

Technical Data Report

Multicolor Ecological Agriculture Group Inc.

Effects of Multicolor Crop on Rice Production

(India)

Objective

The objective of this study was to determine the effects of Multicolor Crop on rice.

Materials and Methods

Field trials were conducted on rice (*Oryza sativa* L. var. IGKV R-1, Indira Rajeshwari) during kharif (rainy season) in Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India through the Multicolor Crop Care, Kasturba Gandhi Marg, New Delhi, India in 2015 and 2016. Treatments consisted of 1) Multicolor Crop at 300 ml/ha, 2) Multicolor Crop at 450 ml/ha, 3) Multicolor Crop at 625 ml/ha, and 4) Control. Multicolor Crop was applied at 25-30 days after transplanting (tillering stage) and again after 55-60 days after transplanting (panicle initiation stage). Multicolor Crop was supplied by Multicolor Ecological Agriculture Group Inc., USA. Rice was transplanted at 20 cm by 10 cm spacing on 18 July 2015 and 20 July 2016. Multicolor Crop was fertilized with 100 kg N/ha, 60 kg P₂O₅/ha and 40 kg K₂O/ha. Other cultural practices followed local practices and were the same for treated and untreated plots. The study design was randomized complete block (RCB) with 5 replications. Rice was harvested on 5 November 2015 and 8 November 2016.

Results

Based on a two-year average, application of Multicolor Crop at 300, 450 and 625 ml/ha significantly increased plant height by 2.2, 3.0 and 5.9 cm at 90 DAT (days after transplanting) compared to control, respectively (Table 1). Plant height was not affected by product application at 30 and 60 DAT. Tiller's count per hill was significantly higher by 0.48 and 0.91 with Multicolor Crop applications at 450 and 625 ml/ha at 60 DAT and by 0.35, 0.51 and 0.92 with product applications at 300, 450 and 625 ml/ha at 90 DAT, respectively (Table 2).

With Multicolor Crop applications at 300, 450 and 625 ml/ha, leaf area was significantly higher by 108.62, 139.53 and 159.47 cm²/hill over control, respectively (Table 3). Chlorophyll SPAD was significantly greater by 4.05 with the product application at 625 ml/ha.

Multicolor Crop applications at 450 and 625 ml/ha significantly improved the number of sound grains per panicle by 9.34 and 15.37 and product applications at 300, 450 and 625 ml/ha, and significantly decreased chaffy grains by 1.89, 2.17 and 3.29 per panicle compared to control, respectively (Table 4). Compared to untreated control, grain yield of rice significantly increased by 586 and 681 kg/ha with Multicolor Crop applications at 450 and 625 ml/ha, respectively (Table 5). Treatment application did not affect the test weight of rice grain.

Multicolor Crop applications at 300, 450 and 625 ml/ha significantly increased grain length by 0.01, 0.01 and 0.02 cm over control, respectively, but did not affect the grain width (Table 6).

Table 1. Influence of Multicolor Crop on plant height of transplanted rice during kharif (rainy season). Raipur, Chhattisgarh, India in 2015 and 2016.

Treatment	Plant height (cm)								
	30 DAT			60 DAT			90 DAT		
	2015	2016	Mean	2015	2016	Mean	2015	2016	Mean
Multicolor Crop at 300 ml/ha	45.48	54.77	50.13	87.33	97.34	92.34	105.4	108.7	107.1
Multicolor Crop at 450 ml/ha	45.26	56.53	50.90	87.90	97.55	92.73	106.5	109.2	107.9
Multicolor Crop at 625 ml/ha	45.71	58.05	51.88	87.96	98.09	93.03	109.4	112.2	110.8
Control	44.42	54.94	49.68	87.30	95.63	91.47	103.4	106.3	104.9
SEm±	2.32	1.04	0.96	1.59	0.60	0.84	1.75	1.27	0.70
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	NS	3.90	2.15

Table 2. Influence of Multicolor Crop on tillers of transplanted rice during kharif (rainy season). Raipur, Chhattisgarh, India in 2015 and 2016.

Treatment	Tillers (number/hill)								
	30 DAT			60 DAT			90 DAT		
	2015	2016	Mean	2015	2016	Mean	2015	2016	Mean
Multicolor Crop at 300 ml/ha	4.20	5.93	5.07	6.06	6.26	6.16	5.56	6.23	5.90
Multicolor Crop at 450 ml/ha	4.24	6.00	5.12	6.46	6.59	6.52	5.75	6.37	6.06
Multicolor Crop at 625 ml/ha	4.40	6.00	5.20	6.78	7.13	6.95	6.06	6.87	6.47
Control	3.86	5.16	4.51	5.95	6.14	6.04	5.27	5.82	5.55
SEm±	0.28	0.14	0.14	0.15	0.21	0.13	0.14	0.19	0.10
LSD (P=0.05)	NS	NS	NS	0.48	0.65	0.41	0.44	0.60	0.30

Table 3. Influence of Multicolor Crop on leaf area and Chlorophyll SPAD of transplanted rice during kharif (rainy season). Raipur, Chhattisgarh, India in 2015 and 2016.

