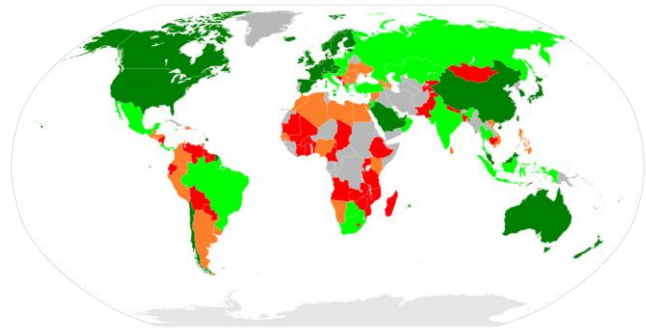


**Project number:** 6660  
**Funding source:** DAFM RSF 14/S/874

**Date:** January 2020  
**Project dates:** Mar 2015 - Jun 2017

# MetricComp: Measurement and Understanding of the International Competitiveness of Irish Agriculture



## Key external stakeholders:

Department of Agriculture, Food and the Marine (DAFM), Research colleagues, Knowledge Transfer colleagues, wider agri-food industry

## Practical implications for stakeholders:

The practical implications of the research for stakeholders are as follows:

- (1) A computerised system for updating data necessary for the computation of competitive performance indicators for the sectors within the EU using data from the European Commission's Farm Accountancy Data Network (FADN) has been established. This system facilitates the regular monitoring of the competitiveness of Irish agriculture, which enables policy makers in the Department of Agriculture, Food and the Marine (DAFM) to monitor progress in the achievement of policy objectives;
- (2) The scenario analysis conducted as part of the competitive performance analysis has indicated the potential hard hitting impact that Brexit could have for Irish beef farms, with implications for a wide range of end users of the research, including upstream and downstream industry, consumers, regulatory authorities, policy makers and the scientific community.
- (3) The empirical analysis of the sources of competitive performance within Irish agriculture contributes to informed policy making by deepening the understanding of the sources and determinants of the international competitiveness of Irish agriculture. In particular, the findings support the current focus of the Irish extension system on fostering the uptake of innovative technologies and practices in order to achieve an economically sustainable expansion of the dairy sector.

## Main results:

- A detailed report and analysis of trends in the competitiveness of the main sectors in Irish agriculture was published in April 2017. Profitability, costs of production, value of output and some partial productivity indicators (such as milk yield, stocking density, cereal yield, labour productivity) were examined. The analysis confirmed the competitive advantage associated with the Irish dairy farm system in particular.
- In relation to the other main sectors in Irish agriculture, by using profitability as a leading indicator of competitive performance, the intra-EU analysis carried out illustrated the importance of decoupled payments for Irish farmers, with the Irish beef and sheep sectors in particular exhibiting higher cash costs as a per cent of market based output compared to key EU counterparts.
- This empirical analysis of the impact of innovation on economic sustainability on Irish dairy farms, revealed that innovation increases economic sustainability, but not in a linear way. More specifically,

economic gains depend on the level of innovation. Small efforts to increase innovation can lead to economic gains of over €200 per hectare. The results also reveal that innovative farmers can achieve higher economic gains by innovating further.

### Opportunity / Benefit:

The relevance of the research to the end user is as follows:

- (1) Facilitate the regular monitoring of the competitiveness of Irish agriculture, which will enable policy makers in the Department of Agriculture, Food and the Marine (DAFM) to monitor progress in the achievement of policy objectives;
- (2) Contribute to informed policy making by deepening the understanding of the sources and determinants of the international competitiveness of Irish agriculture, in particular, the role of innovation;
- (3) Allow for an assessment of the future competitive potential of Irish agriculture under alternative baseline and policy reform scenarios

### Collaborating Institutions:

- The University of Dundee, UK
- University of Wisconsin – Madison, USA
- UCC, Ireland
- Lincoln University, NZ

**Teagasc project team:** Dr. Fiona Thorne, Ms. Anne Kinsella, Mr. Trevor Donnellan, Dr. Kevin Hanrahan

**External collaborators:** Dr. Doris Laepple, UCD/NUIG

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### 1. Project background:

While the multilateral agricultural trade policy reform process under the auspices of the WTO has recently shown little signs of progress, the liberalisation of EU agricultural tariff protection has continued under the auspices of ongoing and agreed bilateral trade agreements between the EU and third countries. Thus, concerns about the international competitiveness of Ireland's primary agricultural sector, motivated by an increasingly liberalised agricultural trade environment, are justified.

In parallel with developments at multilateral and bilateral trade negotiations, the EU has since the mid-1980s been engaged in a rolling process of Common Agricultural Policy (CAP) reform. In all of the major CAP reforms since the mid-1980s, the European Commission has stressed the need to tailor European agricultural policy to enhance the competitiveness of EU agriculture.

Thus, given the continuing pressures for agricultural policy reform within the EU and the continuing trend towards less trade and price-distorting agricultural income support systems, the relative costs and efficiency of production for the major internationally traded agricultural commodities will assume greater importance. The ability of Irish farms to stay in business and grow will depend increasingly on their capacity to sustain profitability from participating in the European and global marketplaces, rather than their ability to draw on support policies.

The objective of this study was to measure the competitiveness of Irish agriculture for the major agricultural commodities of relevance to Ireland and to measure Irish agriculture's competitive position relative to a range of the main producing and exporting countries. In this way we can generate information about the competitive strengths and weaknesses of Irish agriculture in a European and global context and gain insights into the capacity of the sector and its sub-components to survive and prosper in an environment of freer trade and diminished protection. This objective of measuring and understanding the international competitiveness was explicitly stated in the FH2020 document (DAFF, 2010) which highlighted the measurement of competitiveness as a research priority for Teagasc.

