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**A NOTE ON EFFECT OF ZINC IN COMBINATION WITH  
NITROGEN ON THE YIELD AND YIELD  
ATTRIBUTES OF RICE VAR. TRIVENI,**

The importance of zinc in rice nutrition is gaining importance especially with the introduction of high yielding varieties requiring high doses of the major plant nutrients. Considerable attention has been given to this nutrient in India in recent years after Nene (1965) showed that the *Khaira* disease of paddy in the Nainital, Tarai was caused by the deficiency of zinc. Considering the response of rice to zinc in different parts of Kerala an experiment was undertaken at the College of Agriculture, Vellayani to study the effect of zinc on the yield and yield attributes of rice under various levels of N nutrition.

The experiment was conducted at the College of Agriculture, Vellayani during the Viruppu season (March to June) of 1976 with rice variety *Triveni*. The soil of the experimental area was sandy clay loam of pH 5.4 analysing 0.075% total Nitrogen, 0.0025% available  $P_2O_5$  and 0.0077% available  $K_2O$ . The average available zinc status in the soil was found to be 4 ppm. The treatments consisted of 3 levels of nitrogen viz., 55, 70 and 85 Kg N/ha and four levels of zinc viz., 0, 10, 20 and 30 Kg,  $ZnSO_4 \cdot 7H_2O$ /ha. The plots were of net size 18.75  $M^2$ . Nitrogen was applied in the form of ammonium sulphate. P and K were applied at the rate of 35 Kg/ha of  $P_2O_5$  and  $K_2O$  in the form of superphosphate and Muriate of potash respectively in all the plots. The whole of P and half of potash and 2/3 of N were applied as basal dose. The rest of the N and K were applied at the panicle initiation stage. The crop was irrigated whenever necessary. Prophylactic plant protection measures were taken against pests and diseases. The results are presented in Tables 1. and 2.

Though the results were not statistically significant the maximum grain yield of 3826 Kg/ha was obtained for the treatment combination of  $N_1Z_1$  (55Kg N and 10 Kg  $ZnSO_4$ /ha. The lack of response to applied zinc may be due to the relatively high status of available zinc in the soil. In a trial with rice variety '*Cavery*' Kasi Viswalingham *et al.* (1974) did not get any response for applications of 10-40 Kg Zn/ha. According to Brown *et al* (1962) only soils containing less than 0.5 ppm. of diathiozone extractable zinc should be considered as deficient in this element. The fact that the soil of the site where the experiment was conducted contained 4 ppm of zinc can be considered as the probable reason for the lack of response to this element.

**Table 1**  
**Effect of levels of nitrogen and zinc on yield attributes of rice**  
**variety *Triveni***

Yield attributes	Levels of N Kg/ha			F-test between levels of N	S. E. + (0.05)	
	55	70	85			
No of productive tillers per sq. m.	360	368	339	NS	43.3	
1000 grain weight (gm)	21.25	21.23	21.70	NS	0.55	
	Levels of $ZnSO_4 \cdot 7H_2O$ Kg/ha				F-test between levels of $ZnSO_4 \cdot 7H_2O$	S. E. + (0.05)
	0	10	20	30		
No. of productive tillers per sq. m.	352	356	358	356	NS	43.3
1000 grain weight (gm)	21.03	22.00	21.10	21.43	NS	0.55

**Table 2**  
**Effect of nitrogen and zinc on grain yield of rice, variety *Triveni* (Kg/ha)**

Levels of N Kg/ha	Levels of $ZnSO_4 \cdot 7H_2O$ Kg/ha				Mean
	0	10	20	30	
55	3453	3826	3284	3446	3502.2
70	3290	3290	3290	3331	3310.5
85	3392	3636	3514	3188	3432.5
Mean	3378.3	3584.0	3362.6	3321.6	

S. E. + (0.05) = 131.75

The data further reveal that the different levels of nitrogen beyond 55 Kg/ha had little influence either on the yield contributing characters or the yield of grain under Vellayani conditions. Nitrogen at 55 Kg/ha was found to be as efficient as 70 Kg N/ha or 85 Kg N/ha. This clearly indicates that a nitrogen dose of 55 Kg/ha will be sufficient to get the maximum yield from the rice variety *Triveni* under Vellayani conditions.

സംഗ്രഹം

വിവിധ അളവിൽ നൈട്രജൻ നൽകുന്നതിനോടൊപ്പം വിവിധ അളവിൽ സിങ്ക് എന്ന സസ്യമൂലകം കൂടി നൽകുന്നതുകൊണ്ടു വിളവിനും വിളവുൽപാദന ഘടകങ്ങളിലും ഉണ്ടാകുന്ന വ്യത്യാസങ്ങൾ *fflcngylejoaaaaDrmlaa* വേണ്ടി വെള്ളായണി കാർഷിക കോളേജിൽ 1976-ൽ വിരിപ്പു നെൽകൃഷികാലത്തു ഒരു പരീക്ഷണം നടത്തുകയുണ്ടായി.

പരീക്ഷണത്തിൽ നിന്നും നൈട്രജനോ സിങ്ക്ോ വിളവിനെ ഗണ്യമായി സ്വാധീനിക്കുന്നില്ലെന്നു *ffim^TejO(ft,mR)*. എന്നാൽ 55 kg. നൈട്രജനും 10 kg. സിങ്ക് കൂടി നൽകുമ്പോൾ 70, 80 kg. നൈട്രജൻ നൽകുന്നതിനേക്കാളും വിളവു കിട്ടുന്നതായി കണ്ടു.

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