

# Growth and Yield Attributes of Dry Sown Rice (*Oryza Sativa* L.) as Influenced by Irrigation Schedules and Weed Management Options

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## ABSTRACT

A field experiment was carried out during Kharif 2016-17 at Agricultural Research Station, Jangamaheshwarapuram, Guntur, Andhra Pradesh to study the growth and yield attributes of dry sown rice (*oryza sativa* L.) to study the influence of irrigation schedules and weed management options. The treatments consisted of four irrigation schedules ( $I_1$ -1.5 IW/CPE ratio,  $I_2$ -2.0 IW/CPE ratio,  $I_3$ -3.0 IW/CPE ratio and  $I_4$ -continuous submergence) assigned to main plots and four weed management treatments ( $W_1$ -control,  $W_2$ -hand weeding at 20 DAS and 35 DAS,  $W_3$ - pendimethalin @ 1 kg a.i. ha<sup>-1</sup> (PE) fb. hand weeding at 25 DAS,  $W_4$ - pendimethalin @ 1kg a.i. ha<sup>-1</sup> (PE) fb. bispyribac sodium 25 g a.i. ha<sup>-1</sup> at 15- 20 DAS,  $W_5$ - pendimethalin @ 1 kg a.i. ha<sup>-1</sup> (PE) fb. bispyribac sodium 25 g a.i. ha<sup>-1</sup> at 15 – 20 DAS fb. metsulfuron methyl + chlorimuron ethyl 8 g a.i. ha<sup>-1</sup> at 35 – 40 DAS as sub plots. Continuous submergence ( $I_4$ ) recorded significantly higher plant height at harvest (66.4 cm), more number of tillers m<sup>-2</sup> (621.7) and maximum drymatter accumulation at harvest (17443.5 kg ha<sup>-1</sup>) when compared to all other treatments throughout the crop growth period. However, it was found to be on par with irrigation at 3.0 IW/CPE ratio. Similar trend was observed with yield parameters wherein, continuous submergence produced the higher yield parameters viz., productive tillers m<sup>-2</sup> (515), grains per panicle (132), number of filled grains (122), grain yield (6307 kg ha<sup>-1</sup>), straw yield (9604 kg ha<sup>-1</sup>) and test weight (14.8 g) on par with that of irrigation scheduled at 3.0 IW/CPE ratio. Manual weeding twice at 20 and 35 DAS ( $W_2$ ) followed by pendimethalin + one hand weeding at 25 DAS ( $W_3$ ) recorded significantly higher growth and yield attributes viz., plant height at harvest (69.1 cm), drymatter accumulation at harvest (17418.8 kg ha<sup>-1</sup>), tillers m<sup>-2</sup> (632.5), productive tillers m<sup>-2</sup> (538), grains per panicle (138), number of filled grains (128), grain yield (6555 kg ha<sup>-1</sup>), straw yield (9470 kg ha<sup>-1</sup>) and test weight (15.5g) in dry sown rice and found superior to that of control and application of two herbicides i.e., pre-emergence application of pendimethalin fb postemergence application of bispyribac sodium.

**Key words:** *Dry sown rice, IW/CPE ratio, Continuous submergence, Hand weeding, Pre- emergence, Post emergence*