

Climate Risk and Adaptation Actions for Farmers and Rural Communities



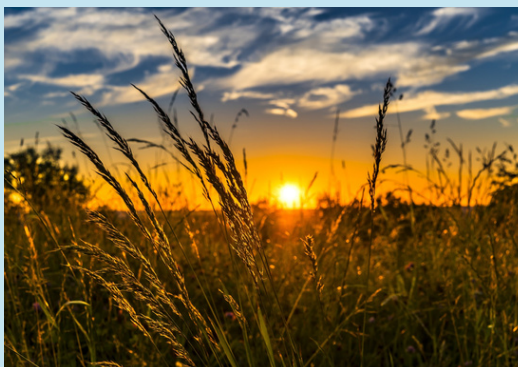
Agriculture is one of Northern Ireland's most important industries with 75% of our land farmed in some way. There are over 26,000 active businesses at the heart of communities, mostly small family farms[1]. Farming is vital for our people, the natural environment and the economy, but the impact of climate change means the way we farm needs to adapt so we can build more resilient and sustainable food and farming systems for the future.

How farm businesses are impacted by climate change?

The agricultural sector in the UK and Ireland is already witnessing climate change impacts first-hand in the form of severe weather events and unpredictable seasons. Climate projections have shown that Northern Ireland is expected to have warmer, wetter winters and hotter, drier summers, and an increased intensity in extreme weather events[2].

This poses several risks to farming including increased flooding, droughts and incidences of new pests and diseases, along with biodiversity losses, which can affect crop and grass yields, animal health and incur unexpected financial costs. This has a knock-on effect on food availability and therefore on wider society.

Much of the focus is on '**Climate Mitigation**' which is about the crucial reduction of greenhouse gas emissions. However, it is just as important for farm businesses to actively prepare and adjust to the effects of climate change known as '**Climate Adaptation**', to minimise risks, to benefit from potential opportunities and build resilience. Effective adaptation involves behavioural change - thinking differently about how we do things, as well as practical change.



Risk	Potential Impact	Best Practice Climate Adaptation
<p>Heavy rain</p>	<ul style="list-style-type: none"> • Waterlogged soils / surface run-off, reduced nutrient uptake - affects root and plant health/yield • Flooding - reduced soil quality, erosion, exposure of crops to pollutants, greater vulnerability to plant disease and pests - crop damage or losses in low-lying areas • Cash flow implications due to delays in harvest / reduced yields • Damage to farm infrastructure and livestock injury / loss from flooding and landslides, increased poaching 	<ul style="list-style-type: none"> • Improving soil, water and crop management to reduce erosion, flooding and compaction • Avoiding over-tillage of seedbeds to protect topsoil • Exploring use of cover crops to reduce erosion and restore soil nutrients • Improving efficiency of water and fertiliser use (nutrient management) • Assessment of soil structure eg pH • Improvements to drainage systems • Securing suitable insurance cover against damage / loss.
<p>Heat</p>	<ul style="list-style-type: none"> • Heat and water stress on crops affecting yields through reduced growth, smaller grain size and yield • Heat stress on livestock can affect productivity eg in dairy cows, and lead to animal dehydration, illness and potentially death • Increased risk of wildfires and destruction of crops, grassland, heath and peatland. 	<ul style="list-style-type: none"> • Providing shade/shelter areas under trees and hedges for livestock. Explore agri-environment / forestry schemes for additional tree/hedge planting • Providing adequate ventilation in livestock housing during hot spells • Adapting management practices to benefit from warming temperatures and longer growing seasons eg different sowing/harvesting dates • Agree a fire action plan for your farm
<p>Seasonal aridity and wetness</p>	<ul style="list-style-type: none"> • Drying up of natural water stores eg streams/rivers and ground water needed for irrigation/livestock • Drought leading to increased soil moisture deficits, peatlands drying, degradation of soil microbes affecting grass/crop growth rates, yields and livestock feed availability • Wetter autumns/winters affecting the timing of land-management operations and planning 	<ul style="list-style-type: none"> • Improving on-farm water storage as a back-up eg rainwater harvesting and irrigation systems, off-stream reservoirs (see regulations) • Explore more drought resistant crop/grass varieties eg multi-species swards, alternative potato varieties • Using buffer strips next to water courses (riparian) to enhance water infiltration and voluntary floodplain protection areas to store excess water • Consider options for crop diversification and rotation
<p>Pests, pathogens and invasive species</p>	<ul style="list-style-type: none"> • Warmer conditions conducive to growth of new pests and spread of disease affecting animal/crop health and agricultural productivity • Displacement of native species and contribution to land and water degradation 	<ul style="list-style-type: none"> • Introducing new species better suited to future climate conditions and more resilient to pests and diseases • Increased biosecurity provisions to guard against new diseases and regular monitoring for pest activity • Building up long-term resilience to pests by reducing use of synthetic inputs and exploring organic alternatives that enhance soil health and natural processes

