

PROFITABILITY AND CONSTRAINTS OF SOYBEAN IN MALWA PLATEAU OF MADHYA PRADESH

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ABSTRACT

The present study was undertaken to work out the per hectare cost of production and profit from soybean in Malwa plateau of Madhya Pradesh. The study was based on primary data collected from 240 cultivators, who belong to three categories viz. small -110, medium -70 and large - 60 farmers. In cost of cultivation of soybean, the operational cost accounted for 73.75 per cent on medium farm, 73.45 per cent on small and 71.57 per cent on large farms of the total cost of cultivation of soybean while, at aggregate level it was 72.90 per cent of the total cost. The maximum cost of cultivation for soybean was incurred on large size of farms was Rs. 7909.10, Rs. 7798.74 on medium and Rs. 6984.52 on small size of farms. The productivity of soybean was found maximum in medium size of farms (9.05 q/ha), followed by large (9.01 q/ha) and small size of farms (8.88 q/ha). Maximum gross income received from soybean cultivation was Rs. 11328.00, Rs. 11672.00 and Rs. 11712.55 per hectare for small, medium and large size of farms, respectively. The cultivators of the area also reported low yield of soybean due to high cost of input materials, unavailability of desired input in time, lack of knowledge of intercropping practices, lack of capital and non-availability of proper equipments for cultivation specially seed drill for adjusting row to row distance in intercropping of soybean with maize or pigeonpea.

Keywords: Soyabeen; Profitability; Constraints

INTRODUCTION

The problems associated with low productivity of crops under rainfed condition are several. It is a matter of great concern that even after introduction of several high yielding soybean varieties and use of chemical fertilizers, plant protection measures potential yield has not been achieved so far. In areas where farmers are growing soybean continuously for last 10-15 years soil has become low in productivity.

Beside, the yield of rabi crops like wheat and gram grown after soybean have started declining in comparison to what they used to had with limited resources under rainfed conditions as mono crop. These observations indicated that the soil health is deteriorating under soybean intensive cultivation. India is the fifth largest soybean producing country in the world. In Madhya Pradesh, area and production of soybean was 3.95 million hectare and 2.58 million tonnes respectively with productivity of 840 kg/ha (2002-03).

METHODOLOGY

The present study was confined to Malwa plateau of Madhya Pradesh, which was selected purposively as soybean is the most important crop in this plateau. The plateau comprises of nine districts. Out of these districts, Ujjain was selected purposively for the study as this district covers maximum area under this crop. The Ujjain district is consists of seven tehsils/blocks out of which Badnagar block was selected purposively. The sampling design of the research work was stratified multistage sampling with block as a primary unit, village as a secondary unit, operational holdings within the selected villages as a third and ultimate sampling unit. The

selection of villages from the Badnagar block was considered as a secondary unit of the sampling. The five top most soybean growing villages viz., Dangwara, Kharsoud Kalan, Amla, Jahageerpur and Palduna were selected for the research work. The respondents were categorized in three groups viz., small size group (0.50 to 2.00ha), medium size group (2.01to5.00ha) and large size group (5.01 and above). Thus, total sampling unit comprised of 240 farmers (110 small farmers, 70 medium farmers and 60 large farmers). The cost of cultivation and profitability were worked out. The primary data on various aspects were collected for kharif season 2003-04.

RESULTS AND DISCUSSION

Cost of production of soybean: The cost of production of soybean was also taken into consideration for assessing relevance of minimum support price. In the different components of cost of production namely hired labour, family labour, machine labour, value of seed, plant protection, fertilizer, bio-fertilizer, interest on working capital, land revenue, rental value of owned land, interest on fixed capital and depreciation of machineries were taken into consideration. The break up cost of production of soybean was made under three major heads: i.e. (i) operational cost (ii) material cost and (iii) fixed cost. It is depicted from the data that for an average size of farm, the cost of production of soybean was found to be Rs. 7563.44/ha (Table 1), which was ranged from Rs. 6984.52/ha (small) to Rs. 7909.10/ha (large) per hectare. The break up in respect to cost of production revealed that 72.90 per cent cost was estimated as operational and material cost and rest as fixed cost. The maximum operational and material costs were

found at the medium farm (73.75%) followed by small (73.45%) and large farm (71.57 %) in the study area. Large farmers (17.99%) used more human labours as compared to medium (16.28%) and small (11.21%) farmers in cultivation of soybean. The small farmers used more family members (12.29%) in the cultivation of soybean followed by medium (5.31%) and large farmers (2.59%). The small, medium and large farmers were spending Rs. 1108.78/ha, Rs.1118.76/ha and Rs.1195.48/ha on seed, which contributed 15.87, 14.35 and 15.12 per cent, to total cost respectively. The maximum machine labours were used by large farmers (22.56%) as compared to medium (21.32%) and small (15.61%). The maximum bullock labours used by small (11.56%) farmer followed by medium (7.24%) and large farmer (2.88%). An average farmer used 7.05 per cent bullock labour to the total cost of cultivation at his farm for soybean. The more expenditure incurred on plant protection by large (Rs. 136.45/ha) farmers followed by medium (Rs.114.00/ha) and small (Rs.101.71/ha) farmers. On an average farmers expend only Rs.117.38/ha for plant protection measures. Average farmers expend Rs. 5513.68 per hectare on operational and material cost which, was found to be Rs. 5130.37/ha, Rs. 5751.64/ha and

