

*Agri. Res. J. Kerala, 1978, 16 (1) 104-107*

**A NOTE ON THE EFFECT OF VARIOUS HERBICIDES ON THE YIELD  
AND YIELD ATTRIBUTING CHARACTERS OF TWO HIGH  
YIELDING VARIETIES OF RICE**

A field experiment was conducted at the College of Agriculture, Vellayani during the third crop season of 1975-76 to evaluate the performance of different herbicides on the control of weeds and on the growth and yield of rice using two high yielding varieties of rice *Annapurna* and *Triveni* under transplanted condition. The experiment was laid out in split plot design with herbicides as main plot treatments and varieties as sub plot treatments. The treatments were replicated thrice. The gross plot size was 6 × 4m and the net plot size 2.6 × 3.45m. The details of treatments and grain and straw yield are presented in Table 1.

**Table 1**

Herbicides.	Rate of application kga. i/ha	Grain yield (kg/ha)			Straw yield (kg/ha)		
		Anna-purna	Tri-veni	Mean	Anna-purna	Tri-veni	Mean
Butachlor (G)	2.0	3546	4048	3797	4155	4348	4252
Butachlor (EC)	2.0	3103	3446	3275	3478	3768	3623
Benthiocarb (G)	2.0	3362	3733	3548	4133	4176	415 <sup>5</sup>
Benthiocarb (EC)	2.0	3989	4393	4191	4734	4777	4756
Penoxalin (G)	1.5	3953	4261	4107	4552	4702	4627
Penoxalin (EC)	1.5	2888	3263	3076	3833	4241	4037
Hand weeding (Twice)	—	3738	4077	3908	4241	4573	4407
Control	—	2786	3002	2894	3478	3500	3489
Mean		3421	3778		4076	4261	
CD (0.05) Herbicides				606.3			595.8
CD (0.05) Varieties				208.5			300.3
CD (0.05) Varieties within the same main plot treatment				599.0			848.6
CD (0.05) Varieties not within the same main plot treatment				741.6			844.6

After maintaining a shallow water table of 3.5 cm the granular herbicides were applied uniformly on 6th day after transplanting. The herbicide solutions were sprayed uniformly on the soil surface 6th day after transplanting after the field was thoroughly drained off. Two hand weedings were given in hand weeded plots on 20th and 40th day after transplanting.

Table 2

Effect of various herbicides on the yield attributing characters of rice

Treatment	No. of productive tillers/m <sup>2</sup>			Length of panicle (cm)			weight of panicle (g)			percentage of filled grain			1000 grain weight (g)		
	Anna-purna	Tri-veni	Mean	Anna-purna	Tri-veni	Mean	Anna-purna	Tri-veni	Mean	Anna-purna	Tri-veni	Mean	Anna-purna	Tri-veni	Mean
Batacholor (G)	450.0	338.3	394.2	19.21	20.56	19.89	1.66	2.23	1.95	60.39	67.13	63.76	23.60	23.73	23.67
„ (E.C)	422.7	289.3	356.0	19.19	21.20	20.20	1.63	2.40	2.02	63.70	60.78	62.24	23.37	23.07	23.22
Benthocarb (G)	393.0	287.7	340.4	18.06	19.58	18.82	1.37	1.72	1.55	64.59	58.59	61.59	23.47	23.77	23.62
„ (E. C)	488.3	366.0	427.2	18.02	21.54	19.78	1.75	2.52	2.14	60.64	67.80	64.22	24.03	23.50	23.77
Penoxalin (G)	518.7	384.7	451.4	18.81	20.56	18.69	1.71	2.67	2.19	62.63	65.41	64.02	24.10	21.60	22.85
„ (E. C)	426.0	313.3	369.7	18.51	19.64	19.08	1.52	1.84	1.68	57.14	61.72	59.43	23.10	23.60	23.35
Hand weeding control	438.7	323.7	381.2	19.48	20.56	20.02	1.71	1.75	1.73	59.33	68.39	63.89	23.03	22.73	22.88
(No weeding)	325.0	275.7	300.4	17.80	20.02	18.91	1.26	1.69	1.48	53.13	55.44	54.29	21.77	23.10	22.44
Mean	432.8	321.3		18.64	20.46		1.58	2.10		60.19	63.16		23.31	23.14	
C. D. (0.05) Herbicides		67.30			1.489			0.390			4.517			2.098	
C. D. (0.05) Varieties		21.60			0.600			0.178			2.287			0.782	
C. D. (0.05) Varieties within the same mainplottreatment		61.09			1.698			0.483			6.752			2.209	
C. D. (0.15) Varieties not within the same main plot treatment		79.69			1.913			0.523			6.575			2.617	

