

Moorepark News

Research, technology and innovation for the dairy industry

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Viewpoint

Intensive grassland doesn't HAVE to mean poor water quality



Ireland's derogation from the Nitrate Directive – up to 250 kg nitrogen per ha from livestock manure (equivalent to 2.9 livestock units) on farms with at least 80% grassland – was granted provided we did not counteract the water quality objectives of the Directive. Groundwater nitrate-N concentrations in excess of 11.3 mg per litre are potentially harmful to the environment.

A requirement of the derogation was that a study be carried out to provide scientific information on nitrate leaching under an intensive dairy production system in a vulnerable soil type. This research was done at Moorepark's Curtins farm, which is representative of the highest-risk soils to nitrate leaching in Ireland.

Since 2001, 11 borehole wells have been sampled monthly and this data was used to evaluate the influence of local climatic, hydrogeological and agronomic practices on nitrate concentration in groundwater. From 2001 to 2012, best nutrient management practices were introduced: increased early spring slurry use to replace chemical nitrogen, a reduction in chemical nitrogen application, soiled water application moved to a less vulnerable area of the farm, area

allocation for soiled water increased from 10 to 22 ha, and minimum till cultivation reseeded replaced ploughing.

Over the study period, groundwater nitrate concentrations decreased from a peak of 16.0 mg L⁻¹ in 2002 to a low of 7.3 mg L⁻¹ during 2010 and 6.6 mg L⁻¹ in 2011.

This indicates that intensive dairy production systems in conjunction with appropriate nutrient management practices are consistent with high water quality, even on highly vulnerable free-draining soils.

The results also indicate that sensible nutrient management practices can quickly improve groundwater quality and lead to the achievement of the water quality targets set by, the Water Framework Directive.

This study, funded under the National Dairy Levy, is a cross-disciplinary collaboration between Teagasc Moorepark and Johnstown Castle and Karlsruhe Institute of Technology, Germany.

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More cheese please



Food Harvest 2020 predicts a 50% increase in milk production by 2020 above the 2007/2009 base line. While there is some debate as to whether this target will be achieved or indeed surpassed there is little doubt but that Ireland will be producing significantly more milk by 2020.

There is sufficient production capacity available in terms of a suitable land supply and the grass based system of farming in Ireland. Though this leads to a seasonal milk supply with its associated implications, it results in relatively low cost production thus adding to the competitive advantage of the industry at a global level.

A key factor in Ireland's capacity to achieve the Food Harvest 2020 target will be the price paid to the farmer for milk. This will be fundamental to the profitability of the farm enterprise and will be the platform on which investment and expansion decisions will be made. Farmers can only be provided with a competitive and stable price for milk if milk is converted into value added products demanded by the global economy.

In this regard cheese has become a central product for the industry; testament to this is the fact that during the milk quota period the proportion of milk used in cheese manufacture more than doubled to 30% by 2012. Cheese output grew by over 40% during the ten year period to 2012 when 174,000 tonnes were produced and it is predicted that by 2020 that this will increase to 230,000 tonnes.

Maximising the return from cheese will require that new value added products are developed to meet evolving consumer needs in markets across the UK, EU, USA, North Africa and the Middle East. The Teagasc Cheese Research sub-programme is actively involved with industry in this area but continued investment in R&D is required to ensure that the Irish cheese industry fully realises its potential.

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