

AVAILABILITY AND DISTRIBUTION OF PHOSPHORUS IN SOIL CROPPED WITH POTATO AND FERTILIZED WITH DIFFERENT FERTILIZERS AND IRRIGATED BY DIFFERENT METHODS

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ABSTRACT

Field experiments were conducted on a field at Babylon Governorate in a silty clay loam soil to study the effect of integrated application of mineral and organic-bio fertilizers under drip irrigation system on available and distribution of NPK in soil. Treatments included three rates of mineral fertilizers 0,50% ,and 100% of (300 KgN.ha⁻¹+100 Kg P. ha⁻¹)by fertigation ,10 Mg ha⁻¹ organic fertilizer (organo fert.), 950 Kg ha⁻¹ bio fertilizer(Al-Muaferbio), organic+ bio fertilizers, and control treatment(without neither organic nor bio.). Results indicated that combined fertilization increased available soil P to one fold for all irrigation and fertilization methods. Organic fertilizer application increased available soil P by 50 compared to that without organic. Bio fertilizer application increased available P by 30% compared to that with no bio fertilizer. Although, these increments were almost the same under different methods of irrigation and fertilizer application and the amounts of available P were almost the same , the distribution under soil surface was differ under among irrigation methods. Available P was at its highest concentration at 0-10cm layer at drip irrigation while with furrow and sprinkler at 10-20 cm layer.

The good distribution of P at the most active root zone (0-30 cm) in all irrigation methods especially under drip irrigation and fertigation open the way to adopt this method of fertilizer application especially with soluble P fertilizer sources and with combined fertilization.

Keywords: biofertilizer, organofert. Phosphate urea, fertigation, combined fertilization, available P, irrigation methods, P – distribution.