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Oral sessions | Farming System | O21: Cropping System / Crop Rotation

## [O21] Cropping System / Crop Rotation

Chair: Katsuyoshi Shimizu (Kagoshima University, Japan)

Chair: Weidong Cao (Chinese Academy of Agricultural Sciences, China)

Thu. Sep 9, 2021 9:45 AM - 11:45 AM Room 2 (Oral) (Farming System)

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9:45 AM - 10:05 AM

### [O21-01]Utilization of Green Manure in China

(Invited Speaker)

<sup>○</sup>Weidong Cao (Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China)

In south China, fallow paddy fields could be used to plant green manures. The high yield and high efficient rice - winter green manure system was established in most south provinces. In north China, the eco-protective corn/cotton - winter green manure system was proposed. In north-west China, the system of wheat - fall green manure utilized as manure and forage was developed. In this area, there is about 2 months after wheat, the short period is suitable for green manuring. In south-west China, the soil nourishing corn/tobacco - winter green manure system was used. The main green manure species used in these areas are milk vetch, February Orchid and hairy vetch, hairy vetch and common vetch, and smooth vetch and manure radish, respectively.

In paddy fields, we investigated the effects of green manure on rice yields and its potential in replacing chemical fertilizer. When reducing 40% of chemical fertilizer, rice yield is similar to that of the treatment applied 100% chemical fertilizer without green manure (11 sites, n=930). When the reducing rates are 0% and 20%, yields increased ( $p<0.05$ ) by 6.53% and 4.15%, respectively. Our results also showed that this effect enhanced along with the planting year of green manure. The N utilization efficiencies under reduction of 0%, 20% and 40% increased by 8.4, 17.7, and 24.1 percentage points, respectively. Furthermore, in a 34 years' experiment, the result tells that yield in the treatment of milk vetch increased by 25% for early rice, and increased by 27% for late rice.