Can the presence of plantain (*Plantago lanceolata* L.) improve nitrogen cycling of dairy grassland systems on peat soils?

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**Introduction**

Drained peat grasslands are prone to N₂O emissions.

**Hypothesis**

Plantain produces root exudates with biological nitrification inhibition capacity → decreased N₂O emissions

**Material and methods**

Field experiment, four treatments differing in ribwort plantain (RP) and *Lolium perenne* (LP) content

0% RP 100% LP
100% RP 0% LP
33% RP 67% LP
67% RP 33% LP

N₂O fluxes measured during 73 days; start 5 Aug 2019. Day 2 and 37; mineral N application of 50 kg ha⁻¹. Plantain herbage share estimated every two weeks.

**Results**

Cumulative N₂O flux negatively correlated with plantain share (p = 0.023), and up to 26% lower between treatments (p = 0.038). Observed plantain shares per treatment were 0±0, 22±17, 42±11 and 68±10%, respectively.

**Conclusion**

N₂O emissions decreased in the presence of plantain at a dairy grassland on peat soil.