

INFLUENCE OF PLANT DENSITY ON GROWTH AND YIELD OF KALYAN 227 WHEAT

It is well known that grain yield per unit area can be maximised in desired plant types by increasing plant populations when competition within and between plants are minimal. In the case of wheat row spacing of 15 cm gave significantly higher yield compared to 22.5 and 30 cm (Ram *et al.* 1962) and closer row spacing of 15 cm gave more number of ear-bearing tillers per square metre (Chandrasekharaiah 1967).

The present note reports results of studies conducted on the influence of plant density on plant characters associated with grain yield of Kalyan 227 dwarf wheat on black clay loam soil (pH 7.6) (of Agricultural College Farm, Dharwar) during 1968-69, under irrigation. There were five inter plant spacings viz., 1.25, 2.5, 5.0, 7.5 and 10.0 cm with a constant row spacing of 15.0 cm. Randomised block design with three replications was adopted. The gross plot size was 1 X 0.75 metre. While seeding, a common fertilizer dose of 80 kg- N, 40 kg. P_2O_5 and 20 kg. K_2O per hectare was applied about 5 cm deep in between rows. After 25 days of seeding, 20 kg N/ha was top-dressed. Plots were irrigated at about 10 days intervals. Observations were recorded from 5 random plants in each plot.

The results given in Table 1 indicate that the plant height increased and heading was earlier with decrease in inter plant spacing. The total tillers per plant decreased from 7.7 to 4.0 and ear bearing tillers from 4.3 to 2.7 with decrease in inter plant spacing from 10.0 to 1.25 cm respectively; the ear bearing tillers per 0.5 metre row on the other hand increased by 39 percent.

The number of fertile spikelets per ear, grains per ear and grain yield per plant decreased with closer inter plant spacing, while grain yield per 0.5 metre row increased, the maximum yield being observed at the spacing of 1.25 cm.

The number of ear bearing tillers per unit area can be considered as a close predictor of the grain yield. As such, a regression equation of the form $Y = a + bx$ was fitted to the grain yield (Y) and number of ear bearing tillers per 0.5 metre row (X), which was $Y = -50.65 + 3.06 X$.

Table 1
**The influence of plant density on plant characters of
 Kalyan 227 Wheat**

Row plant spacing in cm	15X 1.25	15X 2.5	15X 5.0	15X 7.5	15X 10.0	C. D. at 5% /d	Total correlation coefficients
Particulars							
Number of days for 50% heading	52.0	53.6	54.3	55.3	55.6		-0.2911
Plant height in cm	81.6	79.3	78.3	77.6	75.6		0.9636**
Tillers/plant-total	4.0	5.3	5.6	6.3	7.7		-0.8104
Ear bearing tillers/ plant	2.7	3.0	3.3	4.0	4.3		-0.5221
Spikelets per main shoot ear	16.1	16.3	16.9	17.0	17.2		-0.9946**
Number of grains per main shoot ear	38.3	41.2	46.5	47.5	48.7		-0.9932**
Grains/spikelet	2.4	2.5	2.7	2.8	2.8		-0.9906**
Grain yield/plant in gm	2.1	3.4	5.3	6.8	7.4		-0.9903**
Ear bearing tillers/ 0.5 metre row	39.6	36.3	34.0	31.0	28.3	2.65	0.9791**
Grain yield/0.5 metre row in gm	71.5	62.5	48.5	44.5	37.5	3.84	

Significant.

REFERENCES

- Chandrasekharaiah, A. M. 1967. Effect of depth of sowing, date of sowing and spacing-cum-fertilizer levels on growth and yield of wheat varieties. A dissertation submitted to Karnatak University, Dharwar.
- Ram, A., Sinhar, T. D. and Raysharma, R. P. 1962. Effect of different spacings on the growth and yield of wheat under dibbling method of sowing. *Madras Agric. J.* 49: 299-306

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