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Ashwani Kumar
Department of Agricultural
Extension, Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Khilesh Kumar Sahu
Department of Agrometeorology,
Indira Gandhi Krishi
Vishwavidhyalaya, Raipur,
Chhattisgarh, India

PK Sangode
Department of Agricultural
Extension, Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Socio-economic Analysis of Soybean Growers with Reference to Cost of Cultivation and Income in Rajnandgaon District of Chhattisgarh

Ashwani Kumar, Khilesh Kumar Sahu and PK Sangode

Abstract
The present investigation was conducted in Chhattisgarh State District of Rajnandgaon during 2017-18. The study covered 12 villages from nine blocks in the district of Rajnandgaon, four blocks specifically selected for this study were Rajnandgaon, Dongargarh, Khairagarh, Chhuikhadan. Ten soybean growing kharif seasons were selected randomly from each selected village. As a result, for the present study, a total of 120 soybean growers were selected as respondents. The data were collected individually through pre-tested interview schedules, Majority of the respondents 57.50 per cent were found in the middle-aged (46 to 60 years) group. The highest respondents 31.67 per cent were found to be primary school educated. There was another backward class of 73.33 percent of respondents. 71.67 percent of respondents were family members of medium size (6 to 8 members) and participated in more than two organizations. Soybean cultivation experience is 11-20 years of respondents (48.33%). Material mobile possession (100%) followed by cycle / motor (82.50%).
The maximum respondents (34.17%) had small farmers, Highest respondents 47.50 per cent had an irrigation canal. It was found that agriculture was their main occupation, The maximum respondents 40.83 per cent had Rs. 50,001 to Rs. 1,00,000 of annual income. while short-term credit for the purchase of agricultural inputs had been acquired by 95.76 percent of respondents. Majority of the soybean growers cultivation of improved variety (JS 9305 and JS 9560) 55.83 per cent. Establishment method of soybean by using tractor draw seed drill (56.67%) and bullock draw seed drill (14.17%). Risk orientation about shows that the medium group was the maximum number of soybean growers (59.17%).The source of information, the majority of respondents (81.67%) obtained information from progressive farmers.

Keywords: Socio-personal, socio-economic, psychological and communicational

Introduction

The soybean or soya bean is known as the "Golden bean" of the 20th century. It is grown in tropical, subtropical and temperate climates. India is the world's third largest oilseed producer. India is one of the world's largest vegetable oil economies, responsible for around 14 per cent of the world's oil seed area and 8 per cent of the world's oil seed production. India ranks sixth in the world in soybean production and soybean area (source: Wikipedia 2016). Oilseed crops are an important part of India's economic system. Agriculture plays a major role in the economy of India. India has made great achievements in agriculture since independence, i.e. from exporting food grains to self-sufficiency and export major agricultural commodities with a 17.21 percent contribution to GDP nations (2017-18).

Soybean accounts for about 50 per cent of the world's total oilseed crop production. Its seed, which contains about 40 per cent protein and 20 per cent oil, reports for about 60 per cent of the world's vegetable protein supply and 30 per cent of the oil. It is a versatile crop with countless opportunities for agriculture improvement and industry support the lysine rich soybean protein is 4 per cent to 6 per cent and the oil extracted is edible. "In India occupies an area of 11183 thousand hectares with production of 13459 thousand tonnes and productivity 738 kg ha^{-1}. Madhya Pradesh, Maharashtra, Rajasthan, Andhra Pradesh and Karnataka are the main producing states in India. Soybean in Chhattisgarh occupies 104.1 thousand ha of area and 72.62 thousand tonnes of production in kharif season with an average yield of 697 kg ha-1. "Major soybean growing districts are Kabirdham, Rajnandgaon, Durg, Mahasamund, Bemetara, and Dhamtari" (www.indiastat.com, 2016-17).

The total geographical area of Rajnandgaon is 802252 ha. The area of soybean in Rajnandgaon district was 29144 hectares and production were 32.820 metric tonnes, respectively, with an average yield of 550 kg per hectare (Directorate of Agriculture, Govt. of Chhattisgarh, 2018).

