore likely to result in the conversion of pasture to arable production somewhere else, either in the UK or abroad (unless there is a corresponding decline in consumption, for example through consumers eating less meat). Conversion of arable to woodland has the highest potential carbon emissions savings (because it also provides biomass energy) but it would only be beneficial if arable productivity increased correspondingly as in the Land Sparing scenario described above, or if people ate less meat.

Conversion of arable to permanent pasture would only be beneficial if it substituted for the production of animal feed, and no land was converted to arable elsewhere. In this case, consumers would have less pork and chicken in their diet, and only a little more red meat.

Conversion of arable to mixed ley farming would involve the least drastic drop in productivity since up to two thirds of the land would still be in arable production, while the area under grass would supply milk or meat more productively than many permanent pastures. It is also a system that could be revived in areas of the country where mixed farming has declined or died out, mostly to the west. (See also

¹³ See discussion of “default livestock” in S. Fairlie, *Meat: a benign extravagance*, Permanent Publications, 2010 and “ecological leftovers” in Tara Garnett, *Gut feelings and Possible Tomorrows: (Where) does animal farming fit?*, 2015, http://www.fcrn.org.uk/sites/default/files/fcrn_gut_feelings.pdf

¹⁴ G. Harvey, *The Carbon Fields*, Grassroots, 2008; Savory Institute website: <http://savory.global/>

¹⁵ Maria Nordberg, *Holistic Management - a critical review of Alan Savory's Grazing Method*, Swedish University of Agricultural Sciences, 2016.

¹⁶ P. Smith, “Land Use Change and Soil Organic Carbon Dynamics” *Nutr Cycl Agroecosyst*, 2008, 81:169-178).

¹⁷ K. Goulding et al, “The Potential for Soil C Sequestration, but with a full Greenhouse Budget,” 2009; <http://www.massey.ac.nz/~flrc/workshops/09/Abstracts%202009.pdf>.

¹⁸ P. Smith, “The Pros and Cons of Carbon Sequestration,” Powerpoint presentation, FCRN Workshop 2010; http://www.fcrn.org.uk/sites/default/files/FCRN_SoilCarbon_Smith.pdf

section on Mixed Farming)

In a study of European agricultural systems, Pete Smith and colleagues compared five different systems for improving SCS. The two most effective were afforestation of surplus arable land (a Land Spare option) which increased total Soil C stocks 8.4 per cent over 100 years, and mixed ley farming (a Land Share option) which increased them by 17.1 per cent. After gains from biomass energy were factored in, the afforestation scenario sequestered 5.41 per cent of W European annual anthropogenic emissions of CO₂ — somewhat more than the mixed farming scenario at 4.27 per cent, which did not include any gains that might occur from reduced use of chemical fertilizers.¹⁹

Organic arable farming is dependent upon leys or green manure, with or without livestock, and so has much in common with the mixed farming system described above. A review, published by the Soil Association of studies of SCS in organic and biodynamic farming concluded that in Europe organic farming had soil carbon levels 20 per cent higher than non-organic farms.²⁰

There remains a danger that widespread conversion to organic might reduce yields and result in land being ploughed up for arable elsewhere. However key elements of organic farming can be introduced into so-called conventional systems, without major drops in productivity. Another paper comparing organic and chemical farming, carried out in 2012 concluded:

“Meta-analyses from the farming systems confirms higher SOC concentrations and stocks on top soils under organic farming. SOC differences seemed to be influenced mainly by elements of mixed farming (livestock plus crop production), such as organic matter recycling and forage legumes in the rotation. It is therefore likely that SOC concentrations and stocks could be improved if these measures were adopted. These measures are intrinsic to organic farming but can in principle be applied in any agricultural production system.”²¹

Other measures which farmers can take which are likely to increase soil carbon sequestration on arable land include minimum and zero-tillage cultivation, improved incorporation of organic residues and wastes into the soil, catch crops, deeper rooted species, perennial cropping etc.²² These are measures that would not necessarily entail a drop in productivity — indeed they might enhance it; and they could confer other benefits such as increased water retention, reduced compaction and soil erosion, reduced use of fossil fuels and chemicals etc.

Soil carbon is lost much more quickly when land is ploughed up, than it is gained when ploughed land is improved or converted to pasture or woodland.²³ It is therefore important to ensure that schemes designed to sequester carbon do not result in increased arable activity elsewhere. The priority should be to ensure that existing carbon stocks are conserved rather than to embark on optimistic schemes to increase carbon stocks. It is particularly important to ensure that the large amount of carbon stored in peat soils is not degraded.

There have been schemes in Australia and the USA rewarding farmers with “carbon credits” for sequestering carbon. Our view is that paying or subsidizing farmers directly for the amount of carbon they sequester is unscientific and susceptible to abuse. Soil carbon can be increased on one plot of land by the simple expedient of applying to it biomass robbed from another plot, with no overall benefit; carbon sequestration is not permanent; and it is difficult and expensive to measure.²⁴

A better approach is to support agricultural systems and improvements to arable production that are known to increase soil organic matter, such as mixed ley farming, organic husbandry, minimum tillage etc. These will bring with them a range of other benefits.

Recommendation 4

Policies should promote the sort of farming methods that are likely to conserve soil carbon stocks and improve soil carbon sequestration, especially when these harmonise with other objectives; there should be no attempt to directly reward farmers for storing carbon.

Mixed Farming

By mixed farming we mean a farm producing both arable crops and livestock, where ruminant livestock are an integral part of the arable rotation. A report from the FAO and the World Bank states:

Mixed farming is probably the most benign agricultural production system from an environmental perspective because it is, at least partially, a closed system. The waste products of one enterprise (crop residues), which would otherwise be loaded on to the natural resource base, are used by the other enterprise, which returns its own waste products (manure) back to the first enterprise. Because it provides many opportunities for recycling and organic farming and for a varied, more attractive landscape, mixed farming is the favourite system of many agriculturalists and environmentalists.²⁵

19 P Smith et al, “Potential for Carbon Sequestration in European Soils: Preliminary Estimates for Five Scenarios Using Results from Long-Term Experiments”, *Global Change Biology*.3 67-79, 1997

20 G Azeez, *Soil Carbon and Organic Farming*, Soil Association, 2009; S Fairlie op.cit. 13, pp 203-207.

21 A Gattinger et al, “Enhanced Top Soil Carbon Stocks under Organic Farming”, *PNAS*, 2012, <http://www.pnas.org/content/109/44/18226>

22 Pers com, P Smith, 26 Jan 2017; A Bhogal et al, *The Effects of Reduced Tillage Practices and Organic Material Additions on the Carbon Content of Arable Soils*, Rothamsted and ADAS Report for DEFRA Project SP0561.

23 N Ostle et al, “UK Land Use and Soil Carbon Sequestration”, *Land Use Policy* 265, 2009; P Smith, “Do Grasslands Act as a Perpetual Sink for Carbon?”, *Global Change Biology*, 20, pp 2708-2711, 2014.)

24 P Smith, Powerpoint op.cit. 18.

25 C. De Haan et al, *Livestock and the Environment: Finding a Balance*, FAO/USAID/World Bank. Chapter 3 Mixed Farming and the Environment, 1997..

Most mixed farms in the UK rely for their fertility on legume/grass leys, which are effective at sequestering carbon (see previous section). In a typical mixed farm, the role of livestock will be (a) to take advantage of the fertility building grass and legume crop; (b) to support a diversity of crops that help to keep the land weed free; and (c) transfer nutrients, in the form of manure, from outlying permanent grassland to arable land.

Mixed farming was intrinsic to all farming systems throughout Britain until the end of the 19th century, because there was no other convenient way of ensuring the continuing fertility of the land. When artificial fertilizers became common practice it became both possible and more economically viable to specialize. As a result large sections of the east of Great Britain have become predominately arable, while the west of the island is focussed upon livestock. The area under ley grassland has halved since 1973, from 2,400,000 to around 1,200,000.²⁶

The result is a severe nutrient imbalance, with the arable farms mostly in the east mostly reliant upon artificial fertilizers, while the West has a surplus of manure. Dairy farms in particular accumulate vast lagoons of slurry which they pump back onto grassland already saturated with nutrients, resulting in nitrate leaching and pollution of watercourses, or used to fertilize crops of maize silage which are fed back to the cows.

Reverting to genuine mixed farms would bring many environmental and social advantages:

(i) Arable farms that became mixed farms would be less reliant on chemical fertilizers, more biodiverse, less dependent upon pesticides and herbicides and would sequester more carbon

(ii) Dairy and other livestock farms that reverted to mixed farming would cause less pollution, would produce more food per acre, and would support more biodiversity.

(iii) Mixed farms would result in less transport since straw and animal feeds would be used on site and a wider variety of goods would be available for local consumption;

(iv) A wider variety of agricultural jobs would be available in specific regions of the country.

One main difficulty with promoting mixed farming is that specialized arable and livestock farms have developed such economies of scale that it is difficult for family farms to set up all the infrastructure necessary to run a viable mixed farm. Large scale arable farms would require considerable investment to establish a dairy operation (though there are plenty of examples of expanding dairy farms making such levels of investment). One possible model here is Community Supported Agriculture, which provides a local market for a wide range of products.

A reversion to mixed farming would result in reduced average national yield per hectare of arable crops, since less Grade 1 and 2 land in the east of the UK would be cropped at any one time, while more Grade 3 land in the west and north of the UK would be cropped. However the reduction might be slight and there might be less demand for animal feed crops.

Recommendation 5

Policies should encourage a return to mixed farming, particularly dairy/arable.

Organic Farming

Organic farming has much in common with mixed farming in that it is dependent upon leys, and/or green manures and catch crops to build soil fertility. The rejection of artificial fertilizers, herbicides and pesticide, plus adherence to other husbandry standards, make organic farming, especially mixed organic farming, an environmentally preferable option for many reasons.

There are however two main difficulties. The first is that yields of organic farms in the UK are up to 35 per cent lower than yields of many chemical farms — with the danger that conversion to Organic may prompt additional farming pressure elsewhere (see above).

The other problem is that the costs of organic certification and labelling are high, and prohibitive for small farmers, part-time farmers and other landowners. There are hundreds of thousands of acres of pasture land in the UK, particularly small fields, which conform to Organic standards, but are uncertified, with the result that their produce is undervalued, cannot be used by organically registered farmers and is often left unharvested. These undervalued fields are more likely to be acquired for purposes such as horseculture.

Recommendation 6

Organic farming should be promoted but a more all-inclusive way of rewarding organic husbandry should be investigated.

Pasture Fed Beef

Beef animals fed and finished solely on pasture are in several respects more environmentally benign than livestock raised and finished on corn and oilcake (lower use of agrochemicals and fossil fuels, lower use of antibiotics, less soil erosion, more carbon sequestration etc).

²⁶ Office of National Statistics; and *Agriculture in the UK*, DEFRA, 2015

The meat is reputedly tastier and healthier and commands a higher price; and animal welfare is superior.

On the other hand, pasture-fed animals take longer to finish, and hence have higher methane emissions corresponding to their longer lifetimes. Nonetheless a 2015 comparison of the total greenhouse gas emissions of different beef-rearing systems found that a well-managed organic grass-fed beef enterprise in Sweden had significantly lower emissions per kilo of beef than a US feedlot system. This effect was more pronounced over a longer time, because CO² and N₂O emissions (which feed lots have more of) have a cumulative effect, while the warming impact of methane is relatively short-lived. The average emissions for all Swedish beef production were also compared and found to be significantly lower than in the feedlot example, since a high proportion of Swedish beef cows are progeny of the dairy industry. Soil carbon sequestration was not factored into the analysis, because of a lack of reliable data — if it were it would probably improve the performance of grass-fed beef still further, at least over the first 50 years. However the authors point out that even conversion of the entire global beef industry to the Swedish grass-fed model would be insufficient to reduce emissions to sustainable levels, unless there were also an absolute decline in beef consumption.²⁷

Given these results and the other advantages of grass-fed beef, the most sustainable option for the beef industry would be as follows:

- (i) Conversion to grass-fed systems.
 - (ii) Slaughter at a younger rather than an older age (as is already the case with sheep), since weight gain is greater during earlier years.
 - (iii) Most beef animals should be the progeny of dairy cows and hence a byproduct of the dairy industry — a pure beef calf requires a mother cow to be reared to adulthood and maintained for a year, with all the extra carbon emissions and impacts that that entails. Note that if the UK dairy industry converted to being primarily organic and/or grass fed, whilst maintaining existing levels of milk production, it would produce more calves because the milk yield of cows would decline and their number would increase.²⁸ It would be necessary to maintain some dedicated beef suckler and dual purpose breed herds to maintain genetic stocks and to provide cattle suited for conservation grazing in certain areas.
 - (iv) Beef farming should ideally either be a fertility building element of a mixed farm, or else used for conservation grazing. High grade land devoted solely to beef is extravagant.
- (iv) A reduction in beef consumption and production. This would probably occur naturally as a result of conversion to grass-fed, and in the face of demands for land for other uses.

Recommendation 7

Beef farming should ideally be pasture-fed, comprised primarily of dairy progeny, and serve either as a subsidiary element of a mixed farm, or for conservation grazing.

The Uplands and Rewilding

George Monbiot's book *Feral* has done much to focus attention on upland farming. Large areas of the uplands, he argues, have been "sheep-wrecked", i.e. grazed to the height of a threadbare carpet by unproductive but heavily subsidized sheep-farming. The alternative he proposes is large-scale rewilding, implying abandonment.

The unproductiveness of sheep-farming is partly due to the fact that out of the three services for which sheep have been kept in the past, two — wool and harvesting fertility from outlying areas — have been made redundant by the use of fossil fuels. The third, meat, provides little in the way of nutrition for the nation compared to the extensive area of land occupied.

Monbiot is right that there has been too much emphasis on sheep in the uplands, resulting in a biologically depleted environment, poor water retention and a crippled local economy. (However there are also instances where undergrazing has led to environmental deterioration.)²⁹ Rewilding may be a preferable alternative in more remote and inhospitable areas — but it will do no better than sheep in supporting a vibrant rural community. A measure of rewilding might enhance biodiversity in upland areas, whereas rewilding over very wide areas might result in low levels of biodiversity.

There is some evidence that upland farms can be more profitable if they maintain lower stocking rates of hardy resilient breeds, and reduce concentrate feeds and other inputs to a minimum. The example of Hill Top Farm near Ingleborough is a case in point.³⁰

The objective should be to establish a more diverse and self-sufficient agricultural economy, including reforestation, some rewilding, more cattle, dairy, horticulture, wool products and arable (fertilized by sheep — the principal sheep farm visited by George Monbiot in *Feral* had abandoned arable fields). The Lammas project, which is on grade 4 land at 150 metres elevation in Pembrokeshire shows what can be achieved in the more favoured parts of upland Britain (see p28-29.)

Recommendation 8:

Financial support for the uplands should be focussed on creating a more diverse and resilient local economy.

27 R Pierrehumbert and G Eshel, "Climate Impact of Beef", *Environmental Research Letters*, 10, (2015) 085002; <http://iopscience.iop.org/issue/1748-9326/10/8>
28 S Fairlie, "Can Britain Feed Itself?", *The Land* 4, 2007,

29 Cumulus Consultants, *Changing Livestock Numbers in the UK Less Favoured Areas: An Analysis of Likely Biodiversity Implications*, RSPB 2012, https://www.rspb.org.uk/Images/Final_Report_tcm9-340975.pdf

30 Neil Heseltine, *Land Beyond the Plough*, presentation at the Oxford Real Farming Conference, Jan 2017.

Water Catchment Management

Water catchment management has had a high profile recently, partly because of flooding episodes. A potential conflict has emerged between the interests of productive farming on the one hand and the downstream built environment on the other. Farmers want to remove excess water as soon as possible from productive land, and over the last two centuries an immense network of drainage pipes and ditches has been installed for that purpose. Over the same time the ability and/or willingness of expanding downstream settlements to canalize this excess water and direct it towards the sea has not always kept up with the flow. Infrastructure for channelling water is expensive, and the environmental impact upon watercourses and associated wildlife is often harmful.

The matter is complicated by the fact that when water runs off fields it can remove soil. Good farming techniques will minimize this erosion, but certain modern methods are exacerbating the problem — notably the cropping of maize, and the fact that artificial fertilizers diminish the incentive for farmers to conserve their soil. The silt which accumulates downstream has traditionally been dredged out, and can be reclaimed for agricultural use or used for landscaping and ecological regeneration programmes.³¹ However in some cases dredging has lapsed, partly perhaps because there is no longer an economic need to maintain navigable rivers. Traditional methods for recuperating eroded soil and nutrients through water meadow systems have also fallen into disuse.³²

Where the upper reaches of a water catchment are of low agricultural value — typically upland rough grazing — there is a strong argument for slowing the flow of water, where feasible, through tree-planting and methods other water retention.

