

CAST Policy Roundtables: Background Paper – Food and Agriculture

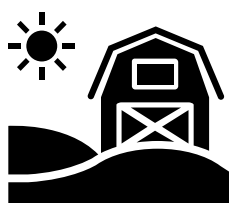
In this background paper we look at proposals designed to address the climate impacts of food and agriculture. We would like to hear your views on these in the roundtable discussions.

The content presented here has been prepared with particular reference to the Welsh Government's second Low Carbon Delivery Plan and its Sustainable Farming Scheme. We also include some material from key studies on food systems from across the UK and worldwide, such as the EAT-Lancet report, England's National Food Strategy, the draft Food (Wales) Bill, as well as proposals from the UK's Climate Change Committee.

While we have tried to reflect some key ideas from these sources, we are not setting out to endorse any particular recommendations. We are aware that many proposals are controversial; our interest is in hearing the views of participants in the roundtables on these topics, whatever they may be.

We have divided the paper into two core areas: farming and agricultural practices, and dietary choices. These two approaches can be considered two sides of the food system, which might also be viewed in terms of production and consumption; they both have significant and sometimes related opportunities for climate mitigation.

Farming and Agriculture



Dietary Choices



Proposals for addressing climate change include:

Improving efficiency	Consuming less red meat and dairy
More renewable energy	Sustainable and/or local products
Changing land use	Joint benefits with a healthy diet
Carbon sequestration in soil	

Farming and agricultural practices

The agricultural sector accounted for 14% of Welsh greenhouse gas emissions in 2019¹. The Welsh Govt has concluded that nearly 75% of these emissions are directly attributable to the rearing and farming of livestock¹. 80% of land in Wales is used for farming², and at the present time, livestock are a major part of the farming industry in Wales.

The following sub-sections represent of the main strategies proposed by Welsh Government in order to reduce agricultural emissions.

¹ Net Zero Wales Carbon Budget 2 (2021) <https://gov.wales/sites/default/files/publications/2021-10/net-zero-wales-carbon-budget-2-2021-25.pdf>

² NFFN (2021) Nature Friendly Farming Network Cymru - A Green Recovery: Farming is Key to the Solution

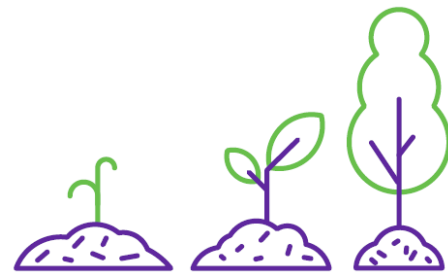
Improving efficiency and renewables

The adoption of low-carbon technologies, minimising inputs, and maximising efficiencies and outputs may help reduce the climate impacts of agriculture. For farmers and landowners this might mean improvements such as new feedstuffs and fertiliser use, alongside environmental protection measures to increase biodiversity. The use of 'precision farming' using new technologies has also been proposed to map best practice for grazing and land management. Grants have been made available to support these measures such as infrastructural improvements and new farming equipment (e.g. Farm-Business Grant, Glastir, Sustainable Farming Grant). Whilst these improvements may be welcomed by some, fuel for machinery accounted for just 10% of emissions in the sector¹, and therefore efficiency gains might only achieve modest change on a wider scale.

Other significant policies detailed by Welsh Government include improved standards of animal welfare and higher quality red meat. Reducing food waste and more localised supply chains could also help reduce emissions while leading to wider community benefits³.

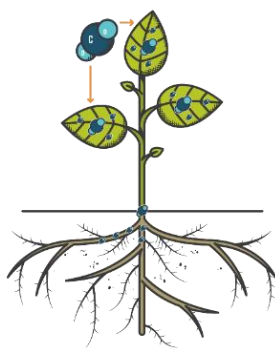
Land Sharing: from animal agriculture to crops and agroforestry

Welsh Government proposes planting of trees across Wales in order to help meet climate change mitigation targets. These plans involve converting some agricultural land to woodland and biofuel production, as well as restoring peatland. There is also an emphasis on more diverse crops, reduced use of chemicals, and reforestation by planting trees on farmland. The Committee on Climate Change has suggested that the amount of mixed woodland might be increased from around 15% to 24% of the land area of Wales by 2050, with the Welsh Government proposing 10% of total agricultural land be reforested, with additional land also being shifted into production of bioenergy⁴.



