

## [P1] Field Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 1 (Poster) (Field Crop Production)

12:15 PM - 1:00 PM

### [P1-05]Effect of Deep Seed Placement on the Crop Establishment and Yield of Dry Direct-Seeded Rice

\*Nominated for Presentation Awards

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Dry direct seeding is widely employed for rice cultivation where water and labor shortage is an issue in transplanting practices. However, drought during the seedling emergence often causes poor crop establishment. This problem might be solved by deep sowing technique since it utilizes the residual moisture below the soil surface. The objective of this study was to examine the effects of different sowing depths on growths and yields of dry direct-seeded rice. Two trials were conducted in rainfed lowlands; an on-station trial in Tokyo, Japan (35°44'N, 139°32'E) and an on-farm trial in Pangasinan, the Philippines (16°00'N, 120°46'E). Four cultivars (Dular, Dontokoi, Rc10 and Rc348) were grown by seeding at two depths (1 cm and 7 cm) during the summer of 2018 in Japan, and two cultivars (Rc222 and Rc420) at two depths (1 cm and 6 cm) on three sowing dates during the wet season of 2019 in the Philippines. In both trials, deep-sown plots had significantly lower emergence rate than shallow-sown plots (25% vs. 73%). When deep-sown, cultivars with longer mesocotyl and 1st internode emerged better than others. When deep-sown rice had less than 30% of emergence, the yield was 25% to 55% of shallow-sown rice mainly due to reduced panicle number. The compensation effects of increased tillers per hill and grains per panicle were smaller than the negative effect of low plant density caused by deep sowing. The results suggested that securing crop establishment (more than 17 hills m<sup>-2</sup>) by choosing appropriate cultivar is important in deep sowing technique for dry direct-seeded rice.