



## **The All Party Parliamentary Group on Agroecology**

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# **Key Policies for Agroecology in the UK**

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*The views expressed in this document are those of the authors and do not necessarily reflect those of the Members of the All Party Parliamentary Group on Agroecology*

## **Summary for Decision Makers**

Key policies within and beyond the Common Agricultural Policy recommended in this report to foster UK agroecology are:

- Reducing or eliminating direct Pillar One CAP subsidies, and targeting CAP payments more specifically upon environmental and social public goods, and rural regeneration
- Capping payments to large farms, and developing a strong small farm scheme
- Revising planning policies and guidance to facilitate small-scale agricultural dwellings and other agricultural buildings where appropriate on greenfield sites
- Introducing careful supply management mechanisms such as price guarantees, production limits/quotas and export duties in order to prevent the undermining of global agroecology through food dumping and to incentivise agroecology in the UK through market supports
- Strengthening competition law to limit retail market concentration
- Introducing carbon taxation and/or other green taxes in order to incentivise optimum use of non-renewable and polluting resources
- Supporting horticultural over arable production through small farm supports and planning policy reform
- Supporting extensive livestock production, for example by working to retain smaller abattoirs and de-incentivising purchased fodder
- Shifting the regulatory burden away from farmers who participate in biospheric cycling of farm inputs (eg. organic farming) and towards those who buy in unsustainable and polluting inputs
- Supporting farm and landscape biodiversity
- Seed funding the development of networked, participatory farm extension services
- Supporting greater public education about and participation in the food supply chain

## **1. Introduction: farming, public goods and agroecology**

Like any industry, farming aims to be productive and profitable. But more than most industries, it has a large part to play in delivering a wide range of environmental and social public goods, including

- water quality
- air quality
- soil quality
- biodiversity
- landscape heritage
- minimal drawdown of non-renewable resources
- food security
- rural vitality
- climate regulation

For much of its history (see below), the Common Agricultural Policy (CAP) focused on agriculture's productivity and profit goals. It now increasingly focuses on these important public goods as well. Since most of these public goods are not valued by the price signals in conventional markets that drive agricultural practice, the CAP and other policy instruments are used to manipulate markets and farm practices so as to improve delivery of these public goods.

Agroecology has emerged largely as a separate movement (and to some degree a counter-movement) to conventional farming. The term is contested, but in this briefing we take it broadly to mean farming that:

- uses renewable, on-farm resources wherever possible, including biological nitrogen fixation and renewable energy use
- minimises production of pollutants such as greenhouse gases and nitrates
- conserves soils, water, energy and genetic resources
- manages rather than diminishes or replaces ecological relationships
- adjusts to local environments and empowers local people
- diversifies local landscapes, biota and economies
- values long-term benefits
- values health (human, plant, animal and ecosystem)<sup>1</sup>

Many of these principles are increasingly being incorporated into conventional farming practice, but usually only where they are mandated by government policies or offer specific economic advantages to farmers. Agroecology, by contrast, embodies them as fundamental components of its practice. There is no one single form of 'agroecological farming', but a variety of farming styles incorporate many agroecological elements, including

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<sup>1</sup> See UK Food Group (2010); FAO (1998); <http://www.agroecology.org/> for further discussion of agro-ecology

- mixed cropping
- mixed farming
- organic farming
- perennial cropping
- extensive livestock farming
- agro-forestry
- permaculture farming
- local direct retailing (box schemes, community supported agriculture etc)

In contrast to mainstream 'conventional' farming, these styles tend to be based on traditional farming systems even if in some cases they involve relatively new systemisations of knowledge. Also in contrast to mainstream farming, they tend to be

- more labour intensive
- less capital intensive
- smaller scale
- more directed to whole landscape health and productivity than single crop health and productivity

In this briefing, we examine the policy instruments that are available both within and beyond the CAP in order to help foster these forms of agriculture. Our focus, therefore, is not on how to make conventional agriculture more 'agroecological', but on how to encourage the development of agroecological alternatives to conventional farming.

## **2. CAP: The Historical Context**

The CAP arose from the desire of the six founder EU states to, amongst other things

- increase production after a long period of food shortages
- release labour for other industries via mechanisation
- facilitate international and intra-EU trade

This was achieved by guaranteeing a market for several key agricultural commodities and using import tariffs and quotas to prevent competition from cheaper imports<sup>2</sup>. These aims have remained fairly constant despite various reforms, notably in 1992 with the introduction of set aside and greater market liberalisation, in 1999 when the ‘Two Pillars’ of production support and rural development were introduced, and in 2003 when payments were decoupled from the cultivation of particular crops.

Some well-known consequences of the CAP have been<sup>3</sup>

- increasing farm size, with greater capital intensity and labour productivity
- over-production of agricultural commodities
- dumping of food onto international markets via export rebates
- damage to soils, water, air and biodiversity by large-scale, industrialised farming
- adverse effect on climate

Since 1992, the CAP has increasingly moved towards market liberalisation in keeping with WTO norms, decoupling subsidies from production. It has also put greater emphasis on environmental public goods – sometimes unwittingly (as when set aside, which was aimed at reducing over-production, turned out to have biodiversity benefits), and sometimes deliberately via Pillar Two payments and cross-compliance, which requires farmers to meet basic standards of environmental care.

This trend has continued into the current round of CAP reform, with the possibility on the table of removing direct subsidies altogether, and of targeting payments more tightly onto the delivery of environmental public goods. This is the most radical of the policy options presented by the EC (Policy Option 3), which is favoured by the UK government. Less radically, Policy Option 2 proposes to ‘green’ Pillar One payments through what the EC calls ‘simple, generalised, annual and non-contractual agri-environmental actions’<sup>4</sup>.

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<sup>2</sup> Gardner (1996); Boussard and Trouvé (2010)

<sup>3</sup> *ibid.*

<sup>4</sup> European Commission (2010): 14

### **3. Delivering Agroecology**

We now turn to looking in more detail at policy instruments within and beyond CAP that can help to deliver agroecological farming. The various instruments are strongly interrelated, but we discuss them here under four overarching heads:

- Trade policy
- Environmental public goods
- Public health
- Farm and farmer support

#### **3.1 Trade Policy**

The early incarnations of the CAP were concerned to boost EU food production against the background of historical shortages, to insulate farmers from market price volatility and to establish international trading relationships on advantageous terms to the EU.

We now inhabit a different world. The original food security concerns underlying the CAP are considered to be a thing of the past, although new concerns are emerging – predominantly driven by environmental risks such as climate change, biodiversity loss and soil loss which to some extent have been exacerbated by the farming practices originally incentivised by the CAP. Market price volatility remains a concern – not least in relation to questions of global food security – but EU agricultural policy has followed the general drift of global economic policy in recent years towards trade liberalisation and free market solutions to policy problems.

