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Socio-economic characteristics of soybean in Marathwada region of Maharashtra

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Abstract

Soybean (*Glycine max* L.) is known as 'golden bean' and grown in India for dual purpose that is oil seed as well as pulse crop. About 120 soybean growers were selected from two districts (Nanded and Parbhani) in Marathwada region of Maharashtra for study. Cross sectional data were collected from soybean growers with the help of pretested schedule by personal interview method. The data pertains for the year of 2015-16. In case of socio-economic characteristics of soybean growers, it was observed that about 48.33 percent farmers belonged to middle age group (>35 to ≤50 years). Majority of soybean growers educated up to secondary level (Vth to Xth std.) which had 28.33 percent. About 50.00 percent of growers belonged to medium family size (5 to 7 members). In respect of occupational level 81.67 percent soybean growers belonged to agriculture. In case of operational land holding medium group (>2 to ≤4 ha) was found to be maximum having 35.00 percent. 74.17 percent farmers had one bullock pair and 44.17 percent farmers rearing more than one to three livestock. In case of cropping pattern of soybean growers average gross cropped area was 5.57 hectares in which 64.09 percent area under *Kharif* season. The cropping intensity was 147.75 percent.

Keywords: Soybean, socio-economic characteristics, cropping pattern

Introduction

Soybean (*Glycine max* L.) is known as 'golden bean' and grown in India for dual purpose that is oil seed as well as pulse crop. It is an important natural source of protein with a number of amino acids essential for good health. *Glycine* is derived from Greek word 'Lycus' and probably refers as 'sweet tuber.' The genus *Glycine* is wild and member of family Leguminosae, sub-family tribe Phaseolus and native of China. The Phaseolus is the most economically important tribe of the Leguminosae family. It is a major oilseeds crop of the world. In the USA, it is called 'Cinderella crop', 'a king without a crown', 'a marvel bean'. In China, it is known as 'Yellow Jewell', great treasurer 'Chinese cow' and 'vegetable meat'. The Yellow River region in China is generally considered as origin center of soybean and the earliest record of soybean in China. Soybean was introduced to several nearby countries with the development of sea and land trades, probably in the 7th century and land races development in Japan, Indonesia, Philippines, Vietnam, Thailand, Malaysia, Burma, Nepal and North India. These regions comprise the secondary gene center. The soybean was first introduced to North America in 1765 and then spread to Canada and Latin America. The earliest known date for introduction into Brazil is 1882. Soybean is known as the "miracle crop" because of its several uses. It is an excellent source of protein and oil. It contains about 21 percent carbohydrates, 5 percent minerals, 20 percent fat, 4 percent fiber and reasonable amounts of vitamins. Besides utilization of soybean as vegetable, it is also used in the oil industry where it occupies first place in the world oil production. It is containing 43 percent protein and 18-20 percent oil has tremendous potential to meet the protein-calorie malnutrition of the ever increasing Indian population. It supplies most of the nutritional constituent's essential for human growth because of its richness in protein, reoiled soya cakes as greater importance in manufacturing human food and livestock feeds. The soybean milk is prepared from soybean flour. It has man fold industrial uses like preparation of butter, fats, paints, varnishes, soap, glycerin, printing ink, etc.

In Maharashtra during 2014-15 area under soybean cultivation was 36.40 lakh hectares with annual production of 18.21 lakh tons with an average productivity of 500 kg/ha. In Marathwada region during 2014-15 area under soybean cultivation was 12.22 lakh hectare with an annual production of 5.16 lakh tons with an average productivity of 401.50 kg/ha (Source: www.mahaagri.gov.in).

In Parbhani district during 2014-2015 area under soybean cultivation was 1.88 lakh hectares with annual production of 0.584 lakh tons with an average productivity of 1255 kg/ha. In Nanded district during 2014-2015 area under soybean cultivation was 2.61 lakh hectares with annual production of 0.690 lakh tons with an average productivity of 1287 kg/ha (Source: www.mahaagri.gov.in).

