

GRAPHICAL ABSTRACT

Effect on Growth Performance and Nutritive Value of Cultivated *Azolla filiculoides* as an Alternative Feedstuff for Ruminant

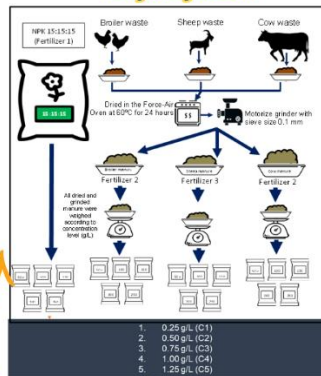
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Cultivated *Azolla filiculoides* As an Alternative Feedstuff for Ruminant

Summary of harvesting and yield determination of *Azolla filiculoides*



Study 1-Objective 1



Outcome

Cultivation of *A. filiculoides* using **sheep manure (1.00 g/L)** is the best result in: shortest doubling time >> **3 to 5 days** fresh weight (FW) >> **132.2 g/m²** relative growth rate (RGR) >> **0.32 g/g/day** crude protein (CP) >> **21.2% DM-1** crude fibre (CF) >> **14.4% DM-1**

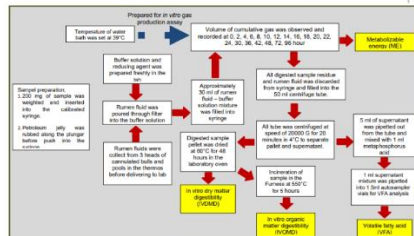
Study 1-Objective 2



Unprocessed sheep manure (T3) exhibited superior ($p < 0.05$) fresh weight, relative growth rate, nutrient composition and fibre components compared to the burned manure treatment (T2).

Study 2

Digestibility trial procedure via in vitro gas production



Outcome

In vitro digestibility analysis discovered that **unprocessed sheep manure (T3)** achieved a 24-hour accumulated gas production >> **86.9 mL DM-1**, in vitro dry matter digestibility (IVMD) >> **82.9%** in vitro organic matter digestibility (IVOMD) >> **43.7%** metabolisable energy (ME) >> **5.8 MJ kg DM-1**

Conclusion

A. filiculoides cultivation can be economically optimised using 1.00 g/L unprocessed sheep manure (fresh manure), potentially serving as a self-produced, nutritious feedstuff for ruminants.