This liberalisation agenda presents opportunities for agroecology, but also many risks. There is undoubtedly little merit in returning to the same protectionist and anti-competitive measures that characterised previous incarnations of the CAP, but as we shall suggest below there are also grounds for contesting trade liberalisation arguments on agroecological grounds. We examine these issues in the context of food market regulation, food chain equity and land market regulation.

##### **3.1.1 Food market regulation**

The policy framework for delivering the CAP goals of ensuring that affordable food is available to European consumers and that its domestic agricultures remain economically viable is now increasingly addressed via market instruments such as

- insurance markets for farmer income and crop protection
- futures markets for commodity trading
- removal of border controls
- removal of production quotas and supply management

This trend is part of the general ascendancy of trade liberalisation and free market thinking within the global political economy recently, as mentioned above. Its logic rests upon standard assumptions in neoclassical economics that properly functioning free markets allocate goods efficiently. But there are many reasons why extant food markets are unlikely to function properly in this sense. For example

- insurance market failure
- futures and derivative market failure
- monopsony retail power (i.e. a single buyer buys from many suppliers: the reverse of monopoly)
- environmental externalities and public goods
- failures of asset tradeability

It could be said that the CAP's continuing market interventions along with other policy instruments such as competition law constitutes a weak recognition of some of these dimensions of market failure. But a proper assessment of the prospects for agroecology requires a more fundamental appraisal of market economics and the trade liberalisation agenda. There is probably wide agreement that global food systems should include the following amongst their aims:

1. Food security (affordable food available to all)
2. Thriving local economies
3. The delivery of environmental public goods
4. The husbanding of non-renewable resource inputs
5. The conservation of landscapes and landscape heritage and biodiversity
6. The conservation of agricultural biodiversity

There is little doubt that agroecology is superior to conventional farming on items 3–5 (see Section 3.2). The contentious issues focus around the first two items. The prevailing economic orthodoxy identifies market and trade liberalisation as the best route to global food security and economic health, whereas agroecology is grounded in a different economic logic. This clash of economic vision operates across various related dualities: agroecology vs 'conventional' farming; localism vs globalism; neoclassical economics vs ecological economics; economic growth vs steady state etc. Here we shall briefly illustrate the two visions with reference to the Robinson Crusoe origin myth often cited in economics primers to prepare the ground for our subsequent discussion.

The Robinson Crusoe of the prevailing neoclassical economic orthodoxy discovers that on his island he can catch fish more easily than he can collect coconuts. He therefore neglects his coconut grove and concentrates on catching fish, which he trades for coconuts with a Crusoe on a neighbouring island who is a better coconut collector. He ends up with a larger supply of both fish and coconuts than he could have furnished for himself. The agroecological Crusoe continues collecting coconuts and catching fish, reserving his trading activities mainly to those items that he is incapable of producing for himself and refusing all offers of cheap coconuts. Under normal circumstances, he works harder for less material

reward than neoclassical Crusoe, though whether he feels any less rewarded for his labour is another matter. But his island has a more diverse economy than neoclassical Crusoe's (it can produce both fish and coconuts), and is less vulnerable than neoclassical Crusoe to the situation when his neighbour for whatever reason stops selling him coconuts or stops buying his fish.

Neoclassical Crusoe tends to think in terms of relative economic price. Agro-ecological Crusoe tends to think in terms of absolute ecological constraint and long-term flexibility and security. To illustrate how these arguments play out in relation to food security and economic prosperity we shall contrast the neoclassical position taken by DEFRA in its analysis of UK food security with an agroecological alternative<sup>5</sup>. The DEFRA report builds on the insights of analysts such as Amartya Sen – who shows that even extreme food security events such as famines are often social crises of entitlement and equity rather than declines in absolute food availability<sup>6</sup> – with the argument that food security crises are often market failures.

For example, in relation to the Irish famine of 1845–9 the report suggests, “The basic problem was over-reliance on a single crop, the potato – itself a result of subsistence small-holder farming – and potato blight hit remote, unindustrialised, poor areas worst. Securing access to cheap cereal imports was one element of a policy response, but progress was slow because corn law repeal was not immediate and transport infrastructure was poor.”<sup>7</sup> It's necessary to point out the report's disingenuousness in failing to mention both that smallholder vulnerability was a direct consequence of large-scale gentry landownership and that the policy response was slow because of a political commitment to laissez faire economics unencumbered by any concern for equity and entitlement. Nevertheless, it's true that in situations of local food shortage, there are price hikes within purely local food markets which can be redressed by opening them up to wider market penetration<sup>8</sup>. As the DEFRA report points out, trade protectionism in agriculture often results in the enrichment of landholders at the expense of the general population, and in greater volatility in global food prices. Local self-reliance does not always guarantee immunity from food crisis.

The alternative to trade protectionism (the strategy of agroecological Crusoe in his fish-and-coconuts economy) touted by the DEFRA report is pursuing the strategy of comparative advantage by focusing production on the most profitable economic sectors and buying everything else from trade partners pursuing their own comparative advantage – the strategy of neoclassical Crusoe's fish economy. The extra 'value' created by neoclassical Crusoe (that is, the net additional income accruing through his strategy of specialisation) creates more purchasing power in

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<sup>5</sup> DEFRA (2006)

<sup>6</sup> Sen (1983)

<sup>7</sup> DEFRA (2006: 10)

<sup>8</sup> This was the situation that occurred in England historically with poor market development and legal restrictions on market intermediaries: see Overton (1996)

the marketplace which can buffer his economy from local crises or market shocks. This is no doubt why DEFRA believes there is a trade-off between food security and social benefits<sup>9</sup>. The same logic underlies the recent Foresight report on the future of food and farming, which argues “Food security is best served by fair and fully functioning markets and not by policies to promote self-sufficiency”<sup>10</sup>, emphasising the association between agricultural globalisation and poverty reduction<sup>11</sup>.

Let us now briefly consider some agroecological counter arguments. First, although it may be true that few food security crises to date have originated from food availability decline, it’s unsafe to infer that this won’t be the case in the future. Future food availability decline may result from environmental causes, such as the increasingly compromised climates and soils of many major grain-exporting regions<sup>12</sup>. Or it may result from political-economic ones, for example food exporters withdrawing cereals from export markets in response to local demand, or as an economic weapon, as apparently happened during the 2007–8 food price spike<sup>13</sup>, a failure of asset tradeability which agroecological Crusoe might regard as a warning shot across the bows about future food security rather than a correctable market failure. The converse is the dumping of subsidised exports on global markets, with potentially similar consequences for food availability through the undermining of local food production capacity. This continues to occur through the policies of powerful trading blocs such as the EU and the USA (in theory the 1992 CAP reforms ended dumping, but the EU continues to export food at prices below the cost of production<sup>14</sup>). Given the dependence of conventional agriculture on other non-renewable imported resources such as fuel oil, natural gas and phosphates which may be subject to the same market volatilities, there is a danger that erosion of the domestic productive base will lead to food crises in the absence of an agroecological alternative<sup>15</sup>.

