



Research Paper

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Soil nutrient dynamics of paprika (*Capsicum annuum* var. *longum*) cv. KTPL-19 under drip fertigation system

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ABSTRACT : Paprika is one of the important natural food colourants next to turmeric. Precised application of fertilizers and water through drip irrigation plays a vital role in enhancing the productivity and quality of many horticultural crops. Fertigation studies on paprika (*Capsicum annuum* var. *longum*) were carried out at the College Orchard, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, during 2006-2009 to find out the effect of different sources and levels of potassium on soil nutrient dynamics of paprika. Nutrient dynamic study revealed that the available N was found high at the periphery of the water zone and to the maximum at 15-30 cm depth. While the availability P and K were higher of the top 0-15 cm depth and it was found that the availability P and K were decreased with increasing the depth.

KEY WORDS : Paprika, KtPl-19, Drip fertigation, Soil nutrient dynamics

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Natural food colourants are added to food products to impart high aesthetic appeal (Marmion, 1979), flavour, aroma (or) piquancy and colour to the foods (Srinivasan, 2000). Paprika is one of the important natural colourants next to turmeric (Anonymous, 1995). Paprika contains remarkable amount of the colouring material and is used as colourant in food processing as they get the nod over synthetic products in the food colourant market (Prasath and Ponnuswami, 2008). Dried paprika powder and paprika oleoresin are the natural colour sources exempted from certification and can be used directly (Marmion, 1979). Paprika requires heavy manuring for proper growth and producing high yields (Anonymous, 1995). Besides, potassium improved fruit colour as well as oleoresin content in capsicum (Yodpetch, 2001). Further, micronutrients such as S, Mg and Ca are also known to considerably influence the growth, yield and quality of paprika. Balanced fertilization with sulphur enhances the quality in paprika, particularly the ascorbic acid content (Ni, 1993). With this background, an investigation was taken up to determine the effect of certain aspects of fertigation involving water soluble and conventional fertilizers in paprika cv. KtPl-19 with reference to soil nutrient dynamics.

RESEARCH METHODS

A field experiment was carried out at the College orchard, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore during the period from 2006 to 2009 with paprika var. KtPl-19. The experiment was laid out in a Randomized Block Design with seven treatments viz., (T₁)- 100% recommended normal fertilizer applied to soil with furrow irrigation*, (T₂)-Drip fertigation with water soluble fertilizer at 50 % RDF using polyfeed + urea+ MOP**, (T₃)-Drip fertigation with water soluble fertilizer at 75 % RDF using polyfeed + urea+ MOP**, (T₄)-Drip fertigation with water soluble fertilizer at 100 % RDF using polyfeed + urea+ MOP**, (T₅)-Drip fertigation with water soluble fertilizer at 50 % RDF using MAP + Multi-K + SOP**, (T₆)-Drip fertigation with water soluble fertilizer at 75 % RDF using MAP + Multi-K + SOP**, (T₇)-Drip fertigation with water soluble fertilizer at 100 % RDF using MAP + Multi-K + SOP** was followed in the experiments. Beds of experimental unit consisted of 19m² and with a spacing of 60 × 45 cm. The treatments were imposed from 30 days after planting and up to harvesting stage. Observations were recorded from randomly selected ten plants from each treatment and replication. The soil samples were