Cargill Micronutrition & Health Solutions

Case Study

Evaluating the impact of phytogenic feed solution on broiler emissions

Overview

This case study presents the results of an independent product carbon footprint assessment evaluating the impact of a phytogenic feed solution in broiler production systems on greenhouse gas (GHG) emissions. The study, conducted by the Research Institute of Organic Agriculture Austria (FiBL), assessed greenhouse gas (GHG) emissions across the full production chain, from feed production to on-farm emissions, using internationally recognized methodologies such as PAS 2050 and ISO 14040/44.

The analysis adopts a life cycle approach, covering raw material extraction, phytogenic feed solution production, feed production, transport, and on-farm use, with results reported per kilogram of phytogenic feed solution and per kilogram of broiler live weight. The evaluation compared standard broiler diets with and without supplementation, focusing on performance parameters such as feed conversion, nitrogen excretion, and emissions linked to manure management.

Impact

The independent assessment demonstrated measurable environmental benefits from dietary supplementation. Phytogenic supplementation of broiler feed reduced life cycle GHG emissions by approximately **4.2% to 5.3% per kg of live weight**, while the phytogenic feed solution itself accounted for **less than 0.05% of total feed-related emissions**.

Key drivers of these reductions include improved feed efficiency, lower nitrogen excretion, and reduced ammonia formation. These findings are particularly relevant given increasing regulatory and market pressure to reduce ammonia emissions in intensive livestock systems, especially in Europe.

Overall, the results show that feed-based strategies can deliver meaningful environmental improvements without requiring major changes to production systems or additional on-farm investments.

Supporting Material

- Carbon Footprint Assessment Summary Report

This sustainability-related case study was provided by ***Cargill Micronutrition and Health Solutions****.*

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