Materials and Methods

Multistage sampling design will be adopted in selection of district, tehsil, villages and soybean growers. At first stage, two districts namely Parbhani and Nanded were purposely selected from Marathwada region. In second stage, from each district two tehsils was selected on the basis of highest area under soybean cultivation. In third stage, list of predominant villages with respect to area under soybean were obtained from selected tehsils. From each of the tehsil, three villages were selected purposely. In Parbhani district the selected villages from Parbhani tehsil were namely Jamb, Pedgaon and Pingali, from Purna tehsil were Gaur, Purna and Wazur. In Nanded district the selected villages from Mukhed tehsil were namely Gojegaon, Dapka Gundopant and Mukhed, from Hadgaon tehsil were Koli, Shirad and Pimperkhed. In the fourth stage, from the list of soybean growers, ten soybean growers were randomly selected from each village. In this way, from two districts, one hundred twenty soybean growers were selected for the present study. The data was collected from cultivars with the help of pretested schedule through personal interview method. The data pertains for the year 2015-16. In analytical techniques, that is to study the socio-economic characteristics of soybean grower was achieved by tabular analysis.

Analysis and Interpretation

Results with respect to socio-economic characteristics and cropping pattern were obtained and are presented as follows.

Socio-economic characteristics of soybean growers

Socio-economic characteristics of soybean growers were estimated and are presented in Table 1. It was observed from the table that the middle-aged farmers (>35 to ≤50) was 48.33 percent then the young (>20 to ≤35) which was 26.67 percent and old group farmers (>50 to ≤65) was 25.00 percent. With respect to educational level, the high school level i.e. secondary group was dominating to other group which had 28.33 percent, 24.17 percent farmers were observed as illiterate and 18.33 percent farmers were educated up to higher secondary level. The family size of the farmers was divided into three categories on the basis of members in family as small, medium and large. About 50.00 percent of growers belonged to medium family size which was ranging from 5 to 7 members in a family followed by 25.83 percent growers belonged to small family ranging from 2 to 4 members and 24.17 percent growers belonged to large family ranging from 8 and above members. In respect of occupational level of soybean growers, most of farmers belonged to agriculture, that was 81.67 percent followed by business having 14.17 percent and service having 4.17 percent. In case of operational land holding medium group ranging from less than two hectares to four hectares (>2 to ≤4 ha) was found to be maximum having 35.00 percent, 35.00 percent farmers had less than two hectares of land and 30.00 percent farmers had more than four hectares of land. With

respect of bullock pair 74.17 percent farmers had one bullock pair, 19.17 percent farmers having no bullock pair and 6.67 percent farmers having more than one bullock pair. Regarding the livestock 44.17 percent farmers rearing more than one to three livestock and 26.67 percent farmers rearing one livestock.

Table 1: Socio economic characteristics of Soybean growers

Sr. No.	Particulars	Frequency (n=120)	Percent
A.	Age (Years)		
i.	Young (>20 to ≤35)	32.00	26.67
ii.	Middle (>35 to ≤50)	58.00	48.33
iii.	Old (>50 to ≤65)	30.00	25.00
	Total	120	100.00
B.	Educational Level		
i.	Illiterate	29.00	24.17
ii.	Primary	21.00	17.50
iii.	Secondary	34.00	28.33
iv.	Higher Secondary	22.00	18.33
v.	College	14.00	11.67
	Total	120	100.00
C.	Family Size		
i.	Small (2 to 4)	31.00	25.83
ii.	Medium (5 to 7)	60.00	50.00
iii.	Large (8 and above)	29.00	24.17
	Total	120	100.00
D.	Occupation		
i.	Agriculture	98.00	81.67
ii.	Business	17.00	14.17
iii.	Service	5.00	4.17
	Total	120	100.00
E.	Land Holding		
i.	Small (≤2 ha)	42.00	35.00
ii.	Medium (>2 to ≤4 ha)	42.00	35.00
iii.	Large (more than 4 ha)	36.00	30.00
	Total	120	100.00
F.	Bullock pair		
i.	Zero	23.00	19.17
ii.	One	89.00	74.17
iii.	(>1 to <3)	8.00	6.67
	Total	120	100.00
G.	Livestock (No.)		
i.	Zero	35.00	29.17
ii.	One	32.00	26.67
iii.	(>1 to <3)	53.00	44.17
	Total	120	100.00

Mean, SD and CV of Socio-economic characteristics of soybean growers

Mean, standard deviation and coefficient of variation of socio-economic characteristics of soybean growers were calculated and are presented in Table 2. It was observed from the table that the average age of soybean growers was 43.44 years. The coefficient of variation with respect to age was found to be 26.54 percent. The educational level of farmers indicated 2.76 scores with 47.83 percent coefficient of variation. With regards to family size, the average size of family of soybean growers was 6.33 or more than six and the coefficient of variation was 43.60 percent. Occupational level was indicating 1.23 score with 41.46 percent coefficient of variation. The average land holding of soybean growers was 3.87 hectares which came under medium size of holding. The coefficient of variation of land holding was found to be 79.07 percent. In the case of bullock pair, it was 0.88 numbers with 40.08 percent coefficient of variation. The average number of

livestock rearing of soybean growers was 1.19 with 93.28 percent coefficient of variation.

