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RESEARCH ARTICLE

STUDY OF SINK PARAMETERS IN THE FIELD OF PHASEOLUS MUNGO UNDER DIFFERENT TREATMENTS

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ABSTRACT

The garbage dumps near human settlements of hunting and food gathering, emerged out as the nucleus of agriculture. Nearly ten Thousand years ago man learnt to grow the plants of his own choice from seeds & propagules as he saw them growing on garbage dumps. For present investigation *Phaseolus mungo* crop was taken. From stand point of determination of yield, sink parameters i.e. average number of pods per plant, average pod yield per plant, average length of pods, average number of seeds per pod, average weight of seeds per pod and grain yield gram / plot were calculated under different treatments. These experiments were laid in RBD with three replicates. From stand point of achieving maximum yield it is quite clear that weed free condition obtained through constant weeding is the best method.

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INTRODUCTION

The garbage dumps near human settlements of hunting and food gathering emerge out as a nucleus of agriculture and man learnt to grow plants of his own choice from seeds and propagules. In the wake of agricultural revolution this was the turning point. After this, attention has thus been diverted to get higher yield through protection of crop from its pests and weeds. In nature monospecies culture is not possible. This condition leads to competition between crop and weeds. In this situation crop and weed both are affected but it is the crop which suffers more (Clements 1929). Monospecies culture is not favoured by nature. Even the best efforts of man has not rendered truly mono species ecosystem.

MATERIALS AND METHOD

Present investigation is designed to approach the problem of weed management in *Phaseolus mungo* grown in Gwalior region. *Phaseolus mungo* Hy 45 is small seeded variety, dark green colour with whitish yellow helium. Seeds were treated with fungicide. Treated seeds were sown at the rate of 20 kg/ha in rows at the depth of 5 cm. Two preemergence herbicide baselin and stomp were spread on 10th day filling and thining was done to obtain 10cm inter row spacing.

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To determine the yield the sink parameters of crop plant was studied. In the present study average number of pods per plant, average pod yield per plant, average length of pods, average number of seeds per pod, average weight of seeds per pod and grain yield gram /plot were determined.

RESULT AND DISCUSSION

The analysis of variance of all the data indicates that the treatment is highly significant when the ranges of variations were plotted for each treatment & same were compared with LSD (Least Significance Difference). Kanedeigh 1975 pointed out population explosion has necessitated to increase in agricultural production. It can only be increased by increasing of yield per unit area. The development of high yielding varieties of crop plants have been responsible for the phenomenal rise in the productivity of crop plants. It was, however , soon realized that to achieve a sustained high yield from an area, it is essential to regulate the inputs of agro-ecosystem. The inputs in the agro-ecosystem are chemical fertilizers, pesticides, herbicides, seeds of high yielding variety of crop, irrigation etc. These inputs involve huge expenditure and hence it has resulted into the increase in the cost of production of food grains. Dombois and Ehlenberg (1974) have defined the plant community as an assemblage of plants dependent upon their environment and influence one another resulting in its modification and forming a dynamic equilibrium with their habitat and associated species.

Table 1. Details of the experiments

S.No.	Details
1.	Crop : 1
2.	Treatment combinations : 12
3.	No. of replicates : 03
4.	Number of plots : 12 x 03 = 36
5.	Design : R.B.D
6.	Plot size : 5 sqm.

Table 2. Formulation of herbicides, their name and actual quantity used

S.No.	Common Name	Trade Name	Percentage of active ingredient in formulation	Dosage kg/ hactare	Quantity of herbicides used per plot in ml.
1.	Fuchloralin	Basslin	48, E.C.	0.75	1.5
				1.5	3.00
				2.25	4.5
				3.00	6.0
2.	Penoxallin	Stomp	30, E.C.	0.75	2.25
				1.5	4.50
				2.25	6.75
				3.00	9.00

Table 3. Characteristics and Crop notations of treatments

S.No.	Treatment	Crop Notation	Characteristics
1	Control	M1	No weeding
2	Hand weeding	M2	30 days after sowing
3	Hoeing	M3	30 days after sowing
4	Weed free	M4	Weeding at every 7th day
5	Penoxalin	M5	0.75 kg/ha.
6	Penoxalin	M6	1.5 kg/ha.
7	Penoxalin	M7	2.25 kg/ha.
8	Penoxalin	M8	3.0 kg/ha.
9	Fluchloralin	M9	0.75 kg/ha.
10	Fluchloralin	M10	1.5 kg/ha.
11	Fluchloralin	M11	2.25 kg/ha.
12	Fluchloralin	M12	3.0 kg/ha.

