ECONOMICS OF MUNGBEAN (*PHASEOLUS AUREUS ROXB*.) CULTIVARS UNDER DIFFERENT INTERACTION BETWEEN NUTRIENT MANAGEMENT AND GENOTYPES

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Abstract : The present investigation was carried out during *kharif* season of 2010 at the Instructional cum Research Farm (*Bharri*), IGKV, Raipur (C.G). The soil of experimental field was clayey (*Vertisols*) in texture. The experiment was laid out factorial randomized block design with three replications. The highest gross return, net return and B: C ratio was recorded with genotype (V_1) RM-03-71. The interaction effect between genotypes and nutrient management revealed that combination of V_1 (RM-03-71) X treatment F_7 (100% RDF + FYM 5 t ha^{-1} + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) registered significantly higher seed yield as comparable to other combination. The gross return, net return and B: C ratio also higher in above treatment combination.

Keyword : Economics, Genotypes, Mungbean, Nutrient management

INTRODUCTION

Legumes have been known for their soil recuperation power since time immemorial. The well known quality is their capacity to fix atmospheric nitrogen by *Rhizobium* through their root nodules, the fixed nitrogen not only meets all the nitrogen needs of legume crop but also as sizeable amount (30-90 kg ha^{-1}) is left for the succeeding crop. As a matter of fact the leguminous crop is known as natural mini nitrogen manufacturing factory in the field and the farmers by growing these crops can play vital role in increasing nitrogen production.

An important feature of the mung-bean crop is its ability to establish a symbiotic partnership with specific bacteria, setting up the biological N_2-fixation in root nodules that supply the plant's needs for N_2 (Mandal *et al*., 2009). Mungbean being drought tolerant and short duration can grow well under varied conditions (irrigated and rainfed). Mungbean has the potential of producing higher seed yield from 1295 to 2961 kg ha^{-1} depending on the genotypes studied

MATERIAL AND METHOD

Economics

The economics of mungbean production pertaining to each of the treatment has been worked out in terms of cost of cultivation, gross realization, net realization (Rs ha^{-1} and Re^{-1} invested) based on the current market price of inputs, prevailing wages of labours and market price of the produce.

Net realization (Rs ha^{-1}) = Gross realization (Rs ha^{-1}) – Cost of cultivation (Rs ha^{-1})

Net realization Rupee^{-1} invested = $\frac{\text{Net realization (Rs ha}^{-1})}{\text{Cost of cultivation (Rs ha}^{-1})}$

RESULT AND DISCUSSION

Economics

Effect of various treatments cannot be calculated without working out the cost involved in producing seed and stover and net profit from that. The data presented in Table 1 reveal that the maximum cost of cultivation (Rs 12237 ha^{-1}) was involved under treatment F_7 (100% RDF + FYM 5 t ha^{-1} + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) and the lowest cost of cultivation was incurred in F_1 (100% RDF) treatment. Maximum gross return (Rs 31561 ha^{-1}), net return (Rs 19324 ha^{-1}) and higher B:C (1.58) ratio were observed under the treatment F_7 (100% RDF + FYM 5 t ha^{-1} + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) followed by F_3 (100% RDF + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) and F_5 (100% RDF + DAP 2% foliar spray twice at flowering and at 15 days interval).

Total dry matter production in a plant often reflects its potentiality for its biomass production, whereas, mobilization towards the seed development is an important factor for realization of economic yield and serves as the yard stick for the acceptance and rejection of treatment hypothesis. The highest gross and net returns were due to highest seed and stover yield. The benefit: cost ratio was highest due to the sustainability in increased yield and decrease cost of cultivation. The high cost due to the higher quantity of fertilizer and its unit cost (Yadav, 2004) and (Singh *et al*., 2009).

Between genotypes, (V_1) RM-03-71 recorded higher gross return (Rs 27288 ha^{-1}), net return (Rs 15849 ha^{-1}) and B: C (1.38) ratio as compared to (V_2) RM-03-79. This might due to higher seed and stover yield. The gross return, net return and B: C ratio were maximum under interaction between (V_1) RM-

03-71 X F_7 (100% RDF + FYM 5 t ha^{-1} + DAP 2% foliar spray twice at flowering and at 15 days interval + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) followed by (V_1) RM-03-71 X F_3 (100% RDF + PSB + NAA 40 ppm foliar spray at 30 and 40 DAS) and (V_1) RM-03-71 X F_5 (100% RDF + DAP 2% foliar spray twice at flowering and at 15 days interval) (Table 2, 3and 4).

