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Economics of Soybean production in Hingoli district of Maharashtra

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ABSTRACT
Present study was related to cost, returns and profitability of soybean in Hingoli district of Maharashtra.Multistage sampling procedure was used. Hingoli district and twelve villages from Hingoli and Sengaon tehsil were selected. The information pertaining to the objective was collected from 120 samples of soybean from selected villages. The data was collected by personal interview by using pre tested interview schedule, data pertaining to Agricultural year 2014-15. Data were analysed with the help of statistical tools like mean, percentage, frequency and functional analysis method. Per hectare total cost with regards to soybean was Rs. 35262.14 while cost-A was Rs. 23036.28 and cost-B was Rs. 31672.14 Per cent share of cost-A was 65.32 per cent while cost-B was 89.81 per cent. It was observed that gross return was high on soybean farm Rs.51620.00 It was clear that farm business income, family labour income and net profit were Rs 28583.72., Rs. 19947.86 and Rs. 16357.86 for soybean farm, respectively. Per quintal cost of production was higher as Rs. 2364.03.The output-input ratio was 1.46 indicating that soybean is highly profitable enterprise.
Key words: Soybean, oil seed, Cost, Gross returns,Net profit

INTRODUCTION
Soybean (*Glycine max* L.) is known as 'golden bean' in India and most important grown in India for dual purposes that is oil seed as well as pulse crop. It is important natural source of protein with number of amino acids essential for good health. *Glycine* is derived from Greek word 'Glykus' and probably refers as 'sweet tuber.' The genus glycine is wild and member of family leguminoceae and native of China. The phaseolae is the most economically important tribe of leguminoceae family. It is the number one oilseeds crop of the world. The Yellow river region in china is generally considered as origin center of soybean.
The area and production of the soybean crop in the entire world increased during the last decade. USA ranks first in area under Soybean (33.42 million hectares) followed by Brazil (32.10 million hectares), Argentina (19.79 million hectares), India (10.91 million hectares) and China (6.80 million hectares) while in production of Soybean USA ranks first (106.88 million MT), followed by Brazil (96.20 million MT), Argentina (61.40 million MT), China (12.35 million MT) and India (8.70 million MT). Total area under soybean in world was 118.65 million hectares with the production 319.00 million MT and during the year 2014- 2015.
The major Soybean growing districts in Maharashtra are Buldhana, Latur, Amravati, Yavatmal, Washim, Nanded, Akola and Hingoli. In Maharashtra Buldhana district rank first in area (4.12lakh hectares) and third in production (2.57 lakh MT) while Latur rank second in area (3.80 lakh hectares) and first in production (3.36 lakh MT) during the year 2014-15.
Marathwada region constitutes Aurangabad, Jalna, Parbhani, Beed, Hingoli, Latur, Osmanabad and Nanded district of Maharashtra. In Marathwada region Latur district rank first in area (3.80 lakh hectares) and production (3.36 lakh MT) during the year 2014-15. Area under Soybean in Hingoli district during the year 2014-15 was (2.15 lakh hectares) with the production of (1.52 lakh MT) and rank eighth in area, production and productivity in Marathwada region of Maharashtra state.

METHODOLOGY

Multistage sampling procedure was adopted for selection of district, tehsils, villages and the soybean growers were selected randomly. The sampling procedure adopted for the study is given below. In first stage Hingoli district was selected purposively because soybean are grown on large scale in the district. In second stage two tehsils *viz*. Hingoli and Sengaon was selected. In Third stage from each tehsil six villages was selected. List of farmer soybean growers was collected from revenue record of each village and from each village ten cultivator's growing soybean will be selected constituting a total sample size 120. Required data will be collected by interview method in specially designed schedule for the Agricultural year 2014-15

Results and discussion

Present investigation is intended to study the cost of production of soybean in Hingoli district. A pre-tested schedule was used for the collection of data. The farmers were personally interviewed mostly at their farm and homes and some cases at common places in village. Simple tabular analysis was used to achieve the result of given objectives of the study.

1. Physical inputs and outputs in soybean production

Per hectare physical inputs and outputs of soybean production were worked out. Use of hired human labour was 29.16 also use of bullock labour was 6.21 on soybean farms. On the contrary use of bullock labour was higher than use of machine labour in soybean which was 6.21 hours and 3.01 hours, respectively. The use of seed was 70.23 kg for soybean. In regard to manure there were 14.27 quintals used for manures. Use of nitrogen, phosphorus and potash was 23.88 kg, 45.00 and 11.74 kg, respectively. The use of plant protection for soybean found to be 2 liters. Use of family human labour was 17.95 man days. It was also observed that main produce yield of soybean was 14.40 quintals and by produce yield was 3.05 quintals.