Table 4. Number of pods per mung plant under different treatments at 40 & 60 days after sowing

S.No.	Treatment	Notation	Days after sowing number of pods	
			40	60
1	No weeding	M1	2.53	15.73
2	30 days after sowing	M2	2.20	16.06
3	30 days after sowing	M3	2.13	07.80
4	Weeding at every 7th day	M4	4.40	15.33
5	0.75 kg/ha.	M5	2.40	12.00
6	1.5 kg/ha.	M6	1.06	08.66
7	2.25 kg/ha.	M7	0.40	09.73
8	3.0 kg/ha.	M8	0.40	07.33
9	0.75 kg/ha.	M9	0.46	10.93
10	1.5 kg/ha.	M10	0.66	05.73
11	2.25 kg/ha.	M11	0.33	03.86
12	3.0 kg/ha.	M12	0.46	06.60

Table 5. Analysis of variance of pods of mung plant at 40 days after sowing

Source	D.F.	S.S.	M.S.S.	Calculated 'f' value
Treatment	11	53.86	4.89	6.11
Error	24	19.34	0.80	
Total	35			

S.EM. 0.73 L.S.D. 1.51

Table 6. Analysis of variance of pods of mung plant at 60 days after sowing

Source	D.F.	S.S.	M.S.S.	Calculated 'f' value
Treatment	11	552.51	50.22	82.32
Error	24	14.74	00.61	
Total	35			

S.EM. 0.63 L.S.D. 1.30

Table 7. Length of pods per mung plant under different treatment at 40 & 60 days after sowing

S.No.	Treatment	Notation	Days after sowing number of pods	
			40	60
1	No weeding	M1	3.87	7.71
2	30 days after sowing	M2	3.75	7.91
3	30 days after sowing	M3	3.44	7.44
4	Weeding at every 7th day	M4	3.74	7.28
5	0.75 kg/ha.	M5	2.98	7.34
6	1.5 kg/ha.	M6	2.32	6.51
7	2.25 kg/ha.	M7	1.20	7.61
8	3.0 kg/ha.	M8	0.60	7.27
9	0.75 kg/ha.	M9	1.00	7.25
10	1.5 kg/ha.	M10	1.77	7.71
11	2.25 kg/ha.	M11	0.50	6.59
12	3.0 kg/ha.	M12	0.83	6.37

Table 8. Analysis of variance of length of pods of mung plant at 40 days after sowing

Source	D.F.	S.S.	M.S.S.	Calculated 'f' value
Treatment	11	47.03	4.27	3.02
Error	24	34.00	1.41	
Total	35			

S.EM. 0.96; L.S.D. 1.99

Table 8. Analysis of variance of length of pods of mung plant at 60 days after sowing

Source	D.F.	S.S.	M.S.S.	Calculated 'f' value
Treatment	11	22.79	2.07	13.8
Error	24	3.82	0.15	
Total	35			

S.EM. 0.31; L.S.D. 0.64

Table 9. Number of seeds per mung pod under different treatments

S.No.	Treatment	Notation	No. of seeds	Total seed output per plant
1	Control	M1	15.13	238.44
2	Hand weeding	M2	13.66	219.48
3	Hoeing	M3	13.33	101.48
4	Weed free	M4	15.33	240.06
5	Penoxalin	M5	13.80	165.61
6	Penoxalin	M6	10.66	92.30
7	Penoxalin	M7	15.00	145.96
8	Penoxalin	M8	12.93	44.85
9	Fluchloralin	M9	13.13	143.80
10	Fluchloralin	M10	11.33	64.93
11	Fluchloralin	M11	13.00	51.04
12	Fluchloralin	M12	12.60	83.29

Table 10. Analysis of variance of number of seeds of mung pod

Source	D.F.	S.S.	M.S.S.	Calculated 'f' value
Treatment	11	69.95	7.26	242.0
Error	24	0.93	0.03	
Total	35			

S.EM. 0.14; L.S.D. 0.29

Table 11. Analysis of variance of number of seeds of mung plant

Source	D.F.	S.S.	M.S.S.	Calculated 'f' value
Treatment	11	132361.12	12032.88	9.73
Error	24	29669.99	1236.24	
Total	35			

S.EM. 28.70; L.S.D. 59.52

Table 12. Average yield / mung plot

S.No.	Treatment	Notation	Yield / plot in gram
1	Control	M1	1185.42
2	Hand weeding	M2	1241.70
3	Hoeing	M3	1303.70
4	Weed free	M4	1473.45
5	Penoxalin	M5	0964.94
6	Penoxalin	M6	0327.06
7	Penoxalin	M7	0543.30
8	Penoxalin	M8	0262.68
9	Fluchloralin	M9	0569.43
10	Fluchloralin	M10	0153.66
11	Fluchloralin	M11	0243.16
12	Fluchloralin	M12	0107.60

