

GROWTH AND P UPTAKE BEHAVIOUR OF WHEAT AND TRITICALE AS AFFECTED BY P FERTILIZATION

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ABSTRACT

A greenhouse pot experiment was conducted to compare growth, P uptake and P efficiency of wheat and triticale at various stages of growth as affected by P fertilization. The results showed that application of P fertilizer significantly increased the dry matter, straw and grain yields as well as total P uptake at tillering and boot stages. Triticale produced significantly higher dry matter yield of tops and roots at tillering and at maturity. The greater P uptake of triticale may partly be attributed to its higher root efficiency.

INTRODUCTION

In one of our field experiments, greater uptake of P was observed in triticale as compared to wheat in all the treatments including control (Latif et al. 1986). In a subsequent experiment, triticale showed higher P use efficiency than wheat at all levels of N application. The P concentration in plant or plant parts at different stages of growth was similar but total P uptake at maturity was greater in triticale as compared to wheat (Alam et al. 1992). It has been reported that

days of germination they were thinned to 5 plants pot⁻¹. Two additional applications of 25 mg N kg⁻¹ soil each at three leaf stage and at maximum tillering stage of growth were made. There were three replicates; the plants from each replicate were harvested at tillering, boot stage and at maturity. Shoots and roots were separated while grain and straw was collected at maturity. The samples so obtained were dried in oven at 70°C to record dry weight. Portions of the ground material were digested in a diacid mixture (NHO₃:HClO₄ 5:1). Phosphorus in the plant digest was determined by metavanadate yellow color method (Jackson, 1962). Statistical analyses of the data were done and the LSD values were used to compare the means.

Table 1. Some physico-chemical properties of the soil used

Texture	Clay loam
Free lime	4.30 %
Organic matter	0.78 %
pH (saturated paste)	7.65
Ec (saturated paste)	1.03 dSm ⁻¹