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### 2. Questions addressed by the project:

The main questions addressed by this project included:

- (1) How do the main sectors of Irish agriculture compete within the EU and internationally in terms of competitive performance as measured by the indicators a) costs as a percent of output and b) costs per

volume of output?

- (2) What are the main sources and determinants of the international competitiveness of Irish agriculture? And what role does innovation play in this context?
- (3) What is the likely future competitive potential of Irish agriculture under alternative baseline and policy reform scenarios?

### 3. The experimental studies:

The main methodological approaches used in this research included:

1. Data from the Teagasc, National Farm Survey, EU Farm Accountancy Data Network (FADN), International Farm Comparisons Network (IFCN) for dairy, and Agribenchmark for beef, sheep and crops to examine the competitive performance for Irish agriculture using accountancy based indicators of performance;
2. Use of econometric methods to examine the role of innovation in determining competitive performance, using data from the Teagasc, National Farm Survey.
3. Use of data from Teagasc, National Farm Survey and the Farm Accountancy Data Network to examine the potential impact of Brexit on Irish farms in terms of its impact on competitive performance under alternative policy scenario assumptions.

### 4. Main results:

A detailed report and analysis of trends in the competitiveness of the main sectors in Irish agriculture was published in April 2017. The report was launched as part of a workshop on competitiveness and efficiency measurement and aimed at stakeholders within the industry.

Profitability, costs of production, value of output and some partial productivity indicators (such as milk yield, stocking density, cereal yield, labour productivity) were examined. The analysis confirmed the competitive advantage associated with the Irish dairy farm system in particular. Irish dairy farms continue to exhibit relatively low cash costs of production compared against key EU and international competitors. For recent years, cash cost in Ireland were one of the lowest amongst the key EU dairy producing regions, at €2.7 per kg of milk solids, which was substantially lower than the level found for countries such as the UK, France, the Netherlands, Germany and Denmark. This research shows that based on a total cost competitiveness index, Ireland's total economic costs of production are declining in an international context, due to increases in scale achieved in Ireland.

In relation to the other main sectors in Irish agriculture, by using profitability as a leading indicator of competitive performance, the intra-EU analysis carried out illustrated the importance of decoupled payments for Irish farmers, with the beef and sheep sectors in particular exhibiting higher cash costs as a per cent of market based output compared to key EU counterparts. Furthermore, one of the implications of the findings is suggestive of the potential hard hitting impact Brexit could have for the competitiveness of Irish beef farms. The analysis has shown that relatively high cash and total economic costs of production are evident for Irish beef, with costs much lower in regions such as Brazil and Argentina. This could have profound implications on the competitiveness of Irish beef on UK markets in a more liberalised trade environment post Brexit.

This empirical analysis of the impact of innovation on economic sustainability on Irish dairy farms, revealed that innovation increases economic sustainability, but not in a linear way. More specifically, economic gains depend on the level of innovation. Small efforts to increase innovation can lead to economic gains of over €200 per hectare. The results also reveal that innovative farmers can achieve higher economic gains by innovating further.

### 5. Opportunity/Benefit:

The relevance of the research to the end user is as follows:

- (1) Facilitate the regular monitoring of the competitiveness of Irish agriculture, which will enable policy makers in the Department of Agriculture, Food and the Marine (DAFM) to monitor progress in the achievement of policy objectives;
- (2) Contribute to informed policy making by deepening the understanding of the sources and

determinants of the international competitiveness of Irish agriculture, in particular, the role of innovation;  
(3) Allow for an assessment of the future competitive potential of Irish agriculture under alternative baseline and policy reform scenarios

## 6. Dissemination:

### Main publications:

Thorne et al (2017) Competitiveness of Irish Agriculture, <https://www.teagasc.ie/media/website/publications/2017/The-Competitiveness-of-Irish-Agriculture.pdf>

Laeppele, D., and Thorne, F. (2019) The Role of Innovation in Farm Economic Sustainability: Generalised Propensity Score Evidence from Irish Dairy Farms Journal of Agricultural Economics, Volume70, Issue1, February 2019, Pages 178-197. <https://doi.org/10.1111/1477-9552.12282>

### Popular publications:

Gillespie, P. and Thorne, F. (2016) An automated framework for assessing dairy competitiveness, AESI Annual Conference, Dublin, 7/1/2016

Gillespie, P. and Thorne, F. (2016) "Assessing dairy cost competitiveness in a global marketplace" at AES Annual Conference in Warwick, UK.

Thorne, F., McCormack, M., Gillespie, P., and Cillero, M. (2017) Competitiveness and Productivity in Agriculture, Seminar in the RDS, April 2017, Organised international workshop 24/04/17

Thorne, F., McCormack, M., Gillespie, P., and Cillero, M. (2018) 'Competitiveness of Irish Agriculture' HLIC FoodWise Presentation, 01/06/18

Thorne, F., McCormack, M., Gillespie, P., and Cillero, M. (2018) Competitiveness and Productivity of Irish beef production, - Teagasc/SRUC event, Edinburgh, Jan. 2018

Thorne, F., McCormack, M., Gillespie, P., and Cillero, M. (2018) Present 'Competitiveness of Irish Agriculture' Alltech conference, Dunboyne, Meath 16/10/18

Gillespie, P. and Thorne, F. (2016) Outlook 2017 (December 2016) Present Competitiveness findings to conference 02/12/16

Thorne, F. and Gillespie, P. (2017) Outlook 2018, Competitiveness of Irish Agriculture, Present Competitiveness findings to conference 04/12/17

## 7. Compiled by: Dr Fiona Thorne