Rs. 5661.07/ha at small, medium and large farms, respectively. It has constituted operational cost to the total cost 73.45 per cent, which was higher in small and 73.75 per cent, in medium farm and 71.57 per cent in large size of farm to total cost. The of farmers also used material like seed and manure for higher proportion as compared to medium and large farmers. The rental value was taken at existing market rate at Rs. 1200, depreciation was also worked out at the different rate of the different fixed capital (3-10%) for six-month period of cultivation at the existing value of assets. The total fixed cost was found to be 26.54 per cent in case of small farm, 26.25 per cent at medium farm and 28.42 per cent at large farm. The fixed cost was found less in case of small farmers due to lack of physical assets like implements etc in their farms. The total fixed cost was found to be Rs. 2049.76 per hectare at an average farm. The maximum fixed cost was found to be Rs. 2248.03/ha in large farm followed by medium size of farm (Rs. 2047.1/ha) and small size of farm (Rs. 1854.15/ha) in the study area. The highest cost of Rs. 7909.10/ha for the cultivation of soybean was found in large farm followed by medium (Rs. 7798.74/ha) and small farm (Rs. 6984.52/ha) in the study area.

Table 1. Cost of production of soybean at different size of farms

S. No.	Cost of items (Rs./ha)							
	Small		Medium		Large		Average	
(A) Operational cost								
1. Hired human labour	783.49	(11.21)	1270.05	(16.28)	1422.81	(17.99)	1158.78	(15.32)
2. Family labour	858.93	(12.29)	413.75	(5.31)	205.20	(2.59)	492.62	(6.51)
3. Bullock labour	807.61	(11.56)	564.39	(7.24)	228.10	(2.88)	533.37	(7.05)
4. Machine labour	1090.26	(15.61)	1663.08	(21.32)	1784.53	(22.56)	1511.96	(19.99)
(B) Material cost								
1. Seed	1108.78	(15.87)	1118.76	(14.35)	1195.48	(15.12)	1141.01	(15.08)
2. Plant protection	101.71	(1.46)	114.00	(1.46)	136.45	(1.73)	117.38	(1.55)
3. Fertilizer/manure	235.47	(3.37)	421.19	(5.40)	506.51	(6.40)	387.72	(5.13)
4. Bio-fertilizers	9.67	(0.14)	10.40	(0.13)	10.32	(0.13)	2.79	(0.17)
5. Interest on working capital	134.45	(1.92)	168.02	(2.15)	171.67	(2.17)	158.05	(2.09)
Total (A+B)	5130.37	(73.45)	5751.64	(73.75)	5661.07	(71.57)	5513.68	(72.90)
(C) Fixed cost								
1. Land revenue	7.27	(0.10)	7.27	(0.09)	7.27	(0.09)	7.27	(0.09)
2. Rental value of owned land	1200.00	(17.18)	1200.00	(15.38)	1200.00	(15.17)	1200.00	(15.86)
3. Interest on fix capital	359.38	(5.14)	466.57	(5.98)	578.20	(7.31)	468.05	(6.18)
4. Depreciation of implements and farm buildings	287.50	(4.12)	373.26	(4.78)	462.56	(5.84)	374.44	(4.95)
Total	1854.15	(26.54)	2047.1	(26.25)	2248.03	(28.42)	2049.26	(27.10)
Grand Total	6984.52	(100)	7798.74	(100)	7909.10	(100)	7563.44	(100)

Parenthesis indicate the percentage of the total cost.

Gross income for soybean: Return from soybean is presented in the table. 2 and data related to these are gross income, net income, family labour income, farm business income and cost benefit ration at the different size of farm was worked. The data revealed that on average soybean growers received Rs. 11570.80 per hectare as the gross income from the cultivation of soybean. The large size of farmers got maximum gross income Rs.11712.50/ha followed by medium Rs.11672.00/ha and small size of farmer Rs.11328.00/ha in the study area. The maximum price received

from soybean was found Rs.1250 per quintal in large of farms as compared to medium size farms (Rs.1240/qt.) and small size farmers (Rs.1225/qt). The small growers received 96.02 per cent and 3.97 per cent from main product and by-product, respectively. The medium and large farmers received 96.11 and 96.16 per cent from main product, respectively. The medium and large farmers received 3.86 and 3.84 per cent from by-products, respectively. The yield of soybean product and by product was recorded 8.98/qt.at the average farm and 9 quintal

per hectare, respectively which was contributed 96.10 per cent and 3.89 per cent of the gross income.

