New dairy innovation centre

Teagasc and The Irish Dairy Board (IDB) have created a new Dairy Innovation Centre based in Teagasc Moorepark. The objective is to develop market-led product concepts that can be manufactured by IDB members and marketed internationally by the IDB. The initiative is a response to the IDB's medium-term plans to maximise the expansion opportunities that will be created for the Irish dairy sector when the European Union abolishes milk quotas in 2015 and the Government's *Food Harvest 2020* Report. This partnership is a vital part of the IDB's strategy to increase the added value element of Irish dairy exports, and Teagasc's strategy to support innovative research by commercial Irish food companies.

Professor Paul Ross, Head of Food Programme, Teagasc, Dr Diarmuid Sheehan, Programme Manager, Dairy Innovation Centre, and Karen Thompson, Innovation & Strategy Manager, Irish Dairy Board, are pictured at the launch of the Irish Dairy Board Dairy Innovation Centre located at the Teagasc Food Research Centre, Moorepark.

Agricultural catchment visit

Pictured on a visit to the Teagasc Agricultural Catchment in Timoleague to launch the Catchment Science 2011 conference, which takes place in the Mansion House, Dublin, from September 14 to 16, are (from left): landowner Kevin Collins, Timoleague; Ger Shortle, Teagasc; Mr Simon Coveney, Minister for Agriculture, Food and the Marine; Professor Gerry Boyle, Director, Teagasc; and, landowner Colin Bateman, Timoleague.

Teagasc event proceedings and presentations can be found online at www.teagasc.ie/publications.

Minister welcomes FP7 success

The Minister for Agriculture, Food and the Marine, Simon Coveney, TD, has said that he was delighted to learn that a number of researchers from Irish research institutes and agri-food SMEs are participants in successful consortia to be funded under the EU's 2010 Research Call under the Seventh Framework Programme for Research and Technological Development (FP7). Irish researchers are involved in 20% of the recent awards by the EU Commission in the Theme Area covering Food, Agriculture & Fisheries, and Biotechnology. The value of funding to Irish researchers is in excess of €6.1 million.

The successful applicants included Teagasc, the Marine Institute, University College Dublin, Trinity College Dublin, University College Cork, and Limerick Institute of Technology. "It is important for Irish researchers to participate in European collaborative programmes," the Minister said, "and this recent success indicates the high quality of research being conducted at Irish research institutes". He congratulated in particular Dr Susanne Barth of Teagasc (pictured), who is leading a research team from 10 countries on a project to enhance biomass production from marginal lands with perennial grasses.

Minister Coveney went on to acknowledge the ongoing success of Irish researchers, who have secured over €20.3 million in research funding to date under FP7 since 2007. The Minister added that "the level of funding secured is very significant and a clear demonstration of the essential need to continue Ireland's investment in R&D, particularly in relation to our most important indigenous sector and especially given the economic challenges facing both the country and the industry".

Visiting postdoc

Pictured are Dr Maria Hayes, Teagasc Food Research Centre, Ashtown, with visiting postdoctoral researcher Dr Leticia Mora Soler.

Dr Leticia Mora Soler received the Fundación Alfonso Martín Escudero postdoctoral fellowship in 2010 to conduct research at Teagasc Food Research Centre, Ashtown, with Dr Maria Hayes and Declan Troy. The project Leticia worked on examined the potential of waste and by-products from fish and meat processing as sources of bioactive compounds for use in functional foods. This is a topic of great interest to both the marine and meat processing industries in Ireland. Sustainable food production and waste valorisation are becoming important issues in the food industry, where high amounts of biological by-products and waste are generated.

For inspection purposes only.
Consent of copyright owner required for any other use.

EPA Export 19-11-2013:23:50:36

Background

The Good Agricultural Practice measures are intended to help keep plant nutrients (N and P) on farms to maximise productivity and also contribute to the improvement of water quality in Irish waterways and water bodies. As part of the EU requirements under the Nitrates Directive, Ireland is required to monitor the effectiveness of these measures and especially nutrient transfers in rivers, lakes and estuaries. In terms of agricultural catchments, it is important to link the use of nutrients at the farm and field scale to those being delivered to catchments streams. This is especially important as the delivery to rivers is often due to source and pathway factors coinciding; management, hydroclimatics and local topography are all relevant. It may be, for example, that the majority of nutrient loads from catchments occur in very short timescales and that careful management is required at certain times. It may also be that non-agricultural sources have a role during ecologically important periods and that the catchment risk to rivers is different to those in standing water bodies such as lakes and estuaries.

Figure 1. *Grassland catchment stream in Co. Cork* ***Figure 2.*** *Stream in a tillage field in Co. Louth*

Objectives

The primary objective of the 'Nutrient DELIVERY to streams' component of the Agricultural Catchments Programme is to identify the impact of agricultural land management on nutrient concentrations and loads in Irish streams. To meet this objective, the following research questions will be addressed;

- What are the loads and concentrations of nutrients at the catchment stream outlet?
- When are nutrient transfers occurring?
- How do seasonal farm management activities influence nutrient fluxes?
- Are N & P flux patterns at the outlet concurrent with patterns within the upstream surface and subsurface pathways?

For inspection purposes only.
Consent of copyright owner required for any other use.

The role of farm ditches and in-stream processes in removing or adding nutrients in catchment streams will also be investigated by a Walsh Fellow (PhD studentship).

Methods

Stream water quality is being measured in four catchments dominated by grassland (Fig1) and two catchments dominated by tillage farming (Fig 2). These catchments are between 5 and 12 km^2 and have been chosen to represent the range of farming, soils, geology and climates across the more intensively farmed regions of Ireland; two in Wexford, two in Cork and two in Cavan/Louth. A further study will be carried out in the karst limestone region in the west of Ireland.