Second, although it’s true that largely local markets can enhance food price volatility and therefore local food crises, the same is also and increasingly true of largely global markets<sup>16</sup>. The current banking crisis provides one example of market failure in the derivatives market – the notion that local food supply risks can be eliminated by marketising them through derivatives markets may prove to

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<sup>9</sup> DEFRA (2006: 19)

<sup>10</sup> Foresight (2011: 19)

<sup>11</sup> Anderson (2010)

<sup>12</sup> Nellesmann et al (2009)

<sup>13</sup> Foresight (2011)

<sup>14</sup> Bousard and Trouvé (2010)

<sup>15</sup> The DEFRA report correctly states that there is ‘little hard evidence to test these assertions’ (2006: 43). Equally, there is little hard evidence to refute them.

<sup>16</sup> See also Bousard and Trouvé (2010)

be ill founded. In fact, the virtualisation of the global economy makes justifications for trade liberalisation on the basis of comparative advantage of the kind made in the DEFRA report seem quaint – investment now moves around the world instantaneously in search of absolute advantage, with the effect of undermining the possibilities for long-term local investment in productive infrastructure. The fact that world market food prices are often cheaper than local prices rarely has to do with pure comparative advantage, and generally results from international market concentration, market supports and labour market distortions. Although liberalised global investment is arguably capable of creating greater ‘social benefit’ if social benefit is measured in terms of total fiscal value created (as in neoclassical Crusoe’s fiscal advantage over agroecological Crusoe), the benefits so created in any given locality are likely to be more temporary and less secure than one based upon sound investment in local productive capacity. This is the more so because not everyone is empowered to trade on the market on equal terms. While this is often presented within the neoclassical paradigm as a remediable market failure, its persistent occurrence arises fundamentally because neoclassical economics treats social equity as an exogenous matter. This criticism is being increasingly articulated by farmers’ groups and the global food sovereignty movement in the context of increasing farm foreclosures, farmer suicides, and local world market dependency, perhaps most pithily summarised by the ‘anti-globalisation martyr’ Lee Kyung Hae as “The WTO kills farmers”<sup>17</sup>.

From an agroecological perspective, we can therefore reject the assertion that there is necessarily a trade-off between social benefit and food security. Agro-ecological production may not maximise market value but it may well maximise social value in terms of local economic security, job satisfaction, environmental public goods and so on. Nevertheless, there is no virtue in being starry-eyed about local or non-market agriculture. Although the DEFRA report tends to contrast industrial world market commodity agriculture with smallholder subsistence agriculture as if there are no intermediate possibilities, it’s true that protectionism tends to benefit large-scale landholders to the benefit of nobody other than the landholders themselves, which can often lock the poor and landless into systemic poverty – this is an ongoing global failure as well as a failure in the CAP subsidy regime. Therefore, any protectionist measures need to be combined with careful policy attention to land tenure systems through other policy instruments such as land value taxation, limitations on farm size or farm subsidy (see Section 3.4.3) or outright land reform.

The thrust of the 2006 DEFRA report is that there is little comparative advantage to be had from UK agriculture on global markets. Government policy in the early 2000s indeed seemed to be questioning the very need for a domestic agriculture. More recent statements such as Food 2030<sup>18</sup> have retreated from that position. But if policymakers accept that the economic arguments for intensive industrial

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<sup>17</sup> Rosset (2006). For viewpoints of the food sovereignty movement see also UK Food Group (2010), NEF (2005), Robbins (2003), <http://www.viacampesina.org/en/>.

<sup>18</sup> DEFRA (2010a)

agriculture are weak, this creates a potential opening for agroecology as a land use delivering greater economic, social and environmental benefits.

**In summary, while it's possible to suggest policy instruments that may be more or less propitious for agroecological farming within international trade agreements such as the CAP, it's ultimately difficult to identify anything that would realistically foster a thriving agroecological economy within the contemporary economic paradigm, since it would be undermined from without by market prices below production costs – not as a result of its inefficiency, but as a result of the distortions in labour markets, market supports, market concentration and environmental externalities mentioned above.** It's worth noting in passing that this problem would be greatly reduced if labour could move freely around the world in search of economic benefit in the same way that capital can; the fact that the EU simultaneously demands and criminalises migrant farm labour is regrettable in both economic and social terms.

Nonetheless, agroecological economics is a fundamentally different beast to the neoclassical or neoliberal economics that now bestrides trade policy. In agro-ecological farming, economy is a servant of biology and the language of economics therefore needs to mirror the language of biology, emphasising self-protection, sufficiency, risk reduction and resilience, rather than maximisation. The logic of this in some ways returns us to older incarnations of the CAP by way of supply management, quotas, and export/import tariffs. Certainly, there are strong advocates for CAP reform along these lines, as well as emerging critiques of trade liberalisation and free market discipline as market self-mythology<sup>19</sup>. For example, Bouchard and Trouvé (2010) argue that the CAP should provide price guarantees to cover costs coupled with production limits or production quotas set at the same order of magnitude as domestic consumption, and export controls to prevent food exports at below the cost of European production<sup>20</sup>. When combined with measures to prevent fiscal capture of subsidies in land values and retailing, such policies could avoid the perverse economic effects of supply-side management that characterised the pre-1992 CAP while also mitigating the effects of trade liberalisation. There seems little chance of trade policy taking a turn in this direction currently, although it appears that the mood of the general public in Europe may be running ahead of its political leaders. In the public debate initiated around the current CAP reform process, some stakeholders argued that,

“food is too important to be dependent on a deregulated market. A strong agricultural policy which regulates production and markets and which makes agricultural practices answer environmental and health challenges is required.”<sup>21</sup>

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<sup>19</sup> Rosset (2006); Lines (2009); Boussard and Trouvé (2010); Chang (2010)

<sup>20</sup> Boussard and Trouvé (2010)

<sup>21</sup> European Commission (2010a): 17.

Be that as it may, at present the potential to foster agroecology may best be delivered via weaker policy supports as a result of the poor case that can be made for supporting conventional EU farming within the existing economic paradigm.