Where a river passes through productive farmland — as for example the Parrett in Somerset, which flooded badly in 2013-14 — the issues are more finely balanced. Dredging, which had lapsed, has been resumed: an 8km dredge of the Parrett and Tone later in 2014 was identified as producing “the biggest reduction in flood risk on the Somerset Levels & Moors”.³³ The 20 year *Somerset Levels and Moors Flood Action Plan*, published in a hurry soon after the floods, identifies measures that could be taken upstream to retain water, and downstream to manage the flow. But although it advocates “catchment sensitive farming”, there is less focus than might hope for on how to minimize the soil erosion that contributes to the need for dredging.³⁴

Measures that help to reduce soil erosion include:

- avoiding crop patterns that leave soil bare over winter (eg maize, and late-sown winter cereals);
- use of catch crops and other forms of ground cover;
- avoiding untimely machine operations that cause soil compaction;
- careful stock management in winter;
- building up soil resilience through increased organic matter.³⁵

Recommendation 9: Upstream water catchment policies should focus on water retention in areas of low agricultural productivity; and preventing soil erosion through catchment sensitive farming on more productive farmland.

Biofuels

The production of biofuels, in order to reduce the use of fossil fuels is usually at the expense of other land uses. The main exception is woodland, where a firewood crop is normally a by-product of maintaining the wood for other purposes such as timber, amenity or shelter. In areas of upland rough grazing, for example woodland planting for biomass may often bring multiple benefits, though the depopulation of these areas makes it less easy to use biomass locally and efficiently.

In most other cases there is a trade off in which, typically, production of biofuel displaces food production. If food then has to be produced elsewhere and imported, then it is questionable whether there is any net carbon benefit, given that carbon emissions from land use change can be considerable.

The use of high grade arable cropland for biomass is therefore to be discouraged. The most widespread crop, maize for anaerobic digestion is currently mostly used to generate electricity, which can be generated through solar or windpower using far less land. An anaerobic digester producing 4,150 Mwh electricity per year, plus half as much again in heat, requires 300 hectares of maize and silage crops. A single wind turbine producing 3,285 Mwh per year requires just 1.1 hectares, and anyway the land can be cropped.³⁶

The use of medium grade lowland grassland for biomethane production is more promising. Ecotricity have recently acquired permission for a grass-to biomethane plant at Sparsholt agricultural; college, producing 49,000 Mwh (enough gas to heat about 4,200 homes) from around 1400 hectares of grass. There are two main advantages of this system.

31 TN Burt, *Guidelines for the Beneficial Use of Dredged Materials*, HR Wallingford for Dept of Environment, 1996..

32 Hadrian Cook and Tom Williamson, *Water Meadows: History, Ecology and Conservation*, Windgather Press, 2007.

33 Somerset Rivers Authority, “Dredging the River Parrett: an Update for Local Communities”, *The Stream*, www.somersetiversauthority.org.uk

34 Somerset’s 20 Year Flood Action Plan, Somerset Rivers Authority, www.somersetiversauthority.org.uk/flood-risk-work/flood-action-plan/. Flooding on the Levels Action Group, Dredging and Waterway Maintenance is Crucial to the Survival of the Somerset Levels, Press Release: 3/10/2014 <http://www.flagsomerset.org.uk>;

35 A Inman, *Soil Erosion in England and Wales: Causes, Consequences and Policy Options*, WWF, 2006, <http://assets.wwf.org.uk/downloads/soilerosionengwales.pdf>

36 R Braun et al, *Biogas from Energy Crop Digestion*, IEA Bioenergy, https://www.iea-biogas.net/files/daten-redaktion/download/energycrop_def_Low_Res.pdf; Partnership for Renewables, *Wind Turbine Project at Boddington Reservoir*, <http://pfr.co.uk/pfr/298/PfR's-Oakdale-project-shortlisted-for-Wales-Green-Energy-Awards/> both retrieved 28.12.16.

(i) The grass can be derived from the fertility building element of an arable rotation, or else from underused pasture.

(ii) The biomethane is of sufficient quality to be fed into the gas grid, replacing fossil fuel gas that would otherwise have been imported or fracked. There are few other renewable technologies that can supply this.

Set against this are a number of concerns:

(i) The plant relies on phenomenal amounts of transport: 35 traffic movements per day over a radius of 15 km, most of these with a tractor and 15 tonne trailer;

(ii) Ecotricity have provided little scientific evidence to support their projections for gas production, and carbon emissions reductions which critics allege are over optimistic.³⁷

(iii) The silage that biomethane generation relies on is currently mostly fed to dairy cows. Over a year, a hectare of grass silage is enough to heat two households to today's standards; or to provide sufficient nourishment (protein and calories) to keep five people alive and healthy.³⁸ Which is more important? Is there enough land for both? Might it not be better to have smaller community-sized biogas installations that combined silage with cow manure?

Ecotricity has made no attempt to address these questions, and until they are tackled it would be unwise to endorse this technology on anything other than an experimental level.

Recommendation 10

Arable crops should not be used for biofuels. There may be a case for generating biomethane from grass as part of a mixed farming rotation, but this should not be endorsed until the technology has been fully assessed. The preferred biofuel on marginal land should normally be natural woodland.

Recycling Food Waste

Currently kitchen food waste and meat and bonemeal (MBM) are prohibited from entering the food chain by EU Directives. Both bans were initiated as a result of UK incompetence in preventing Foot and Mouth disease and BSE respectively. In the UK MBM can be sold to feed dogs and cats, but not pigs or chickens, but most is incinerated. Other countries in the world feed food waste and MBM to omnivores such as pigs and chickens without problems (pig meat can be separated out from MBM destined for pig food).³⁹ Recycling waste is the role that pigs have filled over the last eight thousand years.

The bans on these animal feeds constitute a pointless and harmful waste of resources. The meteoric rise in soya imports from South America in the last 20 year has been directly attributed to both bans.⁴⁰

EU Directives are hard to overturn but Brexit gives the UK an opportunity to reverse these bans — ironically since it was the UK that initiated them. It is notable that Boris Johnson was the one MP to speak out against the swill ban when it was introduced. Food and slaughterhouse wastes may not be the cuddliest of campaigns, but the Greens should be advocating the revival of these basic forms of recycling.

If a return to MBM is considered too unappealing, then there may be a case for feeding slaughterhouse waste to insects, which are in turn fed to pigs.⁴¹

Recommendation 11

EU legislation forbidding the feeding of food waste and slaughterhouse waste to pigs should be reversed, subject to robust health and hygiene conditions being implemented.

³⁷ Biofuel Watch, *How Green is Ecotricity's "Green Gas from Grass"?*, Dec 2016, <http://www.biofuelwatch.org.uk/2016/grass-biomethane-report/>

³⁸ Figures derived by the author from: Smythe et al, "What is the Energy Balance of Grass Biomethane in Ireland and Other Temperate Northern European Climates?", *Renewable and Sustainable Energy Reviews*, 13, pp 2349-2360, 2009; and from *Silage Insights*, Iger and Dow, <http://msdssearch.dow.com>, retrieved December 29, 2016.

³⁹ C Hamilton, *Real and Perceived Issues Involving Animal Proteins*, FAO, 2007, <http://www.fao.org/docrep/007/y5019e/y5019e0g.htm>

⁴⁰ EV. Elfrink et al "Does the Amazon Suffer from BSE Prevention?" *Agricultural Ecosystems and Environment*, 120, 2007, pp467-469; E zu Ermgassen "Reducing the Land Use of EU Pork Production: Where There's Swill There's a Way," *Food Policy* 58, 2016.

⁴¹ Rich McEachran, "Insects Could Feed the Animals of Tomorrow's Meat Industry", *Guardian*, Monday 8 December 2014

3. SOCIAL AND ECONOMIC GOALS

This chapter lists and discusses the main strategies for achieving an economically sound and socially benign farming industry.

Halting Farm Decline

Under the neo-liberal ascendancy of the last 35 years the UK agricultural industry has been experiencing a period of heightened competitiveness. Farmers are now expected to be experts in business rather than in husbandry. Profit margins are often far tighter than would be tolerated in many other industries and are subject to the volatile pressures of the global market. Many farms have sold up, while the remainder have grown bigger and more corporate. Between 2000 and 2010, the number of farms in the UK declined by 47,000, 20 per cent of the total. Over the same period the average size increased by 33 per cent from 169 acres to 226 acres — while the average size for the whole of Europe is 36 acres.⁴²

This process of gigantism threatens to replace family farms with highly mechanized corporate mega-farms, staffed by an elite of technicians and underpaid immigrant labour. It will reduce the opportunities for down-to-earth farming employment, further alienate the public from the business of food production, and undermine the vitality of rural communities. That this is not what the British public want their farms to be, can be seen by the mendacious labelling and advertising used by supermarkets to convince consumers that their produce comes from real farms.⁴³

Recommendation 12:

Measures should be taken to prevent further concentration of the farming industry and abandonment of family farms.

Food Sovereignty and Security

The UK is about 60 per cent self-sufficient in all food, down from a peak of 78 per cent in the 1980s.⁴⁴ Whilst this is not as low as before the Second World War when the UK was less than 40 per cent self-sufficient in food, it is giving rise to concerns about food security, and whether the country could feed itself in the event of an international crisis.

In respect of indigenous foods, i.e. those that can be grown in Britain, the country is about 75 per cent self-sufficient. That does not, however mean that the UK grows 75 per cent of the food that its citizens eat. Only 52 per cent of the food eaten in the UK is produced here (food production minus exports). In other words a substantial quantity of all the food that the UK produces and that British people could eat is exported and an even greater amount of somewhat similar food is imported.⁴⁵ As an example, in 2013 the UK exported 408 million pounds worth of mineral water and imported 794 million pounds worth.⁴⁶

The rationale behind this crosshaulage is the neoliberal assumption that trade, per se, is a good thing: exports enhance a country's balance of trade, while imports from countries with a "comparative advantage" provide cheaper food. However it does not take much perspicacity to see that if a country is importing more or less what it is exporting the exercise is pointless. The four principal EU countries that the UK exports to — the Irish Republic, France, the Netherlands and Germany — are also the four principal countries that the UK imports from.⁴⁷ With the exception of the South of France these countries all share a similar climate and topography, which suggests that this trade carries with it few of the benefits that obtain from comparative geographical advantage.

The neo-liberal over-emphasis on trade has several harmful impacts:

- Crosshaulage and unnecessary trade adds appreciably to the transport, refrigeration, packaging and storage impacts and carbon emissions of food.
- Unnecessary trade deals create market distortions that undermine local food economies. For example in 2013 the UK imported 383 million pounds worth of lamb mostly from New Zealand and exported precisely the same amount, mostly to the EU.⁴⁸ As a result of imports from the UK over the last 40 years, the French sheep industry has collapsed and now only produces 45 per cent of its domestic consumption. Large expanses of the French uplands have lost their traditional herds, necessary for maintaining the hills free of excess vegetation and dead scrub, with the result that forest fires have increased, and local economies been undermined.⁴⁹ As a *quid pro quo*, in the 1980s and 1990s

42 Eurostat *Statistics Explained* http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Agricultural_holdings,_2000-10_YB14.png.

43 Eg Tesco's "Fake Farms": Aidan Fortune, "Fake Farms Help Tesco Grow Sales", *Meat Trades Journal*, 18 October, 2016

44 DEFRA *Trade Stats*: <https://www.gov.uk/government/statistical-data-sets/overseas-trade-in-food-feed-and-drink>

45 DEFRA, *Food Statistics Pocketbook* 2016 pp 22-23)

46 *Statistical Data Sets: Trade Indigeneity*, 2013, <https://www.gov.uk/government/statistical-data-sets/overseas-trade-in-food-feed-and-drink>

47 E. Downing, *EU Referendum: Impact on UK Agricultural Policy*, House of Commons Briefing Paper 7602, 26 May 2016)

48 2013 figures *Trade Indigeneity* op cit

49 G Le Puill, "Et Si le Mouton Etait une Production d'Avenir en France", *L'Humanité*, 1 March, 2016 <http://www.humanite.fr/et-si-le-mouton-etait-une-production-davenir-en-france-600647#xtor=RSS-1>; Réseau Coupures de Combustible, Groupe MAE DFCE, Dispositif Agroenvironnemental Appliquée à la Prévention des Incendies de Forêt en Région Méditerranéenne, Document de Synthèse 11, June 2006, <http://www.cardere.fr/doc/RCC11.pdf?PHPSESSID=>

UK apple growers were offered compensation by the EU to grub up their orchards in face of competition from French growers.⁵⁰

- Prioritizing trade can lead to perverse policy decisions. For example the disastrous slaughter policy carried out during the 2001 Foot and Mouth epidemic was largely driven by a desire to protect the British beef export industry — even though UK beef imports are greater than its beef exports.⁵¹
- The pressure to expand and export leads wealthy countries with large corporate industries to make assaults on markets in developing countries. For example the EU has been negotiating a trade agreement with India which it hopes will give it access to India's huge market for dairy products, threatening the livelihoods of some 11 million small-scale farmers.⁵²

Recommendation 11: Agricultural policies should protect food sovereignty in the UK and respect it in other countries; meeting home demand for indigenous food should take precedence over establishing export markets.

New Entrants

A secure UK food supply drawn from sustainable agriculture is dependent on increased numbers of new entrant farmers and more agricultural labourers. If we are to increase our national food security from the current position of 60 per cent, we must increase domestic output. What is more, sustainable farming such as organics, small scale horticulture, and livestock farming carried out to high animal welfare standards, all require more labour input than “conventional” agriculture.⁵³ A calculation carried out by *The Land* magazine estimated 157,000 agricultural workers would be required to provide food for the UK based on small scale mixed farming.⁵⁴ This requires bucking a trend in an industry that saw 40,000 jobs lost between 2000 and 2009 alone, and where 58.5 per cent of farm managers are over 55.⁵⁵ Agricultural labour is currently low paid, precarious and open to exploitation, particularly for migrant workers.⁵⁶

New entrants to farming often have little or no access to capital to pay for the cost of land, equipment, buildings and other basic infrastructure for starting up properly. This lack of infrastructure can significantly impact the productivity and profitability of the start-up farms. The experience of farms who have had some initial funding to start is that over a few years they can become financially viable businesses — not dependent on significant annual area-based subsidies.

We need good working opportunities for new entrants but how do we get them? The Rural Development Programmes of England, Wales and Scotland constitute the existing methods whereby Pillar 2 of the CAP facilitates business start-up schemes. In the post-Brexit context we must keep such programmes, whilst making their key prerogatives core production from sustainable agriculture, rather than ‘diversification’ into activities such as rural tourism.

Post-Brexit policy also needs to challenge the issue of access to land. The EU recently surveyed 2,205 farmers under the age of 40 from across the member states. They found that 61 per cent considered lack of availability of land for purchase to be the greatest barrier for new entrants, and 57 per cent thought that lack of land available for rent was among the biggest barriers.⁵⁷ The continual whittling away of the County Farms estates exacerbates the problem. Cash strapped local authorities have sold off 3,850 ha of publicly owned farmland since 2010.⁵⁸

Recommendation 14: Policies should actively support new entrants into farming and facilitate access to land.

Price of Agricultural Land

It has long been recognized, not least by Adam Smith, that the price of agricultural land should lie ideally at around 20 years purchase — that is to say 20 times the going agricultural rent.⁵⁹

Current average rental values for pasture land are £96 per acre for Farm Business Tenancies and £60 for 1986 Act tenancies — whereas the average sale price for pasture land is £7040.⁶⁰ This represents a sale price of between 70 and 117 years purchase: in other words it would take about a century to pay off the purchase cost of land through normal agricultural practice. Small holdings which once offered a livelihood to people of modest means are increasingly becoming a luxury affordable to only to wealthy hobby farmers.

There are a number of reasons for the high cost of land:

50 P Popham, “Squeezed Till the Pippins Squeak,” *The Independent*, Friday 21 April 1995, <http://www.independent.co.uk/life-style/squeezed-till-the-pippins-squeak-1616636.html>

51 A Woods, *A Manufactured Plague: The History of Foot and Mouth Disease in Britain*, Earthscan, 2006

52 S Fairlie, “Dairy Farmers Betrayed,” *The Land* 18, 2015; GRAIN *Defending People's Milk*, Jan 2014, <https://www.grain.org/fr/article/entries/4873-defending-people-s-milk-in-india>; MI Barbaruah and AK Joseph, *India: Dairy Giant Walking Barefoot*, FAO 2008.

