

Dairy farmers' attitudes to reducing methane emissions through changes in the diets of dairy cows

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Abstract

Concerns are growing regarding the current high levels of carbon emissions which result from Agricultural practices in Ireland. The main agricultural emissions are Nitrous Oxide and Methane. Decreasing herd size is a commonly discussed method to reduce GHG emissions; however, due to a growing world population, food production to feed this population could be negatively impacted by herd reductions. Increased Methane results from inefficient nutrient uptake from the diet supplied to the cow. Hence, a change in cow diet can improve feed efficiency and can allow nutrients to be taken up by the cow rather than used by the microorganisms to produce methane and as result, milk yields can be improved.

Many dairy farmers in Ireland are production led and have a negative attitude to mitigation strategies to reduce GHG emissions which impact on their herd. The purpose of this research was to determine the attitudes and opinions of dairy farmers to climate change and in particular their attitudes to changes in cow diets with the purpose of reducing methane emissions while concurrently improving milk yields.

Data was collected through phone surveys which were compiled to assess the attitudes of dairy farmers who are farmer discussion group members in Co. Kilkenny to mitigation options to reduce methane emissions. Dairy farmers were chosen as they had higher levels of production when compared to other enterprises, while farmers in discussion groups were believed to have greater levels of adaptation when compared to farmers not in discussion groups. Data was analysed through the use of SPSS.

The findings showed that farmers in general had a good understanding, awareness and willingness to adapt to mitigation strategies to reduce GHG emissions. It also found that farmers' understanding of the impact of GHG emissions was quite good and there was a general acceptance that the dairy farming industry should contribute in helping to lower

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agricultural emissions. The dairy farmers themselves felt awareness levels could be improved which would enable their implementation of mitigation practices.

Herd reduction as a mitigation strategy was viewed negatively, as reducing the herd size was believed to decrease production levels and profitability, which were two of the main motivational factors of the dairy farmers surveyed. In contrast to herd reduction, the option of dietary changes was much more positively received as production levels were not reduced. However, farmers felt much more research was required before they would make the changes on their farms.

The study found that age of the farmer was not associated with the carbon footprint of the farm or on the attitude held by the farmer towards climate change. Similarly, the study found

that the carbon footprint of the farm also had no influence on the attitude held by the farmer to climate change.

Farmers' willingness to adopt new practices and technologies is a crucial step in implementing mitigation options concerning GHG emissions. However, in order to increase adoption rates, a high level of knowledge transfer is required showing credible and thoroughly tested results which have been carried out on comparable farms.

Future work should focus on identifying mitigation strategies which are favourable to farmers while not affecting production and farm profit levels. The research carried out must be feasible for the average dairy farms in Ireland with proven results in order to increase implementation. Trust must be built between governing bodies such as the Department of Agriculture and the farmer, in order to give confidence to the farmer of the mitigation strategy to be implemented.