Looking at all of this in terms of the economic factors bearing on the small agroecological producer leads to the following conclusions,

- Insurance markets are likely to fail in providing crop insurance to growers producing small quantities of diverse crops. Other ways of socialising risk such as Community Supported Agriculture schemes may provide an alternative route, but are unlikely to prosper in the face of a globalised free market in food
- Global market penetration is likely to undermine agroecological farm incomes and expose consumers to social and economic volatilities
- Smaller producers engaging in direct retail sales (eg. veg box schemes) are able to capture market value, subject to the limitations imposed by the preceding point. But on a larger scale the monopsony power of retailers interceding between producers and consumers captures this value and introduces market distortion (see Section 3.1.3)
- Food prices set in global food markets undermine the ability of farmers to deliver environmental public goods
- Local food shortfalls can be redressed by wider market trading, but in times of global or systemic food shortages food loses exchange value and farming not geared to local production is unlikely to be able to substitute

The fundamental means of direct redress available to policymakers are the economic levers of price control, export control, production control, land reform and so on mentioned above. Again though, this does not seem feasible within the current international economic regime. Carbon pricing and other 'green' fiscal instruments would have indirect effects in the same direction.

Less radical – though perhaps more feasible – policy instruments which could have indirect effects favouring agroecology include,

- strengthening competition law to limit retail monopsony and ensure greater supply-chain equity (value is returned to producers – see Section 3.1.2)
- strong support for environmental public goods via CAP payments or other agrarian/rural supports (see Section 3.2)
- public backing for socialising farmer income insurance along the 'Community Supported Agriculture' model

### 3.1.2 Food chain equity

The strongest arguments for free market solutions revolve around the ability of free markets to allocate goods efficiently. Theoretically, this only happens when the market possesses a variety of characteristics that collectively constitute ‘perfect competition’ – something that rarely occurs in practice. One of these characteristics is that there is an innumerable quantity of both producers and consumers, so that market prices are not distorted by single powerful sellers (monopoly) or buyers (monopsony).

In theory, food markets have the potential to function well as competitive free markets. There are a lot of farmers, who are often private owners of their own land and therefore have a self-interest in preserving its productive capacity (ie environmental public goods can also in some circumstances be regarded as assets with a market price), and there are a lot of consumers. But when corporate retail buyers intercede between the two, the market becomes hourglass-shaped. In these circumstances, market distortions start to proliferate: the monopsony power of the retail buyers pushes wholesale prices down, farmers go out of business thereby decreasing the number of producers, farm sizes increase making it ever more unlikely that farmers can engage in direct sales, and the environmental public goods that farmers should have been delivering as a matter of self-interest are sacrificed to economic survival. This is reflected in EU and UK statistics on declining farm labour forces and incomes, increasing farm size and increasing average age of farmers<sup>22</sup>.

It’s widely acknowledged that profits in the food sector are concentrated in the later stages after farm production– in 2005 agriculture commanded only 24% of the value in the food chain (down from 29% in 2000)<sup>23</sup>. In the opaquely-worded statement of the recent Foresight Report on Food and Farming “Most of the economic value of food, particularly in high-income countries, is added beyond the farm gate in food processing and in retail.”<sup>24</sup> The Foresight Report also acknowledges that the supply chain is increasingly dominated by a small number of companies: “Concerns have been raised regarding the exercise of this concentration of corporate power, for example in retail markets and purchase contracts with suppliers (particularly smaller farmers).”<sup>25</sup> The Report goes on to say, “However, there does not seem to be an argument for intervention to influence the number of companies in each area or how they operate – provided that the current numbers of major companies in each area and region of the food system were not to contract to a level where competition was threatened.”<sup>26</sup>

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<sup>22</sup> DEFRA (2010b); Eurostat (2007)

<sup>23</sup> European Commission (2010b): 10

<sup>24</sup> Foresight (2011): 10

<sup>25</sup> Foresight (2011): 21

<sup>26</sup> *ibid.*

In the UK, four retail companies control over 75% of the retail food market<sup>27</sup>, which has prompted other commentators to call precisely for market intervention to reduce supermarket monopoly and monopsony, and limit abuse of market power<sup>28</sup>. Bearing in mind the economic theory of perfect competition, it's tempting to observe that the Foresight Report might be setting the bar rather low if it considers four to be an adequate approximation to 'innumerable'. The Office of Fair Trading believes that abuse of market power occurs when retailers exceed 8% of market share<sup>29</sup>, which would provide room for another five supermarkets to take share from the big four – though whether nine is a better approximation to innumerable than four may be debatable.

A critical question here is the extent to which the value that, as the Foresight report puts it, "is added beyond the farm gate" is value which is actually added (in the way that an industrial process adds value by transforming lower grade raw materials into a new, higher grade product) or merely captured by the monopsony control exerted by the retail sector. To a degree the answer to this question depends upon one's starting assumptions and isn't really amenable to empirical analysis, though the extent to which it could plausibly be claimed that retailers add value to unprocessed farm produce such as fruit and vegetables seems questionable. But there is plenty of circumstantial evidence to suggest that monopsony retail power distorts the food market at the expense of farmers. In the UK, for example, the average total income from farming per annual work unit entrepreneurial labour in real terms (2009 prices) since 1973 is around £17,000, one in four farmers are living below the poverty line, and returns to labour in food retailing exceed those in food production by around 70%<sup>30</sup>. In this context, many farmers clearly depend upon the income support they receive from CAP Pillar One payments. Effectively, money is being transferred from the public purse directly to the private retail sector by way of the below-market prices that the retail sector extracts from farmers (even leaving aside the CAP money that is paid directly to corporate retail operators<sup>31</sup>). The conclusions of the Foresight Report seem perverse in this respect. A good economic case can certainly be made for phasing out Pillar One direct subsidies, but without greater food supply chain equity this is likely to depress agricultural production still further, and undermine much of its residual ability to deliver public goods.

The response of many agroecological producers is to stay small, stay out of the supermarket retail nexus and attempt to retain retail value by direct sales strategies (farmer's markets, box schemes etc). This doesn't enable them to escape the consequences of food chain inequity, because the prices they can get are still determined by retail monopsony, and by operating outside the dominant

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<sup>27</sup> Office of Fair Trading (2006)

<sup>28</sup> New Economics Foundation (2005)

<sup>29</sup> *ibid.*

<sup>30</sup> Commission for Rural Communities (2010), DEFRA (2010b), DEFRA (2006).

<sup>31</sup> See for example Farm Subsidy.Org (2011)

retail mechanism they are only able to tap a small fraction of market share. Nevertheless, if they are able to retain full retail value, establish market niches of the 'local', 'wholesome', 'organic', 'farmer's market' etc kind and defend these from supermarket encroachment it may be possible for them to create sufficient market 'breathing space' for them to stay economically viable. But clearly this is a strategy of survival rather than one that is likely to effect significant economic change in itself.

