

### EFFECT OF LEVELS OF NITROGEN AND SPACING ON THE YIELD OF RICE

An experiment was laid out at the Rice Research Station, Mannuthy to study the effect of levels of nitrogen and spacing on the yield of rice. The studies were conducted successively for six seasons from 1972-73 to 1974-75 in sandy loam soil. The high yielding variety *Aswathi* was used for the first five seasons, while *Triveni*, another high yielding variety was used during the last season. The treatments consisted of three levels of nitrogen (40,80 and 120 kg. N/ha) and six spacings 20 x 15 cm, 20 x 10 cm, 15 x 15 cm, 15 x 10 cm, 10 x 10 cm, and planting 10 x 10 cm, row pairs 40 cm apart. The experiment was laid out in split plot design with two replications. The levels of nitrogen were assigned to the main plots and the spacings were taken in the subplots. Phosphorus and potassium at 45 kg/ha each were given uniformly to all the plots as basal dressing. The nitrogen was applied 50% as basal and the rest 21 days after transplanting according to the treatments. Necessary prophylactic measures were taken for the protection of the crop.

The yield of grain as affected by the various main plot and subplot treatments was recorded for all the six seasons and the data are presented in Table 1.

It is seen from the data that the effects due to nitrogen, spacing and nitrogen x spacing interaction were not significant except that the spacing effect was significant during the first and second crop seasons of 1974-75. The efficiency of nitrogen was not uniform in all the seasons. While the spacing of 20 x 10 cm has produced the highest yield during the first crop seasons of first and second years, 20 x 15 cm has produced the highest yield during the first crop season of third year and 10 x 10 cm spacing has produced the highest yield during the second crop season of the second and third years. It is thus seen that in the case of spacing also the effect is irregular from season to season. However, the available data indicated that a wider spacing of 20 x 15 cm may be suitable for the first crop season while a close spacing will be required for the second crop season in this tract. Early maturity of the crop in the second crop season may probably be one of the reasons requiring closer spacing.

Lack of significant response to nitrogen is contradictory to the results reported earlier by several workers for high yielding varieties (Chandler, 1966; Nair, 1968). This lack of response may be due to the high nitrogen status of experimental site (0.1%). The lack of response to spacing treatments during the four seasons also may be due to the high nitrogen status of the soil.

#### സംഗ്രഹം

മണ്ണുത്തി നെൽ ഗവേഷണ കേന്ദ്രത്തിൽ 1972-73 മുതൽ 1974-75 വരെ നടത്തിയ പരീക്ഷണത്തിൽ വിവിധ അളവിൽ (40, 80, 120 കി.ഗ്രാം നൈട്രജൻ/ഹെക്ടർ)

നൈട്രജൻ ഇടുകൊടുത്തതുകൊണ്ട് വിളവിൽ ഗണ്യമായ വർദ്ധനവ് ലഭിച്ചില്ല. നീക്കം ചെയ്ത അകലവും വിളവുമായുള്ള ബന്ധം വ്യത്യസ്ത പൂവുകളിൽ തികച്ചും വ്യത്യസ്തമായിരുന്നു.

- Table 1  
Mean yield in kg/ha

Treatments	72-73 (Aswathi)		73-74 (Aswathi)		74-75	
	First crop	Second crop	First crop	Second crop	First crop (Aswathi)	Second crop (Triv- eni)
Main plot treatments						
N-40	5050	3661	2869	1375	3952	3316
N-80	4750	3980	2672	1527	4247	4122
N-120	4988	4197	3175	1180	3930	4050
Significance	N. S.	N. S.	N. S.	N. S.	N. S.	N. S.
Subplot treatments						
S <sub>1</sub> (20 x 15 cm)	4688	3827	2966	1405	4550	3688
S <sub>2</sub> (20 x 10 cm)	5183	4044	3161	1535	4369	3850
S <sub>3</sub> (15 x 15 cm)	4722	3897	2669	1152	4513	3919
S <sub>4</sub> (15 x 10 cm)	5105	4155	2980	1369	3416	3747
S <sub>5</sub> (10 x 10 cm)	5077	4083	2736	1544	3341	4230
S <sub>6</sub> (10 x 10 cm)-40 cm	4800	3800	2919	1077	4055	3541
Significance	N. S.	N. S.	N. S.	N. S.	*	*
C. D. (P = 0.05)	—	—	—	—	808.3	247.2

N. S. = Not significant

\* Significant at 5%

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### References

- Chandler, R. F. (Jr.) 1966 New visitor in rice yields. *Indian Farming* 16, 10-14
- Nair, P. K. R. 1968 Studies on the comparative performance of the high yielding varieties of rice at varying levels of nitrogen and spacing under Trivandrum conditions. M. Sc. (Ag) thesis submitted to Kerala University.

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