New proposals from the National Food Strategy suggest future land management and payment schemes should focus on redistributing money for different types of land use⁵. This suggests there might also be an economic incentive for transforming land use away from animal agriculture in farming.

Carbon sequestration and storage in soil



Atmospheric carbon dioxide is able to be captured by a process called sequestration, offering the potential for increased amounts of this greenhouse gas to be taken up by the soil through agricultural and other practices. It has been argued that carbon sequestration is higher with organic farming (for example, by prioritising pasture-fed cattle) and for this reason, Welsh Government is proposing to provide payments to support farmers during a transition and conversion process to these methods. Others have however argued that any gains are not likely to outstrip the impact of greenhouse gases that are generated through livestock rearing⁶.

³ Verfuert and Bellamy (2022). Accessible Veg: A pilot project exploring the barriers and benefits to CSA memberships for food-insecure households. [CAST Centre report](#).

⁴ CCC (2020) Advice Report: The path to a Net Zero Wales. www.theccc.org.uk/publications

⁵ NFS (2021) National Food Strategy: An Independent Review for Government.

<https://www.nationalfoodstrategy.org/the-report/>

⁶ Garnett, T. et al. (2017). Grazed and confused?: Ruminating on cattle, grazing systems, methane, nitrous oxide, the soil carbon sequestration question-and what it all means for greenhouse gas emissions. FCNR.

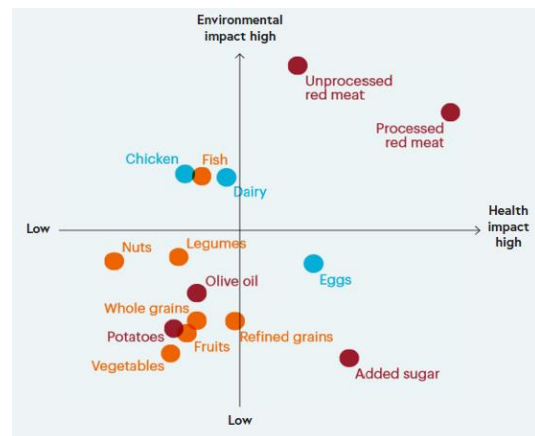
A greater area of land is also used for these farming approaches, which might mean a trade-off against using land for promoting biodiversity, other crops or tree growing. Because of the higher costs of organic farming, it may also lead to importing more environmentally damaging food products from elsewhere in the world⁷. On the other hand, a number of organisations (e.g. Size of Wales, WWF Cymru, RSPB) have argued that mainstream farming practices and the importation of soy feed are themselves linked to embedded emissions as well as deforestation and threats to biodiversity in other parts of the world.

Consumer diets and health: reducing red meat and dairy, and increasing plant-based meals

Though much policy looks at the supply side elements of food and agriculture, a wide range of other work highlights how individual behaviour change can help reduce emissions by changing diets⁸. While there may be a role for voluntary action by consumers in doing so – in recent years, changing dietary preferences have already led to reduced emissions – some studies have also emphasised the need for policy and structural changes to enable and support citizens to change their practices.

More sustainable dietary choices and the role of health

Some have called for approaches to be developed that promote more plant-based and environmentally sustainable diets. The Intergovernmental Panel on Climate Change for example has stressed that more consumption of grains, legumes, fruits and vegetables would reduce emissions, with a greater use of animal produce that has a lower carbon footprint. Some research suggests that if the UK were to move towards more healthy diets, this would itself mean reducing red meat and dairy, which is in turn linked to lower greenhouse gas emissions⁹. This is due to an average reduction of ~25% of GHG emissions associated with more sustainable dietary choices, compared to current patterns of consumption¹⁰. A synergy between health and environmental protection could come through a reduced diet of red meat, and more plant-based meals, given that beef, lamb, and pork are associated with higher risks of cardiovascular disease, stroke, and particular types of cancer.¹¹ The chart from the influential Eat-Lancet report to the right shows how environmental impact and impact on health are linked¹².