Van Dyne (1969), Lemon et al. (1971) and Smith and Robertlee (1972) have designated agro-ecosystems as monospecies seral community of high energy and mineral utilizations. This, therefore, involves that agro-ecosystem as a whole is arrested between pioneer and climax stages. Monospecies culture is not favoured by the nature and involves large extent of human assistance in maintaining the agro-ecosystems. Odum (1967) has also pointed out that community photo synthesis at climax stage equals community respiration. Odum (1967) has demonstrated that high energy utilization in crop plant have to be maintained through large energy inputs by way of cultural practices, irrigation and control of weeds. Brown (1970) has indicated that human population growth is mainly dependent upon the increased food production, which in its own turn involves better energy incorporation in the agro-ecosystem. Chuahan (1977) observed lower production of pulse / ha in India which is 483 kg/ha in contrast to World & Asian average of 662 & 686 kg/ha respectively. Holm (1971) and Parker (1972) have pointed out the weed problem in tropical countries like India are more complex than the same of the temperate zone. Insecticide toxicity is reported by Sharma in 2009. Jain et.al reported pesticidal toxicity in male reproductive organs. In 2010 Pathak and Pandey reported morphological aberrations in pea due to use of pesticides. High density chemical fertilizers near to agricultural field is reported by Chaudhary et.al in 2011. Review on harmful effects of pesticides is published by Bhula et.al in 2009. Sharma in 2015 reported effect of Basalin & Stomp in weed control in the field of *phaseolus mungo*.

Conclusion

From the stand point of achieving the maximum yield in mung and lobia crop. It is quite clear that weed free conditions obtained through constant weeding is the best method. The application of Basalin and Stomp has not been of any particular help in obtained maximum yield of crop.

REFERENCES

Bhula, B. Chakraborthy, M. Kumar Manish 2009. Harmful effects of pesticides of plants, animals and human beings: A review. Research Hunt 4 (4): 185-189.

Chaudhary, P. Ishaque, M. Ishaque, S. 2011. Chemical Investigation of ground water near ground water field of Dhar M.P. (India) J. Environ. Res. Dev. 5 (3) : 638-643.

Chauhan, G.S. 1979. Genetical analysis of quantitative characters in *Vigna unguiculata* (L.) Walp. Ph.D. Thesis. Jiwaji Univ. Gwalior (unpublished).

Clements, F.D., Weaver, J.F. and Hanson, H.C. 1929. Plant competition -An analysis of community function. Washington, D.C. Cornegic Inst. Report.

Dunigan, E.P., Allen, J.D. and Frez, J.P. 1970. Effects of selected herbicides on the nodulation of soybeans. La Agric. 13(3) : 6 -7 (Abstract. in weed Abstr. 20 (3) 212 : 1412.).

Holm, L.R. 1971. The role of weeds in human affairs. Weed Sc. 19 : 485 -490.

Jain. N. Sharma. A. Joshi, S.C. 2009 Toxic effect of pesticides on male reproductive health. J. Environ. Res. Develop. 3 (4) : 1057-1064.

Kanedeigh , S.C. 1975. Ecology with special reference to animals and man. Prentice-hall of India Pvt.Ltd. New Delhi.

Lemon, E., Stewart, D.W. and Shaweroft, R.W. 1971. The Suns' work in a cornfield Sci. 174 : 371 - 378.

Odum, H.T. 1967. Biological circuits and the marine systems of Texas. In Pollution and Marine Ecology (T.A. Olson and F.J. Burglse eds.) John Willey and Sons., Inc. New York : 99-157.

Pathak, S and Pandey, K.M. 2010. Experimental Investigations on morphological aberrations of the peas with variation in doses of pesticides. J. Environ Res. Dev. 4 (3) : 713- 725.

Sharma, Tanu 2009. Study on relative toxicity of certain insecticides to the adult of Dysdercus cingulatus. Jour. Env. Res. 4 (1) : 101-105.

Sharma M.L. 2015. Effect of Basalin & Stomp in weed control in the field of *phaseolus mungo*.

Smith, Robert Lee, 1972. The ecology of man : an ecosystem approach. Harper and Row. Publ. New York.

Van Dyne, G.M. 1969. The ecosystem concept in natural resource management. Academic Press, New York and London.

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