UNIVERSITY OF LEICESTER

Institute for Policy

Sustainable Agriculture and Net Zero

Enhancing the adoption of net zero practices by farmers

Key Policy Recommendation

Enhance farmers' adoption of Net Zero practices by integrating a motivation model, developed through consultation with UK farmers.

The motivational model has been developed to address the five core psychological factors around farmers' adoption of Net Zero practices:

1. Confidence, Understanding and Readiness
2. Incentives and Engagament
3. Upskill Competenece and Confidence
4. Community-Focused Inititiatives
5. Accounting and Reporting

The impact of sustainable agriculture and Net Zero

- **Current farming methods significantly contribute to global greenhouse gas (GHG) emissions**. Studies from the Food and Agricultural Organisation and others have estimated that around 14.5% of global anthropogenic GHG emissions are produced from livestock alone.

- **The farming by-products of Nitrous oxide and methane have very signficiant impacts on climate change**. Methane has a global warming potential 27-30 times greater than carbon dioxide over 100 years, whilst nitrous oxide is 273 times more potent than carbon dioxide.

- **The Intergovernmental Panel on Climate Change (IPCC) and other global bodies have identified agriculture as a significant contributor to climate change.** The IPCC have consistently identified agriculture (crop and livestock production) as a major climate change contributor, responsible for 12-21% of global GHG emissions.

- **The IPCC have emphasised the need for transitioning to sustainable practices.** These practices include improved soil management, optimised fertiliser use and better livestock. management.

The case for a motivational model

Resistence to adopting sustainable practices occurs due to psychological, economic, educational and social factors.

Personal, social and economic constraints can be prohibitive to many farmers, including the cost of transitioning to new technologies or practices.

Psychological hesistation often stems from a reluctance or inability to change established habits or practices.

Crop and livestock production is responsible for upto one fifth of global GHG emissions

(IPCC, *Climate Change and Land* (2022))

A wide range of theories exist to change behaviour, and in farming these are best seen as either being:

1. Behavioural Adoption Approaches

Farmers adopt sustainable practices due to external factors like incentives, social influences and practical benefits.

2. Purpose-Driven Approaches

Farmers' sustainable actions are driven by personal fulfilment, values and community well-being.

Understanding and addressing the psychological hesitation of farmers is imperative, and a unified approach has been created to help bridge the gap between psychological approaches and practical policy needs. This aims to ensure that sustainable practices are both understood and adoptable by farmers.

Evidence base

A national survey was conducted, bringing together the views of over 400 UK farmers that synthesized 28 psychological factors across 6 key areas of zero-emission farming. These 6 areas included: emission reduction, regulatory frameworks, financial incentives, reporting, innovation, and adaptation; a practical model for sustainable farming policies was created from this dataset.

The data revealed seven key driving factors behind farmers' behaviour change towards Net Zero. These were:

- **Commitment and Stewardship** (How dedicated farmers felt to sustainable practices and the environment).
- **Readiness and Confidence** (How prepared and confident farmers felt in adopting new, sustainable methods).
- **Incentive Engagament** (How financial rewards motivated farmers to adopt sustainable practices).
- **Climate Adaptation Competence** (How adept farmers' felt in adapting their practices to climate change).
- **Accountability and Reporting** (How commited farmers were to tracking and reporting progress towards sustainability).
- **Community Influence** (The impact of peer and community norms on farmers' practices).
- **Technological Competence** (How confident farmers' felt in using new technologies for sustainable farming).

Implementation

Psychological factors can be integrated into net zero farming initatives through the development of a motivational model. The model could be implemented by:

1. Creating educational programs and resources.
2. Designing economic incentives and supporting community-led projects.
3. Developing transparent reporting systems and targeted training.

This model would address five core areas:

1. Confidence, Understanding and Readiness
Employ a central psychological model tailoring interventions to farmers' psychological needs):

- Prioritise eco-friendly farming practices to foster a deep-rooted sense of environmental stewardship as part of a farmer's identity.
- Cultivate a sense of preparedness and capability to adopt and implement eco-friendly farming techniques.
- 49% of farmers in our survey referred to this as a key focus.

2. Incentives and Engagement
Design incentives that marry economic benefits with psychological drivers, including identity and community norms:

- Encourage enthusiastic participation through programmes that offer rewards for adopting eco-friendly farming practices.
- 29% of farmers in our survey referred to this as a key focus.

3. Upskill Competence and Confidence
Create targeted training and support programs to boost farmers' readiness for Net Zero adoption, focused on sustainable technologies and climate skills:

- Equip farmers with the skills and assurance needed to adjust their practices to climate change
- Enhance the use and effectiveness of advanced technology to minimise emissions.
- 54% of farmers in our survey referred to this as a key focus.

4. Community focused initiatives
Support community-led projects that leverage local influence to promote sustainability, fostering networks for peer learning and collective action:

- Utilise community norms and support to drive the adoption of eco-friendly farming practices.
- 48% of farmers in our survey referred to this as a key focus.

5. Accounting and Reporting
Develop transparent, accessible reporting systems that enable farmers to regularly monitor, report, and verify their emissions:

- Implement user-friendly digital tools tailored to agricultural needs, helping farmers to track and understand their progress towards Net Zero goals.
- Provide training programmes for farmers on the use of these tools and emphasise the importance of accurate data collection.
- 55% of farmers in our survey referred to this as a key focus.

This policy briefing paper was produced by Prof John Maltby, Professor of Differential Psychology, University of Leicester, with the support of the University of Leicester Institute for Policy.

References

Maltby, J. (2024). Avoiding Siloed Approaches: Integrating Psychological Insights into Sustainable Farming. University of Leicester, Leicester. ESPRC Grant Ref: EP/Y00597X/1

[1] [US-EPA] United States Environmental Protection Agency. 2012. *Global anthropogenic non-CO2 greenhouse gas emissions: 1990 – 2030.* EPA 430-R-12-006. Washington, DC: US-EPA. (Available from http://www.epa.gov/climatechange/EPAactivities/economics/nonco2projections.html)

[1] FAO. 2015. Food and Agriculture Organization of the United Nations, FAOSTAT database. Available at: http://faostat3.fao.org/faostat-gateway/go/to/home/

[1] IPCC 2022. *Climate Change and Land*. Cambridge University Press, Cambridge. https://www.ipcc.ch/site/assets/uploads/sites/4/2022/11/SRCCL_Full_Report.pdf

University of Leicester
University Road
Leicester, LE1 7RH, UK

e: instituteforpolicy@leicester.ac.uk
w: www.le.ac.uk/research/institutes/policy