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An economic analysis of the financial performance of dairy and cereal farms in Ireland

Key external stakeholders:

Dairy and tillage farmers, dairy and tillage industry, farm bodies, national government, policy makers

Practical implications for stakeholders:

- The evolution of costs, returns and margins on dairy and tillage farms were examined.
- New methods, both public and private risk management tools, will be needed in the future on dairy and tillage farms in an effort to manage risk at the farm level.
- Production cost variation is affected by many things other than farm size.
- The importance of the scale of operations proved to be of particular interest on tillage farms, with larger and more specialised farms being more efficient.

Main results:

- The evolution of costs, returns and margins on dairy and tillage farms were examined.
- Substantial price volatility was experienced by dairy and crop farms between 2007 and 2009. New methods, both public and private risk management tools, will need to be considered in an effort to manage this volatility in the future.
- Based on NFS data for 2006, only 9 per cent of the variation in production costs on dairy farms was accounted for by farm size, so it can be concluded that it is not the most important driver of cost efficiency on dairy farms.
- The importance of the scale of operations proved to be of particular interest on tillage farms. The analysis showed that increasing returns to scale are present in the tillage sector. This result shows that larger farms are more efficient. The degree of specialisation will also be an important issue for the competitive future of Irish cereal farming. Higher levels of specialisation lead to higher efficiency levels in the tillage sector.

Opportunity/Benefit:

The results from this research provide the economic data necessary to make informed decisions by key stakeholders. The specific benefits of the micro data analyses are measures of the effect of a proposed policy or market development on the following factors:

- the viability and economic sustainability of farm households
- farm production plans
- farm incomes
- changes in the farming population, in terms of the effect on entry to and exit from the farming sector

Collaborating Institutions:

Trinity College Dublin (TCD)
University College Dublin (UCD)

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Industrial collaborators: Advisory specialist staff
DAFF officials
Industry representatives

1. Project background:

When output prices are declining and input prices increasing, efficiency gains are the key to survival. The European policy agreements of the last number of years have resulted in a downward trend in output prices for the main commodities. Simultaneously, market based factors and policy developments have had a strong impact on the volatility of input and output prices. The aforementioned factors have resulted in significant pressure on farmers to reduce costs and/or become more productive if they are to remain profitable.

Research has been on-going in Teagasc for many years on the cost efficiency of farmers based on NFS data. This project provides an understanding of the main determinants of the profitability of farms so as to better prepare farmers and other agricultural stakeholders for future policy and market developments. The core objective of this project was to provide farmers and farm advisors with more information so as to plan more effectively for the future and thus to ensure the long-term viability of agriculture in Ireland, a key Teagasc and national priority.

2. Questions addressed by the project:

- Use of National Farm Survey data to examine the financial performance of dairy and crop farms in Ireland.

3. The experimental studies:

The research project was broken into 5 principal phases:

- Each year on publication of the NFS results, the costs of production on dairy and cereal farms were reviewed and key technical performance indicators were developed.
- Based on NFS data an appraisal of the financial performance of the farms in both sectors was conducted, i.e., number of viable farms and so forth.
- Short-term estimates of the outlook for dairy and cereal production were produced.
- The cost and revenue structure of different enterprises were studied in order to establish the major determinants of enterprise profitability with a view to identifying ways of increasing profitability.
- The results of the enterprise analysis were disseminated to Teagasc advisory representatives and other research centres so that the performance of individual farms and experiment farms could be compared to national averages.

4. Main results:

- Costs of production and financial performance indicators for dairy and crop farms for 2007, 2008 and 2009 were reviewed. Dairy farms continue to have the highest net margin per hectare across all farm types.
- The importance of volatility in agricultural markets was highlighted by the results of the annual situation and outlook for dairy and crop farms from 2007 to 2009. Substantial price volatility was experienced by dairy and crop farms between 2007 and 2009. This volatility can be expected to be a major characteristic of commodity markets in the future due to the fundamental behaviour of buyers coupled with production uncertainty. Recent policy changes, in relation to price support, export refunds and import quotas, have resulted in European farmers being more exposed to movements in world prices. The incorporation of stochastic forecasts for price in the annual outlook for crops was an important methodological development of this project.
- In terms of understanding the factors affecting performance on dairy farms, the research has shown

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that a statistically significant negative relationship exists between production costs and farm size but that this relationship is non-linear. This means that as farm size increases production costs decline but at a declining rate. Based on NFS data for 2006, only 9 per cent of the variation in production costs was accounted for by farm size, so it can be concluded that it is not the only important driver of cost efficiency.

- In terms of understanding the factors affecting productivity on crop farms, the results from the analysis have shown that technical efficiency was positively correlated with extension use, soil quality, the overall size of the farm, and the level of specialisation. The importance of the scale of operations is of particular interest. The analysis showed that increasing returns to scale are present in the tillage sector. This result shows that larger farms are more efficient. The degree of specialisation will also be an important issue for the competitive future of Irish cereal farming. Higher levels of specialisation lead to higher efficiency levels in the tillage sector.

5. Opportunity/Benefit:

The expected benefits of this project are as follows:
(1) Facilitation of informed decision making at farm level. The analysis of the annual situation and outlook for Irish farming using a representative farm approach, which reflects the levels of technical efficiency at farm level provides information that facilitates economically rational production decisions.
(2) Understanding of the key determinants of farm profitability.
(3) Facilitate informed decision making by policy makers and stakeholders.
(4) To facilitate other Teagasc staff in the dissemination of timely reporting on the situation and outlook for Irish crop and dairy farms.

6. Dissemination:

Main publications:

Hennessy, T., Donnellan, T. and Smyth, P. (2007). The Situation and Outlook for the Dairy Sector. In: Teagasc Situation and Outlook Conference, Tullamore.

Hennessy, T., Donnellan, T. and Smyth, P. (2008). The Situation and Outlook for the Dairy Sector. In: Teagasc Situation and Outlook Conference, Tullamore.

Donnellan, T. and Smyth, P. (2009). The Situation and Outlook for the Dairy Sector. In: Teagasc Situation and Outlook Conference, Portlaoise.

Breen, J. and Thorne, F. (2007) The Situation and Outlook for Crops, In: Teagasc Situation and Outlook Conference, Tullamore.

Thorne, F. (2008) The Situation and Outlook for Crops, In: Teagasc Situation and Outlook Conference, Tullamore.

Breen, J., Clancy, D., and Thorne, F. (2009) The Situation and Outlook for Crops, In: Teagasc Situation and Outlook Conference, Portlaoise.

Smyth, P. and Hennessy, T. (2009). Explaining the variability in the economic performance of Irish dairy farms 1998-2006. *Journal of International Farm Management* 1-18 ISSN 0967-0785 18397

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