53 Sustain, *Double Yield*, p8 <https://www.sustainweb.org/secure/DoubleYield2015.pdf>

54 Ed Hamer, “Can Britain Farm Itself?” *The Land* 12, 2012, <http://www.thelandmagazine.org.uk/articles/can-britain-farm-itself-2>

55 A. Jones, “Less Than 1% of British Workers Now Employed in Agriculture for First Time in History” *The Independent*, 5 June 2013 <http://www.independent.co.uk/news/uk/home-news/less-than-1-of-british-workers-now-employed-in-agriculture-for-first-time-in-history-8645324.html>; Eurostat Statistical Books. Agriculture, Forestry and Fisheries Statistics, 2015, Page 50.

56 *Agricultural Labour in the UK*, Food Research Collaboration, 2016.

57 M-J Zondag et al, *Pilot Project: Exchange Programmes for Young Farmers, Executive Summary*, European Commission, Directorate-General for Agriculture and Rural Development, November 2015. http://www.agrotypos.gr/images/stories/file/ereuna_neoi_agroteseu_4_2016.pdf

58 P Clarke, “Land Workers Protest in London at Council Farm Sell-offs,” *Farmers Weekly*, 18 April 2016, <http://www.fwi.co.uk/news/land-workers-protest-in-london-at-council-farm-sell-offs.htm>

59 A. Smith, *The Wealth of Nations*, 1776, Book II Chapter IV; D Pickard, *Lie of the Land*, Shephard Walwyn, 2004.)

60 RICS figures at the AHDB Dairy website <https://dairy.ahdb.org.uk>, posted 26 August 2016, retrieved 20 November 2016)

- demand from non-agricultural uses, notably horseyculture, which can pay higher prices;
- low interest rates which make investment in land an attractive option;
- the inflated price of farmhouses (as a potential residence for non-farmers) and farm buildings (which have potential for conversion).
- CAP direct payments which are based on area.

The fact that land prices began to rise steeply from 2004 when the CAP Single Farm Payment was introduced suggest that this has had a major influence. Land prices have fallen about 5 per cent since the Brexit referendum, possibly because there is a prospect that area based payments will be reduced.

The purchase price of agricultural land is therefore unaffordable for any prospective farmer who does not have access to spare capital. Renting is much more affordable, but under the terms of the 1995 Agricultural Tenancies Act, it is often hard to find a landlord who will rent land with security for a reasonable period.⁶¹

Recommendation 15: Agricultural policies should help to steer land prices downward in relation to food prices.

Nature Deficit

Few discussions about the future of UK agriculture consider the fact that many people express a need to engage with the natural world, and fewer still the proposition that this need extends to humanity as a whole. The matter has been explored by writers such as E O Wilson in his book *Biophilia* and Richard Louv, who coined the phrase Nature Deficit Disorder.⁶² It is recognized, not only by parents who send their kids to forest schools, but also by the large number of local authorities who pay considerable sums to place adults with special needs and school pupils with behavioural problems in dedicated “care farms”. In recent years, this has become the most reliable way to make a small farm pay for itself — farms are more profitable when staffed by people who are handicapped or have learning difficulties than by people who are able bodied.

If farming is a remedial activity for people with special needs, then in all likelihood it is a beneficial occupation for people with normal needs. But while large amounts of public money are pumped into care farms, there is no government support, financial or otherwise, to make farming more accessible and attractive to small farmers, whether they be full time, part time, or mere “hobby farmers”.

Recommendation 16: The right of people to engage with the natural world through farming and similar land based activities should be acknowledged; access to land should be facilitated; and people so interested should be encouraged and assisted to farm productively and with due regard for the environment.

Rural Vitality and Local Economies

Land-based activity is what distinguishes the rural economy from the urban. Deprive a village of land-based employment and it either begins to mimic a town with a mini industrial estate accommodating footloose manufacturing and service enterprises, or more frequently becomes a gentrified dormitory appendage to a nearby city. If smallholdings and family farms continue to be swallowed up by large mechanized industrial farms then the suburbanization of the UK’s villages will continue apace. It may help some people to picture this process in a certain context: Brian will own the all the land around Ambridge; Ruth, David, Tony, Eddie, Jazzer and the rest of them will be out of a job; and *The Archers* will have nothing to focus on except marital upsets and the Christmas panto.

Large corporately owned farms, even if they employ a few local people, bring comparatively little wealth into the local community since they produce commodities on a scale that can only be conveniently sold to processors and supermarkets, who take the lion’s share of the added value. Family farms, smallholdings and small-scale forestry enterprises are better equipped to process and sell goods locally, through village and farm shops, local markets, box schemes and so forth, keeping money circulating within the local economy.⁶³

Recommendation 17: Small farms are essential to a thriving rural economy and should be supported.

Horticulture

The expansion of horticulture would produce multiple benefits for a sustainable agricultural sector post-Brexit. In particular:

- The sector produces large volumes of food per unit area, using only 3.5% of croppable land, yet producing £3.7 billion worth of produce per year.⁶⁴
- The intensive nature of horticulture allows it to employ 12% of the total agricultural workforce on a relatively small amount of land. For

⁶¹ G Dunn, “Tickets to Farm”, *The Land* 18, 2015.

⁶² E O Wilson, *Biophilia*. Harvard University Press, 1984; R Louv *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, Algonquin Books, 2005.

⁶³ CPRE, *From Field to Fork: The Value of England’s Local Food Webs*, CPRE, 2012, <http://www.cpre.org.uk/resources/farming-and-food/local-foods/item/2897-from-field-to-fork>

⁶⁴ V Schoen and T Lang, *Horticulture in the UK: Potential for Meeting Dietary Guideline Demands*, Food Research Collaboration, pp2, <http://foodresearch.org.uk/horticulture-in-the-uk/>

this reason it is more easily accessible to new entrants into agriculture.⁶⁵

- Availability of fresh homegrown produce would improve people's diets; the public health benefits of eating more fruit and vegetables and less meat, dairy and processed foods is currently championed by the UK government and the World Health Organisation.⁶⁶ Only 26% of adults and 16% of children consume their recommended daily allowance of fruits and vegetables.⁶⁷
- Widespread local vegetable and fruit production would reduce food miles, refrigeration and packaging costs;
- Organic horticultural husbandry tends to store carbon, and improve biodiversity.⁶⁸
- Horticulture can be carried out viably on a small amount of land with small-scale tools and machinery, so start-up costs for new entrants are less than for many other agricultural sectors;

Despite these benefits the horticultural sector has been allowed to dwindle significantly in recent years. The area of land under horticultural cultivation dropped by 27% between 1985 and 2014 (and considerably more if you included fruit) and the trade gap for fruit and vegetables of £7.8 billion per annum is by far the greatest of any agricultural sector.⁶⁹

It is imperative therefore to rejuvenate the horticultural sector. Eighty per cent of vegetable imports come from the EU and 39 per cent of fruit,⁷⁰ so the UK's exit from the single market would provide a good opportunity for expanding production. The increased price of imported fruit and vegetables should expand domestic production to an extent. In the Wageningen report, horticulture is the only sector of the agricultural industry that stands to benefit in all nine Brexit scenarios examined.

But this on its own will probably not be enough to bridge the yawning trade gap. There should be targeted support from government for horticulture and a policy framework conducive to growth in the sector. The suggestions for horticultural expansion made by the Fruit and Vegetable Task Force in 2010 should be re-considered with a greater focus on small scale, organic horticulture for local markets.⁷¹

Recommendation 18: There should be targeted support from government for horticulture.

Urban and Peri-urban Farming

Urban agriculture is currently undergoing a welcome revival: there is renewed interest in allotments, city farms are thriving, and small horticultural enterprises are striking up in previously uncared for patches of land and abandoned council greenhouses. The movement is, among other things, a manifestation of a widely felt need to have more engagement with the natural world, and greater transparency of food provenance.

However the urban farming movement still has ground to recover. Until the Second World War, the area around London and other large cities was the domain of market gardeners, dairy farmers and hay dealers — all making maximum use of land that was ideally placed for supplying a huge metropolitan market.

Now they are nearly all gone. Much of the green belt around London, despite its privileged position, is underused, and some is a blighted no-man's-land where nags graze dock-sick fields, while landlords wait for planning restrictions to be removed. In 2010, eighteen per cent of green belt land was found to be "neglected" and only 40 per cent judged to be well-maintained, compared to 61 per cent of England as a whole.⁷²

Using this underused land for local food production, and for hosting farm visits from schools etc, is a no-brainer. A survey of the public by Natural England and CPRE in 2010 found that over 80 per cent of respondents would rather buy food grown in the Green Belt that surrounded them than food produced elsewhere, including vegetables, fruit, meat and milk.⁷³ Seventy eight per cent agreed that "If farmland around England's towns and cities isn't being fully used, then it should be used to grow food to feed the people who live in the local towns and cities." However responses from Green Belt landowners about the practicality of diversifying into activities such as local foods, rewilding and educational visits "indicated that they are not confident of the practicalities and viability of diversifying in this way." They might also be reasoning that if they do something that is socially useful and popular with their land then there will be no chance of them ever being allowed to sell it for development.

Recommendation 19: Policies should promote the use of Green Belt and other periurban land for local food production.

⁶⁵ Ibid.

⁶⁶ World Health Organisation. Increase Fruit and Vegetable Consumption to Reduce the Risk of Noncommunicable Diseases, WHO, 2015; http://www.who.int/elena/titles/bbc/fruit_vegetables_ncds/en/

⁶⁷ *Report of the Fruit and Vegetables Task Force*, 2010, <http://www.appg-agscience.org.uk/linkedfiles/Fruit%26VegTaskForceReport.pdf>

⁶⁸ G Azeez, op.cit. 20

⁶⁹ V Schoen op.cit. 64

⁷⁰ S van Berkum et al, *Implications of a UK Exit from the EU for British Agriculture*, LEI Wageningen, 2016, p 23; <http://www.nfonline.com/assets/61142>

⁷¹ DEFRA, *Industry's Ideas for Growing and Eating More Fruit and Veg*, Press Release 26 August 2010; <https://www.gov.uk/government/news/industrys-ideas-for-growing-and-eating-more-fruit-and-veg>

⁷² Natural England and CPRE, *Green Belts: A Greener Future*, CPRE, 2010 p51, <http://www.cpre.org.uk/resources/housing-and-planning/green-belts/item/1956-green-belts-a-greener-future>

⁷³ Ibid.

4. TRADE

This chapter examines the UK's existing international trade relations and how they might change.

Free Trade and the WTO

Projections for future agricultural policy post-Brexit must be considered within the context of the current ideological climate, which is dominated by widespread acceptance of the doctrine of free trade. Internationally, the tenets of free trade are upheld by the World Trade Organization whose mission is to “reduce obstacles to international trade”.

The term “free trade” is something of a misnomer since WTO member countries are far from free to trade as they might wish; instead they are bound to follow complex and arcane rules that limit their freedom to regulate their economies by imposing tariffs or quotas, or by granting subsidies.

Thus, although in many circumstances it might be advantageous for the UK's farming industry to impose tariffs on agricultural imports that undercut domestic producers, WTO rules set limits on the upper level of tariff that can be imposed. Similarly, in order to prevent “trade distortions” there are complex and often ambiguous restrictions on the kinds of environmental subsidies that can be provided to land users.

The UK's membership of the WTO therefore restricts the options available for establishing and maintaining a sustainable farming industry. This report however does not consider the option of the UK leaving the WTO, because, currently, this is not politically feasible. Only a handful of countries, (many of them “pariah” countries such as Eritrea, Somalia, Palestine and North Korea) are not members of the WTO, or are still applying to be members, and we do not see the body of opinion in the UK being in favour of joining them (unless Donald Trump pulls the biggest pariah nation of them all out of the WTO).

UK Trade Balance

The UK has a trade deficit in agricultural and forestry goods which is about 10 times the amount handed out in subsidies for farmers. In 2014 it imported goods worth €57 billion and exported goods worth €26 billion — the deficit of €31 billion is larger than the total value of exports.⁷⁴ Roughly two thirds of this trade is with the EU: UK exports to the EU amounted to €16 billion, while imports from the EU were valued at €40 billion a deficit of €24 billion (though some of these imports, such as soya and coffee, were originally sourced from developing countries).

If, after Brexit, trading arrangements were such that trade between the EU and the UK was reduced — let us say halved — then the UK's trade balance would improve, and UK farmers would have a larger market *in toto* (since the domestic market would grow more than the export market would shrink). In other words there is more to be gained from import substitution than from maintaining exports.

Brexit will also trigger changes to the terms of trade for agricultural produce, though it is not clear yet what these will be. There are a great many conceivable pathways eg: staying in the Single Market; forging a bilateral Free Trade Agreement with the EU; joining Norway, Iceland and Liechtenstein in EFTA; emulating Switzerland's bilateral relationship with the EU; leaving the EU completely but inheriting its WTO tariff levels; or emulating New Zealand by abolishing all agricultural support.

The Wageningen report commissioned by the NFU compared three scenarios: (i) the UK forges a Free Trade Agreement with the EU; (ii) the UK applies tariffs to agricultural imports from the EU and elsewhere to the extent permitted by the WTO; (iii) the UK adopts a policy of trade liberalization and only applies the WTO tariffs at 50 per cent of the permissible rate. The result, unsurprisingly, is that UK farmers will fare best under scenario (ii) in which tariffs on imported agricultural goods are highest.⁷⁵

However agriculture represents a very small part of total UK economy and its interests are likely to be sacrificed for other ends. Tariffs allowed by the WTO are much higher for agricultural goods than they are for most other goods, since agriculture, especially in poor countries, is particularly vulnerable to global competition.⁷⁶ Indeed for this reason, agricultural commodities were exempt from World Trade Organization negotiations until 1994 — and many still argue that “food is different” and should not be subject to WTO regulations.⁷⁷

However making a special case for agriculture would not be viewed by the current UK government as being in the UK's interests. A Treasury and DEFRA vision paper entitled “A Vision for the Common Agricultural Policy” calls for “import tariffs for all sectors to be progressively aligned with the much lower level prevailing in other sectors of the economy”.⁷⁸ This paper dates from the Tony Blair era, but it is unlikely that the government's stance has changed. A UK government with neo-liberal leanings would be happy to lower or discard tariffs on agricultural goods in return for the UK gaining free access to other economies for its financial services.

One potentially attractive solution for the farming industry might be for the UK to join the European Economic Area (EEA) through

⁷⁴ S van Berkum et al, op.cit. 70, p 10. This is the WTO definition of agricultural goods.

⁷⁵ Ibid

⁷⁶ Nick Clegg, *Food, Drink and Brexit*, Lib Dems, 17 Oct 2016, <http://www.libdems.org.uk/brexit-challenge-fooddrink-paper>

⁷⁷ Peter Rossett, *Food Is Different: Why We Must Get the WTO out of Agriculture*, Zed books, 2006.

⁷⁸ cited in van Berkum op cit 70, p 16

membership of EFTA, which currently includes Norway, Iceland and Liechtenstein. These countries have open access to EU markets, except in respect of agriculture and fisheries, which are protected. The EEA option would require the UK to make substantial financial contributions to the EU budget, accept all EU regulations without being able to influence them, and agree to free movement of people, so it would not be popular with many hard line Brexiteers. Nonetheless the Norway and Iceland option is highlighted in the Vote Leave handout to farmers, fronted by former and current farming ministers Owen Paterson and George Eustice.⁷⁹

The amount of financial support required to maintain the UK farming industry in a healthy state will depend upon the tariff regime that emerges out of the Brexit process. It is beyond the scope of this report to examine the levels of tariffs that can be applied under these different regimes. However we can make these recommendations:

Recommendation 20:

(1) In order to achieve the objectives for agriculture and environmental land management listed above, and to protect UK farmers against the volatility of world prices, a regime that allows a greater degree of flexibility in the imposition of tariffs, is to be preferred.

(2) Any move to relinquish measures that support agriculture in order to enhance free trade of other commodities (notably financial services) should be firmly resisted.

(3) Any solution that exempts agriculture from Free Trade agreements, would be likely to be beneficial to UK agriculture as a whole, though not to producers dependent upon exports.

