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Effect of Planting Dates and N Levels on the Grain Yield of Aromatic Rice Genotypes Under Rainfed Conditions

Basmati rice occupies 0.70 million ha (l.5% of the total area under rice) with 0.6 m.t, production (0.85% of total rice production in India (Siddiq.1990). The yield potential of the rices is low, because Basmati plants are medium tall and prone to lodging. This aromatic fine quality rice is traditionally grown in the north and north western parts of Indian sub continent for centuries. Efforts are now being made to explore the possibility of cultivating the "Basmati" rices in non-traditional areas to prove their potential and increase the production. Hence, it is necessary to standardise the agronomic practices for these area. With an objective to determine the effect of date of planting and 'N' levels on yield potential of scented rice genotypes, this experiment was conducted.

The field experiment was carried out during Kharif 1997 at Agricultural Reasearch Station, Mugad under rainfed lowland condition. The soil was silty clay loam with pH-7.2, OC-75%, available N,P&K of 250,10.5 & 110 kg/ha.

The treatments included 2 dates of planting (I Fort nght of August and II Fortnight of August), 4 levels of N (0, 30,60 & 90 kg/ha) and 3 aromatic rice genotypes viz., Pusa Basmati, Taraori Basmati and IET-13549. The treatments were arranged in split-split plot design with varieties in main plots, date of planting in sub plots and "N" levels in sub-sub plots. Recommended cultural practices were followed during the period of crop growth. Phosphorus and potash were applied at the time of planting and nitrogen was applied as per treatments in 3 doses i.e. 33.3 per cent as basal and other 66.6 per cent at 30 and 60 DAT.

Among three genotypes, IET-13549 recorded significantly higher yield (30.8q/ha) when compared with Pusa basmati-1 (24.2q/ha) and Taraori basmati (192q/ha). The same genotype had recorded significantly higher mean panicle weight and more number of panicles/m^2 (Table1).

Table 1. Yield parameters as influnced by 'N' levels and date of planting in aromatic rice genotypes

Treatments	Grain Yield q/ha	Straw Yield q/ha	Mean panicle wt. (g)	1000 grain wt.(g)	Panicle /m2
Genotypes					
Pusa Basmati-1	24.2	33.5	1.7	21.8	190.4
Taraori Basmati	19.2	36.3	1.5	21.3	187.2
IET-13549	30.8	43.1	1.9	22.1	209.5
SEm ±	1.2	1.3	0.07	0.09	6.0
CD at 5%	3.5	3.7	0.21	0.27	17.8
Date of Planting					
I FN of Aug	27.5	40.6	1.6	22.5	205
II FN of Aug	21.9	34.6	1.9	21.3	186
SEm ±	0.98	1.0	0.06	0.2	5.2
CD at 5%	2.87	3.0	0.17	0.67	15.1
'N' levels (kg/ha)					
NO	20.7	34.8	1.2	20.4	182
N30	23.6	40.8	1.6	21.7	190
N60	27.1	35.4	1.9	22.5	205
N90	28.6	39.6	2.1	22.6	208
SEm ±	1.4	1.5	0.08	0.5	4.1
CD at 5%	4.1	4.3	0.24	1.45	12.2
CV%	17	13	16	16	12

Planting time had significant effect on the yield of scented rice. Crop planted in I Fortnight of August recorded significantly higher yield than planted in II fortnight of August. Fifteen days delay in planting reduced the yield by 25 per cent. The poor grain yield of late planted rice may be due to cold tempurature of november which had adverse effect on flowering and increased chaffyness in a panicle. It was supported by reduced mean panicle weight and 1000 grain weight (Table 1).These findings are in confirmity with those of Gangawar and Sharma (1997).

Application of 90 kg N ha^{-1} recorded grain yield of 28.6 q/ha showing an increase of 5 and 8.1 q/ha over the yield realised with 30 and 0 kg N/ha, respectively.The application of nitrogen @ 90kg/ha was on par with the application of nitrogen @ 60 kg/ha(27.1 q/ha). Similar results have been reported by Tripathi *et. al.* (1998). All interactions were non significant, with respect to yield and other parameters.

With these results it can be concluded that, for getting higher yield, IET-13549 canbe transplanted in the I fortnight of August and applied with 90 kg N/ha under rainfed lowland condition.

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