

Project number: 5935
Funding source: Teagasc

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Economic analysis of the impact of policy on Irish agriculture using the FAPRI-Ireland model



Key external stakeholders:

Policy makers including Department of Agriculture, Food and the Marine (DAFM) officials, agricultural and agri-food representative organisations, Environmental Protection Agency (EPA) and Teagasc research and advisory colleagues

Practical implications for stakeholders:

The FAPRI-Ireland aggregate sector modelling research programme builds and maintains the analytic capacity to required to quantitatively evaluate the impact of policy and market developments on Irish agriculture

- The capacity to produce an annual Baseline projection of agricultural activity, commodity supply balances and agricultural output, input and income tables
- Allowed the analysis of policy issues of interest to the Irish agri-food sector including CAP reform, WTO issues and Food Harvest 2020
- Allow the annual analysis of the contribution of Irish agriculture to Ireland's future GHG emission inventories

Main results:

The key results were the:

- Economic analysis of the on Irish agriculture of the WTO Doha Round proposals for agricultural trade liberalization.
- Economic analysis of the impact of the achievement of the Food Harvest 2020 targets.
- Provision of projections used to produce of Irish agricultural GHG inventories by the EPA.
- Economic analysis of the impact of policy developments on the level of Irish agricultural GHG emissions

Opportunity / Benefit:

The analysis conducted and published supported agricultural policy making in Ireland, is a key input into the provision of projections of GHG inventories by the EPA and results of analysis are used by other researchers in related projects in Teagasc and other institutions.

Collaborating Institutions:

Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri-Columbia, USA and Agri-Food and Biosciences Institute – Northern Ireland (AFBI-NI) and the EPA.

Teagasc project team:	Dr Kevin Hanrahan (PI) Mr Trevor Donnellan
External collaborators:	Food and Agricultural Policy Research Institute (FAPRI), University of Missouri-Columbia, USA (Julian Binfield and Patrick Westhoff) Agri-Food and Biosciences Institute – Northern Ireland (AFBI-NI), United Kingdom (Myles Patton)

1. Project background:

The policy and market context within which Irish agri-food industries operate is complex and characterised by a) a high degree of interdependence across agricultural sectors, b) the very high dependence of Irish agriculture and food industries on export markets and c) the continued importance of public policy (at Irish, EU and international levels) in influencing the market environment within which farms and agri-food businesses operate.

The research undertaken in this project provided the basis for the quantitative future orientated analysis of the impact of developments in agricultural, trade and environmental policy on the Irish agri-food industry.

2. Questions addressed by the project:

- What would the impact of a WTO Doha Round Agreement be on Irish agriculture and its various component subsectors?
- What is the likelihood of the Food Harvest targets being achieved and what would the consequences of achieving the targets be for the Irish agric-food sector?
- What contribution is Irish agriculture likely to make to inventories of GHG emissions in the medium term?
- What impact would the achievement of the FH2020 output growth targets have on Irish agriculture's GHG emissions?

3. The experimental studies:

In this project a set of dynamic partial equilibrium models of Irish agriculture and the Irish agricultural economy and its GHG emissions were developed, maintained and used to conduct baseline and policy scenario analysis. These models were econometrically estimated using time series data obtained from the CSO, Eurostat, DAFM and other sources. The models are currently simulated in a MS Excel environment over a ten year horizon.

The models developed cover all of the principal sub-sectors of the Irish agricultural economy and include a model of Irish agriculture's input use and expenditure, which, when combined with the sectoral sub-models, will allow for the projection of the full economic accounts for the Irish agricultural sector. The models developed and maintained in this project will form the core tools used in the provision of future orientated economic analysis by Teagasc.

Annual baseline projections were produced using the models developed and these were used to provide projections of agricultural activity levels to the EPA. Scenario analysis undertaken using the models over the course of the project focused on WTO issues, environmental policy (specifically climate change policy) and the challenge to the Irish agri-food industry of the Food Harvest Committee's output growth targets for the sector.

4. Main results:

Economic analysis of the WTO Doha Round proposals for agricultural trade liberalization. The analysis highlighted the negative impact of the potential trade reform on Irish agriculture and the importance of sensitive product status in mitigating some of the potential negative impacts of a WTO agreement on Irish agriculture.

Economic analysis of the impact of the achievement of the Food Harvest 2020 targets versus a baseline where policy continues as currently structured. The analysis highlighted the magnitude of the challenge

faced by the sector in meeting the FH2020 targets and the consequences of achieving the output growth targets for the sector's emissions of GHG.

5. Opportunity/Benefit:

The primary stakeholders for this research are policy makers in Ireland both within government (DAFM, DEHLG) and other state organizations such as the EPA, farm and agri-food industry representative organizations and colleagues within Teagasc. The research conducted has informed policy on issues of great importance to the future of the industry.

The models developed form the basis for ongoing research that analyses the impact of policy change and market developments such as the increasingly volatile input and output price environment within which the agri-food sector operates.

6. Dissemination:

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Main publications:

Donnellan, T. and K. Hanrahan (2009) "WTO Doha Round: Impact of an Agreement on Agriculture and the Importance of Sensitive Products." Paper presented to the 83d AES Annual Conference <http://purl.umh.edu/50936>

Donnellan, T. and K. Hanrahan (2009) "Issues in examining the impact of WTO reform on the Beef and Dairy Sectors in the European Union" Paper presented at the IAAE Conference <http://purl.umh.edu/51752>

Clancy Breen Hanrahan Donnellan Cost Implications of a Carbon Tax on Fuel Used in Agricultural Production in Ireland, http://www.teagasc.ie/publications/2010/11/11_Briefing_Note_Carbon_Tax_050510%20Final.pdf

Donnellan, T. and K. Hanrahan (2011) Hanrahan Teagasc "Greenhouse Gas Emissions by Irish Agriculture: Consequences arising from the Food Harvest Targets." Teagasc Briefing Note No. 2011 / 1 http://www.teagasc.ie/publications/2011/67/67_FoodHarvestEnvironment.pdf

Donnellan, T. and K. Hanrahan (2011) "Implications of Measures to Reduce Greenhouse Gas Emissions from Irish Agriculture by 30 percent by 2020: Achievement of the target through a reduction in animal numbers." Teagasc Briefing Note No. 2011 / 2 http://www.teagasc.ie/publications/2011/68/68_GHG30percentcut.pdf

Popular publications:

Donnellan, T. and K. Hanrahan (2009) Competing on a world stage. T-Research, Vol 4(2):30-31

Donnellan, T. and K. Hanrahan (2011) Food Harvest and greenhouse gas emissions . T-Research, Vol 6(2):34-35

7. Compiled by: Kevin Hanrahan