⁷⁹ *Farmers Will be Better Off If We Vote to Leave the EU*, Vote Leave Leaflet, 2016, <http://www.nfuonline.com/assets/62264>

5 THE COMMON AGRICULTURAL POLICY

This chapter examines the CAP as it currently functions.

With the increased globalization of the market over the last 70 years, the value of primary products (food, fibre timber etc) has pursued a consistent decline while the value of service industry goods in particular has increased. Farming and farmers are therefore increasingly poorly rewarded. Moreover, besides the supply of primary products, farmers (arguably) perform other environmental services which the market does not pay for. CAP payments are designed to compensate farmers and the farming industry for these “market failures” and therefore assure a continuous supply of food and the expected standard of land management.

According to the Wageningen Report, the UK currently contributes €20.2 billion annually to the EU budget of which €7.9 billion is attributable to the CAP. In return it receives €3.8 billion, of which €3.2 billion is for Direct Payments to farmers, and €0.6 billion for Pillar 2 — the remaining €4.1 being a contribution that the UK does not see returned.⁸⁰

There is therefore a potential financial dividend for UK agriculture from leaving the CAP regime, though there will be many powerful interests who will want to see this money going to other sectors of the economy. This sum must be put into context. The €3.8 billion (about £3.4 billion as of Nov 2016) currently received by farmers is a tiny sum compared to the UK’s entire public spending budget of £748 billion. Whereas health (£142 billion), education (£85 billion), pensions (£156 billion), housing benefit (£25 billion) and so on are seen as necessities requiring public funding, food production and distribution, except for the funding provided by CAP, is almost entirely provided by the private sector.⁸¹

Nonetheless, farmgate prices are so low that these very modest EU farm subsidies currently make up around 50 to 60 per cent of total farm income,⁸² suggesting that a sudden withdrawal of subsidies could have a catastrophic effect upon the industry (unless prices were held up by a strong tariff regime).

Despite this, a *Farmers Weekly* poll carried out in April 2016 reported that 58 per cent of farmers surveyed were in favour of leaving. This looks like turkey farmers voting against Christmas, but farming minister George Eustice, who supported the Vote Leave campaign, commented:

“It is no surprise that farmers want to leave the EU. Virtually every problem they bring to me is a direct consequence of dysfunctional EU rules and regulations. The NFU’s own recent study showed that, if we left the EU, there would be a firming in farm gate prices and a recovery in farm incomes.”⁸³

Eustice was referring to the NFU’s Wageningen Report. What he failed to mention was that, according to the report, farm gate prices would only improve if, after leaving the EU, farmers continued to receive from the UK government the same level of funding as CAP currently provides. If CAP funding were halved or withdrawn, and nothing put in its place, then the loss of income would outweigh any gain from leaving the EU.⁸⁴

However large-scale farmers are likely to win either way. If direct payments remain in place, then they will continue to receive hand-outs for every acre they own. If subsidies are withdrawn, then in all probability it is the larger farmers with economies of scale who will survive, and who will be able to acquire, at a low price, the land abandoned by farmers who decide to give up.

CAP payments come under two headings, or “pillars” which we will examine in turn

Pillar 1 — Direct Payments

Direct payments which constitute 84 per cent of the subsidies are currently distributed according to the amount of land owned and farmed, over a threshold of 12 acres. This is problematic for a number of reasons:

- (i) Payments are unrelated to the productivity of the farm, so a landowner can claim subsidies even when the farming activity is minimal.
- (ii) Because direct payments are area-based, much of the benefit is capitalised in the form of higher land prices. It benefits the landowner rather than the farmer. The meteoric rise in the price of UK land, from about £2,400 in 2004 to over £7000 per acre today coincides exactly with the introduction of area-based payments. (Note that there are other reasons for the high price of land and farm buildings - see above Price of Agricultural Land)
- (iii) Payments are only tenuously related to environmental performance. Seventy per cent of direct payments are paid out subject to “cross-compliance” with a number of environmental standards which are either minimal or else are legal obligations that the farmer would have to conform to anyway. The remaining 30 per cent are paid subject to compliance with greening measures that require more than one crop to be grown, and five per cent of the farm to be devoted to ecological focus areas (buffer strips, field margins, catch crops etc).

80 S van Berkum op. cit. 70

81 C Chantrell, *Public Spending*, <http://www.ukpublicspending.co.uk/>

82 E Downing op cit

83 Greg Heffer, “Nearly Two-thirds of Farmers Back Brexit, New Poll Reveals”, *Daily Express*, 29 April 2016.

84 S van Berkum op.cit. 70

The high price of land increases investment costs for new entrants; it provides an incentive for farmers or their inheritors to sell up rather than continue farming or rent as the capital of the farm is overvalued; and it provides collateral for larger farmers to invest in bigger machinery, and expand their operation. All of these tend towards concentration of farmland in the hands of large and often corporate landowners.

Degressivity (Tapering)

To support small-scale farming, the EU allows for a measure of “degressivity” (i.e. lower levels of remuneration tapered over a certain acreage), but the UK government, which is in favour of larger farms, has declined to apply this. While tapering might be of some assistance to smaller farmers the effect would probably be secondary. Norway has very high levels of farm subsidy (an average of €62,000 per farm, and much of this is tapered); but between 1999 and 2009 it lost 32.5 per cent of all its farms. According to one analysis the high levels of subsidies increase land values and “this in turn increases the attractiveness of giving up the farm and renting out or selling the land.”⁸⁵

Pillar 2 — Environmental Subsidies

Pillar 2 subsidies in the UK have mostly been awarded through Agri-environment schemes (AES) — notably Entry Level Stewardship (ELS) and Higher Level Stewardship (HLS). Farmers are paid to carry out a number of pre-agreed measures designed to enhance the environmental performance of their farm — for example maintaining field margins and buffer zones, sowing spring wheat or bumblebird mix, establishing clover leys, reducing stocking levels etc (there are scores of different options). ELS and HLS are being replaced by the new Countryside Stewardship, which is similar, except that it is competitive and limited. Whereas Environmental Stewardship schemes covered 70 per cent of the country, the new schemes are only expected to cover 35 to 40 per cent.

There is some evidence for the effectiveness of these environmental schemes, though it is not overwhelming. For example a survey of farmland birds carried out by Natural England found that their numbers had increased on farms under environmental schemes: however

“although the effects were significant they were small, indicating reductions in rates of decline, rather than population trends turning upward.”⁸⁶

There is also little information about how well farms under agri-environment schemes perform in terms of yield (even though this would not be difficult to obtain). About two thirds of EU environmental programmes have been classified by the OECD as “payments based on input constraints”⁸⁷ and about 200,000 hectares of arable land have been pulled out of production for agri-environment and similar schemes.⁸⁸ It would not be surprising if yields dropped and a number of studies in Germany, Switzerland, Finland and Austria all demonstrated that agri-environment schemes were depressing cereal yields.⁸⁹ In the UK, arable production has remained fairly constant since the 1980s, but that could mean that agri-environment schemes have acted as a counterweight to increases in yield that might otherwise have occurred.

There are a few reported instances where environmental measures have increased yields, notably an experiment on a 900 ha farm in Buckinghamshire which devoted land around field margins amounting to 8 per cent of the total area to wildlife. This resulted in lower yields for wheat and oilseed rape, but these were more than compensated for by markedly higher yields of a break crop of field beans, thanks to increased pollination rates.⁹⁰ There is also evidence that highly biodiverse “herbal” grassland is more productive than grassland sown with only a few species, even when the latter has additions of fertilizer.⁹¹ This kind of ecological intensification needs to be promoted, not only because lower productivity might lead to increased imports of soya from ghost acres, but also because increases in yield will make such measures more attractive to farmers. However improvements of this kind may be the exception, rather than the rule: reports on the impact of agri-environmental schemes on yield in the UK are few and far between and the Buckinghamshire case appears to be the only recorded example in the UK of such an increase in yield on arable crops.⁹²

Yields of such schemes are likely to be depressed by WTO restrictions on their funding, which is only permitted as an exemption from commitments made by WTO members to reducing subsidies. Their rules concerning these so-called “Green Box” schemes states:

“Domestic support measures for which exemption from the reduction commitments is claimed shall meet the fundamental requirement that they have no, or at most minimal, trade distorting effects or effects on production. Accordingly . . . the support in question shall not have the

85 H Storm and K Mittenzwei, *Farm Survival and Direct Payments in the Norwegian Farm Sector*, Norwegian Agricultural Economics Research Institute, 2013.

86 British Trust for Ornithology, *Surveys Prove Benefits of Environmental Stewardship for Birds*, Press Release July 2012. See also Nigel Boatman et al, *A Review of Environmental Benefits Supplied by Agri-Environment Schemes*, Land Use Policy Group, 2008, <http://www.snh.gov.uk/docs/A931063.pdf>

87 A Matthews, *Production Effects of Agri-Environmental Programmes*, 29 July 2010 www.capeform.eu

88 DEFRA, *Agriculture in the United Kingdom*, 2015.

89 Matthews op.cit. 87

90 R Pywell et al, “Wildlife Friendly Farming Increases Crop Yield: Evidence for Ecological Intensification”, *Proceedings of the Royal Society*, 30 Sept 2015, <http://rspb.royalsocietypublishing.org/content/282/1816/20151740>; see also Farming Futures, *Agri-Environment Schemes Increase Yields as Well as Biodiversity*, 2016 www.farmingfutures.org.uk

91 J Bullock et al, “Long-term Enhancement of Agricultural Production by Restoration of Biodiversity”, *Journal of Applied Ecology*, Vol 42:1, Feb 2007; A Weigelt et al, “Biodiversity for Multifunctional Grasslands: Equal Productivity in High-Diversity Low-Input and Low-Diversity High-Input Systems”, *Biogeosciences* 6-1695, 2009.

92 Pers com Prof J Bullock.

effect of providing price support to producers.”

This in turn means that:

“The amount of payment shall be limited to the extra costs or loss of income involved in complying with the government programme.”⁹³

In other words, aside from any funding provided for carrying out works, payment is contingent on there being a decline in productivity.

This restriction is a flaw in the structure of agri-environment schemes. It actively discourages farmers from attempting to carry out any form of ecological intensification; and it predicates drops in productivity without taking measures to ensure that there are no ghost environmental impacts of the kind we have described in Chapter 1.

Nonetheless these schemes have had some degree of success, are widely accepted by farmers, and provide a framework for farm support that can be adapted and built on in the post CAP era.

Production Subsidies

Production subsidies were initiated by the CAP in the early days of the Common Market to stimulate production, and abandoned over the first decade of the millennium because they resulted in overproduction (butter mountains, wine lakes etc) and environmental damage. The UK however has no such lakes or mountains and produces much less food than it consumes.

Production subsidies are also proscribed by the WTO’s Agreement on Agriculture (see immediately above). This is unhelpful, not because a wholesale return to production subsidies is advisable (it isn’t), but there could be circumstances where a production subsidy or headage payment was judged to be appropriate. It is also possible that beneficial aspects or components of a funding scheme might be disallowed on the grounds that they constituted a production subsidy.

One example is where a scheme might wish to incentivize a degree of ecological intensification — i.e. an improvement in both environmental performance and productivity: for example the permacultural intensification of previously neglected sheep pasture.

Another is where the grant-giving body wished to be assured that subsidies were going to productive farmers, and not to practitioners of “sofa grant farming”..

Public Goods and Ecosystem Services

The climate of opinion dictates that much of the debate surrounding land use is phrased in the language of neo-liberalism. Benign activities are ascribed market value through the use of terms such as “public goods” and “ecosystems services”, while problems are viewed through the lens of “market failure”.

Public goods refers to goods that are have two characteristics:

Non-rivalry which means that when a good is consumed, it doesn’t reduce the amount available for others. Eg benefiting from a street light doesn’t reduce light for others, but eating an apple would.

Non-excludability: This occurs with goods that everyone benefits from, whether they have paid for them or not.

Since there is no incentive for people to pay for such goods because they can consume them without paying for it, there is deemed to be a “market failure” which must be remedied by the government paying for them through taxation. The corollary of this is that goods which are not defined as public goods, can and should be paid for through the market, and that subsidizing them through taxation leads to “trade distortions”.

One problem with this analysis is that it is not as neat as it might appear. For example roads are a public good until they become congested at which point they cease to be non-rival. Water is non-rival when there is lots of it, and rival when there is a shortage. Food is not a public good, but matters of public interest such as food security, freedom from price volatility and a stable and healthy rural economy arguably are.

“Ecosystems services” are an extension of public goods theory which, in the words of a DEFRA report:

“follows on from our thinking on valuing ecosystems. Once you begin to understand better the value of different ecosystem services, including both the market and the non-market values, then how to appropriate those values through different market and other decision-making mechanisms is a natural progression.”⁹⁴

In practice payments for ecosystems service involves identifying “the user” of such a service and inviting them to pay for it, or making them. Typical examples involve management of water courses where private companies such as Vittel mineral water and Wessex Water have paid farmers to implement improvements in their farming techniques. But in practice the “user” is very often a government body.⁹⁵

In our view “payment for ecosystems”, and to a lesser extent “public goods”, are ideologically charged concepts that if anything muddy

93 WTO, *Agreement on Agriculture*, Annex 2 Domestic Support: The Basis for Exemption from the Reduction Commitments, paras 1 and 12, https://www.wto.org/english/docs_e/legal_e/14-ag_02_e.htm#annII

94 Helen Dunn, *Payment for Ecosystems Services*, DEFRA 2011, .

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69329/ecosystem-payment-services-pb13658a.pdf

95 DEFRA, *Payment for Ecosystem Services: A best Practice Guide*. May 2013, <https://www.gov.uk/government/publications/payments-for-ecosystem-services-pes-best-practice-guide>

the issue rather than clarifying it.⁹⁶ We prefer to use the term “public benefit” and consider that payments for such benefits should come from any source that is expedient and equitable.

However use of these terms enables what might otherwise be viewed as “trade-distorting subsidies” to be recast as “contracts for services”, thereby making them more consistent with neoliberal market theory and WTO rules. As one analyst puts it:

“Unlike agri-environment schemes (AES), however, PES compensation payments are not restricted by EU Commission legislation or WTO agreements. This means that they can be related to the value of the environmental management for the beneficiaries, rather than to profits foregone and costs incurred by the farmer. Therefore PES compensation should not fall, as AES compensation payments will, should farm profitability fall following Brexit.”⁹⁷

DEFRA goes one step further and defines the entire UK Environmental Stewardship Scheme as payment for ecosystems service; while the EU classes a wide range of farm subsidies under the rubric of “public goods”.⁹⁸

This is at odds with the purist approach outlined by Dieter Helm who proposes “a gradual transitional path to a much more economically efficient (and therefore environmentally efficient) outcome” in which environmental goods and services are paid for by the user, and bid for by contractors. Since food is not a public good, farmers would be left to the mercy of the global market — with the result that much of UK food production and its environmental impacts would be outsourced to other countries. So-called “economic efficiency” is in this case the right of rich nations to protect their own environment at the expense of someone else’s.⁹⁹

But purists aside, for the most part “payment for ecosystem services”, and to a lesser extent “public goods”, are lead players in a semantic charade devised to make neoliberal economic theory consistent with the fact that government subsidies are frequently necessary and desirable.

Recommendation 21

It may occasionally be expedient for the Greens to employ terms such as “payments for ecosystem services” but we do not see them as a secure foundation for analysing what is actually needed in the way of funding for public benefits.

The Active Farmer Problem

The WTO pressure to decouple farm subsidies from production has given rise to a new problem. In 2011 the EU Court of Auditors issued a report which concluded:

“The beneficiaries of the Single Payment Scheme are ‘farmers’ engaged in an ‘agricultural activity’ and having ‘eligible land’ at their disposal. However a lack of precision in the definition of these terms and the manner in which these provisions were subsequently applied permitted persons having no or only marginal activity to benefit from SPS payments.”¹⁰⁰

In other words, the system allows landowners to become “sofa farmers”, who do little in the way of farming other than filling in the form to claim the subsidies. The problem is not confined to the EU: a similar US government audit found that between 2003 and 2011 \$10.6 billion—almost a quarter of total direct payments—went to producers who didn’t grow the crop associated with their qualifying acres.¹⁰¹

To address this problem the EU in 2011 issued a revised definition of “farming activity” which included the following condition:

“No direct payments shall be granted to natural or legal persons or to groups . . . whose agricultural areas are mainly areas naturally kept in a state suitable for grazing or cultivation and who do not carry out on those areas the minimum activity defined by member states.”¹⁰²

In other words, member states may, if they wish, specify a certain minimum level of agricultural production as a benchmark for whether someone is an active farmer. When EU Farming Commissioner, Dacian Cioloș, was asked by the UK Environment, Food and Rural Affairs Committee in 2011, whether he would “expect some agricultural goods to be produced for someone to be defined as an active farmer?”, he responded “Yes. If not, we cannot talk about agriculture or the farmer.”¹⁰³

Commenting on the active farmer debate, the leading UK authority on CAP reform Alan Matthews, agrees: “it is impossible to rationalise giving farmers something for nothing.” But he goes on to question whether the revised EU definition is compatible with WTO rules:

⁹⁶ Ecosystems service theory is also used to justify extremely dubious off-set arrangements between corporations and developing countries see Sian Sullivan, “The Natural Capital Myth”, *The Land* 14, 2013.

