



Rice husk charcoal
(biochar)



Hairy vetch
(legume – source of N)

Effects of rice husk biochar on nitrous oxide emission from decomposing hairy vetch in two soils under high-soil moisture condition

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Introduction



Japanese farmers traditionally use “rice-husk charcoal (biochar) to condition their soils (porosity, water retention, **N-conservation**, increase **soil microbial activities**...



Legume plants are often used by organic farmers as **a source of N** (early spring, cut and left on soil surface).

Q. Is the use of rice-husk biochar change N dynamics of legume plant decomposition on soil surfaces?

N₂O

Inorg-N

Methods



Soil core study

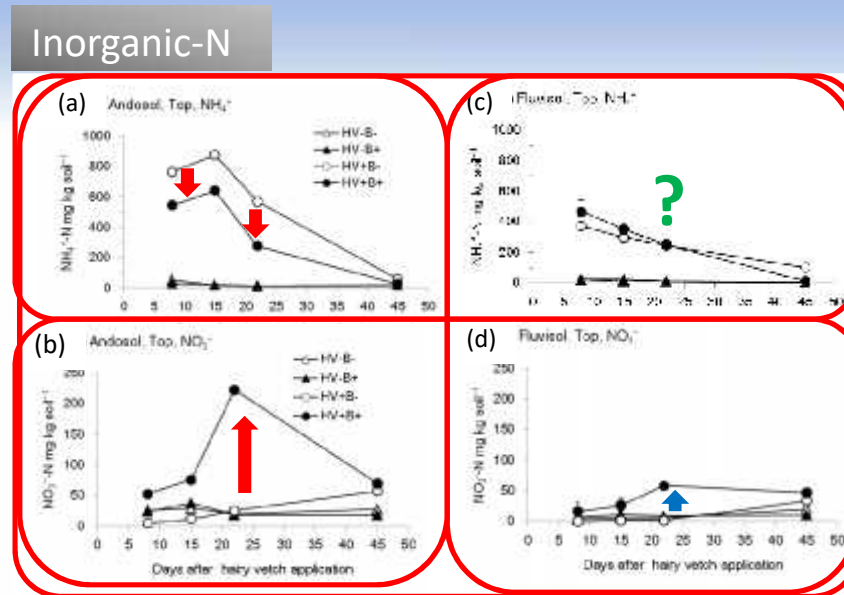
- High moisture (simulate monsoon climate)
- Andosol (volcanic) and Fluvisol were used
- Rice-husk biochar mixed into soils
- Hairy vetch applied on soil surfaces



Results

(more on poster!!)

Fig. Time course of $\text{NH}_4^+\text{-N}$ and $\text{NO}_3^-\text{-N}$ in Andosol (a, b) and Fluvisol (c, d) during the incubation with/without hairy vetch (HV) and with/without rice husk charcoal (B).



Discussion & Future questions

- Under saturated soil moisture conditions, the addition of biochar reduced the amount of soil $\text{NH}_4^+\text{-N}$ and increased soil $\text{NO}_3^-\text{-N}$ in an Andosol.
- The cumulative emission of N_2O was not significantly different with and without biochar both in an Andosol and a Fluvisol. However, the cumulative recovery of applied hairy vetch-N as $\text{N}_2\text{O}\text{-N}$ was higher with biochar.

