SIMPLE PREDICTION MODEL FOR POTATO YIELD BASED ON WATER AND NUTRIENTS AVAILABILITY IN SOIL WITH DIFFERENT FERTILIZERS AND BIOCHARS APPLICATION

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Abstract	The yield of potato crop strongly depends on water and nutrients availability in soil, which in turn are affected by type/rate of fertilizer and soil-amendment applied. This research was aimed to develop simple prediction model for potato crop (Atlantik variety) yield based on water and nutrients availability in its growing soil (pot) with different types/rates of fertilizers and biochars. The totally 60 pots of inorganic (P1; N: 100 kg/ha, P: 300 kg/ha, K: 150 kg/ha) and organic fertilizer (P2; NPK-dosage was equalized to inorganic-NPK) in combination with zero-(A0),wood-(A1),rice-husk-(A2),and activated-charcoal (A3) having dosage of 5 ton/ha (D1), 10 ton/ha (D2), and 15 ton/ha (D3) each were prepared in a screen-house located at Serang village, Purbalingga regency, and sowed by Atlantik potato seed. For the entire treatments, the water requirement (evapotranspiration) was determined from daily weather data (temperature, relative humidity, wind-speed, and solar-radiation), while soil-nutrients contents were monthly sampled and analyzed in laboratory. The yield was then measured in each cropping-pot at harvesting time. The results showed that the yield of Atlantic potato with different types/rate of fertilizers and biochars was well predicted by a simple model, in which the errors were ranged from 0.33 Ãƒ Â¢Ã‚Â€Ã‚Â“ 0.77%. The organic fertilizer with wood-charcoal of 10 ton/ha gave the highest yield of Atlantic potato crop.Keywords: Simple prediction model, Atlantik potato yield, inorganic and organic fertilizer, biochars, water and nutrients availability
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