Treatment	Leaf area (cm ² /hill)			Chlorophyll SPAD		
	2015	2016	Mean	2015	2016	Mean
Multicolor Crop at 300 ml/ha	1 128.71	1 182.56	1 155.64	35.31	36.54	35.93
Multicolor Crop at 450 ml/ha	1 152.63	1 218.47	1 185.55	36.77	37.66	37.22
Multicolor Crop at 625 ml/ha	1 168.13	1 242.85	1 205.49	38.24	39.85	39.05
Control	1,036.78	1,055.26	1,046.02	34.10	35.90	35.00
SEm±	20.45	24.72	21.94	0.95	1.07	1.02
LSD (P=0.05)	62.77	75.90	66.80	2.90	3.28	3.13

Table 4. Influence of Multicolor Crop on Sound and chaffy grains of transplanted rice during kharif (rainy season). Raipur, Chhattisgarh, India in 2015 and 2016.

Treatment	Sound grains (number/panicle)			Chaffy grains (number/panicle)		
	2015	2016	Mean	2015	2016	Mean
Multicolor Crop at 300 ml/ha	105.55	118.40	111.98	12.30	10.32	11.31
Multicolor Crop at 450 ml/ha	113.80	122.20	118.00	12.20	9.85	11.03
Multicolor Crop at 625 ml/ha	121.85	126.20	124.03	10.20	9.62	9.91
Control	103.42	113.90	108.66	15.26	11.14	13.20
SEm±	3.43	3.18	2.24	0.53	0.24	0.31
LSD (P=0.05)	10.62	9.79	6.91	1.63	0.75	0.97

Table 5. Influence of Multicolor Crop on test weight and grain yield of transplanted rice during kharif (rainy season). Raipur, Chhattisgarh, India in 2015 and 2016.

Treatment	Test weight (g)			Grain yield (kg/ha)		
	2015	2016	Mean	2015	2016	Mean
Multicolor Crop at 300 ml/ha	30.20	30.60	30.40	4,933	5,060	4,997
Multicolor Crop at 450 ml/ha	30.00	31.60	30.80	5,253	5,430	5,342
Multicolor Crop at 625 ml/ha	29.40	62.00	45.70	5,353	5,520	5,437
Control	28.60	30.80	29.70	4,706	4,806	4,756
SEm±	0.59	0.40	0.36	1.10	1.25	0.98
LSD (P=0.05)	NS	NS	NS	338	382	302

Table 6. Influence of Multicolor Crop on grain length and width of transplanted rice during kharif (rainy season). Raipur, Chhattisgarh, India in 2015 and 2016.

Treatment	Grain length (cm)			Grain width (cm)		
	2015	2016	Mean	2015	2016	Mean
Multicolor Crop at 300 ml/ha	0.83	0.84	0.84	0.24	0.25	0.25
Multicolor Crop at 450 ml/ha	0.83	0.85	0.84	0.25	0.25	0.25
Multicolor Crop at 625 ml/ha	0.84	0.85	0.85	0.25	0.25	0.25
Control	0.82	0.83	0.83	0.24	0.25	0.25
SEm±	0.004	0.004	0.003	0.004	0.002	0.002
LSD (P=0.05)	0.01	0.01	0.01	NS	NS	NS

Conclusions

Compared to untreated control, on average across two years, application of Multicolor Crop at 300, 450 and 625 ml/ha significantly increased plant height at 90 DAT by 2.1, 2.9 and 5.6%, tiller's count per hill at 90 DAT by 6.3, 9.2 and 16.6%, leaf area by 10.5, 13.3 and 15.2%, decreased chaffy grains by 14.3, 16.4 and 24.9%, and increased grain length by 1.2, 1.2 and 2.4%, respectively.

Multicolor Crop applications at 450 and 625 ml/ha significantly improved tiller's count per hill at 60 DAT by 7.9 and 15.1%, sound grains per panicle by 8.6 and 14.1%, and grain yield of rice by 12.3 and 14.3% over control, respectively. Chlorophyll SPAD was significantly higher by 11.6% with Multicolor Crop applications at 625 ml/ha compared to control.