Realistic opportunities to stimulate agroecology through equalising fiscal returns across the supply chain via CAP reform are limited. **Three policy instruments that could help greatly so long as they were implemented in concert are to,**

- **Abolish direct CAP subsidies, thus stemming the flow of public money into the private retail sector. These could be replaced with the price regulation framework mentioned in Section 3.1.1.**
- **Introduce a package of measures to support the delivery of environmental public goods in agriculture, both directly via targeted payments to agri-environmental schemes and indirectly through fiscal measures such as carbon taxes.**
- **Adopt more stringent competition law to limit retail sector monopsony and value capture.**

The third of these measures is crucial. Without it, the other measures would be likely only to depress the agricultural sector further.

Another useful measure – which is discussed more fully in Section 3.2.2 – would be to remove the burden upon producers to demonstrate sound environmental practice through costly certification schemes such as organic labelling. Instead, these practices could be mandated, with exemptions granted to producers wishing to use synthetic agri-chemicals and other unsustainable methods subject to suitable payment, licensing and food labelling. In combination with the measures outlined above, this would help to move agroecology beyond the status of a 'niche' market ripe for supermarket colonisation.

### 3.1.3 Land markets

Agroecological producers need secure access to modestly priced land for sale or rent, particularly in urban and peri-urban areas which are especially well suited to the small-scale local marketing approach consonant with agro-ecological production. However, pressure on land for other uses often prices it out of contention for agroecological production, a situation which is exacerbated by the general tendency for economic surplus to manifest in raised land value. Planning and development control policies can act as a countervailing tendency to keep prices of agricultural land down, but they are a blunt tool and equally they can often obstruct agroecological development. Since current economic returns to agroecological production are typically lower than those to conventional agriculture, this also disadvantages agroecological approaches in the conventional

agricultural land market. There is a tendency towards land concentration in EU agriculture, and increasing barriers to entry into the industry for aspiring new farmers. In the UK, for example, large farms are increasing as a proportion of all farms and the median age of farmers is 58<sup>32</sup>.

The best means of redressing this situation through the CAP is probably via rural regeneration measures, though few of these historically bear directly on land prices<sup>33</sup>. 'Joined up thinking' is required with other aspects of economic, planning and regional policy in order to promote the possibilities for agro-ecology via land prices. **Policy instruments could include**<sup>34</sup>:

- **revising planning guidance to ease residential development for farm workers, make greater use of agricultural ties, limit residential infill development on urban green or brownfield sites, and make recreational equine use a change of use from agriculture**
- **introduce measures to prioritise land allocation for small farms and to beginning farmers, including mandating the preservation of publicly-owned farm estate**
- **support co-operative ventures such as community land co-ops**
- **intervene more directly in land markets via rent control**
- **increase estate taxes to prevent inter-generational concentration of landed wealth**

### **3.2 Environmental Public Goods**

Environmental public goods are a critical product of agroecology. Below we briefly examine a few of the main areas of delivery, and policy levers for encouraging a greater delivery of environmental public goods via agroecology under the following heads:

- Farming, fuel and climate change
- Landscape nutrient cycling and pollution
- Biodiversity
- Soil quality

#### **3.2.1 Farming, fuel and climate change**

The food sector is a major user of fossil fuels across the entire supply chain, from agro-chemical inputs, farm traction, the food distribution system and food waste disposal. This involves not only the drawdown of non-renewable resources, but also the production of greenhouse gases (GHGs) from fuel combustion. There are also other GHG sources across the food supply chain: leakage from agro-chemical synthesis, methane from livestock, carbon dioxide from tillage, disturbance of carbon sinks through land use change, nitrous oxide from the farm nitrogen

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<sup>32</sup> DEFRA (2010b); Eurostat (2007)

<sup>33</sup> See, for example, IEEP (2011)

<sup>34</sup> For more detailed discussion of these points see IEEP (2011); Fruit and Vegetables Task Force (2010a); Rosset (2006); The Land Is Ours (1999).

cycle, loss of refrigerant gases in food distribution and methane emissions from food waste<sup>35</sup>.

Agroecological farming can radically reduce fuel use and GHG emissions through the following mechanisms<sup>36</sup>:

- lower mechanisation and greater productivity per unit fuel use
- substitution of agro-chemical inputs with biospheric inputs (eg. biofixation of atmospheric nitrogen)
- more diverse cropping patterns, including continuous cover cropping and greater use of woody and other perennial crops, trees and hedges
- less tillage and better conservation of soil carbon capacities notably by encouraging extensive grazing
- less livestock husbandry
- lower food miles through more local production for local use

Although the CAP reforms reference climate change mitigation, they do not fundamentally address the underlying intensity of fossil fuel use and the production of GHGs in the existing food sector. Some commentators have argued for the removal of direct subsidy payments to farmers, since these act as perverse incentives in relation to the delivery of environmental public goods; in their view, public money should only be spent on supporting public goods<sup>37</sup>. There is scope here for cross-compliance mechanisms or agri-environmental schemes under the CAP to incentivise the preservation of traditional, extensive, high nature value farm systems and allied practices such as continuous cover cropping, agro-forestry and so on.

Perhaps the single most effective policy for promoting agroecological farming and reducing food sector GHGs is carbon pricing since this would increase the cost of conventional farming relative to agroecological farming, thereby helping to incentivise the latter. Carbon pricing has received extensive international policy attention outside the food sector per se, albeit arguably with little practical implementation to date<sup>38</sup>.

### 3.2.2 Landscape nutrient cycling & pollution

A key difference between conventional and agroecological farming is their respectively linear and cyclical logics of nutrient use. The conventional farm typically expects to import 'exotic' nutrients (mined phosphate, synthetic nitrogen, mains water, synthetic pesticides etc), apply it to the crop as appropriate, and then dispose of any excess 'downstream' off the farm. The agroecological farm typically expects to provide most of its nutrients on site, to

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<sup>35</sup> DEFRA (2003)

<sup>36</sup> Smaje (2011)

<sup>37</sup> Bird Life International et al (2010); Boussard and Trouvé (2010). See also discussion in Section 3.1.

<sup>38</sup> eg. HM Treasury (2006)

recycle them through as many biological processes as possible, and to immobilise them in the local landscape so as to minimise downstream losses.

