

Effect of seed rate, row spacing and fertilizer on wheat (*Triticum aestivum*)

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Low tillering and poor plant stand are the major problems for realizing the yield potential of wheat (*Triticum aestivum* L. emend. Fiori & Paol.) in the eastern region.

A field experiment was conducted at Regional Research Station, Chiplima, during the winter season of 1989-90 to overcome these problems by raising the seed rate and reducing the row spacing under optimum and suboptimum doses of

fertilization. The experiment was laid out in randomized block design, replicated 4 times. The treatments comprising 2 row spacings (15 and 23 cm), 3 seed rates (100, 125 and 150 kg/ha) and 2 levels of fertilizer (60, 30 and 40 kg/ha and 120, 60 and 40 kg/ha of N, P and K respectively). The full dose of P_2O_5 and K_2O and half dose of N were applied at sowing and the remaining N was top-dressed with first irrigation (21 days

Table 1. Effect of different treatments on grain yield and yield components of wheat

Treatment	Plant height (cm)	Effective tillers/m ²	Length of ear (cm)	Grains/ear	1,000-grain weight (g)	Grain yield (q/ha)	Straw yield (q/ha)
<i>Row spacing</i>							
15 cm	98.0	314.8	9.0	28.8	49.0	28.7	40.7
23 cm	96.8	272.3	9.2	29.3	50.5	24.2	30.4
CD (P = 0.05)	NS	14.345	NS	NS	NS	1.50	1.572
<i>Seed rate (kg/ha)</i>							
100	99.2	287.0	9.0	29.0	50.0	25.6	36.0
125	96.7	286.0	8.9	27.8	48.4	24.9	33.7
150	96.3	307.7	9.4	30.4	50.9	28.9	37.1
CD (P = 0.05)	NS	17.567	NS	NS	NS	1.84	1.925
<i>NPK (kg/ha)</i>							
60, 30, 40	94.9	282.2	9.0	27.5	48.7	24.7	34.1
120, 60, 40	100.0	304.8	9.1	30.6	50.9	28.2	37.0
CD (P = 0.05)	2.278	14.345	NS	1.966	1.788	1.50	1.572

Present address : ¹AICRIP, RRS, Chiplima

after sowing). The soil was sandy loam, having pH 6.2, organic carbon 0.17%, available N 190.0 kg/ha, available P_2O_5 4.8 kg/ha and available K_2O 283 kg/ha.

Spacing influenced the grain and straw yields significantly. Closer spacing of 15 cm resulted in the higher grain yield (28.7 q/ha) than that of 23 cm (24.2 q/ha). The increase in grain yield in closer spacing in comparison to wider spacing might be attributed to the effective tillers/m² in the former.

Wheat @ 150 kg/ha seed rate gave significantly highest grain yield than that from 100 and 125 kg/ha, which gave at par yields. The increase in yield with 150 kg/ha seed rate from lower seed rates may be owing to the significant increase in effective tillers/m² in higher seed rate, and other yield attributes remained unaffected (Table 1). Sarma and Dhillon (1987) found similar effect of seed rate on yield.

Application of 100% of the recommended fertilizer (120, 60 and 40 kg N, P and K/ha) recorded the higher grain

and straw yields than that of 50% of the recommended fertilizer. Growth and yield attributes, viz. effective tillers/m², plant height, grains/ear and 1,000-grain weight, responded significantly to the application of fertilizer. However, the length of the ear was not influenced by the fertilizer dose. Since yield is the additive and complementary effect of growth and yield-attributing parameters and the yield-attributing characters were higher at 100% of the recommended fertilizer dose, an application of 120, 60 and 40 kg/ha of N, P and K might have resulted in higher grain and straw yields. Similar observations were reported by Pawar *et al.* (1988).

REFERENCES

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