Irish Grasslands 2010: A Sustainable Environment?

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Introduction Irish agriculture is currently undergoing rapid changes in response to new economic and environmental drivers of change . These drivers offer both challenges and opportunities . A holistic approach to the new economic and environmental climate is required to avail of these opportunities and address these challenges . The objective of this study was to review the economic and environmental drivers of change and identify knowledge gaps that must be addressed in order to derive such an integrated approach .

Economic drivers Currently , under Cross-Compliance , the Single Farm Payment requires compliance with current environmental legislation . However , following WTO reforms , in the long term direct income support can only be sustained as compensation for public goods , such as environmental services , over and above legislative requirements .
Following EU Common Agricultural Policy (CAP) and World Trade Organisation (WTO) reforms and the abolition of milk quotas , agricultural production is increasingly market driven , with increases in milk prices and the abolition of milk quotas expected to favour intensification in productive agricultural areas , based on low-cost , grazed grass system with extended grazing .
Dramatic worldwide increases in grain prices , fuelled by demand for bio-fuel , are presenting opportunities for tillage farmers , but challenges for livestock farmers reliant on cereals .

Environmental drivers The Nitrates Directive (ND) was implemented last year (S .I . 06/378) , aimed at reducing the risk of loss of nutrients to groundwater and surface waters . The Nitrates Directive is now superseded by the Water Framework Directive (WFD) , which demands good quality status" of all water bodies by 2015 . Most of the challenges posed by the WFD have been anticipated in the ND , though the economic drive to extended grazing may continue to pose local challenges to groundwater . At societal level , drinking water is an increasingly scarce commodity ; with the construction of a pipeline from the Shannon to Dublin , agricultural areas are expected to play a key role in providing this public service , with requirements over and above current legislation .
Before the ND , reduction of risk of nutrient loss to water , along with the protection of existing biodiversity and farm habitats , was one of the main objectives of the Rural Environment Protection Scheme (REPS) . Now that protection of water quality is required on all farms under the ND , REPS payments can only be sustained for environmental services over and above the requirements set by Cross-Compliance . Therefore , REPS4 payments are aimed at *enhancing* biodiversity on farms . Recent willingness-to-pay" studies show significant public monetary support for such measures .

The impending Soil Framework Directive (SFD) places soils on an equal footing with air and water , and requires abatement strategies for 7 threats to soil quality . For Ireland , compaction , loss of organic matter and contamination have been identified as the most relevant threats to agricultural soils . We have identified two types of abatement strategies : 1) prevent deterioration of soil quality and ensure compliance with legislative requirements , e .g . prevention of contamination , and 2) improve soil quality , which in most cases is expected to be synergistic with productivity , such as reductions in compaction and loss of organic matter .
The current debate on greenhouse gas (GHG) emissions and the Kyoto protocol are significant drivers of change : with Irish agriculture accounting for 30% of national GHG emissions and 5% of GDP , it is potentially an easy target for reductions in GHG quota . However , GHG emissions from the agricultural sector have in fact declined since baseline 1990 levels , and can not be held responsible for the large increase in national GHG emissions , well above Kyoto targets . Any further reductions in GHG emissions from agriculture should therefore be considered as environmental services to other sectors of society . Future GHG emissions are difficult to predict : while the projected increase in dairy production may add to methane and nitrous oxide emissions , this may be easily offset by planting of farm-forestry , with a government target of 1% of farmland planted per annum .

Conclusions In summary , we have identified three types of environmental drivers : 1) halt deterioration of environmental quality (EQ) ; 2) improve EQ in synergy with productivity ; 3) improve EQ as a service to other sectors of society .
So far , policies such as the Nitrates Directive , Cross-Compliance and REPS3 merely required a halt to deterioration of the aquatic and biotic environments and compliance with relevant legislation . Such legislative compliance alone can no longer be rewarded by income support .
Most of the new policies , e .g . REPS4 , SFD , WFD and Kyoto are now aimed at actually improving EQ . In cases where these measures are synergistic with productivity , e .g . reduction of compaction , these are of direct interest to farmers . However , in cases where these measures are aimed at either servicing (e .g . WFD) or compensating for (e .g . Kyoto) other sectors of society , this provision of additional public environmental services should be recognised in monetary terms , which we expect to positively incentivise and facilitate an integrated approach to agricultural land use and environmental quality .