

The Potential of Multispecies Grassland Swards for Climate Care Cattle Farming in the EU

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Cattle as a major source of anthropogenic greenhouse gases (**CH₄**, **N₂O**).

High fertilizer inputs from monoculture swards such as ryegrass and Italian ryegrass used in cattle nutrition.

Surplus of N supply contributing to water pollution and increased GHG emissions.

Sustainable alternative feeding practices for cattle



GREEN ENVIRONMENTAL APPROACHES

This study was conducted to explore the effects of multispecies grassland swards composed of **perennial ryegrass** (PRG), **red clover** (RC), **chicory** (C), and **plantain** (PLA) on *in vitro* ruminal fermentation and dry matter degradability (IVDMD).

HYPOTHESIS - The cultivation of PLA and C with RC would **reduce the N fertilizer inputs, the ruminal CH₄, NH₃ concentrations and improve the *in vitro* DM digestibility.**

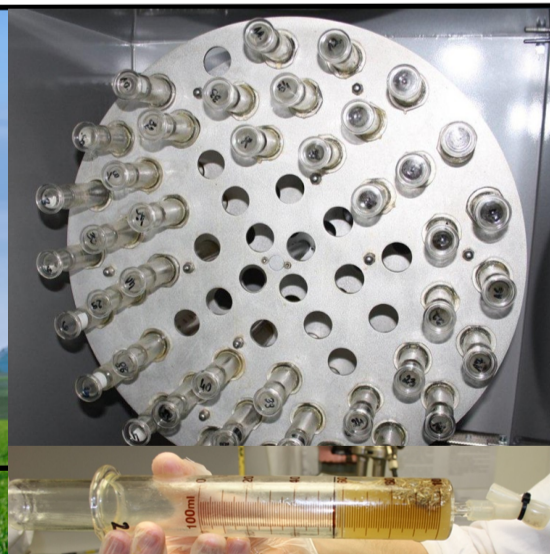
GROUPS

CON: PRG+RC

WITH FERTILIZER

**EXP: PRG+RC, C+RC, and-
PLA+RC**

WITHOUT FERTILIZERS



The experimental substrates were collected from the first cuts in 2021 and 2022 and mixed within the years in equal proportion in each group.

Hohenheim *in vitro* technique was used in the laboratory study.



RESULTS

(PLA+RC) - experimental group treatment:

⇒ **Decreased CH₄ production** compared to the control,

⇒ The ruminal NH₃-N, acetate, and butyrate concentrations, acetate-propionate ratio, and total protozoal and methanogen counts were **reduced**, propionate concentration **increased** in the experimental group.

CONCLUSION

The results showed that the **PLA+RC group without fertilizers can be utilized as a sustainable alternative feeding source for climate-friendly cattle production.**