

YIELD AND WATER USE OF RAINFED WHEAT AS INFLUENCED BY TILLAGE AND FERTILIZER APPLICATION ON TWO USTOCHREPTS

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ABSTRACT

Field Experiments on growth and water use by wheat were conducted during 1991-92 at Barani College and Mangial under different tillage and fertilizer treatments. Grain yield was significantly greater in deep tillage treatments averaging 3660 and 3532 Kg ha⁻¹ versus 2652 Kg ha⁻¹ for wheat at Mangial. The greatest yield was in the chisel treatment. At the college, the average yields were 3032 and 3038 Kg ha⁻¹ for deep tillage versus 2792 Kg ha⁻¹, although the yield differences were bit significant among tillage treatments. Fertilizer use increased wheat yield 82 percent at the College and 37 percent at Mangial. The water use efficiency (WUE) was 8.9 with fertilizer versus 4.9 Kg ha⁻¹ mm⁻¹ in the check at the College and 10.3 versus 7.5 Kg ha⁻¹ mm⁻¹ at Mangial. WUE was significantly greater in deep tillage, averaging 9.9 Kg ha⁻¹ mm⁻¹ versus 7.5 Kg ha⁻¹ mm⁻¹ at the Mangial location and 7.1 versus 6.5 Kg ha⁻¹ mm⁻¹ at the College. The yield and WUE results show that deep tillage impact was significant in the silt loam at Mangial but not on sandy loam soil at the College. Deep tillage would conserve more water in silt loam than in sandy loam soils.