State-of-the art technology will be used to continuously monitor P (total P, total soluble P, total reactive P and soluble reactive P), N (total N, nitrate), turbidity, electrical conductivity and temperature at the outlets of each catchment.

Flow and nutrients are being monitored at each catchment outlet using flow gauging stations (Fig 3) that are instrumented with continuously logged water level meters, flow velocity meters, automatic water samplers and on-site bankside nutrient analysers. The on-site analysis allows for samples to be analysed as soon as the sample is collected, which is important for nutrient forms such as soluble reactive P which can be transformed into less bio-available forms when stored for long periods.

EPA Export 19-11-2013:23:50:36

In addition to the outlet monitoring, 'snapshot' water quality surveys will be conducted in each catchment every few weeks to help understand the link between land management activities, seasonal conditions, soil type variation and water quality (Fig 4).

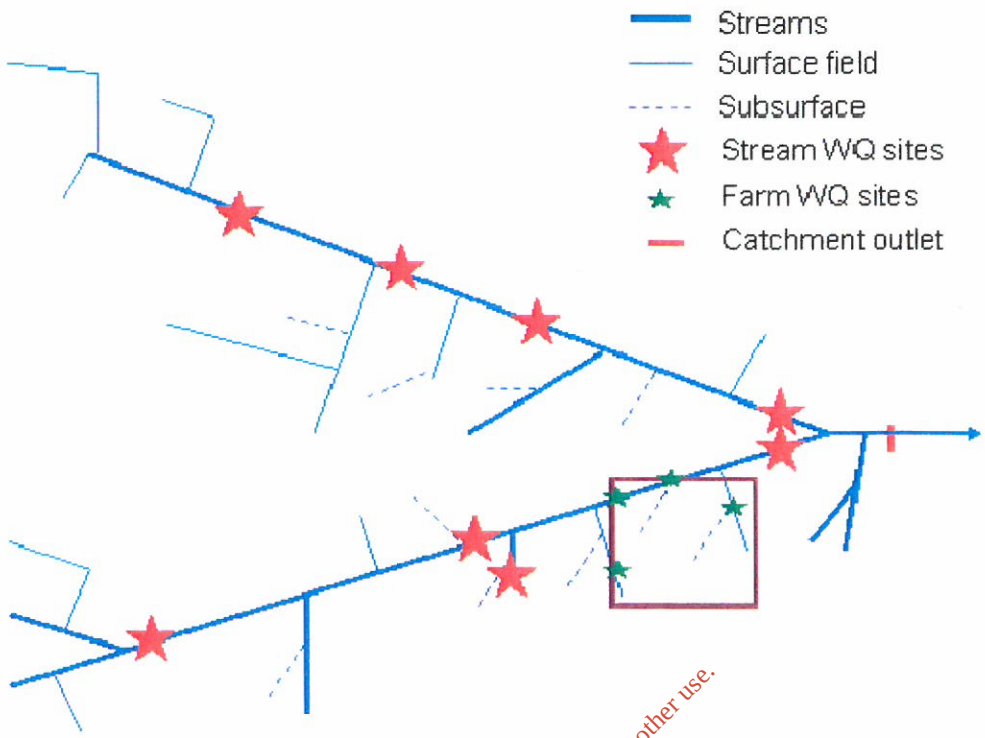

Figure 4. *Stream water quality (WQ) will be measured at catchment outlets, and also during catchment and farm snapshot sampling surveys.*

For inspection purposes only.
Consent of copyright owner required for any other use.

Farmers in each catchment will also be encouraged to have 'farm snapshots' of water quality conducted. These once-off assessments will identify the sources and sinks of water and nutrients on the farm, and water quality will be tested as it enters and leaves the property. These farm snapshots provide useful information for farmers at the farm scale for where management can be changed to improve water quality, in the same way that soil testing helps to fine-tune crop and grassland nutrient management.

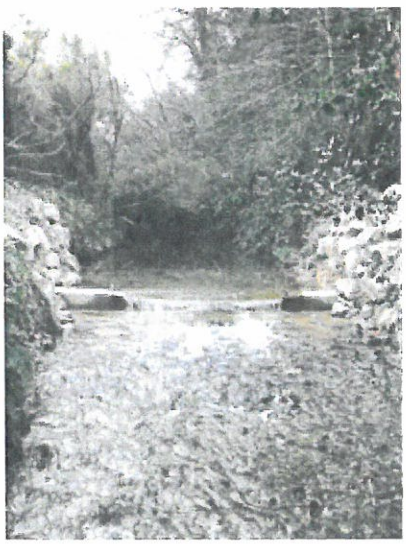

Figure 3. *Water quantity and quality is being measured at 2nd-3rd order stream outlets of agricultural catchments. Low profile flat-V weir, Co. Wexford.*

EPA Export 19-11-2013:23:50:36

Outcomes

The monitoring will identify how effective the Good Agricultural Practice measures are at maintaining or improving water quality in streams. The research will also help identify the relative influence of point sources (such as sewage treatment works discharge, stormwater from built environments and farm yards) compared with 'diffuse' sources such as drainage and runoff from land. An important outcome of the stream monitoring component of the Programme will be greater confidence in the link between farm management and water quality so that improvements to management, where required, can be made with the confidence that the changes will have a positive impact at the catchment scale.

---

info: catchments@teagasc.ie

Head Office: Teagasc, Oak Park, Carlow, Ireland | Tel: +353 59 917 0200 | Fax: +353 59 918 2097 | Email: info@teagasc.ie

For inspection purposes only.
Consent of copyright owner required for any other use.

EPA Export 19-11-2013:23:50:36