The MACC

Marginal Abatement Cost Curves

National Rural Network

Agriculture and Green house Gases (GHG)

❖ **Agriculture accounts for a significant proportion of the national greenhouse gas (GHS) emissions.**

❖ **Tackling climate change is a top priority for international policy makers and as such, ambitious targets for the reduction of GHG emissions have been set.**

❖ **Pressure to change farming practices to be more environmentally friendly, coupled with the sustained and often increasing demand for agricultural produce has placed an additional burden on farmers in an already extremely financially challenged industry.**

❖ **Identifying measures to mitigate against GHG emissions is one thing, finding ways which are financially practical is another.**

❖ **Marginal Abatement Cost Curves or MACCs are an analytical approach used to identify measures based on effectiveness, in reducing GHG emission, compared with the cost of implementation.**

❖ **A recent Teagasc publication '*An Analysis of the Abatement Potential of Greenhouse Gas Emissions in Irish Agriculture 2021-2030',* details the drivers of agricultural GHG production and assesses mitigation measures on a cost/benefit basis by means of a MACC analysis, summarised below.**
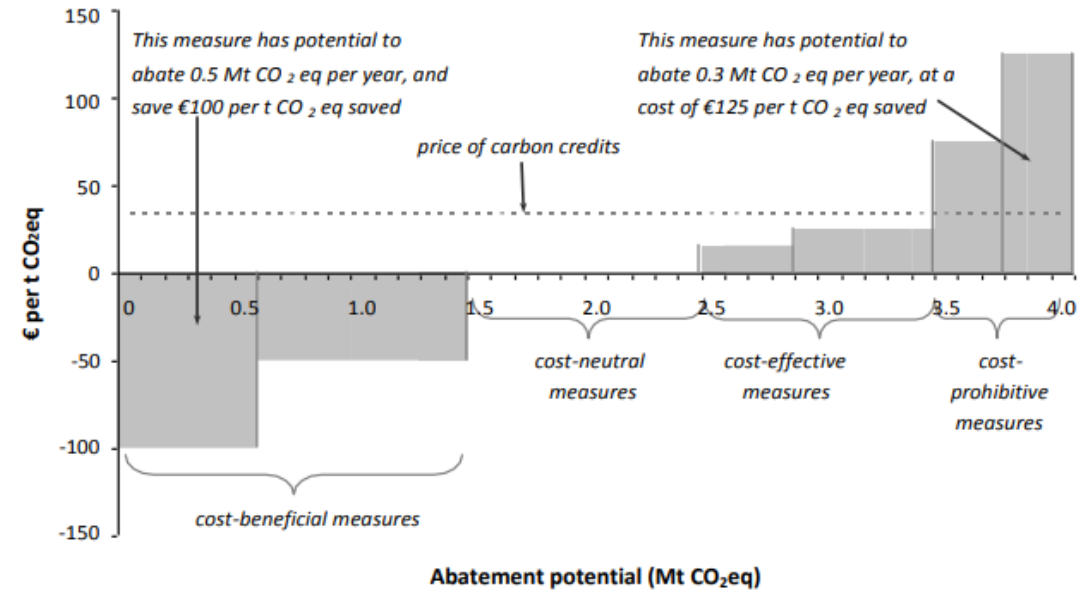
Hypothetical example and explanation of a Marginal Abatement Cost Curve (MACC)

Interpretation

❖ **Each bar of the curve represents an opportunity to reduce GHG emissions.**

❖ **The width of each bar indicates the effectiveness of that measure at reducing GHGs.**

❖ **Mitigations below the horizontal axis i.e., bars below €0 /tCO2eq represent measures with potential financial benefit to farmers, whilst those above the horizontal involve the incurrence of costs i.e., become increasingly cost prohibitive to the right of the curve.**

❖ **Measures of reducing Greenhouse Gas emissions considered during the study included improved beef liveweight gain, extended grazing, increased use of sexed semen, improved grassland management and straw incorporation in tillage to name a few.**

❖ **The report recommends there needs to be a continued effort to promote maximum adoption of efficiency measures identified in the abatement cost analysis and that appropriate policy measures and incentives are required.**

❖ **Detailed scenarios of the measures studied are available in Teagasc's publication [here.](here)**

Image: Slurry spreading with dribble bars using an Umbiblical system
Source: Slurrykat

Conclusions

❖ **Solutions lay with improving farm efficiency to reduce carbon footprints of Irish farms which will in turn stabilise GHG emissions.**

❖ **Measures through which this will be achieved include optimising nutrient management, maximising production per head with minimum inputs by extending grazing seasons and advancing animal health.**