

Ag Climatise – A Roadmap towards climate neutrality’

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IGFA Summary

Introduction

Ireland is committed to becoming climate neutral by 2050 and has also signed up to various other international ambitions including the EU target of a 55% reduction in greenhouse gas emissions by 2030. Like other sectors, agriculture has an important role to play in climate change mitigation and environmental protection. DAFM therefore recently published [‘Ag Climatise – A Roadmap towards climate neutrality’](#) designed to help Agri stakeholders work towards tackling climate change and air pollution.

Irish agriculture remains the single largest contributor to overall emissions at 35% (2019 Provisional EPA report) of the total and the sector is responsible for 99% of ammonia emissions. The document explains that the 2 things driving these high levels are

1. Livestock numbers - biogenic methane from livestock accounts for 65% of overall Agri emissions and must be reduced. In fact, the DAFM vision outlined in the roadmap is that *“By 2050, we want to develop a climate neutral food system ..., whereby the climate impact of biogenic methane is reduced to zero and remaining agricultural emissions are balanced by removals through land use and a significant contribution to renewable energy”*
2. Fertiliser use - nitrous oxide is the other dominant Greenhouse Gas (GHG) which accounts for over 30% of total farming emissions. 40% of these emissions are associated with chemical nitrogen fertilisers. Tackling this will also be vital to achieve reduction targets.

The Roadmap outlines 29 specific actions that are *“based on stabilising methane emissions and a significant reduction in fertiliser related nitrous oxide emissions, leading to an absolute reduction in the agricultural greenhouse gas inventory by 2030”*. Significantly the document highlights that *“Any increase in biogenic methane emissions from continually increasing livestock numbers will put the achievement of this target in doubt”*.

Some of these actions proposed can be implemented now to ensure immediate action and others will be ‘cross cutting’ to enable action in the future. The document emphasises that failure to implement changes today will mean that more radical corrective action will be necessary later to ensure delivery of our commitments.

Actions/changes that can be implemented now

All of the actions are outlined below but more detail is included for those of most interest to the animal feed sector.

Action 1: Reduce chemical nitrogen use to an absolute maximum of 325,000 tonnes (annually) by 2030, with an interim target of 350,000 tonnes by 2025
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Action 2: Where chemical fertiliser is applied, promote the use of protected nitrogen products
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Action 3: Genotype the entire national herd by 2030 to underpin the development of enhanced dairy and beef breeding programs that help achieve a reduction in our overall GHG output at a national level
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The document notes that improving the digestibility and the quality of the feed consumed will help reduce methane emissions and that increasing grass as a proportion of the animal's diet will reduce the requirement for imported feed.

Action 4: Maximising production of grazed grass

- Develop national training and mentoring programs for grassland/pasture management on dairy and beef farms.
- Roll out the Grass10 training to a greater cohort of beef and dairy farmers.
- Recording of grass production on all farms above 100 livestock units or 130 kg Organic N per ha is required.

Action 5: Further enhance animal health strategies to support climate ambitions and environmental sustainability through promotion of sustainable animal health and welfare practices and enhancing food safety and authenticity.

The document says that too much crude protein in animal diets not only adds to the cost of the ration but also leads to increased environmental pressure through ammonia loss from the manure produced. It therefore outlines the following actions

Action 6: Reduce the crude protein content of livestock feeding stuffs to minimise ammonia loss

- Reduce the average levels of crude protein in pig feeds to 16%
- Apart from some limited situations where nutritional science indicates that animals have higher protein requirements, reduce the levels of crude protein in feeds for grazing ruminants to a maximum of 15%.
- Where practical, feed manufacturers and co-operatives should increase the content of native grains and proteins in compound rations. Where feasible, these rations should be labelled accordingly.

Action 7: Continue to invest in novel feed additives to reduce biogenic methane

- The Department to support research into diet quality and use of novel feed additives in pasture-based production systems to reduce methane emissions. Industry, along with the research community, need to commercialise the use of feed additives, while taking full account of their safety profile at all times.

Action 8: Increase the proportion of home-grown protein in livestock rations

- The livestock sector in Ireland is over reliant on imported feed. The sector must take steps to increase the proportion of native grains and legumes in livestock rations. This will further strengthen the sustainability credentials of the Irish agri-food sector, creating a demand stimulus and contributing to the circularity of the agri-food sector

Action 9: Increase the current area under organic production to 350,000 hectares by 2030

As a sector that is one of the most carbon efficient, the document says that our area of tillage crops must be retained or increased. This is despite competition for land from the dairy sector. It notes that there is a very clear opportunity to increase the volume of grain being used as a source of protein for the livestock sector.

Action 10: Increase the area under tillage production above the current area of 300,000 hectares by 2030, producing more native grown grains and legumes for the livestock industry, while further enhancing the environmental credentials of the sector.

- Encourage the use of winter grown cereals. Farmers growing spring cereals should consider the use of cover crops to increase nitrogen use efficiency at farm level.
- Consider buffer strips to minimise the loss of soil organic matter through erosion, help retain soil, and potentially improve, soil carbon levels, reduce sediment loss, and increase biodiversity.