⁹⁷ J Franks, *Some Implications of Brexit for UK Agricultural Environmental Policy*, Centre for Rural Economy Discussion Paper, No 36, June 2016, <http://www.ncl.ac.uk/cre/publish/discussionpapers/pdfs/dp36%20Franks.pdf.pdf>.

⁹⁸ DEFRA op cit 91; European Network for Rural Development, *Public Goods and Public Intervention in Agriculture*, EU Commission Agriculture and Rural Development, date unknown; <http://enrd.ec.europa.eu/enrd-static/fms/pdf/260BDE6D-0066-3464-FD34-E3BB6AD3BB51.pdf>

⁹⁹ Dieter Helm, *British Agricultural Policy After Brexit*, Natural Capital Network, Paper 5, Sept 2016, <http://www.dieterhelm.co.uk/natural-capital/environment/agricultural-policy-after-brexit/>

¹⁰⁰ European Court of Auditors, *Single Payment Scheme: Issues to be Addressed to Improve its Sound Financial Management*, 2011 http://www.eca.europa.eu/Lists/ECADocuments/SR11_05/SR11_05_EN.pdf

¹⁰¹ US Government Accountability Office, *Farm Programs: Direct Payments Should Be Reconsidered*, 2012, <http://gao.gov/products/GAO-12-640>

¹⁰² Regulation (EU) No 1307/2013 - EUR-Lex - Europa, Article 9.

¹⁰³ UK Environment, Food and Rural Affairs Committee, *The Common Agricultural Policy After 2013*, 13 January 2011, Question 182, <http://www.publications.parliament.uk/pa/cm201011/cmslect/cmenvfru/671/11011301.htm>

“There must be a risk that linking eligibility for the payment explicitly to agricultural production could undermine the green box status of the Single Payment Scheme in terms of WTO disciplines. The Commission may believe that the ‘minimum activity’ criterion is compatible with these disciplines for non-trade-distorting support but it is certainly inviting a challenge on these grounds.”

Matthews concludes by quoting a colleague, Attila Jambor:

“The entire issue is just on the table because of . . . direct payments. The EC tries to save this ineffective policy instrument again and in doing so, it creates artificial problems as well as diverts attention from more important questions [sic]. Let’s phase-out direct payments and we will solve a number of dilemmas, including this one.”¹⁰⁴

This is indeed a good reason for getting rid of direct payments, but that will not eliminate the problem. (Nor is this an artificial problem — absentee landowners who neglect their land have been with us for centuries).

For example, the WTO allows payments to be made for income foregone — eg when stocking rates are limited to a certain threshold, or land withdrawn from cultivation. Without minimum activity conditions there is nothing to stop recipients of these subsidies reducing their productivity to near zero.

In other circumstances, grant-giving bodies may be seeking a level of ecological intensification. How is this objective to be achieved without specifying a minimum level of activity? For example, the Welsh One Planet Development policy, (which is a planning policy, not a subsidy), specifies that participants should be growing produce on their land equivalent to 75 per cent of their basic needs, otherwise they may be refused planning permission (see pp29-29)

If, as Alan Matthews states, the EU’s “minimum activity” definition is a challenge to the WTO, then it is a challenge worth making. The EU is bold enough to mount this challenge, and the UK should not flinch from it either, when necessary.

Recommendation 22

All financial support for individual farmers should be directed towards “active farmers” performing a defined “minimum activity”.

¹⁰⁴ A Matthews, *Understanding the ‘Active Farmer’ Debate*, CAP Reform, 13 December 2012, <http://capreform.eu/understanding-the-active-farmer-debate/>

6. FINANCIAL SUPPORT FOR FARMERS

Proposals for subsidies paid directly to each individual farm holding.

Whole Farm Management Scheme

According to agriculture minister George Eustice, the main reason farmers gave for voting Leave was the EU's "nightmare bureaucracy" and the "regulations which make life hard for English farmers".¹⁰⁵ Of course a lot of these regulations are imposed for good reasons; and anyway life is hard — the UK can do without the sort of farmer who seeks a soft life.

Nevertheless, the paperwork designed to regulate the damage that increasing numbers of humans and their technologies can wreak on the environment is burdensome. Any scheme for supporting and regulating agriculture should be as streamlined as possible in order to gain the co-operation of participants.

We therefore propose that all farm support be delivered through a single scheme — just one "Pillar". This scheme would comprise a number of components or options; but it would involve just one application, one monitoring procedure and one payment. We also suggest that each farmer would be assigned one employed adviser to assist them with the process, much as people have a personal doctor or bank manager. Organic certification could be carried out by the same body of advisers, as part of the same scheme (see below).

The Whole Farm Management Scheme WFMS — such is its working title — would be loosely based on the framework of the various Stewardship schemes. These have been moderately successful in their aims, and although they are voluntary, they have been widely taken up, covering 70 per cent of the country in the case of ELS/HLS. There is an existing team of Natural England advisers, which could be built on. However since the objectives of the scheme would include rural development and agricultural productivity as well as environmental protection, either Natural England would have to broaden its remit, or else a new administrative body might need to be established. This would signal a return to the broader vision of a few years ago when social and economic concerns as well as environmental matters were the focus of rural agencies such as the Countryside Agency and before that the Rural Development Commission.

Affiliation to the scheme would be obligatory for all commercial holdings and all holdings of agricultural land over a certain size. This would be to ensure and enforce compliance with statutory environmental conditions, such as prevention of nitrate flow into water courses; and also for the purpose of collecting agricultural census information. However all subsidized components would be voluntary, and only accessible to active farmers producing over a certain threshold. These subsidies would comprise:

- (i) Environmental options, including many similar to those found in the HLS and CS option directories — different options being available for different classifications of land. Plus ongoing support for environmentally benign farming systems.
- (ii) Start-up schemes for new holdings or enterprises, and for conversions to new farming systems; eg converting to a mixed farm, or to direct sales and processing.
- (iii) Other capital grants for improvements to farm infrastructure.
- (iv) Contributions towards organic certification.
- (v) Forestry planting and management.
- (vi) Special grants for establishing Community Supported Agriculture schemes, Farm-Based Village Shops, Low Impact Farm Hamlets, etc.
- (vii) Grants for taking trainees and apprentices; or for the farmer to take a training course.

We also considered including another category, namely payments towards the costs of employing extra workers. This would promote a more vibrant rural economy, provide jobs for people whose aptitudes are best suited for physical work, and help to check the tendency towards gigantism in the use of fossil-fuel-powered machinery.

However one problem (among several) with this is that it would be unjust to reward farms employing labour, without similarly rewarding the labour of the farmer and his or her family — this would give larger farms an advantage over small family farms. On the other hand if you reward farmer and family labour, then that is tantamount to a basic payment for every farm, albeit at a flat rate, and that too has its problems. This matter is discussed separately in the section Special Payments below.

There would be no direct payment based on the area of land farmed — these would be scrapped. Any payments for environmental benefits based on the area of land managed or on headage of livestock would be weighted according to the grade and ecological classification of the land. All such payments would be tapered, so that larger areas of land received less per hectare, on the grounds that there are economies of scale. All such payments would be capped over a certain threshold, to help support a healthy mix of small and family farms.

In the following sections we examine in more detail some of the potential conditions and components of the WFMS. There are also a number of measures which cannot be fitted into the WFMS format, either because they are not grounded in a single farm (eg grants for collective processing facilities), or because they take the form of a tax. However everything that can be assessed on a farm basis should

¹⁰⁵ Vote Leave, *Farmers Will be Better Off if we Vote to Leave the EU*, electoral pamphlet headed by George Eustice and Owen Paterson, 2016
<https://www.nfuonline.com/assets/62264>

be included within the WFMS format, so that it is as far as possible a “One Stop Shop”.

Recommendation 23:

Direct payments based on area of land owned would be scrapped.

Recommendation 24:

All subsidies for individual farmers should flow through a single Whole Farm Management Scheme WFMS, to include: (i) Environmental options; (ii) Start-up schemes for new holdings, new enterprises or conversions; (iii) Other capital grants; (iv) Contributions towards organic certification; (v) Forestry planting and management (vi) Special grants for innovative farm structures; (vii) Grants for taking trainees and training.

Recommendation 25:

WFMS grant options would be voluntary but registration with WFMS would be obligatory to monitor compliance with statutory land use obligations, as well as for taking land and livestock census information.

Organic Certification

Grants for organic conversion are already dealt with through the existing stewardship schemes and would continue to be through the WFMS.

There might also be a case for having organic certification carried out through the WFMS, instead of through independent bodies such as the Soil Association. This would mean absorbing existing organic certification inspectors into the WFMS framework.

The potential advantages are:

- (i) It would mean only one set of paperwork and officials for farmers to deal with;
- (ii) It would make it easier and cheaper to certify small plots of land;
- (iii) It would make organic certification a more accessible and mainstream option.

One possible disadvantage might be a weakening of standards: one might end up with the WFMS certifying “organic lite” and bodies such as the Soil Association and the Biodynamic movement providing more rigorous certification.

Recommendation 26

Consideration should be given to including organic certification amongst the roles of the WFMS.

Active Farmer Issues

The WFMS is a contract made with an “active farmer” in two meanings of the phrase:

- first of all in the sense that if the land is leased for more than a season, the contract is made with the tenant, not the landowner.
- secondly the farmer or forestry worker is actively involved in land-based work producing food, or environmental benefits or both — and not merely a sofa farmer.

As noted above (pp22-23) in some cases this may raise issues about compatibility with WTO green box disciplines.

In respect of paragraph 12 of Annex 2 of the WTO Agreement, a number of different rationales for making payments would be grouped together under the WFMS scheme:

- (i) Payments for costs involved. Farmers would be compensated for the expenses and labour involved in capital investments, ranging from new farm buildings or stone walls, to the planting of hedgerows, trees etc and the repair and maintenance of same.
- (ii) Farmers would be compensated for income foregone, in circumstances where, for example, the animal stocking rate is capped, or areas of land are held back from cultivation for environmental reasons. In these circumstances it would be important to specify a minimum stocking rate as well as a maximum, or that remaining areas of land should be productively cultivated. Specified minimum levels of production might be necessary to ensure compliance with WTO recommendations, since if the farmer is voluntarily reducing production to a level well below the maximum specified, then arguably there can be no income foregone.
- (iii) If the objective is ecological intensification, then some kind of productivity target would be advisable. As mentioned above this might conflict with WTO Green Box rules; but, given that the purpose of such grants is not trade distorting, the interpretation of these rules should be put to the test. It would be easier to argue for a single minimum threshold of productivity which certified an active farmer, rather than a full-scale production subsidy providing pro-rata payments for goods produced.

(iv) Grants based on number of workers, and to support trainees. It is important to ensure that such payments do not tempt landowners or tenants to become “sofa farmers” by employing others to do all the work at the state’s expense. (see below pp22-23)

Grants For Environmental Benefits

The Environmental Stewardship Schemes, and their successor Countryside Stewardship, offer a well-trying framework for providing grants for environmental benefits. The long list of different options that farmers can take up, and the expertise that lies behind them are both achievements that should be built on.

The CS scheme has truly impressive levels of micromanagement, including lists of priorities for the 159 National Character Areas in England (for example Bechstein’s bat is a priority species in the Marshwood Vale, while the greater horseshoe bat is a priority in the nearby Blackdown Hills). These are accompanied by the inevitable interactive maps that you cannot use if you have weak broadband or an aging computer.¹⁰⁶

There are however areas in which the scheme could be improved or adjusted:

(i) The most recent Countryside Stewardship is competitive and only expected to cover 40 per cent of the land in England, compared to 70 per cent for the Environmental Stewardship schemes. The WFMS would be mandatory, even for farmers who didn’t intend to take-up environmental options.

(ii) Some elements of the CS scheme reward farmers for mitigating their harmful impacts — for example by paying for biofilters to decontaminate pesticide washings, or machines to scuffle up and decompact the tramlines made through corn to allow sprayers to pass. There are grants for floating roofs for slurry lagoons, but nothing to encourage the efficient composting of farmyard manure. It would be sensible to gradually splice in the concept that the polluter pays, rather than society.¹⁰⁷ (See p34)

(iii) There is little in the way of overall vision or strategy. What, for example is the future role of the uplands — more sheep, more trees or more diversity? Organic farming is supported, but nowhere is it explained whether the objective is to expand the area under organic cultivation, or just maintain sufficient to provide a niche product for green consumers. Various elements of rotational mixed farming are subsidized, but we are not told whether or not the government endorses the FAO’s verdict that mixed farming is the most environmentally beneficial form of farming. There is a programme called “Catchment Sensitive Farming”, (adapted from the EU Water Frameworks Directive) which focuses mainly on preventing pollution of watercourses from agriculture, but doesn’t appear to tackle wider problems of soil erosion, water retention and flooding. Green agricultural policy should be much more explicit about the vision it is seeking.

Recommendation 27:

The existing Countryside Stewardship scheme offers a useful framework for managing subsidies designed to provide environmental and other public benefits, and embodies a great deal of expertise, particularly in respect of biodiversity. An updated scheme should offer higher rewards for sound farming practice than it offers for mitigating harmful practices; and work towards an agreed vision for UK farming as a whole.

Grants for Water Catchment Benefits

There has been considerable support recently for providing water catchment benefits through direct payments from users, such as water companies, to a consortium of contiguous landowners for ecosystem services (PES see above p22).¹⁰⁸

This is an unsatisfactory arrangement for several reasons:

(i) Measures are not carried out at catchment scale but at consortium scale;

(ii) Landowners who win a contract will be rewarded while others (who may have gone to the expense of hiring a consultant to design a prospectus and an agent to negotiate with potential buyers) won’t be. This has potential to inject an unnecessary and unhelpful element of competition into relations between landowners.

(iii) The proposal chimes with the current notion that farmers should be first of all businessmen and adds a knowledge burden that many would perhaps rather not have.

(iv) The measures to be taken may have multiple benefits enjoyed by multiple users — in other words by the general public. There is already a well-trying and tested means of getting the public to pay for public goods, namely taxation; trying to arrange payment through contracts with private beneficiaries is needlessly complicated. There is, however, a case for imposing a levy on obvious large-scale beneficiaries.

Suggested proposals for water catchment subsidies are therefore as follows:

(i) Water catchment grants come through the public purse, but a significant amount is raised by a levy on water companies and other major

¹⁰⁶ *Countryside Stewardship Statement of Priorities*, March 2015, <https://www.gov.uk/government/collections/countryside-stewardship-statements-of-priorities>

¹⁰⁷ *Countryside Stewardship Manual*, Nov 2015, , https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/498287/cs-manual-1-january-2016-version.pdf

¹⁰⁸ A Francis et al, *New Markets for Land and Nature*, Green Alliance with the National Trust, Sept 2016, http://www.green-alliance.org.uk/resources/New_markets_for_land_and_nature.pdf

beneficiaries, the sum in question being the best available independent assessment of the value of such measures to these companies. Other possibilities for funding include local precepting or levying powers which raise funds through Council Tax, as proposed for the Somerset Rivers Authority.¹⁰⁹

(ii) Broad decisions concerning what activities receive funding and how much is available is decided on a regional basis, under the aegis of the Environment Agency (formerly National Rivers Authority) — the regions being the 10 English river basins that in the days before water privatization were water authorities (Solway/Tweed, Dee, Northumbria, North West, Humber, Severn, Anglian, Thames, South West, South East). The process of assessment would involve public consultations and meetings including farmers' representatives, ecologists and conservationists, water engineers, representatives of water companies, and other stakeholders.

(iii) More targeted local decisions about what subsidies are available are made on a catchment area basis, with a consultation process involving the relevant local water professionals, local farmers and other interested parties. There are currently 109 catchment areas in the UK each with their own officer; and there are 99 community-based Catchment Partnerships.¹¹⁰

(iv) Water catchment subsidies along with most other subsidies, are granted through the WFMS, so that there is a one stop shop for farmers, (meaning less bureaucracy for farmers, and eliminating risk of incompatibility between two separately funded proposals, double funding etc).

