Poster Session | Farming System | P2: Poster Session

[P2] Farming System
Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 2 (Poster) (Farming System)

12:15 PM - 1:00 PM

[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 Agro-ecosystem 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 (7.6-7.9 t ha^{-1} yr^{-1}) was less than that of single rice cropping systems (8.5 to 10.2 t ha^{-1} 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.