Boron Deficiency in Cotton in Calcareous Soils of Pakistan: Diagnosis, Spatial Distribution and Management. (A06-rashid034515-Oral)

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Abstract:

Cotton (Gossypium hirsutum) in Pakistan is grown on ~3 Mha irrigated calcareous soils without applying micronutrients Suspecting boron (B) deficiency as a cause of low productivity (1.5 t/ha seed cotton) we monitored and mapped B status of major cotton areas and studied crop responses to B Soil-plant nutrient indexing revealed B deficiency in 50% cotton areas Soil and plant B status was in a good agreement Geostatistics-aided contour maps delineated B deficient areas quite effectively In 26 field experiments in low B soils soil-applied or foliar-fed B increased boll weight and boll bearing causing 13% yield increase Soil and foliar feeding was equally effective value-cost ratio being 16:1 for soil-applied and 30:1 for foliar-fed B Fertilizer B requirement was 1.0 kg/ ha and toxicity was not observed up to 3.0 kg/ha Contrary to the reported 15-20 mg/kg B critical level in cotton leaves our research revealed 53 mg/kg as B requirement in youngest matured leaf bladesA simple rapid and less prone to error 0.1 M HCl method proved comparable to HWE test for assessing B fertility of calcareous soilsThe relationship was HCl B = 0.032 + 0.843 HWE B

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