Preparing for Adaptation

In addition to potential changes in food production, climate change also threatens many important habitats, sensitive landscapes and environmentally important areas. We already see social, economic and political efforts to protect these environments which, together with growing consumer interests in greener production, impacts how farm businesses are managed in the future[3]. Farms will have to be innovative and adapt to remain productive and profitable, and all sectors must work together to support farmers through this transition. In Northern Ireland we are already seeing more examples of progressive and efficient practices which serve as important case studies.

Every farm is different so a basic evaluation of your business through a SWOT analysis can be a good first step to help to identify Strengths, Weaknesses, Opportunities and Threats that climate change poses to your farm and what adaptations you can implement[3].

Strengths

What do you already do well?

What assets and resources do you have?

What do you do that no one else does?

What sustainability, adaptation and mitigation measures do you have in place?

Weaknesses

What assets and resources are you missing or need more of?

What are the main disadvantages?

What limits the growth of your business?

What impacts are you already experiencing?

Opportunities

What areas of your business could benefit from climate change?

Are there new markets you could access?

Can you develop any new products or services?

Is now the time to diversify your business?

Threats

What are the main environmental risks?

How will customer attitudes change?

What new or proposed regulations or policies are coming in?

Is the market undergoing any changes?



What is the Rural Resilience Project?

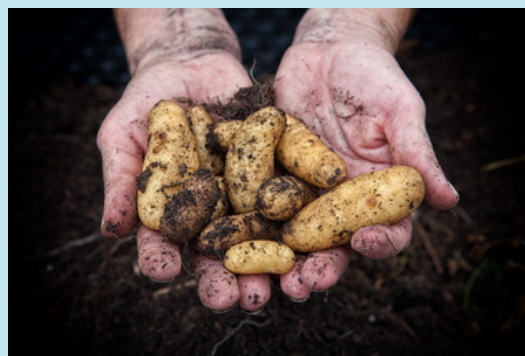
The aim of the Rural Resilience Project is to raise awareness amongst farmers of climate risks and opportunities for farm businesses, and practical approaches to adapt and prepare. Feedback from regional Workshops with farmers is shared with agri-policy makers, and ongoing research helps identify information gaps in this area for the sector.

Where can I find more information?

- UK Climate Risk: CCRA3 Summary for Northern Ireland
- UK Climate Risk: Agriculture and Food Briefing
- NIEL <https://www.nienvironmentlink.org/projects/rural-resilience>
- DAERA <https://www.daera-ni.gov.uk/contacts/contacting-daera-adverse-weather-conditions>
- CAFRE <https://www.cafre.ac.uk/business-support>
- Growing Innovation Network <https://www.growin.land>
- Rural Support <https://www.ruralsupport.org.uk>

Get in touch

For further information please email:
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References

[1] <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/22.23.05%20Stats%20Review%20for%202021%20Final%20V2.pdf>

[2] <https://www.metoffice.gov.uk/>

[3] <https://www.farmingforabetterclimate.org/downloads/climate-change-adaptation-for-agriculture-is-your-farm-ready>