Exotic inputs can lead to high crop yields (at least when provided with responsive, but genetically narrow crop varieties), but suffer from the following main disadvantages

- the energy costs and GHG emissions associated with providing the exotic inputs
- the drawdown of non-renewable resources (eg. fossil fuels and mined phosphates)
- ecosystem damage
- encouraging pest resistance to pesticides
- 'downstream' pollution (eg. eutrophication of watercourses and toxicity of potable water through nitrate leaching)

Existing agricultural policy addresses some of these disadvantages, patchily, through mechanisms such as creating nitrate vulnerable zones, mandating pesticide regulations etc. Conventional farming practices increasingly employ agroecological ideas such as continuous cover cropping, encouraging natural pest predators and so on, and there is scope within the CAP to mandate or incentivise more efficient nutrient use and cycling, and whole landscape stewardship, for example by linking farms' livestock densities to their fodder cropping (or de-incentivising purchased fodder), prohibiting straw shorteners, incentivising grass/legume silage over maize silage, and strictly enforcing nitrate legislation. Much of this is probably better achieved through Pillar Two payments and a rural regeneration approach rather than 'greening' of Pillar One payments in view of the compliance issues associated with the annual timescale of Pillar One payments<sup>39</sup>.

However, the existing policy framework does not fundamentally tackle the underlying 'linear' logic that continues to foster wasteful and potentially polluting practices. There are four more radical policy levers available:

- **Carbon pricing: by raising the energy costs of exotic relative to on-farm biospheric inputs, carbon pricing incentivises greater use of the latter.**
- **Mandating organic practice: organic farming involves a well-established suite of techniques which avoid the majority of the exotic inputs mentioned above. Currently, however, the organic certification process is onerous and costly, particularly for small-scale farmers, while there are no significant barriers to the use of exotic inputs. Reversing the regulatory burden such that organic farming becomes the default agricultural practice, with licensing**

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<sup>39</sup> For further discussion see IEEP (2011); Bird Life International et al (2010); Rosset (2006)

required to buy in exotic inputs, would also encourage more sustainable agroecological practice<sup>40</sup>.

- **Encouraging mixed livestock enterprises:** although encompassed by the previous point, policies to substitute intensive livestock monoculture ('factory farming') with extensive mixed farming would help reduce exotic inputs and increase biospheric nutrient cycling. It would also reduce levels of meat production, which would have other environmental and public health benefits.
- **Farmer support:** although farmers are often presented as 'stewards of the land' the reality of modern agriculture is that farmers are exposed to severe economic pressure while contending with diminishing farm labour on increasingly large holdings. In this situation, delivering long-term environmental public goods becomes secondary to short-term economic considerations. CAP payments may be of some assistance in this respect, but do not radically address the underlying structure of the industry. The measures identified elsewhere in this briefing to support small-scale farmers would also tend to support the delivery of biospheric nutrient cycling and other environmental public goods.

### 3.2.3 Biodiversity

Biodiversity needs to be considered at several different levels – the genetic diversity within domestic plants and animals, the diversity of farmed landscapes (eg. pastures, tilled fields, hedges, farm watercourses and woodland) and the biota associated with them (soil life, agricultural weeds, insects, birds etc); conserving genetic diversity within wild populations; and the broader scope for wildlife and wilderness potentiated by the agricultural ecology. Research suggests that agroecological farming can preserve greater biodiversity within the farmed landscape<sup>41</sup>. It may be necessary to offset this against the putatively lower productivities of agroecological farming as compared to conventional farming, which allow the latter to spare more land for wildlife and wilderness. More research is required on this question – firstly in relation to whole farm or whole landscape productivity, in which agroecology may outperform conventional farming, even if conventional farming is more productive at the single crop level. Research is also needed into whether putatively 'land-sparing' conventional agriculture promotes greater biodiversity over the whole landscape than 'land-sharing' agroecology. This research would need to consider not only whether land sparing agriculture can theoretically promote greater biodiversity if the land so spared is left wild, but whether in practice this actually does happen.

Policies promoting farm biodiversity have often occurred piecemeal in relation to specific ecological concerns (eg. grants for hedgerow management) or have been an unintended consequence of other policy drivers, for example set aside. Given

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<sup>40</sup> See Fairlie (2010): 78

<sup>41</sup> Organic Research Centre (2010); Baldock et al (2011)

the intrinsically complex and intertwined nature of ecological relationships there is much potential for unintended consequences and perverse incentives in this area, particularly when policies address ecological aims in a piecemeal way. There are also likely trade-offs between biodiversity and productivity goals – eg. the effects of cutting hay or haylage rather than silage or leaving uncultivated field margins. However, whereas conventional farming tends to maximise productivity in relation to a small number of specific crops – typically with inputs and co-products imposing quite high environmental costs – agroecology has the potential to optimise productivity across multiple outputs while maintaining the ecological integrity of the farmed landscape.

There is much to be learned in this respect from vernacular farming traditions, since these have typically been constructed over long periods and involve accumulated experience of farm management under resource constraint and ecological feedback. Of course, it can't simply be assumed that small scale, mixed farming systems under the guardianship of agroecological landholders will intrinsically deliver the desired environmental public goods. However, by their nature agroecological approaches emphasise the husbanding of renewable ecological resources to optimise sustainable productivity and are therefore more likely to be attuned to biodiversity considerations on the farm. Perhaps there is a need for ecological research and policy analysis to be redeployed so that instead of a policy framework geared to mitigating the environmental damage of large-scale conventional farming an evidence-based policy framework is constructed that helps to guide agroecological farmers in best practice delivery of intrinsic environmental public goods. This would likely involve a two-way process, including facilitative agricultural extension (see Section 3.4.4.), in which the practical knowledge of agroecological farmers was brought back into the research process.

The kind of areas in which such a framework could be deployed include,

- Maintaining genetic diversity of domestic plant and livestock varieties through a multi-pronged strategy, including incentives for maintaining rare-breed herds and local amateur seed-saving as well as through professional crop programmes
- Developing stronger evidence-based policies to promote biodiversity-enhancing farm practices in relation to farm woodland, agro-forestry, tillage practice, wildlife corridors and linear features etc
- Targeting CAP payments more strongly upon rural regeneration and environmental public goods<sup>42</sup>

### 3.2.4 Soil quality

Erosion and degradation of agricultural soils is a major problem globally. Although the generally heavy soils and moist climate of Europe provide a forgiving environment for intensive agriculture, research has shown a

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<sup>42</sup> For further discussion see Bird Life International et al (2010); Bouchard and Trouvé (2010); Rosset (2006)

considerable decline in soil quality across Europe in recent years which risks compromising agricultural productivity<sup>43</sup>. Indeed, soil quality has already declined in parts of the UK to the extent that commercial horticulture in once productive areas is no longer possible<sup>44</sup>. Practices such as bare fallowing, animal over-stocking, over-cultivation, overuse of heavy machinery, inattention to soil organic matter and removal of trees and hedgerows all contribute to declining soil quality<sup>45</sup>. Agroecological farming by its nature (see Section 1) avoids many of these problems. Thus, the policies proposed elsewhere in this briefing to foster agroecology will tend to improve soil quality.

