

SEED YIELD OF WHEAT AS AFFECTED BY DIFFERENT SEED RATES UNDER THE RAINFED CONDITION OF DERA ISMAIL KHAN.

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ABSTRACTS:

Field experiments were conducted at various rates of wheat c.v.Pirsabak-85. The treatments consisted of 70, 85, 100 and 115 kg/ha. During 1993-94, none of the seed rates significantly differed from the other for seed yield and other characters but generally the rate 85 kg/ha gave the maximum seed yield than the other treatments. During 1994-95, the seed rate of 100 kg/ha significantly appeared the best rate for seed yield. Generally the rate of 100 kg/ha appeared to be the best rate for the said wheat variety under such condition.

INTRODUCTION

Wheat (*Triticum aestivum* L.) is one of the most important food crops which is grown all over the world and occupies cardinal position in the economy of Pakistan. To increase the yield/unit area it is essential to have optimum combination of production inputs. Therefore the rate of seeding has a great effect on the plant population and it is considered an important factor in regulating yield.

The agro-climatic condition of Dera Ismail Khan is arid to semi-arid, sub-tropical continental with a mean annual rainfall ranging from about 180 mm in the south to about 300 mm in the north. The rainfall is un-even, erratic and because of low humidity, continental location and dearth of vegetation, there are usual extremes in temperature both diurnal and seasonal. Under such conditions it is important to determine the optimum seed rate for wheat which will result in a uniform stand that will provide maximum returns. At lower seeding rates plants produce more tillers (heads) per plant but all the heads do not mature at once. The first-formed heads ripen before the last-formed ones. If the harvest is delayed until last-formed heads are mature, the first ones may shatter due to wind etc (Khan, 1986).

Using good seed and desirable seed bed, maximum yields have been obtained with seeds @ 10-200 kg/ha or more in various parts of the world. In Mexico, seeds @ 50, 100, 200 and 300 kg/ha in six wheat genotypes yielded no marked differences except in two varieties (CIMMYT 1978). Brown and Bland (1979) used four seeding rates viz, 43, 86, 113 and 140 kg/ha, in barley and observed no significant yield differences. They further stated that increase in seeding rate produced more tillers but decreased kernels per spike, thus preventing any yield increase from higher rate of seeding.

Day et al., (1976) observed no difference in the seed weight and grain yield from an experiment using seed @ 29, 58, 87 kg/ha. Hussain (1969) observed that wheat grain yield was not influenced by the different rates of seeding, but the individual components such as number of tillers per plant, number of grains per ear, weight of grains and length of the ears, declined as the rate of seeding was increased. Shad (1969) reported no significant differences in the final grain yield due to different seed rates. Mujahid (1972) found that increasing seed rate beyond 50 kg/ha did not help in increasing the grain yield of the timely sown wheat crop.

Marwat et al., (1989) reported that seeding rates significantly increased the number of plants emerged per square meter, number of spikes/m² and grain yield per hectare. However, spike length and number of grains per spike showed negative response to seeding rates. Khan and Makhdom (1988) studied four seed rates viz, 38, 63, 88 and 113 kg/ha, and concluded that 113 kg/ha seed rate may be adopted to harvest maximum yield potential of 'Punjab-81' in the Southern Punjab.

Islam et al., (1986) found out the growth and yield of semi-dwarf wheat varieties as affected by seed rates. They concluded that the seed rates of 120 to 140 kg/ha were promising to produce more grain yield.