2. Cost of cultivation of soybean Farm

Per hectare total cost with regards to soybean was Rs. 35262.14 while cost-A was Rs. 23036.28 and cost-B was Rs. 31672.14 Per cent share of cost-A was 65.32 per cent while cost-B was 89.81 per cent. Among the various items of expenditure, the per cent share of rental value of land was predominant as 23.18 per cent followed by hired human labour 16.54 per cent, family human labour 10.19 per cent and machine labour 2.99 per cent for soybean crop.

3. Profitability in soybean production

It was observed that gross return was high on soybean farm Rs.51620.00 It was clear that farm business income, family labour income and net profit were Rs 28583.72., Rs. 19947.86 and Rs. 16357.86 for soybean farm, respectively. It was clear that output- input ratio was higher as 1.46 for soybean farm. Per quintal cost of production was higher as Rs. 2364.03.

CONCLUSIONS

Following conclusions can be drawn from the findings:

1.   Per hectare total cost of soybean i.e. cost C was Rs.35262.14 in which contribution of cost-A and cost-B were Rs.23036.28 and Rs.31672.14, respectively.
2.   Profit on cost-A, cost-B and cost-C was Rs. 28583.72Rs.19947.86Rs.16357.86, respectively.
3.   The output-input ratio was 1.46 which indicates that soybean crop is highly profitable enterprise.

Table 1. Per hectare physical input and output of soybean farm Unit/ha)

Sr.No.	Particulars	Unit	Soybean
	INPUT		
1.	Hired human labour	man days	29.16
2.	Family human labour	man days	17.95
3.	Bullock labour	pair days	6.21
4.	Machine labour	Hours	3.01
5.	Seed	Kg	70.23
6.	Manure	Q	14.27
	Fertilizer		
7.	Nitrogen	Kg	23.88
8.	Phosphorus	Kg	45.00
9.	Potash	Kg	11.74
10.	Plant protection	Lit	2
	OUTPUT		
1.	Main produce	Q	14.40
2.	By produce	Q	3.05

Table 2.Per hectare cost of cultivation of soybean crop (Rs/ha)

Sr. No.	Particulars	Soybean crop	
		Amount (Rs.)	Percent
1.	Hired human labour	5832.00	16.54
2.	Bullock labour	2484.00	7.04
3.	Machine labour	1053.50	2.99
4.	Seed	5618.40	15.93
5.	Manure	1427.00	4.05
6.	Fertilizer		
	Nitrogen	311.39	0.88
	Phosphorus	2215.80	6.29
	Potash	328.72	0.93
7.	Plant protection	2166.00	6.14
8.	Land revenue	46.88	0.13
9.	Incidental charges	192.20	0.55
10.	Interest on working capital@13 %	939.28	2.66
11.	Depreciation on capital assets @10%	421.11	1.19
12.	**Cost-A($\sum$ 1to11)**	23036.28	65.32
13.	Rental value of land	8172.63	23.18
14.	Interest on fixed capital	463.23	1.31
15.	**Cost-B ($\sum$ 12to14)**	31672.14	89.81
16.	Family human labour	3590.00	10.19
17.	**Cost-C ($\sum$ 15to16)**	35262.14	100.00

Table 3. Per hectare profitability in soybean production Rs/ha)

Sr.No.	Particular	Physical unit	Physical quantity	Amount (Rs.)
1	Return from a main produce	q	14.40	50400
2	Return from by produce	q	3.05	1220.00
3	Gross return ($\sum$ 1 to 2)	_	17.45	51620.00
4	Cost- A	_	_	23036.28
5	Cost- B	_	_	31672.14
6	Cost –C	_	_	35262.14
7	Farm business income (Gross return minus cost- A)	_	_	28583.72
8	Family labour income (Gross return minus cost- B)	_	_	19947.86
9	Net profit (Gross return minus cost- C)	_	_	16357.86
10	Output in put ratio (Gross return divided by cost-C)	_	_	1.46
11	Per quintal cost of production (Cost-C minus by produce value divided by main produce quantity)	_	_	2364.03

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