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Oral sessions | Farming System | O22: Crop Production System

## [O22] Crop Production System

Chair: Koki Homma (Tohoku University, Japan)

Chair: Roel Suralta (Philippine Rice Research Institute, Philippines)

Thu. Sep 9, 2021 2:30 PM - 4:30 PM Room 2 (Oral) (Farming System)

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3:55 PM - 4:10 PM

### [O22-06] Assessment of Rice Cultivation in Non-system Tank Irrigated Area in Southern Region of Tamil Nadu, India

\*Nominated for Presentation Awards

○S Selvakumar<sup>1,3</sup>, Akihiko Kamoshita<sup>2</sup>, S Sakthivel<sup>1</sup> (1.Department of Agronomy, Tamil Nadu Agricultural University, India, 2.Graduate School of Agricultural and Life Sciences, The University of Tokyo, Japan, 3.Department of Agronomy, Kumaraguru Institute of Agriculture, India)

Tank water has been traditional source of irrigation in South India, but its vulnerability has been recognized due to erratic rainfall in recent years, particularly ones that do not have connections with river system (non-system tank). To semi-quantify on-farm irrigation management and rice production in non-system tank, 3 villages (Srirampur, Sirukulam, N.Nedunkulam) were selected in Virudhunagar district, Tamil Nadu, India for the survey of 146 fields from 61 farmers during 2018-19 (drought year with only 127 mm of rainfall during cropping period of September to December) and 2019-20 (normal year with 443 mm of rainfall). During the drought year (2018-19), cultivation was abandoned in 2 villages with smaller tank size due to insufficient water storage, whereas rice was cultivated in all the 60 fields in Srirampur by both irrigation from tank and bore well. During the normal year (2019-20), higher yields in Sirukulam and N.Nedunkulam was associated with higher levels of N and P fertilizers than Srirampur. Farmers irrigated their field with deeper than 7 cm and re-irrigated mostly before disappearance of ponded water. Some tail fields were for direct seeding and had deeper standing water, while head fields yielded higher due to more stable water availability. Another 2-year on-station experiment showed water-saving irrigation by monitoring at 5 cm depth below soil surface combined with unpuddled machine transplanting produced 12.4% higher mean grain yield with higher mean water use efficiency of 8.71 kg ha mm<sup>-1</sup> than the conventional flooding irrigation. Prospect of technical improvement in non-system tank is to be discussed.