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RESEARCH PAPER

Agronomic and physiological measures to enhance the yield and water productivity of aerobic rice in coastal deltaic region of Karaikal

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Abstract : A field investigation was carried out at east farm of Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal during winter (*Navarai*), 2017. Two rice varieties *viz*., V_1 - ADT 46 and V_2 - KMP 175 were evaluated under two irrigation methods *viz*., I_1 - Surface irrigation as flooding and I_2 - Drip irrigation at 1.2 CPE each with six foliar spray treatments on 55 and 75 DAS *viz*., F_1 – Water spray, F_2 – Silica @ 500 ppm, F_3 – KCl @ 10000 ppm, F_4 – Boric acid @ 0.4 ppm, F_5 – Triacontanol @ 2 ppm, F_6 – Brassinosteroids @ 1 ppm along with F_0 - control. The aerobic rice experiment was laid in Split split plot design. The variety KMP 175 had significantly out-yielded ADT 46 and produced the highest grain and straw yields. Similarly, Brassinosteroids and KCl treated plots had recorded statistically at par and higher grain and straw yields. On the other hand, the surface irrigation and drip irrigation had produced statistically similar grain yield. The harvest index of aerobic rice was averaged at 0.23 which was considerably low when compared to the other irrigated rice growing environments. The total water use by aerobic rice under drip irrigation method was almost 35 per cent lesser than surface irrigation but its use efficiency was almost 21 per cent higher than surface irrigation. Similarly, the variety KMP 175 under both irrigation methods registered 70 per cent higher water use efficiency than ADT 46. The highest gross income, net income and B:C ratio could be achieved if KMP 175 was chosen to grow under surface irrigation along with Brassinosteroids foliar spray. Hence, it is concluded from the experiment that the variety KMP 175 could be chosen to grow as aerobic in the coastal deltaic region of Karaikal coupled with either Brassinosteroids or KCl foliar spray under either surface irrigation if water is not a constraint or with drip irrigation if water is a constraint to achieve higher grain yield and net profit.

Key Words : Aerobic rice, Irrigation methods, Foliar spray, Varieties, Grain yield, Water productivity, Economics

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