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ON THE NEED AND FEASIBILITY OF IDENTIFYING RICE VARIETIES GIVING HIGH YIELDS AT LOWER LEVELS OF NPK

Identification of rice varieties which can give tolerably good yields at comparatively lower levels of manuring has been a felt need in Kerala in recent years. In some studies conducted at the Rice Research Station, Pattambi during 1974-75 and 1975-76 some pre-release cultures have indicated their promise to meet this demand. The results from these trials are presented and discussed in this note:

Three medium duration cultures from crosses involving Co. 25 (the tall, photosensitive second crop rice variety very popular in the Palghat rice belt of the State) as one parent were compared in replicated yield trials with three check varieties Jaya, IR 8 and Bharathy under two levels of NPK (80:40:40 and 40: 20:20 Kg/ha). With regard to spacing, organic manure and timing and splitting of NPK applications the recommended package of practices for medium duration varieties were followed

From the mean yield data presented in Table 1 it can be seen that among the three check varieties Jaya ranked as first throughout the three seasons at the higher level of NPK. Among the three cultures under trial, cul. 1065 ranked as first during two seasons under the NPK level of 80:40:40 while cul. 1-5-4 ranked as first during two seasons under the lower NPK level of 40:20:20.

On the basis of the mean yield for the three seasons it was found that the best variety was Jaya and the best culture 1-5-4. These two, however, showed superiority towards opposite directions under the two levels of manuring, Jaya showing higher mean yield at higher level and cul. 1-5-4 showing higher yield at the lower level of NPK. Comparing the mean yields of the three cultures on the one hand and the three check varieties on the other, the data show that on the whole the check varieties were as a group better performers at the higher level of NPK while the cultures under trial were better yielders under the lower level of NPK.

Matsuo (1973) while reviewing the results of the International Rice Adaptation Experiments has reported that there are considerable differences in respect to varietal response over a wide range of environments. Varietal differences in their degrees of stability under different levals of fertility have also been recorded by Seshu *et al.* (1973). The data from the present studies indicate the possibility of finding out rice varieties which can give reasonably high yields even at low levels of manuring. This can be a boon to the large number of small

Table 1

Grain yields of some Rice **cultures and varieties under** two levels **of NPK doses** (Kg/ha.)

Culture/Variety	1974—75		1975—76		1975—76		Mean of three crops		
	I[crop		I crop		II crop				
	M_1	M_2	M_1	M_2	M_1	M_2	M_1	M_2	Mean
Cultures:									
I—5—4 (T. (N) 1 X Co.25)	4377 (135)	4096 (136)	3888 (143)	3179 (152)	3558 (136)	3794 (137)	3941 (138)	3690 (142)	3815 (140)
1065 (T. (N) 1 X Co.25)	3648 (135)	4209 (136)	4142 (159)	3195 050)	2111 (136)	3086 (137)	3522 (143)	3497 (141)	3509 (142)
23178 (I R 8 X Co.25)	3648 (135)	3816 (147)	3851 (159)	2815 (148)	306S (136)	3304 (148)	3522 (143)	3312 (148)	341? (146)
Mean of cultures	3891	4040	3960	3063	3134	3395	3662	3500	3580
Varieties:									
Bharathy	3143 (125)	3255 (125)	3924 (143)	4360 (136)	2868 (125)	2996 (125)	3312 (131)	3537 (129)	3424 (130)
I R 8	3479 (135)	3591 (135)	3270 (159)	4360 (136)	2977 (136)	3576 (137)	3242 (143)	3842 (136)	3542 (140)
Jaya	3255 (125)	3648 (125)	3640 (159)	4760 (136)	3304 (125)	4194 (125)	3400 (136)	4201 (129)	3800 (133)
Mean of varieties	3292	3498	3611	4493	3050	3589	3318	3860	3589
C D (P = O.O5)	112	847	N. S.	1926	N. S.	566			

M_1 = NPK @ 80:40:40 Kg/ha; M_2 = NPK @ 40:20:20 Kg/a
The figures in paranthesis give seed-to-seed duration in days.

farmers of Kerala and of immense value to boost up the State's rice production with substantial reduction in cost of production. What appears to be of immediate necessity is to re-orient our varietal testing programmes adopting graded levels of manuring to identify such varieties and cultures giving steady yields at lower levels of manuring.

സംഗ്രഹം

പട്ടാമ്പി നെല്ല് ഗവേഷണ കേന്ദ്രത്തിൽ 1974-75, 1975-76 എന്നീ കൊല്ലങ്ങളിലായി മൂന്ന് വിളവു കാലങ്ങളിൽ ഹെക്ടറൊന്നിന് 80: 40: 40 1975-76 എന്നീ കൊല്ലങ്ങളിലായി കിലോ വീതവും 20:

കിലോ വീതവും നൈട്രജൻ, ഭാവഹം, ക്ഷാരം (എൻ. പി.കെ) എന്നിവ കിട്ടത്തക്കവണ്ണം രാസവളങ്ങളും ഉപയോഗിച്ച് ആറുനെല്ലിനങ്ങളുടെ വിളവ് പരിശോധിക്കുകയുണ്ടായി. ചുരുങ്ങിയ വളപ്രയോഗത്തിലും നല്ല വിളവു തരുവാൻ കഴിയുന്ന ഇനങ്ങളെ കണ്ടുപിടിക്കുവാൻ സാദ്ധ്യതയുണ്ടെന്നുള്ള സൂചനയാണ് ഈ പരീക്ഷണങ്ങളുടെ ഫലങ്ങളും കാണിക്കുന്നത്. ഈ സൂചനയുടെ അടിസ്ഥാനത്തിൽ ചുരുങ്ങിയ കൃഷിച്ചിലവിൽ സാധാരണക്കാരായ കൃഷിക്കാർക്ക് കൃഷി ചെയ്യാവുന്നവയും ഉൽപാദനക്ഷമതയുള്ളവയുമായ ഇനങ്ങളും തിരഞ്ഞുപിടിക്കുവാൻ കഴിയുംവിധം പല വളപ്രയോഗരീതിയിലും ഇന്നുള്ള ഇനങ്ങളെ പരീക്ഷിച്ചുനോക്കുന്നത് ഒരു അടിയന്തിര ആവശ്യമാണെന്നു നിർദ്ദേശിക്കപ്പെട്ടിരിക്കുന്നു.

REFERENCES

Matsuo, T. 1973. Response of rice varieties to environments. SABRAO Second General Congress, New Delhi. Abstracts, 235.

Seshu, D. V., Shastry, S. V. S. and Freeman, W. H. 1973. Stability of yield performance of dwarf rice varieties, *ibid.*, 237.

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