Relationship between Microbial Biomass and Nutrient Uptake by Rice Grown in Paddy Soil with Legume. (S04-ueno200218-Poster)

Authors:

- H.Ueno* - *Fac. of Agric., Ehime Univ., Japan*
- Y.Honjo - *Fac. of Agric., Ehime Univ., Japan*

Abstract:

Nitrogen dynamics in paddy fields covered or incorporated with ^{15}N-labeled legume, hairy vetch, was investigated in relation to soil microbial biomass (SMB) nitrogen. A higher growth of the plant was observed in the incorporated soil than in the covered soil. Percentage of N from the legume in the total N uptake was also higher in the incorporated soil (27 %) than in the covered soil (14 %). These differences were considered to be due to the difference in the turnover rates of ammonium in the soils, namely, the rates from 0 to 77 days after transplanting was 9.88, 8.80 and 14.3 day^{-1} in conventional fertilization, the incorporated and the covered soil, respectively. However the SMB-N of the covered soil sharply increased by 110 mg / kg DS, comparing with the incorporated soil (52 mg / kg DS). The SMB-N had 2 peaks at 32 and 77 days after transplanting, it corresponded the rice growth stages of maximum tiller number and heading, respectively. It seemed that the SMB-N reflected on available N status in soil, which strongly associated with the rate of N uptake by rice plant. These results suggest that the SMB-N played an important role in N dynamics in the legume-based rice cropping.

Corresponding Author Information:

Hideto Ueno
Ehime University, Japan
Hattanji
Hojo, Ehime 799-2424
Japan

phone: +81-89-993-1636
fax: +81-89-993-3173
e-mail: uenoh@agr.ehime-u.ac.jp

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 2:00-4:00 pm
Poster Board Number: 1638

Keywords:
15N, rice, legume, biomass