BUSINESS SMART
CARBON SMART

MYCO CURB® ES LIQUID SUBSTANTIALLY REDUCES THE CARBON FOOTPRINT OF GRAIN STORAGE

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Background and objectives

The growing human population drives global demand for food and feed, which impacts primary grain production (Tilman, 2011). A substantial increase in grain production, by as much as 70% is needed, coupled with a reduction in the environmental footprint of agriculture. Given the limited resources and low availability of uncultivated land, it is projected that grain production needs to come mostly from existing farmland (Gan, 2014).

The rising greenhouse gas emissions globally have elevated concerns regarding the impact on the planet and contribution towards climate change. The United Nations have established 17 global Sustainable Development Goals, which aim to restore and promote social, economic and environmental sustainability (United Nations, 2022). Goal 13, "Take urgent action to combat climate change and its impacts" emphasizes that actions need to be integrated into national policies, strategies and planning. Identifying measures to reduce on-farm emissions supports this goal.

Material and methods

In collaboration with DOW and Adesco, a gate-to-gate Life Cycle Assessment study was conducted, to evaluate the Product Carbon Footprint (PCF) of the feed preservative Myco CURB® ES liquid and to then investigate its direct effect on greenhouse gas emissions, in CO_2 equivalents (CO_2-eq). Preservative addition (Myco CURB ES liquid) versus the two main methods of grain storage; namely aeration and drying were tested.

The average electrical energy consumed, diesel fuel usage, nutritional losses and preservative addition, were converted to kg CO_2-eq per tonne of stored grain, using relevant models from the Ecoinvent database (v3.5) and Agri-footprint 5.0. The "carbon footprint" for Myco CURB ES liquid was calculated using the SimaPro 9.0 model. The Life Cycle Assessment of this study meets the requirements of ISO 14040 and 14044, as validated by BLONK Consultants.

References

Gan, Y. L. (2014). Improving farming practices reduces the carbon footprint of spring wheat production. Nat Commun 5, 5012.

Tilman, D. B. (2011). Global food demand and the sustainable intensification of agriculture. Proc. Natl Acad. Sci., pp. 108, 20260–20264.

United Nations. (2022, February 18). Goal 13:Take urget action to combat climate change and its impacts. Retrieved from Sustainable Development Goals: https://www.un.org/sustainabledevelopment/climate-change/

Results

The ROI is 600% versus the average of aeration and drying methods.

Myco CURB ES liquid treated grain reduces the kg CO_2-eq per tonne of stored grain by up to 3 times (71%), compared to aerated and dried grains.

Conclusion and discussion

This study shows that there are feasible alternatives to conventional methods of grain storage. Farm practices that directly contribute towards sustainability, by reducing the carbon footprint, is part of our industries responsibility - to contribute to one of the many initiatives and actions needed to reach carbon neutrality by 2050, as outlined by the EU green deal.

ACE
Adesco Carbon Estimator

We have launched our online 'Adesco Carbon Estimator' (ACE) for feed and grain processing.

ADESCO.IE/ADESCO-CARBON-ESTIMATOR