### **3.3 Public Health**

Agroecology delivers public health benefits, which we consider here under the following heads:

- diet and nutrition
- livestock husbandry
- public participation

#### **3.3.1 Diet & nutrition**

The CAP is part of a much longer history in European food policy of supporting the production of cheap, refined, high energy and high protein agricultural commodities such as cereals, sugar and beef. This made possible the historical transition from a predominantly agricultural labour force to industry and other economic sectors<sup>46</sup>. However, today it is increasingly recognised that the excessive consumption of cheap agricultural commodity foods is a major factor in the burden of chronic ill-health.

This has led to the curious situation in which public money has been spent in the agricultural sector to encourage the production of commodity crops, while further public money is spent in the health sector encouraging people not to eat them. Often, this is presented as a conflict between consumer sovereignty and the paternalism of health professionals, significantly obscuring the way in which consumption patterns have been shaped and manipulated historically in service of political ends.

Although CAP payments have now been decoupled from support for specific crops the legacy is clear in a country like the UK, where a small labour force uses highly mechanised methods to produce far more cereals and animal products than are needed for domestic human consumption, while only 3% of farmland is devoted to fruit and vegetable production – which is inadequate even to meet existing domestic demand, still less furnish this produce at the level recommended by

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<sup>43</sup> European Commission (2010c); Bird Life International et al (2010)

<sup>44</sup> Fruit and Vegetables Task Force (2010b)

<sup>45</sup> Environment Agency (2008)

<sup>46</sup> Mintz (1986)

nutritionists for a healthy diet<sup>47</sup> (horticultural growers were ineligible for CAP subsidies until recently, and still derive relatively less benefit from it than arable or stock farmers).

There is therefore considerable scope for a shift in land use away from agriculture and towards horticulture on public health grounds. Such a shift wouldn't in itself necessarily favour agroecological methods, because commercial horticulture can also involve heavy use of non-renewable resources and other linear inputs – indeed, often to a greater extent than larger-scale agriculture. However, there are two features of horticulture that make it more conducive to the agroecological framework.

- It involves more labour-intensive methods of land husbandry on smaller areas of land
- It involves the production of relatively bulky and relatively low-value produce, which are therefore best sold in local markets

When combined with the policy instruments mentioned elsewhere in this briefing, these factors would help to turn a shift towards horticulture into an opportunity to implement agroecological techniques. But with single farm payments currently being linked to holding size the CAP acts as a disincentive to horticultural production.

### 3.3.2 Livestock

Livestock play a crucial role in agroecological farming systems as participants in biospheric nutrient recycling, and often as the conduits or gateways by which nutrients are accessed or entered into new cycles of use. One example would be the traditional farm pig, which eats food leftovers and turns them into useful fat and meat, breaks in new ground, returns nutrients from the wider landscape to farm soils, reduces soil pests, and conditions compost. It's important to note that the pig in this instance occupies a 'default livestock' niche in which it accesses nutrients that are otherwise unavailable for human use and brings them into the human ecological cycle<sup>48</sup>. This is quite different from the intensive production of pig meat, which uses cereal and seed legume fodder that could otherwise be used directly for human food.

In recent years, a raft of EU livestock regulations have been passed, mostly for public health reasons associated with the failings of industrial livestock production, albeit in some cases not on the basis of sound evidence. However, the burden of these regulations falls disproportionately on small-scale, agro-ecological livestock keepers. Examples include:

- the closure of small local abattoirs
- the banning of feeding catering waste to livestock
- the banning of composting animal remains

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<sup>47</sup> DEFRA (2006); DEFRA (2011); Fruit and Vegetables Task Force (2010); WWF (2011)

<sup>48</sup> Fairlie (2010)

- the regulatory burden of meat sale
- the regulatory burden of animal movements

The result is the concentration of commercial livestock production in large-scale, more intensive units, where the ecological benefits of extensive livestock in small mixed farming situations are lost. Clearly, there are public health and bio-security issues with animal husbandry that must be taken seriously. Equally, the concentration of livestock in large units, their mass long-distance transportation, the concentration of their wastes, and the substitution of locally-available default animal fodder for processed concentrates raises other public health and environmental issues. There has been little serious evaluation of the public health and environmental trade-off between a heavily regulated, large-scale livestock industry and more lightly regulated, small-scale, local mixed animal husbandry, for example in relation to the following issues:

- **Abattoirs:** small local abattoirs are harder to regulate to the highest public health standards (though even large abattoirs are not immune to abuse), but a large network of small abattoirs makes it possible for small-scale agroecological farmers to keep default livestock commercially. It also reduces the extent of livestock movements and helps to contain outbreaks of animal or human diseases within smaller geographic areas.
- **Nutrient cycling:** Use of swill, food wastes and other default local fodder helps to recycle nutrients in the landscape rather than substituting them with more energy and land-intensive fodder (such as cereals and soya fed to commercial pigs which indirectly draw down on non-renewable resources such as phosphates), while reducing environmental and economic costs in disposing of food wastes.
- **Sustainable livestock levels:** By fostering agroecological farming the total number of farmed livestock will decrease and the price of meat and livestock products will rise. This will improve public health by reducing meat consumption, and create a more ecologically sustainable balance between livestock and arable farming.

**Policy instruments for achieving these aims within the CAP are limited. Support for organic, extensive and high nature value livestock farming via enhanced Pillar Two supports and rural regeneration funding would have some beneficial effects<sup>49</sup>.**

Beyond the CAP, repeal or exemptions from excessive EU public health regulation, for example in relation to swill feeding would also be beneficial – realistic cost-benefit analysis of the risks associated with reintroducing swill as against the economic and environmental costs of growing cereal-based fodders and disposing of food waste would be a good start.

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<sup>49</sup> IEEP (2011). See also Section 3.2.2

**Policy instruments aimed at reducing non-renewable energy use such as carbon pricing and promoting biodiversity would have the indirect effect of promoting mixed farming and default livestock, with considerable ecological and public health benefits.**

### 3.3.3 Public participation

With urbanisation and the industrialisation of agriculture there has been an increasing alienation of the general public from participation in and knowledge about the entire food chain. There are multiple benefits to greater public participation – improved dietary choices, more exercise, more knowledge about food production and its role in society. There are more opportunities for engagement in agroecology than in highly mechanised industrial farming.

