Increasing Water Productivity of Rice by Conjunctive Use of Rain and Tank Water with '*Parachute'* Method of Crop Establishment: A Case Study from "*Udakadawala Mahawewa" Tank* in Kurunagala District

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ABSTRACT: *High variability in rainfall due to climate change has caused vulnerability in rice cultivation in minor irrigation tanks. A study was conducted to identify the problems and to evaluate a new land and water management approach as an adaptation for climate change. Information were collected in "Udakadawala Mahawewa" tank and three adjacent village tanks in the same cascade over six consecutive seasons starting from Yala 2010 up to Maha 2012/2013. A technology package comprising early land preparation with onset of rainy season using 4W tractor mounted tine tiller and the 'Parachute' method for crop establishment was introduced as a treatment in the Mahawewa tank from Maha 2011/2012 up to Yala 2012. As a control, conventional farming comprising land preparation with the water issue from the tank using 2W tractor mounted rotavator and seed broadcasting was used. Yield components were collected and analyzed statistically. Water scarcity and weed growth were identified as the crucial problems. The first two irrigation issues were saved in the treatment. Harvest success was 86% in Mahawewa while it was 71% in control in the Yala season. Weed infestation was significantly less in treatment compared to control. The average yield of 5.8 t/ha in treatment was significantly higher than the average yield of 2.6 t/ha in control ($P<0.0001$). Tank water productivities were 3.9 and 2.1 kg/m^3 under treatment and control, respectively. The land preparation with 4W tractor mounted tine tiller, adoption of parachute method of crop establishment helped the farmers in minor irrigation tanks to save water.*

Keywords:, *Minor tanks, water scarcity, water productivity, land preparation, parachute method*

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