Table 1. Effect of different nutrient management and genotypes on Economics of mungbean

Treatment		**Total cost (Rs ha^{-1})**	**Gross return (Rs ha^{-1})**	**Net return (Rs ha^{-1})**	**B:C Ratio**
A. Nutrient management					
T_1	100% RDF	11088	21275	10187	0.92
T_2	100% RDF+FYM 5 t ha^{-1}	12088	19496	7408	0.61
T_3	100% RDF+PSB+NAA 40 ppm FS at 30 and 40 DAS	11137	27947	16810	1.51
T_4	100% RDF+NAA 40 ppm FS at 30 and 40 DAS	11097	23212	12115	1.09
T_5	100% RDF+DAP 2% FS twice at flowering and at 15 days interval	11188	26942	15754	1.41
T_6	100% RDF+DAP 2% FS twice at flowering and at 15 days interval+PSB+NAA 40 ppm FS at 30 and 40 DAS	11237	27522	16285	1.45
T_7	100% RDF+FYM 5 t ha^{-1} DAP 2% FS twice at flowering and at 15 days interval + PSB + NAA 40 ppm FS at 30 and 40 DAS	12237	31561	19324	1.58
B. Genotypes					
V_1 RM-03-71		1100	27288	15849	1.38
V_2 RM-03-79		1100	23556	11974	1.07

Note: - FS = Foliar spray

Table 2. Gross return of mungbean as affected by interaction between nutrient management and genotypes

Nutrient management		**Genotypes**		**Mean**
		RM-03-71 V_1	**RM-03-79 V_2**	
T_1	100% RDF	19165	23385	21275
T_2	100% RDF+FYM5 t ha^{-1}	19614	19378	19496
T_3	100% RDF+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	31505	24390	27946
T_4	100% RDF+NAA 40 ppm foliar spray at 30 and 40 DAS	24115	22310	23212
T_5	100% RDF+DAP 2% foliar spray twice at flowering and at 15 days interval	31396	22488	26942
T_6	100% RDF+DAP 2% foliar spray twice at flowering and at 15 days interval+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	32030	23014	27522
T_7	100% RDF+FYM5 t ha^{-1} DAP 2% foliar spray twice at flowering and at 15 days interval+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	33195	29926	31561
Mean		27288	23556	

Note: - FS = Foliar spray

Table 3. Net return of mungbean as affected by interaction between nutrient management and genotypes

Nutrient management		Genotypes		Mean
		RM-03-71 V_1	RM-03-79 V_2	
T_1	100% RDF	8077	12297	10187
T_2	100% RDF+FYM5 t ha^{-1}	7526	7290	7408
T_3	100% RDF+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	20367	13253	16810
T_4	100% RDF+NAA 40 ppm foliar spray at 30 and 40 DAS	13018	11212	12115
T_5	100% RDF+DAP 2% foliar spray twice at flowering and at 15 days interval	20207	11300	15754
T_6	100% RDF+DAP 2% foliar spray twice at flowering and at 15 days interval+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	19792	10777	16285
T_7	100% RDF+FYM5 t ha^{-1} DAP 2% foliar spray twice at flowering and at 15 days interval+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	21957	16690	19324
Mean		15849	11974	

Note: - FS= Foliar spray

Table 4. B : C ratio of mungbean as affected by interaction between nutrient management and genotype

Nutrient management		Genotypes		Mean
		RM-03-71 V_1	RM-03-79 V_2	
T_1	100% RDF	0.73	1.11	0.92
T_2	100% RDF+FYM5 t ha^{-1}	0.62	0.60	0.61
T_3	100% RDF+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	1.83	1.19	1.51
T_4	100% RDF+NAA 40 ppm foliar spray at 30 and 40 DAS	1.17	1.01	1.09
T_5	100% RDF+DAP 2% foliar spray twice at flowering and at 15 days interval	1.81	1.01	1.41
T_6	100% RDF+DAP 2% foliar spray twice at flowering and at 15 days interval+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	1.62	1.29	1.45
T_7	100% RDF+FYM5 t ha^{-1} DAP 2% foliar spray twice at flowering and at 15 days interval+PSB+NAA 40 ppm foliar spray at 30 and 40 DAS	1.88	1.29	1.58
Mean		1.38	1.07	

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