

## Abstract

# Performance of Zero Tillage Potato Cultivation with Different Mulch Materials in the South-Western Saline Area of Bangladesh <sup>†</sup>

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**Abstract:** Crop cultivation in the coastal saline area of Bangladesh during *rabi* season is limited due to late harvest of *Aman* rice, shorter winter period, difficulty in tillage, soil salinity, lack of fresh irrigation water etc. Zero tillage potato cultivation with mulching could minimize these obstacles and thereby increase system productivity. However, selection of mulching material is crucial for higher yield and economic return. An experiment was conducted at coastal saline area of Bangladesh during *rabi* 2018–19 to observe zero tillage potato performance under different mulch materials. Three locally available mulch materials were employed in the trial *viz.* rice straw (T<sub>1</sub>), rice husk (T<sub>2</sub>) and compost (T<sub>3</sub>) as control. Additionally, treatment T<sub>1</sub> and T<sub>2</sub> also received same amount of compost as T<sub>3</sub>. Results from single factor randomized complete block design with three replications showed that leaf dry matter, leaf area index and number of tuber per plant did not varied significantly. Significantly highest stem and root dry matter were found from T<sub>1</sub> (69.56 kg ha<sup>-1</sup>) and T<sub>3</sub> (138.92 kg ha<sup>-1</sup>), respectively. Rice husk (T<sub>2</sub>) produced numerically highest leaf dry matter (372.74 kg ha<sup>-1</sup>) and significantly lowest root dry matter (87.92 kg ha<sup>-1</sup>), which ultimately produced highest tuber yield (13.99 t ha<sup>-1</sup>) followed by rice straw (T<sub>1</sub>) (11.08 t ha<sup>-1</sup>). However, weed growth was highest in rice husk (1.16 t ha<sup>-1</sup>). Mulch treatments conserved 3.5 to 7.45% more moisture and 4.3% less salinity than control. Between two mulches rice straw is suggested for its profitability since it remains unused and readily available.

**Keywords:** potato; zero tillage; mulch; salinity; dry matter; yield

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