Closing the mineral cycle at farm level - Good practices to address the nutrient surplus in Southern and Eastern Ireland

Causes and effects of nutrient surplus in the region and good practices

Tuesday 28th October, Portlaoise

Presentation overview

- Aim and objectives of the project
- Approach taken in the project
- Overview of Southern and Eastern Ireland
- Impact of nutrient losses on farm, economy and the environment
- Achievements made by the region to address nutrient losses
- Good practices at farm level

General information on the project

- Project team:
  - BIO by Deloitte – co-leader
  - Ecologic Institute – co-leader
  - AMEC
  - DTU
  - Universita degli studi di Milano
  - Wageningen UR, LEI

- More information on project website: http://www.ecologic.eu/10532

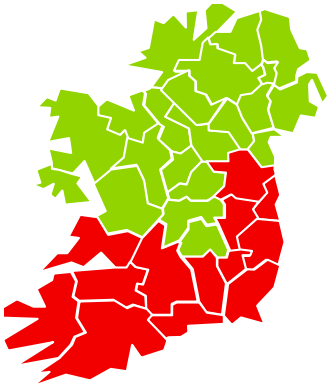
Aims, objectives and overall approach

- Identify most promising measures to improve use of nutrients and reduce negative impacts
- Case studies
- Dissemination of the findings
  - Leaflets developed for each of the 8 regions
  - Four regional conferences
    - Portlaoise, Ireland – 28th October
    - Murcia, Spain - 04th November
    - Milan, Italy – 05th November
    - Poznan, Poland – 13th November
  - Final conference in Brussels – 18th November

Region selected
France, Brittany
Italy, Lombardy
Denmark, Midtjylland
Spain, Murcia
Netherlands, North-Brabant
Ireland, Southern and Eastern
Germany, Weser-Ems
Poland, Wielkopolskie

Overview of Southern and Eastern Ireland

- 55% of total Irish farmed area
- 62% of total cattle population of Ireland
- 47% of total number holdings – mainly larger farms
- Average livestock density 1.7 LSU/UAA
- Food Harvest 2020



Southern and
Eastern Ireland

Challenges in Southern and Eastern Ireland

- Nitrogen transfers from agricultural land
- Nitrogen in freshwater bodies and coastal water
  - Eutrophication
- Emissions of ammonia
  - 104,600 tonnes emitted in 2012 (Ireland)
  - 98% due to agriculture
  - Environmental and health impacts
- Causes for nutrient losses
  - Intensive and other farming practices
  - Other risks factors

Impacts of nutrient losses

- On farms
  - Costs for manure storage
  - Costs for manure application
  - Fertiliser costs
  - Soil acidification that is costly to remediate
  - Crops yields
- On the wider economy
  - Additional costs for nutrient removal (e.g. wastewater treatment plant)
  - Threat to fisheries and tourism due to algal blooms
- On the environment
  - Threat to water bodies – eutrophication and acidification
  - Threat to biodiversity

Achievements

- Range of advisory services
- Training
- Knowledge and awareness raising
- EU Regulations 2014 (S.I No 31) and cross-compliance mechanisms
- Food Harvest 2020 Programme

Good practices (1)

- Use appropriate application techniques to decrease ammonia emissions, avoid leaching and run-off and improve mineral uptake
  - Band application or injection techniques
  - Trailing shoe spreading most suitable for Ireland
  - Accurate spreading, reduce volatilisation of ammonia
  - Costs of equipment purchase or rental vs. Savings from reduced used of fertiliser
  - Risk of compaction due to heavy machinery

Good practices (2)

- Timing of application
  - Cost saving from reduction of fertiliser purchase
  - Increase value of nitrogen
  - Can lead to longer storage of manure
- Determinate the appropriate amount to apply
  - Site-specific amount of fertiliser through farm data analysis
  - Use application timing management systems (ATMS)
  - Plan application of manure based on crop development stage
  - Controlled release fertilisers

Good practices (3)

- Incorporation of manure
  - Incorporate manure as soon as possible, and at least within 12 hours of application
  - Applicable to tilled land and reseeded grassland
  - Within 24 hours to increase nutrient retention

- Additional costs for ploughing material, and labour costs for incorporation
- Possible damage to soil structure

Good practices (4)

- Increase grazing duration
  - 20% increase grazing, cost savings of 0.67 EUR/m3
  - On average could extend by 20-30 days
  - Depends on soil conditions

- Rotational grazing
  - Application of manure on wider area
  - Requires grazing paddocks and livestock to be moved regularly
  - Additional costs for construction of fences and paddocks

Good practices (5)

- Organic farming
  - No inorganic fertilisers or synthetic pesticides
  - Potentially successful in Ireland at stocking rates of up to 2 livestock units per hectare
  - Certification process
  - Potential higher incomes from sale of certified products
  - Improved soil conditions
  - Possible lower yields and higher emissions per product unit

Good practices (6)

- Transfer of manure
  - Export surplus manure to farmland with spare N capacity
  - 4% farmers import slurry in Ireland, 1% exported slurry and /or farmyard manure
  - Collect, store and transport
  - Record transfers on and off the farm (e.g. manure register)
  - Applicable mostly for indoors housing
  - Cost-efficient when transport kept within 5 to 20 km

Further good practices

- Improved training on nutrient management issues
- Increase communication and consultation on nutrient management issues
- Improved communication with farmers
- Use adequate tillage techniques in appropriate areas

Questions?

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