Production constraints of soybean: The soybean growers reported many constraints in the production of the crop. The data related to these are presented in the Table 3. The maximum soybean growers reported that they were facing hindrances in the cultivation of crop due to unavailability of electricity (97.50%), high cost of labour at peak season (80.83%), complicated method of plant protection measures such as integrated pest management, weed management, plant nutrients management (79.17%), lack of knowledge of recommended package of practices (64.17%) and lack of soil testing facilities (72.08%). The cultivators of the area also reported that potential yield of the crop was not achieved due to high cost of input materials, unavailability of desired input in time, lack of knowledge of intercropping practices, lack of capital and non-availability of proper equipments for cultivation specially seed drill for adjusting row to row distance in intercropping of

Table 3. Production constraints of soybean at different size of farms.

S. No.	Constraints	Small	Medium	Large	Total
1	Unavailability of input materials in the time for cultivation	65 (59.09)	35 (50.00)	21 (35.00)	121 (50.41)
2.	Lack of knowledge of recommended package of practices	81 (73.63)	43 (61.43)	30 (50.00)	154 (64.17)
3.	Lack of capital	9 (71.82)	48 (68.57)	17 (28.33)	144 (60)
4.	Lack of soil testing facilities	98 (89.09)	51 (72.85)	24 (40.00)	173 (72.08)
5.	Complicated method of plant protection measures	95 (86.36)	55 (78.57)	40 (66.67)	190 (79.17)
6.	High cost of input materials	73 (66.36)	36 (51.43)	24 (40)	133 (55.42)
7.	Unavailability of electricity	108 (98.18)	68 (97.14)	58 (96.67)	234 (97.50)
8.	Shortage of skill labour at peak operational season	47 (42.72)	42 (60)	37 (61.67)	126 (52.50)
9	High cost of labour at peak operational season	88 (80)	61 (87.14)	45 (75)	194 (80.83)
10.	Lack of knowledge about intercropping techniques	70 (63.64)	40 (57.14)	24 (40.00)	134 (55.83)
11.	Non - availability of proper equipment for intercropping	108 (98.18)	6 (45.5)	55 (33)	228 (95)
12.	Irregular visit of RAEs	99 (90)	28 (40)	18 (30)	145 (60.42)

Parenthesis shows the percentage of the total respondent of each category

CONCLUSION

The ratio of operational cost and fixed cost of cultivation was approximately 70:30 during the period under study. The operational cost accounted for 73.75 per cent on medium farm 73.45%, on small and 71.57% on large farms of the total cost of cultivation of soybean while, at aggregate level it was 72.90 per cent of the total cost. The maximum cost of cultivation for soybean was on large size of farms i.e. Rs. 7909.10 and Rs. 7798.74 on medium, Rs. 6984.52 on small size of farms. The productivity of soybean was found maximum in medium farms

soybean with maize or pigeonpea. The irregular visit of Agricultural Officers also reported as constraint by 64.42 per cent of cultivators in the study area. The data also revealed that as the size of farms increases, the numbers constraints proportionately increase. These were in the line of Tiwari, K. P., Gupta, B.S., *et.al.* (1998) and .Soni, S. N. *et.al.* (1999).

Table 2. Gross income for soybean at different size of farms.

S.No.	Particular	Size of farms			
		Small	Medium	Large	Average
1	Main product (q/ha)	8.88	9.05	9.01	8.98
	Price of product(Rs/q)	1225	1240	1250	1238
2.	Value of main product (Rs/ha)	10878.00 (96.02)	11222.00 (96.11)	11262.00 (96.16)	1120.80 (96.10)
3.	By product (q/ha)	9.00	9.00	9.00	9.00
	Price of product(Rs/q)	50	50	50	50
4.	Value of by product (Rs/ha)	450.00 (3.97)	450.00 (3.86)	450 (3.84)	450 (3.89)
	Gross income Rs/ha	11328.00 (100)	11672.00 (100)	11712.50 (100)	11570.80 (100)

Parenthesis shows the percentage of total gross income

(9.05 q/ha), followed by large (9.01 q/ha) and small farms (8.88q/ha). Maximum gross income received from soybean cultivation was Rs. 11328.00, Rs. 11672.00 and Rs. 11712.5.5 per hectare from small, medium and large farms, respectively. The constraints in Soyabean production were high cost of input materials, unavailability of desired input at the time, lack of knowledge of intercropping practices, lack of capital and non-availability of proper equipments for cultivation specially seed drill for adjusting row to row distance in intercropping of soybean with maize or pigeon pea.

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