

[P2] Farming System

2021年9月9日(木) 12:15 ~ 14:00 Room 2 (Poster) (Farming System)

12:15 ~ 13:00

[P2-13]Evaluation of Crop Performance under Different Nitrogen Regimes in Rice-Ratoon Rice Systems in Central Japan

*Nominated for Presentation Awards

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Ratoon rice cultivation is the practice of obtaining a second harvest from tillers regenerating from rice stubbles. The objectives of this study were to compare the annual rice productivity of the rice-ratoon rice and single rice cropping systems and identify appropriate nitrogen management in the rice-ratoon rice system in central Japan. Field experiments were conducted at the Institute of Sustainable Agroecosystem Services, The University of Tokyo (35°43'N, 139°32'E) in 2019 and 2020. First, The annual productivity of rice-ratoon rice systems (cvs. Akihikari in 2019 and Akitakomachi in 2020) were compared with conventional single-rice cropping systems using high-yielding hybrid and inbred *japonica* cultivars (cvs. Hybrid Togo3 and Yamadawara). The annual productivity of the rice-ratoon rice system ($7.6\text{--}7.9\text{ t ha}^{-1}\text{ yr}^{-1}$) was less than that of single rice cropping systems ($8.5\text{ to }10.2\text{ t ha}^{-1}\text{ yr}^{-1}$), indicating the importance of nutrient management and the choice of appropriate short-duration cultivars to achieve high yield of ratoon rice. Second, the effect of the timing of N (nitrogen) topdressing on the crop growth in the rice-ratoon rice system was evaluated. Applying N at 5 days after heading of main rice promotes tiller bud regeneration and accelerates canopy re-establishment after the harvest of main rice, which is mediated not by the change in the availability of nonstructural carbohydrates but by the improved plant N nutrition at harvest of main rice. However, applying N around main rice heading stage also increased the grain N concentration, potentially lowering the palatability of *japonica* rice.