

Abstract



Utilization of Forgoing Coastal Rice Fallow Lands of Bangladesh with Zero Tillage Potato Cultivation using Different Rates of Residues

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Abstract: An experiment was conducted in south-western coastal saline area of Khulna district of Bangladesh (22°35′53.463″ N latitude and 89°27′42.617″ E longitude) during the period from December 2018 to March 2019. The experiment was laid out in two factor Randomized Complete Block (RCB) design with three replications. Factor A included two potato varieties (V₁= BARI Alu-72 and V₂= BARI Alu-73) and factor B consisted with three rates of rice straw mulch *viz*. M₁-4 ton ha⁻¹, M₂= 7 ton ha⁻¹ and M₃= 10 ton ha⁻¹. Average thickness of mulch treatments were 11 cm, 13 cm and 15 cm, respectively. Mulch rate had significant effect on different soil and crop parameters, however there was no significant effect observed in variety and variety vs mulch rate. At harvest, highest plant height (50.7 cm), stem dry weight (1.33 g plant⁻¹) and leaf dry weight (7.29 g plant⁻¹) were recorded from M₃ treatment. In case of yield components and yield, M₃ treatment gave highest value for number of tuber per plant (7.11), individual tuber weight (59.38 g), tuber yield (15.62 t ha⁻¹), haulm yield (2.26 t ha⁻¹). Significantly highest moisture was conserved by M₃ treatment (27.13%) at harvest as well effectively controlled salinity (EC_{e)} increase (only 1.25% increase than initial). So, it is observed that rice straw @ 10 t ha⁻¹ is most suitable for zero tillage potato cultivation in the coastal area of Bangladesh.

Keywords: potato; zero tillage; mulch rate; salinity; dry matter; tuber yield

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