Table 2: Mean, SD and CV of socio-economic characteristics of Soybean growers.

Sr. No.	Particulars	Mean	SD	CV (%)
1	Age (years)	43.44	11.53	26.54
2	Educational level (Score)	2.76	1.32	47.83
3	Family size (No.)	6.33	2.76	43.60
4	Occupation (Score)	1.23	0.51	41.46
5	Land holding (ha)	3.87	3.06	79.07
6	Bullock pair (No.)	0.88	0.49	55.68
7	Livestock (No.)	1.19	1.11	93.28

Cropping pattern of soybean growers

Cropping patterns on soybean farms during *Kharif*, *Rabi* and *Summer* seasons were estimated and are presented in Table 3. The results revealed that the gross cropped area was 5.57 hectares. In *Kharif* season the highest area under soybean crop followed by cotton and *kharif* Jowar which were 28.19 percent, 7.36 percent and 6.46 percent to the gross cropped area respectively. Area under tur was 5.57 percent which was taken as inter crop in cotton and soybean by maximum number of farmers. Soybean, cotton, green gram and tur covered 46.14 percent area. Thus, these crops were found to

be major crops in *Kharif* season. In *rabi* season maximum area covered by gram followed by *rabi* Jowar and wheat which were 10.77 percent, 6.28 percent and 3.95 percent to gross cropped area respectively. Wheat and onion crops taken only those farmers they had enough source of irrigation in *rabi* season, because maximum farmers were dependent on rainfall. The farmers suffered from the worst drought condition before two years and during study period. In *summer* season maximum area under groundnut which had 5.21 percent to gross cropped area. In *annual* season area under sugarcane was 3.59 percent. It was observed that the proportionate area under soybean was 28.19 percent followed by gram 10.77 percent then cotton 7.36 percent, *kharif* jowar 6.46 percent and *rabi* jowar 6.28 percent and so on. The cropping intensity was 147.75 percent. Percent share of seasonal crops on soybean farm was estimated and the results revealed that the share of *Kharif* crops was 64.09 percent followed by *rabi* crops (24.60 percent), *summer* crops (7.72 percent) and *annual* crops (3.59 percent) to the total gross cropped area i.e., 5.57 hectares (100 percent). Percent share of Net sown area and Double cropped area on soybean farm was estimated and the results revealed that the share of Net sown area was 67.68 percent and Double cropped area was 32.32 percent to the gross cropped area i.e., 5.57 hectares (100 percent).

Table 3: Cropping pattern of selected Soybean growers.

Sr. No.	Crops	Area (ha)	Percent
Kharif			
1	Soybean	1.57	28.19
2	Cotton	0.41	7.36
3	Tur	0.31	5.57
4	Green gram	0.28	5.03
5	Undid	0.24	4.31
6	Kharif Jowar	0.36	6.46
7	Turmeric	0.13	2.33
8	Maize	0.23	4.13
9	Fodder Crop	0.04	0.72
	Sub Total	3.57	64.09
Rabi			
10	Gram	0.60	10.77
11	Wheat	0.22	3.95
12	Rabi Jowar	0.35	6.28
13	Safflower	0.08	1.44
14	Onion	0.12	2.15
	Sub Total	1.37	24.60
Summer			
15	Vegetables	0.06	1.08
16	Groundnut	0.29	5.21
17	Fodder crop	0.08	1.44
	Sub Total	0.43	7.72
Annual			
18	Sugarcane	0.20	3.59
	Sub Total	0.20	3.59
19	Gross Cropped Area	5.57	100.00
20	Net Sown Area	3.77	67.68
21	Double Cropped Area	1.80	32.32
22	Cropping Intensity	147.75	

Conclusions

The average age of the soybean grower was 43.44 years with an average size of family was 6.33 or more than six members. The average area under soybean was 1.57 hectare. The gross cropped area was 5.57 hectare, and the share of Net sown area was 67.68 percent and Double cropped area was 32.32

percent to the gross cropped area i.e., 5.57 hectares (100 percent). The cropping intensity was 147.75 percent.

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