Corresponding Author
Khilesh Kumar Sahu
Department of Agrometeorology,
Indira Gandhi Krishi
Vishwavidhyalaya, Raipur,
Chhattisgarh, India

The increasing area under soybean crop in Rajnandgaon has brought a significant change in the social as economic condition of the farmer. Rajnandgaon district of Chhattisgarh is oneof the major soybean growing district because of third position in area after Bemetara and Kabirdham. The present research was entitled to take all these facts into consideration

Material and methods:
The present study,' Socio-economic Analysis of Soybean Growers with Reference to Cost of Cultivation and Income in Rajnandgaon District of Chhattisgarh,' was conducted in the Chhattisgarh State District of Rajnandgaon during 2018-19. Of the nine blocks in the district of Rajnandgaon, Four blocks specifically selected for this study were Rajnandgaon, Dongargarh, Khairagarh, Chhuikhadan. Three villages were selected from each selected block in a similar way. In this way, a total of 12 villages (Khapri, Singpur, Bannara, paragaon, Dundera, Dhara, Rahud, Badhaitola, Pawantara, Chhuikhadan, Gopalpur, Mainhar) were selected. Ten soybean growers were selected randomly from each selected village. As a result, for the present study, a total of 120 soybean growers were selected as respondents. The data were collected individually through pre-tested interview schedules and the data collected were tabulated and analyzed using appropriate statistical tools and methods.

Result
Socio personal characteristics (120)
Age
According to age, the respondents are shown in Table 1.The data reveal that 57.50 per cent of respondents belonged to the middle age group (between 46 and 60 years) followed by 31.67 per cent of respondents across the different group level representing age (30-45 years).It stated, therefore, that middle and young generations showed interest in engaged in the study area in soybean cultivation practices.

Table 1: Distribution of the respondents according to their age

S. No.	Categories	Frequency	Percentage
1.	Young (30-45 years)	38	31.67
2.	Middle (46-60 years)	69	57.50
3.	Old (More than 60 years)	13	10.83

Education
Regarding education level of farmers as presented in Table 2 shows that maximum 31.67 per cent of the respondents had primary school level of education followed by middle school level 22.50 per cent, high School 16.67 per cent and higher secondary school level 14.16 per cent, Then under graduate 11.67 per cent and illiterate 3.33 per cent respectively.

Table 2: Distribution of respondents according to their education level

S. No.	Categories	Frequency	Percentage
1.	Illiterate	4	3.33
2.	Primary	38	31.67
3.	Middle	27	22.50
4.	High School	20	16.67
5.	Higher Secondary School	17	14.16
6.	Under Graduate and Above	14	11.67

Caste
The caste shows in Table No.3. majority of (73.33%) of respondents belong to other backward castes, followed by

22.50 per cent schedule caste and (4.17%) schedule tribes. Farmers in the study area were not found in the general category.

Table 3: Distribution of respondents according to their caste.

S. No.	Particular	Frequency	Percentage
1.	Scheduled Tribes	5	4.17
2.	Scheduled Castes	27	22.50
3.	Other Backward Class	88	73.33

Size of Family
The sample household size is presented in Table 4, shows that majority (71.67%) of respondents were of medium family size (6-8 members), followed by small family size (up to 5 members) with (24.17%) and large family size (more than 8 members), as reported by (4.17%) of respondents in the study area.

Table 4: Distribution of respondents according to their size of family

S. No.	Particular	Frequency	Percentage
1.	Small family (Up to 5 members)	29	24.17
2.	Medium family (6-8 members)	86	71.67
3.	Large family (more than 8 members)	5	4.16

Social Participation
The data concerning social participation is presented in Table 5 As regard to social participation, maximum number of respondents 25.00 per cent had member of more than one organization, followed by (35.83%) of respondents had member of two organizations. Regarding (22.50%) of the respondents were member of more than two organizations and (12.50%)office bearer there were (4.17%) respondents who were having no participation in organizations.

Table 5: Distribution of respondents according to their social participation

S. No.	Particular	Frequency	Percentage
1.	No participation	5	4.17
2.	Member of one organization	30	25.00
3.	Member of two organizations	43	35.83
4.	Member of more than two organizations	27	22.50
5.	Office bearer	15	12.50

Experience of soybean cultivation
Farming experience in soybean cultivation of the respondents was studied and data are presented in the Table 6. This refers to the number of years that soybean grower were engaged in soybean cultivation, In study area large no. of farmers 48.33 per cent had 11-20 years experience followed by (37.50%) had more than 20 years and (14.17%) farmers had up to 10 years experience.

Table 6: Soybean growers according to their farming experience in soybean cultivation

S. No.	Particular	Frequency	Percentage
1.	Up to 10 years	17	14.17
2.	11-20 years	58	48.33
3.	More than 20 years	45	37.50

Material possession
Agricultural practices need several material inputs for field preparation, crop establishment, intercultural operations, harvesting and marketing. Some farm household items are

considered as material possession which is useful as well as reflects their economic status. Regarding material possession, the data show in Table 7 stated that majority of the respondents 100 per cent had mobile followed by Radio/television 95.00 per cent, Cycle/motor 82.50 per cent, tractor 47.50 per cent, improved agriculture implement 45.83 per cent and Bullock cart 50 per cent respectively.

