COMPARATIVE ECONOMICS OF MAJOR PULSES IN WESTERN MAHARASHTRA

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Abstract: Pulse crop plays an important role in Indian agriculture. Pulses forms integral part of the vegetarian diet in the Indian sub-continent. Since the vegetables used in Indian diets are not available throughout the year or all the parts of the country, pulses do substitute its inadequacy and hence its use is also substantial. The uninterrupted supply of farm produce dependents on its yield and income to the grower therefore, comparative economics of major pulses in Western Maharashtra has been attempted in this paper. The study is based on primary data which is collected from the sample growers by cost accounting method with the help of specially designed schedules under the Maharashtra State Sponsored Cost of Cultivation Scheme. The use of human labour was 95.04 man days per hectare, comprising 29.61 male human labour and 65.43 female human labour days for tur followed by udid 80.94 days, moong 75.27 days and 70.77 days. The per hectare use of bullock labour was highest in udid (10.05 pair days) followed by moong (7.88 pair days), tur (6.02 pair days)and gram (3.24 pair days). The use of manure was not observed in sufficient in tur, moong, udid and gram. In the tur crop, the per hectare use of chemical fertilizers i.e. Nitrogenous, Phosphorus and Potash was 60.38 kg, 21.59 kg and 8.71 kg per hectare, respectively. Chemical fertilizers use was less than the recommended doses expect nitrogen in tur crop. The benefit cost ratio at cost 'C' was highest in case of moong (1.08), followed by gram (1.05), tur (1.03) and udid (1.01).The inputs used for the major pulses were below recommendation indicated scope for improvement in production and productivity of pulses in Western Maharashtra.

Introduction: Pulse crop plays an important role in Indian agriculture. Pulses forms integral part of the vegetarian diet in the Indian sub-continent. Since the vegetables used in Indian diets are not available throughout the year or all the parts of the country, pulses do substitute its inadequacy and hence its use is also substantial. A very large proportion of Indian population is vegetarian or even though they are non-vegetarian, their frequency of non-veg food is very low. From cultivation point of view, pulses maintain soil fertility through biological nitrogen fixation. Since time immemorial, pulses are being cultivated under rainfed condition which are characterized by poor soil fertility and moisture stress. Pulses account for roughly one sixth of the total area under food grain crops and contributes about one seventeenth of total food grain production in the country. The productivity of the crop primarily depends on the extent of levels of resource use and total management of the crop. The inputs play a significant role in agricultural production. The labour, seed, manures, fertilizers, irrigation, plant protection and intercultural operations are the major factors responsible for the increasing yield of the crop.

In general, it is noticed that most of the pulse growers in Western Maharashtra are not using the recommended levels of inputs. Therefore, there exists a gap between the recommended and actual use levels of inputs. The present investigation viz., "Comparative economics of major pulses in Western Maharashtra" is an attempt to estimate yield gap as well as production of major pulses.

Methodology: The study is based on primary data which is collected from the sample growers by cost accounting method with the help of specially designed schedules under the Maharashtra State Sponsored Cost of Cultivation Scheme. On the basis of operational holding 30 tur growers, 30 moong growers, 30 udid and 30 gram growers from Western Maharashtra were selected by the three stage stratified random sampling technique. The primary data for the year 2013-14 were considered for the study. The gaps in the use levels of various inputs and outputs have been worked out. The use levels of various inputs and outputs obtained in the cultivation were estimated by simple tabular method of analysis with the help of means, averages and percentages.

Result And Discussion:

Per hectare resource use: The quantities of various inputs used directly affect the cost of cultivation and therefore, utilization of inputs such as human labour, bullock labour, seeds, manures, fertilizers, etc., have been studied in per hectare physical and monetary terms. In order to get an idea as to whether there is any difference in inputs used in cultivation of major pulses. The information regarding per hectare resource use is presented in Table 1.

Human labour: It can be seen from the table that, in tur crop, the use of human labour was 95.04 man days per hectare, comprising 29.61 male human labour and 65.43 female human labour days. The per hectare use of human labour was 75.27, 80.94 and 70.77 days in moong , udid and gram respectively .

Bullock labour: The per hectare use of bullock labour was highest in udid (10.05 pair days) followed by 7.88 , 6.02 and 3.34 for moong, tur and gram respectively.

Machine power: The per hectare utilization of machine power was observed more (i.e. 20.68 hrs.) in case of tur crop.

Manure: The use of manure was 27.65 quintals per hectare in case of tur. The use of manure was not observed to be sufficient in tur, moong , udid and gram. The use of manure was found less in gram crop.

Fertilizers: In the tur crop, the per hectare use of chemical fertilizers i.e. Nitrogenous, Phosphorus and Potash was 60.38 kg, 21.59 kg and 8.71 kg per hectare, respectively. The per hectare use of N.P and K in case of udid was 11.84,20.68 and 12.68 kg, respectively. The per hectare use of Phosphorus was found more in gram i.e.24.12 kg.

