

Short Communication

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INFLUENCE OF DIFFERENT ROW SPACINGS ON THE GROWTH AND YIELD OF THREE WHEAT CULTIVARS

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The main objective of this study is to observe the effect of different row spacings on the growth and yield of wheat varieties under the agroclimatic conditions of Tandojam.

An experiment was laid out at the ARI, Tandojam, in a simple completely randomized block design with four replications having 8 x 4.5 meters plot size. NP fertilizers in the form of urea and single superphosphate were applied at the rate of 120-50 NP kg/ha. The whole of P and half N was applied at sowing while the remaining N at 1st irrigation. The sowing of the seeds was done by means of single coulter drill in lines 15, 22 and 30 cm apart. The thinning of the plots were done before the first irrigation at 7-8 cm plant distance. Normal cultural practices were followed as and when needed. Observations on plant height, tillers/unit area, 1000-grain wt. and grain yield/ha were recorded

The row spacing of 22 cm produced the taller plant than the other row spacings. The greater plant height at 22 cm was attributed to relatively thick stand within the row which encouraged vertical growth. ZA-77 grew taller than Pavon and Sind-81. The variation in plant height of varieties may be attributed to their variable genetic make up and response to environmental conditions.

The row spacing of 22 cm produced the maximum number of productive tillers/unit area (Table 1). Other row spacing are appeared equally effective in producing fertile tillers per unit area ZA-77 produced significantly greater number of tiller than the other varieties (Table 1). The effect of row spacing on 1000 grain weight was found to be highly significant at 22 cm row spacing, whereas spacings of 15 and 30 cm yielded more or less same grain yield. The maximum 1000-grain weight was produced by ZA-77 followed by Sind-81 and Pavon (Table 2). Variations in 1000-grain weight in varieties seem to be due to their varietal characters and competition for nutrient uptake, soil moisture and light.

The row spacing of 22 cm produced the maximum grain yield of 5506 kg/ha whereas grain yield in other row spacings was at par with each other. ZA-77 produced significantly higher grain yield than the other two varieties (Table 2). This may be due to the production of higher number

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TABLE 1. EFFECT OF ROW SPACING ON THE PLANT HEIGHT AND PRODUCTIVE TILLERS OF WHEAT CULTIVARS, PLANT HEIGHT (CM).

Cultivars	Row Spacing (cm)			Mean
	15	22	30	
Pavon	80	87	80	82b
Sind-81	84	86	82	84b
ZA-77	87	92	84	88a
Mean	84b	88a	82b	-

S.E. of varieties and spacing = 1.47

S.E. of interaction = 2.55

Cultivars	Number of reproductive tillers (0.6 x 0.6 m)			Mean
	15	22	30	
Pavon	185	200	190	192b
Sind-81	204	198	194	199b
ZA-77	222	270	245	246a
Mean	204 b	223a	210b	-

S. E of varieties and spacing mean = 12.2

S. E of interaction = 21.1

TABLE 2. EFFECT OF ROW SPACING ON THE 1000 GRAIN WT. AND YIELD OF GRAIN OF WHEAT CULTIVARS, 1000-GRAIN WT. (g)

Cultivars	Row Spacing (cm)			Mean
	15	22	30	
Pavon	22.4	32.70	27.2	27.4c
Sind-81	27.9	36.30	34.7	32.9b
ZA-77	38.8	34.0	32.1	34.9a
Mean	29.7b	34.3a	31.3b	-

S.E. of varieties and spacing = 0.35, $Cd_1 = 1.01$, $Cd_2 = 1.37$

S.E. of interaction = 0.60, $Cd_1 = 1.74$, $Cd_2 = 2.37$

Cultivars	Grain yield (kg/ha)			Mean
	15	22	30	
Pavon	5210	5022	5110	5114c
Sind-81	5389	5405	5392	5395b
ZA-77	5525	6090	5289	5635a
Mean	5375b	5506a	5264b	-

S. E. of varieties and spacings = 123.

S. E. of interactions = 214.

of tillers per unit area. It was concluded that row spacing 22 cm seems to be a suitable spacing for wheat crop. Further more ZA-77 was a some what better promising cultivar under the present experimental conditions.

Key words: Wheat cultivation, Row spacing.

References

1. Anonymous. Agric. Statis of Pakistan, Islamabad (1987).
2. M.A. Bajwa, J.S. Sawhney and M. Sabeta, Libyan J. Agric., 6 (1), 91 (1977).
3. M.S. Sheikh, M.A. Khokhar, G. Ali and M.S. Nazar, Pak. J. Agric., Res., 6, 146 (1985).