(v) Some water policies come under cross compliance, i.e. they are obligatory (eg no fertilizer within x yards of water course etc).

(vi) The rest are voluntary, i.e. the farmer gets more money for carrying them out. They are not competitive; as in Entry Level Stewardship, every farmer can undertake any option that is appropriate for the land they manage. The amount offered ought to be somewhere between the floor of estimated income foregone by the farmer and the ceiling of estimated costs to society avoided — adjusted according to whether the option is being sufficiently taken up by farmers or not.

Recommendation 28

Grants for the improvement of water management and retention should be applied through the WFMS, on a regional and catchment basis, after consultation with relevant stakeholders through the agency of Catchment Partnerships. Levies may be applied to major beneficiaries such as water companies, or to householders via a precept applied through Council Tax.

Forestry Grants

The former Woodland Grant Scheme has already been subsumed into Countryside Stewardship, but there are also grants for planting woodland available under the Countryside Productivity Scheme (though these have been suspended because they are over-subscribed).

The implication is that some woodlands are required for environmental purposes, and others for productive purposes. This “single issue” approach needs to be replaced by a more holistic programme delivered by a single agency. All woodlands are productive and all have environmental impacts. Woodland planting should be designed so as to provide multiple benefits including: timber, biomass (firewood), carbon sequestration, water retention, biodiversity, game cover, shelter, amenity, education and employment.

In particular the employment potential of woodland needs to be enhanced. There has been a revival of labour-intensive woodland industries in recent years including coppicing, charcoal production and horse-logging and this needs to be built on. Minimum planting distances under the old Woodland Grant Scheme were too widely spaced to produce a commercial crop: resulting in amenity woodland that has the potential to be neglected. Planting distances prescribed under the WFMS should be sufficiently close to provide a crop of thinnings after a few years, and ensure the growth of timber grade wood.

Recommendation 29: Woodland planting should be designed so as to provide multiple benefits including: timber, biomass (firewood), carbon sequestration, water retention, biodiversity, game cover, shelter, amenity, education and employment.

Grants to New Enterprises and Small Farms

Current EU regulations, under Pillar 1, allow a special payment for small farmers of up to €1.250 euros per year — not very much, and anyway the UK doesn't apply this. New entrants into agriculture aged under 40 receive a 25 per cent increase on their basic payments for five years, or until they reach 40 years of age.¹¹¹

Since Direct or Basic Payments would be phased out under the WFMS, other grants would be provided to support smaller farms and new enterprises, in order to support the rural economy.

¹⁰⁹ Somerset Rivers Authority, *Funding the SRA*, retrieved January 2017, <http://www.somersetiversauthority.org.uk/about-us/funding-the-sra/>

¹¹⁰ *Water Management and Catchment: Coordinators and Map*. <https://www.gov.uk/government/publications/map-of-water-management-catchments>); Environment Agency, *Catchment Partnerships in Operation: List and Map*, updated Nov 2015; <https://www.gov.uk/government/publications/catchment-partnerships-in-operation-list-and-map>

¹¹¹ *CAP Reform 2016-2020: Agreement and Implementation in the UK and in Ireland* (Updated), RAISE paper, 702-14, 2014 <http://www.niassembly.gov.uk/globalassets/Documents/RaISe/Publications/2014/dard/allen10314.pdf>

The Scottish Government's Small Farms Grant Scheme and New Entrants Capital Grants Scheme provides a very useful model. These schemes

“are designed to aid and develop agricultural production on small or recently established agricultural businesses — sustaining the economic basis of farming and helping retain people in rural communities.”¹¹²

They are available to all new enterprises that class as Small or Medium Enterprises (SMEs), and to small farms of between three and 30 hectares. (The WFMS scheme we advocate would accept holdings of one hectare, or even less if they were for market gardens or other specialized enterprises).

The Scottish schemes provide capital investment for a wide variety of possible installations and improvements, including agricultural buildings, fencing and hedges, electrical equipment etc. Funding is conditional on the project meeting at least one of the following objectives:

- reduce production costs
- improve and redeploy production
- improve quality
- preserve and improve the natural environment, hygiene conditions and animal welfare standards
- promote the diversification of farm activities within the agricultural sector such as changing methods of production (for example, organic or horticulture), the introduction of new crops or the introduction of specialist breeds.

Recipients of these grants must repay the grant if they sell or abandon the holding within three years.

The Scottish Scheme is not replicated elsewhere in the UK. Wales has a Young Entrants Support Scheme¹¹³, which offers a one-off grant for new entrants under 40. England and Northern Ireland, as far as we can tell, do no more than follow the EU guidelines for Basic Payments.

Recommendation 30: Support payments to assist small-scale farmers and new entrants should be provided, modelled, with appropriate adjustments, on the Scottish Small Farms and New Entrants Grant Schemes.

Capital Grants for Innovative Farming Structures

The WFMS could also be a vehicle for providing capital grants for innovative farming structures designed to provide social and environmental benefits. Particularly helpful would be start-up funding, to enable projects to negotiate the bureaucratic hurdles and secure sufficient capital to become established.

Community Supported Agriculture (CSA)

Community Supported Agriculture refers to farms where affiliated consumers or members have a share in the farm, taking on some of the risks, as well as benefiting from the produce. In some case members may contribute to the labour and management of the farm, while in others members may simply pay the farmer a subscription in return for a share of the produce.

There are several examples of successful CSAs in the UK and the movement appears to be growing. CSAs provide a measure of security to the farmer, who can be assured of an income, and they connect the public with the business of food production. They could play a particularly valuable role in the management of land in Green Belts and on the edge of towns and large villages.¹¹⁴

Strategically Positioned Farmland

Farmland bordering, or even penetrating, settlements such as cities, towns and large villages is well placed to provide consumers with fresh produce with a minimum of food miles — yet few farms take advantage of this market opportunity. Planning issues and the elevated price of periurban land are obstacles that stand in the way of prospective market gardeners and farmers who seek to establish themselves close to an urban market.

The WFMS would be a suitable vehicle for capital grants designed to help prospective farmers overcome these difficulties, and establish retail outlets, such as shops delivery rounds and milk vending machines. Such ventures also provide consumers with a sense of ownership and confidence about provenance. Some years ago there was an embryonic campaign based in Cambridgeshire to put a “farm shop in every village”. However this never gained momentum.

Low Impact Farming Hamlets

One striking example of ecological intensification in the UK is the Lammas “One Planet Development” Project in Pembrokeshire, where nine residential smallholdings have been installed on 24 hectares of Grade 4 pasture land and 6.5 hectares of woodland at a height of 130 to 190 metres. The smallholdings were given planning permission on the condition that they met 75 per cent of their basic needs from the

¹¹² *Scottish Small Farms Grant Scheme and New Entrants Capital Grants Scheme*, Scottish Government: Rural Payments and Services. October 2016, <https://www.ruralpayments.org/publicsite/futures/topics/all-schemes/small-farms-grant-scheme/small-farms-and-new-entrants-capital-grant-full-guidance>

¹¹³ *Young Entrants Support Scheme (YESS)*, <https://www.gov.uk/young-entrants-support-scheme>

¹¹⁴ CSA website: <https://communitysupportedagriculture.org.uk/>

land.

Previously the land, like much land in Wales, had been a sheep farm, making a meagre profit of around £2,500 per year on the 24 hectares from around 100 ewes and some mountain ponies — plus the single farm payments. According to Tao Wimbush, one of the project's founders, the land and the sheep were “in absolutely terrible condition”.¹¹⁵

After six years the same land now produces a wide variety of produce, including vegetables, fruit, plants, honey, eggs, poultry, milk, willow and firewood. In 2015, the project as a whole made a profit after deducting costs of £55,081 from produce grown on site, plus another £11,882 from processed goods, and a further £20,169 from on-site renewable electricity and water.¹¹⁶

It is impossible, with the data available, to make exact comparisons of productivity between the former sheep farm and the Lammas project, since the lambs were sold at farmgate prices, while Lammas produce is sold direct and valued at the retail price. However any visitor to the project will be struck by the abundance and diversity of cultivation and husbandry, compared to the surrounding monocultural sheep pasture. Besides food production, over 18,000 trees have been planted on the land, 2364 metres of hedgerow have been planted, and 18 ponds have been dug.¹¹⁷

The project is also a force for revival in the local community and wider rural economy, supporting local services and helping to maintain school pupil numbers. The 24 hectares now provide a living for nine families, rather than for a fraction of a family through sheep-farming. Plots of land close to Lammas have been bought by other smallholders drawn by the project, and Lammas itself is developing further smallholdings on adjacent land. In six years not one of the pioneer smallholding families has given up.

In England a similar scheme run by the Ecological Land Co-operative near Wellington Somerset, with just three smallholdings has now been running for three years. The ELC has since acquired land in Sussex for a second project.¹¹⁸

Farm hamlets such as these have huge potential for ecological intensification of underused farmland, often through a permaculture influenced approach, and for reinvigorating rural economies. Interestingly, the incentive to farm productively normally comes, not from funding linked to production, but from planning permission conditions, and hence there is no potential conflict with WTO rules. However up till now such projects have experienced considerable difficulty obtaining planning consent (see below p36).

Recommendation 31: Start-up funding should be made available for innovative farming structures, including CSAs, farm hamlets and farms linked to settlements.

Safeguards

In an ideal world the payments outlined above, for ecological benefits and capital investment, ought to be sufficient to maintain a healthy natural environment and a thriving farming industry. However, as long as the market fails to pay prices high enough for farmers to make a living, there is likely to be a need for supplementary payments.

Much of the problem is caused by the volatility of global prices. For example dairy farmers receiving around 30 pence per litre in 2014 were getting as little as 18 pence per litre, well under the cost of production, in the first half of 2016. Many farmers have given up dairy production, leading to greater concentration in the industry, and larger more mechanized farms. The price has since bounced back to around 28 per litre, but according to the NFU, it will take 18 months to two years for many farms that have survived the shock to recover.¹¹⁹

Some protection against volatile world prices could be obtained by imposing tariffs, but even if the UK exempts agricultural commodities from any trade agreements it makes (which is unlikely) the level of tariffs that it can impose are limited by WTO rules to those inherited from the EU. A robust enforcement of trade barriers against imports from countries that do not meet UK environmental and animal welfare standards would also help maintain domestic prices.

Besides the chaos of the market, other factors that can reduce a farmer's income for the year to near zero include, severe weather conditions, notably flooding and severe snow; and disease outbreaks such as the 2001 Foot and Mouth epidemic

A “public goods” approach to farm support, is neither designed to address such matters nor is it competent to do so. A UK government which wished to maintain the viability of the farming industry, and reverse the decline in the number of small and family farms, would have to provide payments or other measures which go beyond those designed to provide environmental benefits and capital investments as outlined in the WFMS. From time to time farmers need income support.

In this section we consider three options for maintaining stable farm incomes and the buoyancy of specific sectors of the farming industry. It is difficult to devise any such system which does not bring with it perversities and injustices; but almost anything would be better than the current system of basic payments, calculated according to the area farmed, which operates to the benefit of large landowners, and provides large sums of money to farmers who don't necessarily need it, without sufficiently supporting those who do.

¹¹⁵ Pers com, Tao Wimbush 27 January 2017.

¹¹⁶ *Lammas Annual Monitoring Report 2015*, <http://lammas.org.uk/wp-content/uploads/2013/03/Tir-y-Gafel-Annual-Monitoring-Report-2015-year-6.pdf>.

¹¹⁷ Unfortunately, although at least half a dozen academic papers have been written in Lammas, none have compared productivity and biodiversity with the pre-existing sheep farm.

¹¹⁸ Ecological Land Coop website: <http://ecologicaland.coop/>

¹¹⁹ Michael Oakes of the NFU interviewed on *Farming Today*, BBC Radio 4, 2 February 2017,

(1) Regulatory Bodies

The classic approach to the problem of maintaining stable farm incomes has been to form marketing boards or similar bodies that regulate prices, and provide a cushion for producers against the vagaries of the market.

Chief among these in the UK was the Milk Marketing Board which between 1933 and 1994 maintained relatively stable and equitable prices for milk producers. Dairy farmers are particularly vulnerable to the market because milk is perishable, and there is a wide discrepancy between the value of liquid milk sold fresh and of surplus milk destined for lower value uses such as dried milk powder. Since the MMB had a monopoly on milk produced it could pool the price differences and pay each farmer the same price per litre.

However the socialist ethos of the Milk Marketing Board conflicted with late 20th century neo-liberal ideologies. In 1982 it was sued successfully by the EU Commission and the Irish export organization An Bord Bainne and in 1994 it was disbanded by the Conservative Government.¹²⁰ Since then prices have fluctuated wildly, and some farmers are paid up to 40 per cent less per litre of milk than others.¹²¹

Given the current travails of the dairy industry there are strong arguments for reintroducing something similar to the Milk Marketing Board. However it is harder to envisage this form of regulation representing the best option for the UK farming industry as a whole, for the following reasons:

- (i) It would be cumbersome and bureaucratic to form marketing boards for a wide range of sectors;
- (ii) It might conflict with WTO regulations, or future agreements with the EU etc.
- (iii) It would not be popular in many quarters and would be seen as a return to an interventionist past.

(2) Insurance

The prevalent solution across the Atlantic for providing an “agricultural safety net” is a subsidised farming insurance policy. In the United States, “Multi-Peril Crop Insurance” offers farmers protection against loss of crops due to natural disasters, or due to a decline in price. Eighteen private insurance companies are authorized to provide the insurance, which is part subsidized by the Federal government.¹²²

In Canada, by contrast, the AgriStability programme is run by provincial and central federal governments, without any participation of the private sector. Subscribing farmers receive compensation when receipts fall below 70 per cent of an agreed threshold. The costs of the scheme are \$55 dollars administration costs plus an additional \$4.50 for every \$1000 dollars of income insured, with a minimum payment of \$100.¹²³

Insurance schemes such as these are relatively easy to introduce and uncontroversial since they do not loudly champion any particular ideological approach, either neoliberal or state interventionist. In the post-Brexit era anything transatlantic is looked upon with favour in some quarters. Farming minister George Eustice has stated: “I want us to explore the potential for government-backed insurance schemes like they have in Canada.”¹²⁴ The Canadian model is perhaps preferable, since under the US system, profits made by private insurance companies are part-funded by the government.

One objection to subsidised insurance is that it might encourage farmers to take risks that they otherwise might not take. This is of particular concern in respect of factory farms, where crowding of animals or poor attention to biosecurity can lead to disease outbreaks that entail the death or slaughter of large numbers of livestock. It might also encourage monoculture, since it would diminish the incentive for farmers to spread risks through multi-cropping.

A further objection to subsidized insurance is that it provides no opportunity for the government (and hence in a democracy the electorate), to guide policy. Farmers choose what to grow in response to signals from a volatile global market-place, while indemnity from risk is subsidized by a government that has no say in what is grown, or what risks are taken.

Since insurance would be taken out (or not) by individual farmers, it could be included in the WFMS package, in which case the fee would be deducted from whatever grants were allocated.

(3) Special Payments

A government that wished to proactively influence, the structure of the nation’s farming industry — for example to prevent a haemorrhage of farmers from the dairy industry, or to promote the production of local fruit and vegetables — might seek the ability to target subsidies at chosen sectors, either nationally, or in a specified part of the country.

Thus, whilst there is no case for “direct payments” paid out to landowners willy-nilly according to the amount of land they own, there might be an exceptional need for funds to be directed towards specific agricultural sectors, if and when they are deemed to require support. Such payments might consist of emergency relief for a particular farming sector after a difficult period, or more prolonged support for a specified period of several years to allow farmers to plan ahead.

120 S Fairlie, “Dairy Miles”, *The Land* 13, 2012-3

121 Keith Moore, “Do British Dairy Farmers Really Make a Loss on Milk? *BBC Magazine Monitor*, 31 January 2015,

122 See: <http://www.cropinsuranceinamerica.org/about-crop-insurance/how-it-works/>

123 Government of Canada, Agri-Stability, <http://www.agr.gc.ca/eng/?id=1291990433266>

124 Philip Case, “George Eustice Sets Out Vision for Farming Life Outside EU”, *Farmers Weekly*, 23 March 2016.

Since these “special payments” would be made directly to individual farmers, they could be allocated through the WFMS. There remains the question of how to calculate how much should be paid to each farmer. Clearly this should not be on the basis of the area of land owned. Instead, payments could be based according to the number of people employed on the holding (including farmer and family labour). The number of people employed is a better indicator of contribution to the rural economy, than the number of acres owned. And it would not result in capitalization in the price of land.