Benthiocarb (EC) recorded the highest grain yield of 4191 kg/ha which was on par with penoxalin (G) (4107 kg/ha) hand weeding (3908 kg/ha) and butachlor (G) (3797 kg/ha). Straw yields were also higher in herbicide treated plots whereas the control plot recorded the lowest value of 3489 kg/ha. The higher grain and straw yield in herbicide treated plots and hand weeded plot might be due to the direct effect of lesser weed competition on the yielding characters.

The effect of various herbicides on the yield attributing characters are presented in Table 2 .It is seen that the productive tillers per square metre was significantly influenced by herbicidal treatments. Penoxalin (G) treatment recorded the highest number of productive tillers (451.4/m<sup>2</sup>). The influence of herbicides in increasing the number of productive tillers per square metre has been reported by Mohamed Ali and Sankaran (1975) and Ramamoorthy *et al* (1974).

Although the effect of herbicides on the length of panicle was not significant, *Triveni* recorded significantly higher length of panicle as compared to *Annapurna* indicating this as a varietal character.

Herbicides influenced the weight of panicle and again penoxalin (G) recorded the maximum weight which was on par with benthiocarb (EC). With regard to percentage of filled grains also, benthiocarb (EC) recorded the highest value of 64.2. The reduced weed growth might have contributed to higher percentage of filled grains due to increased nutrient uptake by plants resulting in increased weight of panicle.

As reported by Shaik *et al* (1974) 1000 grain weight was not influenced by various herbicides in the present investigation also.

സംഗ്രഹം

അത്യുല്പാദന ശേഷിയുള്ള മൂപ്പു കറഞ്ഞ നെല്ലിനങ്ങളിൽ കളനാശിനികൾ വിളവിനേയും, വിളവിന്റെ ഘടകങ്ങളേയും എങ്ങിനെ *OTjocolcesonro* എന്നതിനെക്കുറിച്ച് 1975-76 ലെ മൂന്നാം വിളയ്ക്കു വെള്ളായണി കാർഷികകോളേജിൽ ഒരു പരീക്ഷണം നടത്തുകയുണ്ടായി. ബെന്തിയോകാർബ്ബ് (ഇ.സി.) എന്ന കളനാശിനി ഏറ്റവും കൂടുതൽ നെല്ലും, വെള്ളായണം നൽകാൻ സഹായിച്ചു. കളനാശിനിയുടെ ഉപയോഗം നിമിത്തം കതിരുകളുടെ നീളത്തിന് മാറ്റമുണ്ടായില്ലെങ്കിലും പെനോക്ലാലിൻ (ജി) ചതുരശ്രമീറ്ററിന് കൂടുതൽ കതിരുകൾ നൽകാൻ സഹായിച്ചു. *fflrJc?<Do\$3oe\_naj* (ജി) യും, ബെന്തിയോകാർബ്ബ് (ഇ.സി.) യും കതിരിന്റെ ഭാരത്തെ വർദ്ധിപ്പിക്കുന്നതായി കണ്ടു. കളനാശിനികൾ നെന്മണികളുടെ ഭാരത്തെ ബാധിക്കുന്നില്ലെങ്കിലും, ബെന്തിയോകാർബ്ബ് (ഇ.സി.) നല്ല നെന്മണികളുടെ ശതമാനം വർദ്ധിപ്പിക്കുന്നതായി തെളിഞ്ഞു.

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