

WHEAT GROWTH, YIELD AND NUTRIENT ALLOCATION IN RELATION TO MECHANICAL AND CHEMICAL WEED MANAGEMENT PRACTICES

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ABSTRACT

The study was conducted to envisage wheat growth, yield and nutrient allocation under mechanical and chemical weed management practices. The experiment was laid out in a quadruplicated randomized complete block design. The experiment compared two weed management practices, i.e. mechanical and chemical for their impact on wheat growth, yield and nutrient allocation, while furnishing a control for both the weed management practices. In control plots (T1), no any type of weeding practice was performed during the entire growing season. While in other plots, either hand-weeding was performed for the full season (T2) or an effective commercial post-emergence broad leaf herbicide was applied at 1.25L ha⁻¹ when the crop gained four week's maturity. The data for plant height, number of tillers plant⁻¹ and grain and straw yields were recorded. Phosphorus and potassium contents were determined in grain and straw samples. Compared to hand-weeding, plants grown in control plots were significantly shorter, produced significantly lower grain and straw yield and generally had low phosphorus and potassium allocated to their straw and grain. The two practices of weed management were found at par with each other for plant height, grain and straw yield, and the potassium contents in wheat grain and straw. Interestingly, the phosphorus contents in grain and straw were better in plots receiving chemical weed management practice as against hand-weeded plots. The study endorses the benefits of weed management practices, irrespective of their mode, in improving wheat growth, enhancing wheat yield and allocating nutrients to the grain and straw of wheat efficiently. The chemical weed control method was found superior in enhancing wheat tillers and mobilizing more phosphorus to wheat crop for its efficient allocation to wheat grain and straw.

Keywords: Herbicide, nitrogen, phosphorus, straw and grain yield, weed competition.