The amount of annual payment received by each qualifying farm would thus consist of a base sum, representing the labour of the farmer, farming family, registered company or other body running the farm. This basic payment would be increased by a further sum allocated for each additional registered full-time worker, or equivalent, employed on the farm. A 1000 hectare farm would thus only attract more subsidy than a 100 hectare farm to the extent that it employed more people. This element of the payment would favour labour intensive types of farming, such as dairy and horticulture, as opposed to less labour intensive enterprises, such as beef or corn.¹²⁵

This special payments option can be seen as a way preserving direct payments, but only for those sectors of the farming industry that genuinely need it; and structured so as to support employment rather than land-ownership.

It is less attractive to mainstream decision-makers than the somewhat anodyne insurance option, which meshes more conveniently with neoliberal ideology. But for those who distrust the dominance of the market, special payments enable a government to have some influence upon the way market forces affect the shape of agriculture. Even if the need for such payments occurred only rarely, it would be pointless for any government to relinquish the power to do this.

Recommendation 32

Environmental and capital investment subsidies supplied through the WFMS are not sufficient in themselves to guarantee the stability of UK agriculture in the face of global market forces or exceptional weather and disease events. Measures should be taken to guarantee the viability of farms and farming under such circumstances.

Consideration should be given to the following options: (i) reinstating marketing boards (notably in the case of the dairy sector); (ii) introducing a government-operated farm and crop insurance scheme; and (iii) providing exceptional or emergency payments to farming sectors which are weak or experiencing difficulties.

Summary of the WFMS

Farmers faced with a five year (say) WFMS contract would therefore have the following to consider:

- (i) “Cross compliance” measures that were obliged to comply with.
- (ii) Options for subsidies based on the water catchment area they were in.
- (iii) Options for subsidies based on the National Character Area they were in.
- (iv) Options for capital grants, start-up grants etc that applied nation-wide.
- (v) Special Payments for sectors or regions that were struggling or needed support; and/or insurance against crop/income loss.

Farmers would be able to access free advice about all these options. In respect of (ii) the water catchment subsidies, advice would be supplied by the water catchment area officer; in respect of (iii) there would be an officer representing the National Character Area providing advice; in respect of the whole bundle there would be a local extension officer able to supply free advice (see below) — though farmers could if they preferred hire a private consultant or agent.

¹²⁵ There are complications, particularly concerning the precise definition of farm worker, which can be addressed, but which are not covered here for reasons of space.

7. OTHER SUBSIDIES

Proposals for subsidies not paid directly to farmers.

There are a number of facilities connected to the farming industry that would benefit from subsidy which cannot be reached through the WFMS process, because they are not initiated, owned or managed by single farms. These relate to such matters as extension services, training, research, processing systems and facilities for direct marketing etc. They are particularly needed by smaller scale farms, since larger farms are served by private sector companies (ADAS, food processors such as Arla, supermarkets etc) which are not interested in or equipped for meeting the needs of smaller farms. Initiatives such as these were often

In 2014, the EU parliament passed a motion supporting a report on “The Future of Small Farms” Its rapporteur noted that whereas support for small businesses (the S in SME) is in vogue amongst European policy makers, this enthusiasm has not yet been extended to the agricultural sector. He observed:

“Small agricultural holdings have been unfairly treated under the existing Common Agricultural Policy . . . Small agricultural holdings could take up various types of production and activity like small firms in other sectors of the economy, and are not just a transitional structure, predominantly social in character, that is typical of less developed EU states undergoing change.”¹²⁶

The motion, passed in committee by 22 votes to 2 against, and subsequently ratified by the European Parliament stated, among other things, that “the process of rural exodus and depopulation must be countered without delay” and to this end:

“Calls for an increase in direct sales – such as sales of traditional products – on local and regional markets, and for the development on smallholdings of a sustainable, responsible form of processing and an essential and proportionate monitoring system;

“encourages the Commission and Member States to review the existing provisions on food safety with a view to reducing burdens and eliminating the obstacles that they may cause for the development of food processing and sales by small agricultural holdings . . . “Calls, furthermore, on regional authorities to be more active with regard to the development of infrastructure for direct sales, including rural and urban marketplaces, making it easier for consumers to acquire cheap, healthy, high-quality farm produce.

“Calls for free advice to be better tailored to the needs of smallholdings, for procedures relating to information, training, risk assessment and health surveillance to be simplified, for information campaigns to be mounted, for the sharing of best practices where the short food supply chain is concerned . . . as well as for advice that helps smallholdings to adapt the profile of their production activity to their production and environmental potential.”¹²⁷

So far England (as opposed to Scotland and Wales) has done very little in this line to stem the exodus of farmers, and will no doubt delay doing so until the UK leaves the EU when it will no longer be answerable to this resolution. But the motion remains an accurate assessment of how rural development funding could be better used to support a vibrant small farm economy, by providing support for initiatives related to processing and marketing, as well as advisory services.

Marketing and Processing Facilities

Marketing Projects

Start-up funding should be made available for local marketing initiatives for agricultural produce for instance through farmers cooperatives, producer groups, CSAs, distribution hubs, street markets etc.

Contracts with Institutions

Procurement policies could be altered to actively encourage institutions such as universities, schools, hospitals and prisons to make contracts with nearby farmers to supply a complete package of agricultural produce. For instance Cliffe House Farm, the only dairy farm near Sheffield still bottling milk, in 2014 received a grant from DEFRA to supply milk to the University of Sheffield.¹²⁸

Small scale processing facilities for local distribution

Processors who operate on a national level cannot cope with small quantities, but for local distribution small-and medium-scale production and processing is better. Maplefield Milk, initially funded with a £45,000 award from the Princes Countryside Trust, is an example of a processor paying nearby farmers well over the normal price for fresh, unhomogenized milk distributed locally.¹²⁹

¹²⁶ European Parliament, *Motion for a European Parliament Resolution on the Future of Small Agricultural Holdings*, 2013/2096(INI) <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A7-2014-0029+0+DOC+XML+V0//EN>

¹²⁷ European Parliament, *Resolution of 4 February 2014 on the Future of Small Agricultural Holdings*, <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2014-0066>

¹²⁸ Ben Barnett, *University Deal for Sheffield Dairy Farm*, Yorkshire Post, 8 November 2014; <http://www.yorkshirepost.co.uk/news/environment/university-deal-for-sheffield-dairy-farm-1-6941368>

¹²⁹ Maplefield Milk website: www.maplefieldmilk.epageuk.com

Recommendation 33: Capital funding and start up grants should be available for marketing initiatives, processing facilities and similar.

Agricultural Advisory Services

Various studies have concluded that “small-scale farmers are under-served by formal advisory services” and that “advice for small-scale farmers needs to be publicly funded”.¹³⁰

The UK lost its only agricultural extension service (the traditional name for agricultural advisory services) when ADAS was privatized in 1997. ADAS is now a consultancy service which is too expensive for most small scale farmers; it also runs a subsidiary business, Resolved Developments, which specializes in enabling landowners to sell off agricultural infrastructure for residential development, and thereby acts against the interests of the farming sector as a whole.¹³¹ There is thus no place that small farmers can turn to for affordable advice, beyond informal contacts, and commercial suppliers such as vets and seedsmen.

An extension service could be revived relatively cheaply through the government providing funding to agricultural colleges for that purpose, most of which are county based (though some, such as Wye and Seale Hayne have closed down). This would be modelled on the US Co-operative Extension Service, the brainchild of the Smith-Lever Act of 1914 which stated that the US Department of Agriculture should provide funds to state agricultural universities to provide extension services (as well as to county-based extension agencies, of which there are still 2,900 throughout the US). That is the reason why, if one poses an agricultural question on Google, the answer is so frequently supplied by a US University Extension Service.¹³²

An extension service should also address the needs and concerns of non-commercial landowners, including hobby farmers, owners of amenity land, horse owners and people taking on the management of an acre or two of “wildflower meadow” or “woodland”. Such people buy the smaller plots that larger farmers can’t be bothered with when a farm gets subdivided. Most have little experience in managing land and little interest in making it productive. Some have environmental concerns, but otherwise much of this land is lost in terms of the public good it can provide. The area of land so managed is now so extensive that a department of every county extension service should be devoted to informing and assisting such people.

Recommendation 34: A nationwide agricultural advisory service providing information for all land-managers, large or small, should be developed in conjunction with agricultural colleges on the US extension service model.

Research

The majority of agricultural research carried out in the UK, and globally, is orientated towards high input chemical agriculture. It is estimated that 95 per cent of organic crop production is based on varieties for non-organic agriculture, which lack the traits required for successful organic production.¹³³

Rothamsted, the UK’s leading agricultural research centre is funded by the Biotechnology and Biological Sciences Research Council, which is turn is largely controlled by the Department for Business, Energy and Industrial Strategy (DBEIS), rather than the Department for the Environment, Food and Rural Affairs (DEFRA). It has a joint venture trialling GM wheat with the Swiss agribusiness giant Syngenta, which is currently under threat of a takeover from the China National Chemical Corporation.¹³⁴

In regard to GM crops, the UK, being an island and largely GM free, is ideally positioned to pursue scientific research into non-GM agriculture, enabling comparisons to be made between the performance of non-GM agriculture in the UK and GM agriculture elsewhere. This would particularly be the case if the EU were to embrace GM crops. However unfortunately the UK farming and scientific establishment has been one of the main advocates of GM crops in Europe.

Recommendation 35:

More funding should be made available for the development of seed varieties and agricultural techniques suitable for organic, low input and smaller-scale farming.

¹³⁰ L Madureira et al, *Advisory Services for Small Farmers: How Effective Is Its Response to Farmers Needs and Demands*, PRO-AKIS May 2015, http://www.proakis.eu/sites/www.proakis.eu/files/PROAKIS_WP4_SynthesisReportT1_Final.pdf; L Sutherland et al, *New Knowledge Networks of Small Scale Farmers in Europe’s Periphery*, Harper Adams University, <http://www.harper-adams.ac.uk/events/ifsa-conference/papers/1/1.1.04%20Sutherland.pdf>, 2015..

¹³¹ Resolved Development Adas website: <http://www.resolved-developments.uk/>

¹³² Wikipedia, *Co-operative State Research, Education and Extension Service*, retrieved 8 Dec 2016.

¹³³ E.T. Lammerts van Bueren et al, “Improving Production Efficiency, Quality and Safety in Organic and ‘Low-Input’ Food Supply Chain”, *NJAS - Wageningen Journal of Life Sciences*, Volume 58, Issues 3–4, December 2011, Pages 193–205, <http://www.sciencedirect.com/science/article/pii/S157352141000014X>; *Breeding for Organic: New Populations and Varieties*, 9th Organic Producers’ Conference, Elm Farm Organic Research Centre, November 2014

http://www.organicresearchcentre.com/?go=Information%20and%20publications&page=Nov2014Conf_breeding_arable

¹³⁴ *Syngenta*, Rothamsted Research, <http://www.rothamsted.ac.uk/collaborators/syngenta>

8. TAXES AND LICENSING

Proposals for penalties for causing negative environmental impacts

Fuel Taxes

A heavy tax on fossil fuels (or similar measures) designed to limit their use so as to achieve climate targets, would be highly desirable. It would almost certainly lead to a reduction in meat consumption, through reduced availability of fertilizers for growing feed, and through increased demand of grazing land for biomass energy, and this would serve to reduce methane emissions.¹³⁵ However a tax on this scale is beyond the scope of this report.

Recommendation 36: The fuel tax exemption for farmers (red diesel) encourages excessive use of fossil fuels and should be scrapped.

Meat Taxes

Rationing is the most equitable way of limiting food consumption, but it would not be politically acceptable unless there were already an absolute shortage of meat (as during the Second World War).

The Land magazine has examined a number of different meat taxes.¹³⁶ None are entirely satisfactory, partly because a blanket tax on meat would penalize sustainable forms of meat production and unsustainable forms. To try to distinguish between the two would be extremely difficult and it might even be counterproductive since industrial farmers will argue that grain fed factory farmed pork and chicken is more sustainable than pasture fed meat, and their view might hold sway. Many current proposals for meat tax propose a higher tax on ruminants than on monogastrics.

For this reason the most promising form of meat tax may be to put VAT of say 20 per cent onto all meat and meat products. This would be easy to apply, and would hopefully be accepted by the public with relatively little fuss, since there is already VAT on some luxury foods. The tax might be more readily accepted if the government explained that returns to the treasury enabled grants to be made to support smaller-scale and humane livestock farms.

The principal advantage of VAT as a meat tax is that it is progressive, in the sense that smaller scale farmers with a turnover under £82,000 can remain exempt. They would therefore be able to sell their meat directly to consumers, more cheaply than larger farmers and supermarkets. However there would be no advantage for them in selling their meat to supermarkets or retailers registered for VAT, since VAT registered retailers could claim back the VAT on any meat they purchased. Since many of the environmental and welfare problems with livestock occur through overcrowding, VAT on meat would tend to favour better livestock husbandry, as well as smaller farms, farmers markets and local economies. To provide maximum benefit to smaller farms, the slaughtering of livestock in abattoirs could remain VAT free, whereas subsequent butchering services would be subject to VAT.

The imposition of VAT should be accompanied by a review of regulations to ensure that large scale meat producers do not lower standards in order to hold down the price.

On the other hand VAT, like most meat taxes, would be regressive in respect of consumers, particularly urban consumers without access to a farmers market. A person consuming what is currently the average amount of meat, but paying 20 per cent extra, would see their weekly expenditure on meat rise by £1.20.¹³⁷

Current UK household expenditure on meat is £18.7 billion, more than on any other food category. If meat consumption were to decline by 10 per cent and 20 per cent of this remained exempt from VAT, the gross receipts for the exchequer would be £2.7 billion — which is about £13,500 for every holding in the country.¹³⁸ However increased consumer expenditure on meat might result in reduced expenditure on other products subject to VAT so the net return to the treasury would be less than this

Recommendation 37: VAT should be imposed on meat products.

Polluter Pays Mechanisms

Farming involves humans manipulating natural processes in order to secure greater yields from certain plants and animals than would occur naturally. Environmental subsidies for agriculture have therefore mostly been based on the principle that food growers have a right to alter the natural environment, and should be compensated if society expects them to desist. This view is enshrined in Paragraph 12 of the *WTO Annex on Agricultural Subsidies*.

An alternative view increasingly being advanced by market-orientated environmentalists, is that farming, like other industries, should pay the costs of its “externalities” ie the harm that it causes which otherwise is borne by society as a whole.¹³⁹ This is the “polluter pays”

¹³⁵ S Fairlie, “Meat Tax”, *The Land* 19, 2016; <http://www.thelandmagazine.org.uk/articles/meat-tax>.

¹³⁶ Ibid

¹³⁷ DEFRA, *British Food and Farming at a Glance*, March 2016, <https://www.gov.uk/government/statistics/british-food-and-farming-at-a-glance>

¹³⁸ DEFRA, op cit 124; Eurostat, *Agricultural Census in the UK*, 2012, http://ec.europa.eu/eurostat/statistics-explained/index.php/Agricultural_census_in_the_United_Kingdom

¹³⁹ Eg D Helm op.cit. 99

principle. The most obvious application of this principle would be to license and tax farmers for using poisonous chemicals, precautionary antibiotics, and artificial fertilizers. (There would be no need to tax organic fertilizers since it is because of the superabundance of chemical fertilizers that the use of manure is wasteful and problematic). Such a tax could be calibrated so that farmers only resorted to such measures when they felt it was necessary, resulting in reduced levels of pollution and antibiotic resistance. It would, of course have the advantage of bringing in funds that could then be used to subsidize environmental forms of farming.

There are two problems with such an approach. Firstly there would be great resistance to any such measure from the industrial farming lobby. It could be pointed out to them that taxation would encourage the “precision farming” techniques to reduce the use of pesticides and fertilizers which they are keen to promote; and that the funds would be returned to the farming industry in the form of subsidies for environmental improvements. Nonetheless this is hardly likely to be well-received.

Industrial farmers would also argue, probably correctly, that there would be a reduction in yields, and that this might result either in expansion of arable farming in the UK, or reliance upon ghost acres elsewhere, for example through increased imports of soya or corn. The surest and greenest way of preventing this happening is to reduce animal feed production (as discussed elsewhere in this paper). Probably taxation of these harmful inputs can only be feasibly carried out in conjunction with a decline in meat consumption — an ambitious project.

