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SHADE AVOIDANCE AND WHEAT (TRITICUM AESTIVUM L.) PRODUCTIVITY

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ABSTRACT

Two filed experiments were conducted at the experimental farm; faculty of Agriculture Benha University during 2012 and 2013 seasons to study the effect of shading through controlling plant density with using varied seed rates i.e., 40 kg./fed. as recommended for control, 10 kg/ fed. (as 1/4 of recommended; 20 kg/fed. (as 1/2 of recommended) and 30 kg /fed. (as 3/4 of recommended on wheat (*Triticum aestivum* L.) growth and productivity. The obtained results showed that, different applied treatments significantly increased all of the studied growth characteristics i.e. plant height, leaves number, tillers number, total leaf area, dry weight / plant and total chlorophyll SPDS at 70 and 110 days after sowing in both seasons. The highest values of these traits - except that of plant height, were existed with 10 kg/ fed. i.e. the quarter of the recommended amount of seeds. But in case of plant height, the highest value was existed with 40 kg/ fed. (i.e. control recommended amount in the two seasons. Also, the growth correlation: crop growth Rate (CGR), Net assimilation Rate (NAR) and photosynthetic efficiency (PE) significantly increased with all applications at 110 days after sowing in both seasons. As for yield and yield components, i.e., Number of spike/ plant, spike length, main spike weight (g), number of grains/spike, number of spikelets/spike and grain yield g / plant; significantly were increased with different applied treatments in the two seasons. The highest values were existed with the rate of seeds at 10 kg/ fed. (i.e, the quarter of recommended amount). In addition, the same rate of seeds gave the highest values of each of N, P, K, Mg, Ca, Fe, Zn, Cu, Total carbohydrates and crude protein content in Flag leaf at 110 days and in grains, as well, at harvest time during 2012 and 2013 seasons.

KEYWORDS: Wheat, Shade Avoidance, Seed Rates, Growth, Light Density, Yield, Mineral Contents