Evaluate the Potassium Availability in some Shrink-swell Soils of Vidarbha Region of Maharashtra by Existing Methods.

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Abstract

Anomaly in 1N NH_4OAc extractable K with plant uptake in shrink-swell soils of Peninsular India lead to take up the present study which evaluates the existing methods of extraction of potassium in these soils. Twenty four surface soil samples (0-20 cm) were selected from different treatments of long term and short term experiments undertaken at Dr. P.D.K.V. Research farm in Akola and in Wanirambhapur sites. Different forms of potassium were analyzed as waster soluble K, exchangeable K by 1 N NH_4OAc and 0.1 M $BaCl_2$, non-exchangeable K by 1 N HNO_3 and 0.2 M $NaBPh_4$ and total K by acid dissolution.

The results showed that 1N NH_4OAc extracted higher values of K than 0.2M $BaCl_2$. The 1N HNO_3 extracted higher non-exchangeable K than sodium tetraphenyl borate ($NaBPh_4$). The water soluble K had significant positive relationship with EC, NH_4OAc-K with pH and available N and $BaCl_2$ K with available N and available P. Non-exchangeable K by HNO_3 on the other hand was significantly positively correlated with EC, available P and $BaCl_2$ K. $NaBPh_4$ K showed relationships with EC, available P, water soluble K and $BaCl_2$ K. The uptake of K by plant was significantly and positively correlated with available P, $BaCl_2$ K, HNO_3 K and $NaBPh_4$ K.

The study also suggested that non-exchangeable K by $NaBPh_4$ method provides a better alternative to express plant K uptake values for optimum fertilizer recommendation.