Current Welsh Government proposals do not include much emphasis on promoting a shift to more sustainable diets, although this is included in terms of a voluntary ‘ask’ from citizens in Wales to take action in this area. The Welsh Government’s Policy Document *Net Zero Carbon Budget 2* does however include reference to eating more vegetables in line with global targets, as well as a direct quotation from the Committee on Climate Change (CCC) that emphasises the role of consumer choice:

⁷ Smith, L. G., Kirk, G. J., Jones, P. J., & Williams, A. G. (2019). The greenhouse gas impacts of converting food production in England and Wales to organic methods. *Nature communications*, 10(1), 1-10.

⁸ House of Lords (2022) In our Hands: Behaviour change for climate and environmental goals. <https://publications.parliament.uk/pa/ld5803/ldselect/ldenvcl/64/64.pdf>

⁹ Green et al. (2015) The potential to reduce greenhouse gas emissions in the UK through healthy and realistic dietary change. *Climatic Change*, 129 (1-2).

¹⁰ Jarmul et al. (2020) Climate change mitigation through dietary change: a systematic review of empirical and modelling studies on the environmental footprints and health effects of ‘sustainable diets’. *Environmental research letters*, 15, 123014.

¹¹ Jennings, N., Fecht, D., & De Matteis, S. (2020). Mapping the co-benefits of climate change action to issues of public concern in the UK: a narrative review. *The Lancet Planetary Health*, 4(9), e424-e433.

¹² EAT-Lancet (2019) Food, Planet Health. https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf

*“Consumer choices will have a significant bearing on decarbonisation of the agriculture sector. The CCC advice... recommends a ‘20% cut in meat and dairy consumption by 2030 [...] with meat and dairy being replaced with plant-based products’”.*¹



The National Food Strategy for England (with some reference to devolved nations) also points out that while 85% of land that is used for food produce in the UK is used for livestock, meat and dairy only accounts for a third of our calories, suggesting that there may be value in considering how best use land to be more

self-sufficient and rely less upon imports. Other research has shown that the UK grows just over half the amount of vegetables needed to provide the recommended 5-a-day for all adults, with imports still falling short of that required to meet these nutrition guidelines¹³. Recent work has suggested that support of Community-Support Agriculture (CSA) could be a cost-effective and useful role to play in this³, and a recent business support scheme focussing on small edible horticultural projects helped increase vegetable sales by 75%¹⁴.

Well-being of Future Generations

Wales’ Future Generations Act requires outcomes including protecting the health of people, maintaining jobs and industry, whilst meeting targets for carbon emissions reduction through more sustainable ways of living and working. These concerns are connected in complex and sometimes contradictory ways. For example, some of the proposals mentioned above could have the effect of undermining employment and communities in Wales that are dependent upon livestock farming. Ultimately, there is a need to achieve a balance across different priorities, at the same time as meeting the national obligation to reduce greenhouse gas emissions.

Questions to consider

We would like you to think about a few questions in advance of the sessions you will be attending. We will also pick up these questions in the roundtable discussion.

- What are the **most appropriate policies and pathways** for realising emissions reduction in food and agriculture?
- **What is missing** from the outline described above? Are there underexplored areas within them, or ideas that you think need also to be considered? Would you like to challenge any of the claims that have been made?
- Do the ideas and proposals outlined above strike **the right level of ambition**? Are there cases where you think they need to be more – or less – ambitious?
- How can emissions from food and agriculture be addressed while meeting **Wales’s well-being goals**?
- What approaches can be taken to enable **attitude and lifestyle changes** among the wider public to achieve low-carbon food consumption?

¹³ Food Foundation (2021) Peas Please: Veg Facts <https://foodfoundation.org.uk/sites/default/files/2021-09/Peas-Please-Veg-Facts-2021.pdf>

¹⁴ Food Sense Wales (2022). Small Edible Horticulture Business Support Grants Pilot. <https://www.foodsensewales.org.uk/app/uploads/2022/03/FSW-Business-Support-Grants-Pilot-21-Final.pdf>