

## Mitigation measures to reduce agricultural Nitrogen and Phosphorus losses in Ireland

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Mitigation of N and P loss from agricultural systems is regulated largely by legislation in Ireland. Mitigation has largely focused on the c. 85% of agricultural land that is managed with grassland farming systems. National implementation of EU legislation and policy has addressed: (i) limiting the amount of excess N and P within production systems; (ii) ensuring that N and P in farmyard effluent and slurry are correctly managed; and (iii) limiting spreading of N and P at times when losses to surface or ground water are likely to be high. The Rural Environmental Protection Scheme (an Agri-Environmental Scheme) was introduced in 1994 and has been successful in introducing nutrient management measures on less intensive farms (<170 kg organic N/ha) and currently 45% of Irish farms participate. A review of trends in N and P fertiliser usage in Ireland reveals increases from the 1960 to 1990s and subsequent declines, and there are indications from national surface water monitoring data that water quality is improving with over 71% of river channel classified as unpolluted. Research results to date indicate that in general water quality and grassland production are compatible with the exception of catchments with sensitive receptors where eutrophication may be an issue even at low agricultural intensities. Soil test P should be at or near the lower end of the range required for optimum grassland production for good water quality. The implementation of SI 378/2006 (Nitrate's Directive in Irish law) on a whole territory basis has limited stocking rates, increased storage capacities and restricted spreading to non-winter months. It is too early to see positive responses to these measures in national monitoring data, but at present 8 agricultural catchments are being instrumented to assess the efficacy of the Nitrates Directive measures on water quality in Ireland. The results from agricultural catchments study may indicate if new mitigation options are required, perhaps under the Water Framework Directive and/or where the measures should be targeted. It is anticipated that the Nitrates Directive measures will continue to improve Irish water quality and ensure that good status for all waters, required by the Water Framework Directive, is achieved.