

# BENCHMARKING GROWTH AND YIELD OF ORGANICALLY GROWN RICE IN THE DRY ZONE OF SRI LANKA

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The major objective of this study was to benchmark growth and yield of organically grown rice (*Oryza sativa* L.) in the dry zone of Sri Lanka. Specifically, this study aimed to identify performance of traditional rice varieties in respect of long-term organic manure input and conventional farm field with organic inputs only. Ten traditional rice varieties *i.e.* *Rathkanda*, *Kalu heenati*, *Weda heenati*, *Kuruluthuda*, *Madathawalu*, *Pokkali*, *Suwandal*, *Rath suwandal*, *Hichchi nangi*, *Pushparaga* were cultivated according to Department of Agriculture recommendations. Varieties Bg 300 and Bg 352 were used to benchmark traditional rice varieties. Conventional rice field was the faculty farm, Faculty of Agriculture, which was cultivated with inorganic inputs prior to the study. An organic field was selected in the vicinity, which was treated solely with organic inputs for the last 10 years. Both fields were treated with 5 mt ha<sup>-1</sup> cattle manure as the source of fertilizer, and the recommended management practices by Department of Agriculture was followed. Growth performance, yield and yield components were assessed. Early growth and development was similar irrespective of location. More contrasting varieties showed significant deviation due to variety specific characteristics for SPAD reading; plant height and tillering prior to heading. At heading, biomass yield was significantly higher in organic field, and a substantially higher biomass was observed for *Pokkali*, *Pushparaga* and *Suwandel* in contrast to conventional field. Bg 300 and 352 showed a higher biomass accumulation in organic fields, while *Madathawalu*, *Rathkanda* and *Kaluheenati* showed a decline in biomass in organic fields than conventional fields. Panicle lengths were significantly different among varieties, but to confirm results, the final harvesting was not complete at the time of writing. Substantial yield deviations are predicted in conventional fields with sole organic inputs, compared to long-term organic inputs. Results confirmed a probable yield decline with a swift change from conventional to organic, and a transition period towards sustainability.

**Keywords:** Agrochemicals, Improved varieties, Organically, Traditional rice varieties