Sr.no.	Particulars	Tur	Moong	Udid	Gram
	Table 1 Per hectare Resource use leveles of major pulses				
1	Total Human labour (Days)	95.04	75.27	80.94	70.77
	a.Male	29.61	24.49	26.15	28.96
	b. Female	65.43	50.78	54.79	41.81
2	Bullock power (pair days)	6.02	7.88	10.05	3.34
3	Machine power in hrs.	20.68	11.24	17.92	20.34
4	Seed (Kgs)	16.29	14.96	12.92	76.21
5	Manures (Qtls.)	27.65	16.95	5.15	2.15
6	Fertilizers (Kgs)				
	N	60.38	16.17	11.84	11.77
	P	21.59	13.84	20.68	24.12
	K	8.71	5.95	12.68	6.56

Per hectare resource use gap in major pulses: The agricultural universities and institutes recommended the input use for higher production of the crops. This differs from the actual use of inputs by the farmers. The per hectare resource use gap in different type of kahrif pulses is presented in Table 2.

It is seen from the table that, chemical fertilizers use was less than the recommended doses expect nitrogen in tur crop. The use of pottash is not recommended by the universities till the use of pottash was observed on the farmers field so this is the double loss on farmers side. The other inputs were under utilized by the farmers in the study area. Hence, there is no single farmer found to use the recommended doses of inputs. Such imbalance nutrient use lead to losses of nutrient, improper growth and reduced yield level as compared to the potential. Thus it is uneconomic to use imbalance nutrients.

Sr.no	Resource use	Recommended	Actual	Gap	% Gap
	Table 2 Per hectare resource use gap for major pulses				
	Tur				
1	Seed (Kg)	20	16.29	3.71	18.55
2	Manures (Qtls.)	50	27.65	22.35	44.70
3	Nitrogen (Kg)	25	60.38	-35.38	-141.52
4	Phosphorus (Kg)	50	21.59	28.41	56.82
5	Potash (Kg)	0	8.71	-8.71	-8.71
6	Output (qtls)	20	6.78	13.22	66.10
	Moong				
1	Seed (Kg)	18	14.96	3.04	16.89
2	Manures (Qtls.)	50	16.95	33.05	66.10
3	Nitrogen (Kg)	50	16.17	33.83	67.66
4	Phosphorus (Kg)	25	13.84	11.16	44.64
5	Potash (Kg)	0	5.95	-5.95	-5.95

6	Output (qtls)	15	5.07	9.93	66.20
Udid					
1	Seed (Kg)	18	12.92	5.08	28.22
2	Manures (Qtls.)	50	5.15	44.85	89.70
3	Nitrogen (Kg)	50	11.84	38.16	76.32
4	Phosphorus (Kg)	25	20.68	4.32	17.28
5	Potash (Kg)	0	12.68	-12.68	-12.68
6	Output (qtls)	12	6.62	5.38	44.83
Gram					
1	Seed (Kg)	100	76.21	23.79	23.79
2	Manures (Qtls.)	50	2.15	47.85	95.70
3	Nitrogen (Kg)	25	11.77	13.23	52.92
4	Phosphorus (Kg)	50	24.12	25.88	51.76
5	Potash (Kg)	0	-6.56	23.44	-12.68
6	Output (qtls)	25	15.06	9.94	39.76

Per hectare costs and returns: From the Table 3 the per hectare gross income received was Rs. 45172.33, Rs. 42046.51, Rs. 36007.05 and 48957.00 for tur, moong, udid and gram.

The per hectare profit at cost 'C' was the highest in case of moong (Rs. 2996.72) followed by gram (Rs.2360.82), tur (Rs. 1131.45) and udid (Rs. 436.12).

The benefit cost ratio at cost 'C' was highest in case of moong (1.08), followed by gram (1.05), tur (1.03) and udid (1.01). The benefit cost ratio in all major pulses were observed more than unity therefore the cultivation of pulses is viable economic proposition in the area under study.

**Table 3 Per hectare costs, return, gross income, and B.C.ratio for major pulses**						
Sr.no.	Particulars	Unit	Tur	Moong	Udid	Gram
1	Total cost					
	i) Cost 'A'	Rs.	28100.59	28207.14	20834.42	26762.28
	ii) Cost 'B'	Rs.	34157.54	33339.98	26993.05	36651.82
	iii) Cost 'C'	Rs.	44040.88	39049.79	35571.38	46596.18
2	Profit at					
	i) Cost 'A'	Rs.	17071.74	13839.37	15173.08	22194.72
	ii) Cost 'B'	Rs.	11014.79	8706.53	9014.45	12305.18
	iii) Cost 'C'	Rs.	1131.45	2996.72	436.12	2360.82
3	Production	Qtls	9.18	7.80	7.9	15.06
4	Gross income	Rs.	45172.33	42046.51	36007.5	48957
5	B:C ratio					
	i) Cost 'A'		1.61	1.49	1.73	1.83
	ii) Cost 'B'		1.32	1.26	1.33	1.34
	iii) Cost 'C'		1.03	1.08	1.01	1.05

Conclusion: The inputs used for the major pulses were below than recommendation.

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