CIEL Scoping Report

CIEL Report: Define the carbon footprint of UK forages at farm level. To include grazed grass, grass silage, maize silage and whole crop silage.

CONTEXT

The UK industry is lacking some of the information necessary to reduce impacts of agriculture on the environment. The Global Feed LCA Institute (GFLI) database used by feed manufacturers to calculate the carbon footprint of concentrated feed does not extend to UK forages (data from Feedprint is based mostly on figures corresponding to Dutch farming systems). As forage plays a significant part of feed fed to cattle, this is a substantial amount of feed which is not being assessed adequately. With the move to incorporating carbon footprint as an on-farm metric for governments to be able to assess impact of an enterprise on the environment it is essential that the UK industry finds tools and methodologies to properly assess emission factors of forages. This would lead to producing more accurate values to use in LCAs for calculation of the carbon footprint of meat and milk.

Existing information

- Wageningnen, Feedprint work (Vellinga *et al* Recent Advances in Animal Nutrition 2013 and other publications)
- UK work; J. M. WILKINSON AND P. C. GARNSWORTHY, Journal of Agricultural Science (2017), 155, 334–347
- Eric Audsley Defra report

SCOPE

This **Scoping Report** relates to CIEL commissioning a report on 'Defining the carbon footprint of UK forages at farm level'. The scope should cover bullet points below

- Describe data already in the public domain.
- Describe methodologies the main farm carbon calculators used in the UK and the values they use for forages.
- Assess methods used for determination of the Carbon footprint values in existing feed databases.
- Where there are gaps, they should be highlighted.

The above should cover grass as grazed, grass silage, maize silage and whole crop silage and include losses from growing, harvesting and the clamp (boundaries of the exercise). It should also cover variability (in the UK) as a result of crop, geography, fertilizer, first, second and, third cut, ploughing soil type etc.

This will set the scene for a follow-on larger project to meet needs of the UK industry for calculation of more accurate carbon footprints for their production systems by the creation of a series of equations which calculate the emission factors of forages as g/kg CO_2 eq. The data calculated from the equations can be loaded into ration programs, and would be available for the feed industry to use. Alternatively, the equations can be utilised separately, as part of stand-alone software for advisors to use when discussing C-footprint scores with farmer customers. Through NIR or traditional farm sample analysis to assess individual samples these could then be further fine-tuned for individual farms to more accurately assess the farm, carbon footprint LCA and assist in management changes to mitigate individual farm impact.

Guidance for authors

This report is intended for use initially by members of CIEL involved in the feed industry and research and will be available to the industry as a whole in due course.

REPORT SPECIFICATION

We wish to contract an organization that can liaise with our CIEL Nutrition Lead to deliver to the above requirements. They will;

1. Author and manage the project to deliver the information and will have experience in this field.

2. One organisation will be contracted to deliver the review to CIEL, but specialist help from leading academics or industry experts that can contribute critical expertise to cover breadth of the topic, can be brought in as required. Any sub-contracting of other experts will be the responsibility of the lead organisation.
3. Deliver to specification of the project in terms of breadth of coverage and have expert critical analysis.
4. Supply a draft of the report to CIEL for feedback.
5. CIEL reserves the right to edit text for use in communication with industry but will not change meaning related to key ideas in the report.