**Areas for policy attention include**

- **school and adult learning about food and diet, including farm visits**
- **engagement with food producers through direct selling, eg. farmers markets, box schemes, community supported agriculture**
- **investment in urban/suburban food-producing and educational infrastructure, eg. city farms, allotments, community gardens, gardening clubs**
- **public participation and training in rural work, eg. ‘green gyms’**

### 3.4 Farm and Farmer Support

We consider instruments for farm and farmer support below under the following heads:

- farm income
- farm labour inputs
- farm size
- agricultural extension

#### 3.4.1 Farm income

The single greatest obstacle to the growth of agroecology is probably the difficulty in gaining adequate farm income through agroecological farming. Even conventional farm incomes are squeezed, with widespread flight from the industry and as many as one in four farmers living below the poverty line<sup>50</sup>. The problem is still greater with agroecological methods, which are not geared to short-term income maximisation of the kind that remains the fundamental desideratum of the global food market. **Direct CAP subsidy is one established method for supporting farm income, but as discussed in Section 3.1.2 as a result of retail monopsony it can act as an implicit transfer payment to the retail sector and risks perpetuating farmer poverty. Other policy instruments identified in this briefing may be more effective, such as**

- **CAP agri-environmental incentives**
- **supply-side price regulation**

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<sup>50</sup> Commission for Rural Communities (2010)

- **carbon pricing**
- **strong competition law and other regulation of food chain equity**

### 3.4.2 Farm labour inputs

In the early days of the CAP one of its aims was to free labour from the fields to work in thriving industries<sup>51</sup>. The current situation is quite different. For one thing, unemployment is rising and many other economic sectors are experiencing long-term stagnation. Moreover, there is an increasing emphasis amongst ecological economists on the incompatibility of economic growth with ecological sustainability. As Tim Jackson has recently put it, 'A key requirement is to reframe our preconceptions about both labour and capital productivities.... Rather than stimulating a continued search for high productivities, it would be better to engage in structural transition towards low-carbon, labour-intensive activities and sectors.'<sup>52</sup>

Agroecological farming is one such sector, so there is scope for it to play a role as a significant employer within such a reconfigured labour market. There are three major obstacles, however:

- **Price:** the current price of labour is generally too high for agro-ecological farming to attract it
- **Geography:** residential patterns are not conducive to agroecological labour, with a relatively depopulated countryside characterised by high-cost dwellings typifying many rural areas
- **Skills:** there is a dearth of workers with the skill-set and willingness to adopt agroecological work styles

**The remedies for these problems have mostly been addressed elsewhere in this briefing. The key policy levers are:**

- **Restructuring of farm incomes (see 3.4.1)**
- **Rural regeneration and a revised rural planning apparatus (see 3.1.2)**
- **Research, training and agricultural extension services in agro-ecological farming (see 3.4.4)**

**These levers are at least to some extent within the purview of CAP via Pillar One and Pillar Two payments, if they are sensitively delivered.**

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<sup>51</sup> Bouchard and Trouvé (2010); Gardner (1996)

<sup>52</sup> Jackson (2008)

### 3.4.3 Farm size

Although agroecological methods can be applied at various farm scales, they are most conducive to relatively small farms. However, the numbers of small commercial farms have been falling relative to larger farms in the UK<sup>53</sup>. Doubtless there are many reasons for this – the dynamics of the retail supply chain mentioned above is one. CAP payments also incentivise the growth of farm size, since area payments are likely to yield higher marginal income on larger units. Small farm units also generally suffer from higher unit area purchase costs, particularly where they are amenable to non-farm uses such as equestrianism. Moreover, agricultural policymakers still sometimes appear to equate small farm size with inefficiency<sup>54</sup>, despite evidence to the contrary that they can actually be more efficient<sup>55</sup>.

**Key policy instruments that would directly help to foster smaller, agroecological holdings are**

- **capping the size of CAP payments to individual farms (which seems a likely outcome of the present round of CAP reform)**
- **sensitive implementation of the proposed new scheme for small farms in the current round of CAP reform**
- **creating reserves of affordable land for agroecological farming by reforming rural planning frameworks in favour of small residential farm units**

Many of the other measures suggested in this briefing, such as carbon pricing, would have an indirect influence in the same direction.

### 3.4.4 Agricultural Extension

Publicly-funded agricultural extension is a thing of the past in most developed countries and yet, as the recent Foresight Report on Food and Farming put it, “the revitalisation of extension services to increase the skills and knowledge base of food producers (often women) is critical to achieving sustainable increases in productivity in both low-income and high-income countries”<sup>56</sup>. This is even more the case for agroecological farming, where skills and knowledge often substitute for non-renewable inputs, and where the labour force will often be new entrants to the sector without personal experience of farming or formal education in it. It is essential, too, that independent advice should be freely (or cheaply) available (as was the case with the original ADAS). At present, advice is often too expensive and/or is available only from commercial companies with specific solutions to sell.

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<sup>53</sup> DEFRA (2010)

<sup>54</sup> eg. European Commission (2010a)

<sup>55</sup> See Smaje (2011); Rosset (2006)

<sup>56</sup> Foresight (2011)

There are three major hurdles to overcome in creating an effective agroecological extension service. First, there is a fundamental lack of research and knowledge concerning good agroecological practice in EU countries (here developing countries which have retained a viable low-input smallholder agriculture are probably a step ahead). With the running down of publicly-funded agricultural research stations and the predominant emphasis on industrial-scale farming and corporate business skills within the agricultural colleges there is a distinct lack of obvious professional resources to feed into the extension process, with such useful work as is being done largely being confined to piecemeal efforts in the private and voluntary sectors.

Second, there is a need to develop new models for farmer-extension agent interaction, particularly in the context of agroecology. Standard approaches to agricultural extension tend to adopt a 'top-down' mode, in which the agent interacts with the farmer as 'judge' (checking regulatory compliance) or 'teacher' (instructing in new techniques or technologies). A more interactive, participatory approach is likely to be more fruitful, in which the extension agent is an agent for the farmer, helping to solve the farmer's own particular problems. Here the agent is a 'catalyst and facilitator' for the farmer's own expertise and knowledge<sup>57</sup>.

Third, there is little money available in the current economic climate to finance a substantial public agricultural extension service.

**Perhaps the best short-term solution to these three problems is to engage agroecological farmers themselves at the local level as extension agents. Modest public funding could pay for their time, and support web-based information resources, and they in turn could act as major channels for the communication and testing of emerging agroecological techniques at the local level. It's possible that this could be achieved through CAP funding by building on the CAP 'Leader' programme. Alternatively, CAP Pillar Two funding could be used for this purpose, again helping to break from the more unwieldy, top-down, regulation and compliance model typical of the CAP.**

**A farmer-led extension service could also usefully engage public opinion about farming and particularly the public goods delivered locally by the farm sector<sup>58</sup>.**

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<sup>57</sup> Richards (1985)

<sup>58</sup> Lines (2009)

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The All Party Parliamentary Group for Agroecology was established in November 2010 with the aim of providing a parliamentary focus for agroecological approaches to land management.

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