

**RATE AND TIME OF APPLICATION OF NITROGEN  
ON DWARF INDICA RICE UNDER THE  
AGROCLIMATE OF WYNAD**

Wynad has extensive area under rice with a different agro-climate from the plains. Agronomic practices suitable for the plains may have a different response under the high altitude. No systematic work has so far been done to find out the best rate and time of application of nitrogen on rice under the high altitude areas of Kerala and hence a field experiment was laid out during the first crop season 1971-72 at the Central Horticultural Research Station, Ambalavayal situated at an altitude of 960 m. A randomised block design was adopted with 12 treatments (Table 1) and three replications.

Table 1  
Treatments

Treatment No.	Quantity of nitrogen applied during various stages			(Kg./ha.)
	Planting	Tillering	Panicle initiation	Booting
1	0	0	0	0
2	100	0	0	0
3	75	25	0	0
4	75	0	25	0
5	75	0	0	25
6	50	25	25	0
7	50	0	25	25
8	50	25	0	25
9	25	50	25	0
10	25	25	25	25
11	0	50	50	0
12	0	50	25	25

The plot size was 6 m. x 5 m. gross and 5.2 m. x 3.9 m. net. The variety 'thriveni' was transplanted at a spacing of 20 cm. x 15 cm.  $P_2O_5$  and  $K_2O$  were kept constant at 60 and 50 kg. per hectare respectively applied during last ploughing.

Data in Table 2 indicate that treatment No. 11 (50 Kg N at tillering and 50 kg. N at panicle initiation) has recorded significantly higher grain yield, grain to straw ratio and number of spikelets per panicle than all the other treatments. There was no significant effect on number of panicles per sq. metre, panicle length and 1000 grain weight due to any of the

**Table 2**  
**Effect of treatments on yield attributes**

Treatment No.	Yield components						
	No of panicles per sq. m	Panicle length (cm.)	Spikelets per panicle	Panicle weight (g)	1000 grain weight (g)	Grain/straw ratio	Grain yield/plot (kg.)
1	299	20.0	922	2.02	248	0.73	7.15
2	343	21.8	975	2.44	26.3	0.68	8.62
3	347	20.9	1027	2.19	26.1	0.04	9.13
4	330	21.2	1109	2.19	25.7	0.70	9.58
5	336	21.2	1124	2.27	25.4	0.71	8.57
6	311	22.0	1083	<b>2.31</b>	26.0	0.79	9.30
7	322	26.4	970	2.37	<b>25.6</b>	0.76	8.86
8	326	20.9	1006	2.44	25.9	0.77	8.60
9	317	22.2	1049	2.16	25.8	0.76	9.90
10	307	21.9	1096	2.62	25.6	0.80	9.63
11	331	23.2	1238*	<b>2.81</b>	26.4	0.89*	11.46*
12	313	<b>20.8</b>	1027	2.55	24.8	0.78	9.23
CD(0.05)	NS	NS	113.7	0.544	NS	0.08	1.38

NS = Not significant

Significant over all other treatments

treatments. The increase in panicle weight was found to be due to an increase in the number of spikelets per panicle which resulted in a higher grain to straw ratio and grain yield per plot. The absence of response for basal application of nitrogen may be due to a slow establishment of plants under the cool weather of Wynad which agrees with the report of Ten Have (1971). Applications of 50 kg. N/ha at tillering and 50 kg. N/ha. at panicle initiation were found to be the best for dwarf *indica* rice under the high altitude areas of Kerala.

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#### REFERENCES

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