Table 7: Distribution of respondents according to their Material Possession

S. No.	Category	Frequency	Percentage
1.	Bullock cart	60	50.00
2.	Cycle/motor	99	82.50
3.	Radio/Television	114	95.00
4.	Improved agriculture implements	55	45.83
5.	Mobile	120	100.00
6.	Tractor	57	47.50

Farm Power
Farm power available with the selected respondents, the data tabulated in Table 8 indicated that most of the respondents (47.50%) using Tractors as an important source of farm power, followed by Bullock (54.16%). while (15.83%) respondents had solar pump and (15.84%) respondents had electric motor as their farm power for using in agricultural operations.

Table 8: Distribution of respondents according to availability of farm power

S. No.	Particular	Frequency	Percentage
1.	Bullock	65	54.16
2.	Solar pump	39	32.50
3.	Electric Motor	19	15.84
4.	Tractors	57	47.50

Socio economic characteristics (n=120)
Land holding
The data regarding land holding show in Table 9 that most of the respondents (24.17%) belonged to (up to 1 ha)marginal farmers. followed by (34.17%)respondents had (1.1 to 2.0 ha) of Small land holding, while, (29.17%) of the respondents had medium land holding (2.1 to 4 ha). Only (12.50%) of the respondents had more than (above 4 ha) land holding.

Table 9: Distribution of respondents according to their land holding

S. No.	Particular	Frequency	Percentage
1.	Marginal farmers (up to 1 ha)	29	24.17
2.	Small farmers (1.1 to 2 ha)	41	34.17
3.	Medium farmers (2.1 to 4 ha)	35	29.16
4.	Large farmers (above 4 ha)	15	12.50

Irrigation facility
Irrigation is the most important input for agriculture In the case of crop production, crop intensity and productivity are directly related to the availability of irrigation Table 10 Indicated that 87.52 per cent availability of irrigation facility was found through tube wall, canal, river, ponds and well. In case of sources wise irrigation in the study area. About 47.50 per cent of the total irrigated area was irrigated by canals. Tube-well was also used by more than (30%) of respondents as sources of irrigation. River was also observed in third position (5.83%) then ponds and well observed 2.50 percent and 1.67 per cent respectively.

Table 10: Distribution of respondents according to availability of Irrigation facility

S. No.	Particular	Frequency	Percentage
Availability of irrigation facilities			
1.	Available	105	87.50
2.	Not available	15	12.50
Sources of irrigation			
1.	Tube well	36	30.00
2.	Canal	57	47.50
3.	River	07	05.83
4.	Pond	03	02.50
5.	Well	02	1.67

Occupation
The data on the involvement of the respondents in various occupations can be found in Table 11 The data shows that one hundred per cent of respondents were in agriculture, and (36.67%) were engaged in labor, about (72.50%) in animal husbandry, while (13.33%) and (10.00%) were involved in business and service.

Table 11: Distribution of respondents according to their involvement in various occupations

S. No.	Categories	Frequency	Percentage
1.	Agriculture	120	100.00
2.	Labor	44	36.67
3.	Animal husbandry	87	72.50
4.	Business	16	13.33
5.	Service	12	10.00

Annual family income
The data shows in Table 12 about annual income, maximum respondents (40.83%) had annual income Up toRs. 50,001-100000 followed by (20.83%) of respondents had their annual income in range between Rs. 100001 to 200000, while 17.50 per cent of the respondents had up to 50000, 16.67 per cent of the respondents had annual income in the category of Rs. 200001-500000 and only 4.17 per cent of the respondent had above Rs. 500000 annual income.

Table 12: Distribution of respondents according to their annual income of family

S. No.	Particular	Frequency	Percentage
1.	Up to ₹ 50000	21	17.50
2.	₹ 50001-100000	49	40.83
3.	₹ 100001-200000	25	20.83
5.	₹ 200001-500000	20	16.67
6.	Above ₹500000	5	4.17

Credit Acquisition
The findings regarding credit acquisition shows in Table 13. It is clearly stated that 98.33 per cent of the respondents had acquired credit and remaining 1.67 per cent of the respondents had not acquired any type of credit. The findings also observed that about duration of credit 95.76 per cent respondents acquired short term credit and 2.54 per cent and 1.69 per cent of the respondents had long term and medium term credit. In case of source of credit majority of the respondents 88.14 per cent had acquired credit from cooperative bank (KCC) followed by 6.78 per cent of the respondents were acquired credit from National banks and 3.39 per cent and 1.69 per cent of the respondents wereacquired credit from money lender and friend/relative respectively, similarly 95.76 per cent of the respondents acquired credit for the purpose of purchase of agriculture

inputs and only 4.24 per cent were acquired credit for other purposes i.e education, marriage, festival and medical.