Recommendation 38: The strategy of taxing harmful inputs should be given consideration.

Polluter Pays: Labelling

There is one other cost incurred by the agrochemical industry but borne by other members of society — namely the provision of consumer information. At the moment the cost of labelling food so that consumers can identify whether it has been produced with agrochemicals is borne by those consumers who do not want to consume such food, who pay for the considerable costs of organic certification and labelling — a *caveat emptor* approach.

Organic food production has a pedigree of several thousand years, whereas the contentious chemicals in question were introduced over the last 100 years. It is perverse for the cost of informing the public about their presence in food to be borne by consumers who do not want to buy such food. If a paint, for example, contains a noxious chemical, we force its manufacturer to advertise the fact on the label. We do not demand manufacturers of paint which does not contain such chemicals to apply for a special certificate. The same principle should apply to food labelling.

As well as being inequitable, the current organic labelling system is also inefficient since there are large areas of land which are not subject to chemical management and yet are not certified organic.

The alternative would be to establish a licensing and labelling regime whereby supermarket goods so produced were obligatorily labelled “produced with pesticides/ artificial fertilizers/antibiotics/ GM”. Most food produced organically would then not need to undergo certification since it would be regarded as “conventional” and the price differential between organic and non-organic would be radically altered — leading to much greater public uptake of organic food.

The cost of a licence to use agrochemicals could simply be calibrated to compensate the government (or a delegated body such as the Soil Association) for operating the scheme; or it could be set at a rate that made a profit for the exchequer, in which case licensing would also function as a meat tax.

Recommendation 39: The cost of informing consumers about the use of chemicals, precautionary antibiotics and GM processes in the production of food items should be borne by the farmers and food producers using these inputs.

9. LAND USE AND OWNERSHIP

Measures to assist access to land.

Any revision of the funding mechanisms and priorities for UK agriculture would be better made in tandem with changes to other aspects of land use, particularly in respect of planning and matters relating to access to land. This chapter draws attention to some of these, but we do not attempt to examine them at length, since they could be carried out irrespective of whether the UK left the EU or not, and we have covered these issues elsewhere.

County Farms

The County Council Farms' estate has undergone a continuous decline from 6750 tenants on 127,500 hectares in 1984, to 2500 tenants on 90,000 hectares in 2015.¹⁴⁰

This process needs to be reversed. County Smallholdings are very sought after, they offer affordable opportunities to new entrants, and they enable local authorities to initiate farming projects in strategic places, for local food provision, care-farms, farms linked to educational facilities etc. There are opportunities for subdividing some larger farms to provide two or more smaller holdings focussing on direct sales.¹⁴¹

The sections in the Smallholdings and Allotment Acts 1926 which empowered County Councils to acquire land for smallholdings, and to apply to central government for assistance with funding were repealed in 2004.¹⁴² They should be reinstated, with the help of a budget derived from the Brexit windfall, or from VAT on meat.

Recommendation 40: The County Farms estate should be maintained, enhanced and expanded.

The Land Registry

Recommendation 41: The Land Registry should not be privatized. It should be made easily accessible to the public, with cadastral maps in district council offices and available free online, as in France. All parcels remaining unregistered should be registered.

Planning

There are occasionally calls for agricultural activities to come under the land use planning system; but this would be unwise since planning officers do not have the expertise to assess farming matters.

However the planning system does control the use and construction of agricultural buildings and residences. In recent years there has been a succession of planning policies and legislation that has been prejudicial to the farming sector — most recently Class Q Permitted Development Rights, which allow a landowner to convert agricultural buildings to market residences without seeking planning permission.¹⁴³ This measure will undoubtedly make it harder and more expensive for new entrants to acquire land with agricultural buildings — with the result that they are more likely to purchase bareland holdings.

This in turn raises another obstacle for smallholders and horticulturists, since they often have severe problems securing permission for relatively small agricultural buildings — whereas larger scale farmers can construct barns up to 465 sq. metres in area through permitted development rights.¹⁴⁴

The planning system has a major role to play in promoting the establishment of peri-urban farms supplying local food (see p16).

Finally it would be good to see a planning policy in the UK that encouraged farm hamlets, of the kind discussed on p29. The Welsh One Planet Development policy is a useful model, though a target that was less focussed on subsistence and more on providing food for the wider community would be more conducive to sustainable agricultural productivity.

Recommendation 42: The National Planning Policy Framework and the General Permitted Development Order should be revised so as to protect the availability and affordability of farm infrastructure, and promote the establishment of small farms and farming hamlets providing local produce.

¹⁴⁰ Personal communication from George Dunn of the Tenant Farmers Association, 15 Dec 2016. See also figures at http://www.liquisearch.com/agriculture_in_the_united_kingdom/current_issues_in_british_agriculture/county_farms

¹⁴¹ Balham Hill Farm Interim Collective, *Food for Thought: A Proposal for Maximizing the Potential of Balham Hill Farm (and other County Farms) for Local Food Production*, May 2006, available from the author of this report.

¹⁴² *Smallholdings and Allotment Acts 1926, Repeals Act 2004*.

¹⁴³ *General Permitted Development Order 2015 Class Q*, <http://www.legislation.gov.uk/uksi/2015/596/schedule/2/part/3/crossheading/class-q-agricultural-buildings-to-dwellinghouses/made>; See also: "Another Hand-Out to the Gentry", *The Land* 15, 2013-4.

¹⁴⁴ S Fairlie, "The Lesser of Two Evils", *The Land* 20, 2016, p 67.

Horseculture etc .

There are nearly a million horses in the UK, which probably occupy at least a million acres of pasture land.¹⁴⁵ Sadly, hardly any do any useful work nowadays, nor are they eaten, but they do provide enjoyment and employment to a section of the population.

If there is increasing pressure on land for food production, energy, biodiversity and carbon storage, then it is legitimate to ask whether pastimes that use extravagant amounts of land, such as horseculture, and golf, should be sustained. To start restricting such pastimes would be unpopular with many people and viewed as killjoy. But there would be no harm in commissioning a much-needed research study into the sustainability or otherwise of the horse industry.

The report could also examine the potential for using horses for forestry and agricultural purposes. The use of draught horses for agriculture is much more widespread in the USA than in the UK.¹⁴⁶

Recommendation 43: A report should be commissioned examining the sustainability and social and environmental impacts of the equestrian industry.

¹⁴⁵ British Equestrian Trade Association, *National Equestrian Survey* 2015.

¹⁴⁶ See *The Small Farmers Journal*, published quarterly from Sisters, Oregon.

10 FEASIBILITY

Prospects for implementing the recommendations in this report.

Political Feasibility: Four Main Policy Recommendations.

(i) WTO tariffs on imported food to be maintained

Frankly this is less than likely. There will be pressure from a great many sources to keep the UK in the EU customs union, or establish bilateral free trade deals, and keep tariffs to a minimum. The NFU and the CLA, representing larger landowners, wish to see tariffs removed to boost exports, even though the UK has a large agricultural trade deficit.¹⁴⁷

The enthusiasm for exports, without thought for imports, is reflected in the Government's "UK Food and Drink International Action Plan".¹⁴⁸

However, although the NFU considers "access to the Single Market vital" a survey of members showed that the "Norwegian solution", which offers the potential for keeping agriculture and fisheries out of a free trade agreement, was the most favoured of existing trade models; and there was "overwhelming support" for trade restrictions on imports where standards in importing countries were lower.¹⁴⁹ A poll by the Adam Smith Institute has concluded that the majority of UK voters favour a Norwegian style solution".¹⁵⁰ Jeremy Corbyn has been reported as saying "We're looking very closely at the Norwegian model . . . Maybe we can learn a lot from Norway."¹⁵¹

(ii) A Whole Farm Management Scheme that provides support for environmental, social and economic public benefits.

Neither the CLA nor the NFU have outlined detailed plans for how they wish support payments to be made after 2020. The NFU has consulted members and will be publishing the results in the New Year. Mainstream farmers will probably be happy to receive payments for voluntary options, but will resist regulations — there is particular resistance to the EU's three crop rotation rule.

Large environmental NGOs such as the National Trust and RSPB would probably feel comfortable with most of what is proposed in the WFMS, since it would see a much larger proportion of the total funding than at present dedicated towards environmental benefits. Such NGOs tend to espouse the language of "public goods", but being single issue organizations fail to articulate to what extent this includes social and economic benefits.¹⁵² Greenpeace, which recently mounted a campaign against mega-subsidies for large landowners would probably be supportive, and a short item on the Friends of the Earth website indicates a broadly similar approach.¹⁵³

One tendency to be wary of would be the neoliberal "natural capital" approach put forward, notably by Dieter Helm, which is influential but ultimately at odds with Green philosophy (see p22.)

(iii) Safety net for farms and farm sectors in difficulty.

The "special payments" proposal is preferable insofar as it gives the government some flexibility in regard to which sectors to support. It is a compromise between continuing to make direct payments and complete withdrawal of income support payments and as such ought to prove acceptable to a middle ground of people and organizations. However, a subsidized insurance system is more in line with current market-based approaches, and is probably more politically feasible. A Milk Marketing Board, although it makes sense, is very much at odds with current neoliberal and non-interventionist thinking.

(iv) VAT on meat.

This is not a proposal that will meet with immediate acceptance. But meat taxation has some influential advocates (eg Chatham House) and will probably be applied in some form eventually so the Greens ought to be in the vanguard.

Financial Feasibility

¹⁴⁷ Country Land and Business Association, *New Opportunities: A Trade Policy that Creates Markets for Farmers at Home and Abroad* <https://www.cla.org.uk/sites/default/files/CLA%20New%20Opportunities%20Trade.pdf>; National Farmers Union, *Full Access to Single Market Vital*, NFU Press Release, 4 Oct 2016; <https://www.nfuonline.com/news/press-centre/press-releases/full-access-to-eu-single-market-vital-to-farmings/>

¹⁴⁸ DEFRA and Department for International Trade, *UK Food and Drink International Action Plan 2016-2020*, <https://www.gov.uk/government/publications/uk-food-and-drink-international-action-plan-2016-to-2020>

¹⁴⁹ *NFU Post-Brexit Consultation Finds Farmers Want Norwegian Model for Trade Within EU* 14 October 2016, https://www.farminguk.com/news/NFU-post-Brexit-consultation-finds-farmers-want-Norwegian-model-for-trade-within-EU_44494.html

¹⁵⁰ Peter Spence, "UK Voters Back Norway-style Brexit, Poll Reveals", *Daily Telegraph*, 11 June 2016, <http://www.telegraph.co.uk/business/2016/06/11/uk-voters-back-norway-style-brexit-poll-reveals/>

¹⁵¹ R Hutton, *U.K. Labour's Corbyn Looks to Norway for Lessons on Brexit*, Bloomberg, <https://www.bloomberg.com/news/articles/2016-09-15/u-k-labour-s-corbyn-looks-to-norway-for-lessons-before-eu-exit>

¹⁵² Helen Ghosh, *The Future of Our Countryside*, National Trust, 4 August 2016, <https://www.nationaltrust.org.uk/news/the-future-of-our-countryside>. Martin Harper, *What Does Brexit Mean for Farming and the Environment in the UK?*, RSPB, 19 Aug 2016, <http://www.rspb.org.uk/community/ourwork/b/martinharper/archive/2016/08/19/what-does-brexit-mean-for-farming-and-the-environment-in-the-uk.aspx>

¹⁵³ Kierra Box, *Brexit: What Next for Food and Farming?* Friends of the Earth, 01 September 2016, <https://www.foe.co.uk/blog/brexit-what-next-food-farming>

The potential funds available are as follows:

€7.9 billion is the sum paid annually to the EU by the UK which is deemed to have been spent on the CAP (i.e. 39 per cent of the total paid to the EU by the UK), of which:

€3.8 billion is the sum received from the EU through CAP; this is the equivalent of about €19,000 per farm.

€4.1 billion is the proportion of UK payments towards the CAP which are not redeemed through the CAP programme; this is the equivalent of about €20,000 per farm.

An estimated £2.7 billion could be found by imposing a 20 percent VAT tax on meat. This is the equivalent of about £13,000 per farm. However VAT on meat might result in reduced spending on other consumer goods subject to VAT.

Some funds for water catchment projects could be found by imposing levies on water companies and other private beneficiaries; and by a precept applied to consumers through Council Tax.

Abolition of the 47 pence per litre fuel tax rebate for farmers would yield a further relatively small sum to the treasury.¹⁵⁴

A licensing and labelling scheme for agrochemicals could be charged at a rate that was effectively a tax, but this would increase opposition to such a programme.

As noted above, these sums are very small compared to the amount spent on health, social welfare, housing and education, and publicity should emphasize that this is a cheap price to pay for healthy food and environmental protection.

Recommendation 44

The existing payment to UK farmers of €3.8 Euros should be ring-fenced for agriculture, and the €4.1 billion extra that has been paid towards the EU agricultural budget should be made available as necessary to improve environmental performance and ensure the viability of the farming industry.

A Common Programme

As a whole, the recommendations in this report are not going to find favour with the NFU and CLA, though other farming bodies such as the Tenant Farmers Association might be more sympathetic. They do not wholly align with the objectives of the major single issue environmental NGOs, but are not necessarily incompatible with them. They are most in line with the thinking of NGO's with a broader brief (i.e. both environmental and social) in respect of the UK countryside, such as the Council for the Protection of Rural England (whose recent report on farming has many good ideas¹⁵⁵) and the New Economics Foundation, who are working with Global Justice Now on these issues.¹⁵⁶

Many green and social justice groups are exploring and evolving policies for agricultural policies post-Brexit. There are potentially scores of different policy options, and hundreds of variations thereof. For instance a draft policy document from the NEF proposes a flat rate payment for all farms whether large or small. This policy has the same objective as the Special Payment proposed in this document — to support farms in difficulty and redistribute the balance of payments towards smaller farms. However in our view it is inflexible and risks making payments to large farms that don't need the money, and undermanaged smallholdings that don't deserve it.

For the policies we have proposed in this report to have any resonance it is important that they harmonize with similar proposals from like-minded organizations, so that a coherent and solid front can be formed with sufficient weight to win the attention of the media and the public. The Greens should therefore seek out partners, possibly through the forum initiated by Sustain,¹⁵⁷ or perhaps initiate a forum itself. In this respect we emphasize that the policies advocated in this report are those that the authors consider to be the most promising — but they are by no means the only way ahead that is politically acceptable. A desirable outcome is most likely to occur by adapting these policies as part of a process of alliance building.

The Soil Association might not feel comfortable with some of the recommendations made in this report about organic certification. That is not to imply that we have any criticism of the Soil Association; rather that we wish to see the work it does becoming more mainstream, if not the default option.

One other matter deserves a mention. Brexit is the result of a shift in public opinion towards views that are euphemistically grouped under the term "populism". The Greens should obviously not be pandering to the cruder, nationalistic elements of this movement, but it ought to be engaging with this half of the electorate. There are some elements of the policy we advocate which are more acceptable than others to many who voted Leave — such as support for local family farms, and a measure of protection against needless imports — and these should be emphasised in publicity targeted in this direction. Readers of the *Daily Mail* should not be ignored. It is after all the

¹⁵⁴ In 2007, 209,000 tonnes of diesel were used in agriculture; assuming the figure is broadly similar today, which implies revenue foregone of about £100 million. But removing the rebate would encourage farmers to move to other fuels such as natural gas and LPG, unless these were similarly taxed. House of Commons Library, SN824 *Taxation of Road Fuels* 10, Jan 2014; Warwick HRI, *Direct Energy Use on Agriculture: Opportunities for Reducing Fossil Fuel Inputs*. DEFRA May 2007.

¹⁵⁵ Graeme Willis, *New Model Farming: Resilience Through Diversity*, CPRE, Aug 2016, <http://www.cpre.org.uk/resources/farming-and-food/farming/item/4347-new-model-farming>

¹⁵⁶ S Devlin and H Wheatley, *Agricultural Subsidies in the UK After Brexit*, New Economics Foundation, draft 2016..

¹⁵⁷ *Brexit Forum: The Future of Food, Fishing and Farming*, meeting of representatives of 47 organizations, organized by Sustain held in London on 10 November 2016. The Green Party was not represented. Comprehensive minutes of the event are available from Sustain.

newspaper that has done most to combat the spread of GM crops.

Recommendation 45: The Greens should seek to participate in or help establish a forum of like-minded organizations to explore the possibility of a common programme based on a synthesis of recommendations made in this report with whatever strategies may be advanced by other groups.