- Where appropriate, consider using leguminous crops as a break crop to reduce the requirements for chemical nitrogen in a subsequent crop. In addition, these natively produced proteins will reduce the national feed import requirement (Linked to Actions 1 and 8).
- Where practical, adopt minimum tillage on farms to protect soil carbon pools. Consideration should also be given to straw chopping and incorporation post-harvest on a set area nationally. The Department will consider.
- Explore opportunities to further develop markets for the higher value food and drinks sector e.g., Malting barley and rye for distilling, wheat and oats for milling, hemp for oil production.
- Consideration should be given to aligning the Irish Grain Assurance Scheme (IGAS) with Bord Bia's Quality Assurance Schemes in order to encourage end users to source certified sustainable cereals.
- Where practical, source organic manures for application to tillage land. Aim to have all organic manures applied to tillage land incorporated within 4 hours of application, to reduce ammonia losses and maximise the nitrogen replacement value of these manures.

Action 11: Further enhance carbon credentials of the horticulture sector

Action 12: Promote the development of a sustainable circular bioeconomy within the agri-food sector

- Support the development of the sustainable circular bioeconomy ensuring resource efficiency and developing circularity by addressing issues such as pasture valorisation, food and organic waste and losses, by-product valorisation, nutrient recycling, water recycling and recycling of plastics. Strategic actions should support and promote all types of innovations and practices for sustainable food and farming systems, forestry and bio-based production through systemic and cross-cutting approaches linking actors, territories, sectors and value chains.

Action 13: Explore all options in relation to land use diversification

- Engage with Teagasc, the National Economic and Social Council (NESC) and others to review and analyse the full suite of land diversification options to consider alternative economic opportunities that could assist with a just transition to lower emissions land use options, ranging from horticultural production, protein crop production, organic farming, energy crop production to afforestation and agroforestry.
- Support supply chain development where new market opportunities need support e.g., new business models, development of critical size, agronomy or processing technologies etc.

Action 14: Increase afforestation levels and maximise the contribution of existing forests to climate change mitigation and adaptation.

Action 15: Reduce the management intensity of at least 40,000ha of peat based agricultural soils to reduce CO2 loss.

Action 16: Protect, enhance, and increase the number of hedgerows on farms.

Action 17: Develop a pilot scheme in relation to on-farm carbon trading to reward farmers for the public goods they are providing.

Action 18: Generate at least a 20% reduction in agricultural energy use by 2030 across all farms. In addition, generate at least 20% deployment of renewable energy technologies focusing primarily on energy intensive farming systems.

Action 19: Double the sustainable production of biomass from forests by 2030 and ensure biomass mobilisation for heat production.

Action 20: Engage with stakeholders to maximise the potential opportunities from Anaerobic Digestion for the agriculture sector.

Actions/changes that are cross cutting enabling actions into the future

Agricultural Knowledge and Innovation Systems (AKIS) will be necessary for the delivery of many of these actions and Teagasc will lead on ensuring the links between research and practice. Vital in all of this will be the continued professional development of all farm advisors to ensure the latest scientific information is shared with farmers.

Action 21: Undertake AKIS strategic development

Action 22: Develop a continued professional development strategy for all advisors

- All advisors, within Teagasc, the private network, and those based in industry should undergo appropriate training on an ongoing basis. In recent times, Teagasc has successfully rolled out their online ConnectED training programme to provide access to knowledge and the latest research which is crucial to achieving sustainable development within the agri-food sector.
- Through integration and interaction within the AKIS system, empower advisors to give advice on economic, environmental and social dimensions and to deliver up to date technological and scientific information developed by research and innovation.
- Develop advisors' competences to take up a more interactive role and serve as innovation brokers and to support services including helping to discover farmers' needs and to prepare and facilitate innovative cooperative activities and cooperation projects (e.g., EIP Operational Groups, LEADER projects).

Action 23: Establish a network of Sign-Post Farms

Action 24: Establish a Centre of Excellence to ensure Ireland as a global leader in research and innovation related to climate smart agriculture and land use

- Establish world class expertise in ruminant methane emissions within grazing systems. Ireland should position itself as a global leader in this space given the importance of ruminant livestock to the Irish agri-food sector. Significant emphasis should be placed on novel feed additives that could contribute to a reduction in biogenic methane, something that will be required between now and 2050.

Action 25: Develop an Information Portal relating to the actions of this roadmap

Action 26: Bord Bia to develop a roadmap of initiatives in partnership with industry to support farmers to achieve market demands.

Action 27: Review the Rural Development Programme (2014-2020) and consider national fiscal policy instruments to ensure further supports for our climate targets.

Action 28: Ireland Strategic Investment Fund (ISIF)/Enterprise Ireland (EI) innovation (climate smart agriculture/smart farming) fund.

Action 29: Establish a 'Future of Farming in Ireland Dialogue', which will include farmers, scientists, environmentalists and social groups to find practical solutions for productive, sustainable agriculture.

Summary

Maintaining our position as a world leader in the production of high quality, sustainable and traceable food will require that our agriculture sector addresses climate change concerns and reduces its environmental footprint. The summary notes that although our Agri food sector has a great story to tell, 'the rapid expansion of the dairy sector is pushing environmental boundaries on some catchments'. Long term sustainability will require scientific research and innovation, accelerated adoption of best practices and working in partnership across the whole sector.