Table 13: Distribution of the respondents according to their Credit acquisition

S. No.	Category	Frequency	Percentage
1.	**Credit Acquisition (n=120)**		
	Not acquisition	2	1.67
	Acquired	118	98.33
2.	**Duration of credit(n=118)**		
	Short term credit	113	95.77
	Medium term credit	2	1.69
	Long term credit	3	2.54
3.	**Source of Credit (n=118)**		
	Cooperative bank (KCC)	104	88.14
	Nationalized bank	8	6.78
	money Lander	4	3.39
	Friend/ Relative	2	1.69
4.	**Purpose (n=118)**		
	Agricultural input	113	95.76
	Other (Education, Marriage, Festival, Medical)	5	4.24

Variety of soybean
The data are shown in Table 14That the local/Desi varietes has been grown by (44.17%) of the study area respondents. JS 9305 was the most common variety grown by (38.33%) of respondents grown improved varieties. Similarly, approximately 17.50 percent of respondents grown JS 9560. improved varieties were also grown in the study area by the same respondents

Table 14: Respondents according to cultivated of different varieties of Soybean crop

S. No.	Particular	Frequency	Percentage
1.	Desi varieties	53	44.17
2.	**Improved Varieties**		
	JS 9305	46	38.33
	JS 9560	21	17.50

Establishment method of soybean
Method of sowing at sampled farm is show in table 15. reported that majority of the respondents 79.17 per centare used sowing method is by using seed drill then broad casting methods 29.17 per cent. Under tractor used by farmers through seed drill 56.67 per cent and by using seed drill through bullock14.16 per cent in the study area.

Table 15: Distribution of respondents according to Establishment method of soybean

S. No.	Particular	Frequency	Percentage
1.	Broad casting	35.00	29.17
2.	Tractor draw seed drill	68.00	56.67
	Bullock draw seed drill	17.00	14.16

Cropping intensity
Regarding cropping intensity, the data show in Table 16 revealed thatmajority of the respondents (66.67%) had the cropping intensity between (101 to200%) and 29.17 per cent

respondents had cropping intensity of (More then 200%), while only 4.17 per cent of them (Up to 100%)cropping intensity. It was also stated that the average cropping intensity was 189.73 per cent amongst the respondents.

Table 16: Cropping Intensity

S. No.	Particular	Frequency	Percentage
1.	Up to 100%	5	4.16
2.	101-200%	80	66.67
3.	More than 200%	35	29.17
	Average cropping intensity	189.73	per cent

Psychological characteristics (n=120)
Risk orientation
Table 17 Reveals that majority of respondents (59.17%) belonged to medium risk coverage, 18.33 per cent belonged to high risk coverage, whereas 22.50 per cent belonged to low risk coverage.

Table 17: Distribution of the respondents according to their level of risk orientation

S. No.	Categories	Frequency	Percentage
1.	Low risk orientation (Up to28 scores)	27	22.50
2.	Medium risk orientation (29 to 33 scores)	71	59.17
3.	High risk orientation (Above 34 scores)	22	18.33

Mean=30.17, SD=3.07

Communicational characteristics (n=120)
Sources of information
Table 18 shows that majority of the respondents 81.67 per cent had contacted to progressive Farmers followed by 78.33 per cent were getting neighbors/friends/relative and 72.50 per cent respondents getting information from RAEO'S.

Table 18: Distribution of respondents according to their sources of information

S. No.	Category	Often F*	Often %	Sometime F*	Sometime %	Never F*	Never %
1.	RAEO'S	87	72.50	26	21.67	7	5.83
2.	ADO'S	5	4.17	28	23.33	83	69.17
3.	SMS	3	2.50	24	20.00	93	77.50
4.	Ag. Scientists	11	9.17	18	15.00	91	75.83
5.	Progressive Farmers	98	81.67	14	11.67	8	6.67
6.	Neighbors /Friend/relative/	94	78.33	18	15.00	8	6.67
7.	Agriculture institutes	36	30.00	78	65.00	6	5.00
8.	Agriculture input dealers	45	37.50	58	48.33	17	14.17
9.	T.V.	24	20.00	43	35.83	53	44.17
10.	Radio	14	11.67	38	31.67	68	56.67
11.	Newspaper	12	10.00	39	32.50	69	57.50
12.	Agriculture Journal	9	7.50	35	29.17	76	63.33

Table 19 shows that most of the respondents (51.66%) were under medium utilization sources of information category followed by (29.17%) of respondents in under high utilization of sources of information and only (19.17%) respondents were low utilization of sources of information. Similar finding was reported by Shah (2006).

Table 19: Distribution of the respondents according to their overall use of sources of information n= 120

S. No.	Category	Frequency	Percentage
1.	Low level of use of information (up to 21 source)	27	19.17
2.	Medium level of use of information (22 to 24source)	71	51.66
3.	High level of use of information (above 25 source)	22	29.17

Mean=23.35, SD=2.13

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