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Relational analysis of soybean growers with knowledge and adoption of biofertilizers

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Abstract

The present study was conducted at Latur district of Maharashtra State with the objectives to study the relationship between profile of soybean grower with their knowledge and adoption of soybean growers. Ex-post facto research design was used for the study. Three tehsils of Latur district namely Ausa, Nilanga and Latur tehsils were selected purposively on the basis of maximum area under soybean cultivation and data was collected from a randomly drawn sample of 120 soybean growers. The results of correlation coefficient showed that independent variable age had negative and significant and relationship with knowledge of soybean growers about biofertilizers. Education had positive and significant relationship with knowledge of soybean growers. Family size had non-significant relation with knowledge of soybean growers. Whereas annual income, land holding, area under soybean cultivation, sources of information, extension contact, risk orientation, economic motivation had positive and highly significant relationship with knowledge of soybean growers about biofertilizers. While in case of adoption of biofertilizers by soybean growers the results of correlation coefficient showed that independent variable age had negative and significant and relationship with adoption of biofertilizers by soybean growers. Education had positive and significant relationship with adoption of soybean growers. Family size had non-significant relation with adoption of soybean growers. Whereas annual income, land holding, area under soybean cultivation, sources of information extension contact, risk orientation, economic motivation had positive and highly significant relationship with adoption of biofertilizers by soybean growers.

Keywords: Soybean growers, knowledge, adoption, biofertilizers, relational analysis

Introduction

Soybean (*Glycine max* L. Merill.) is known as Chinese pea or Manchurian bean which belongs to family leguminaceae. In India from last few years processing and value addition trading in Soybean had brought the revolution in rural economy. Soybean has vital importance in Indian agriculture hence it plays a decisive role in oil economy of India. It is the cheapest and main source of dietary protein of majority vegetarian Indians. Soybean seed consists of 20.00 per cent oil and 42.00 per cent protein.

Being rich in protein and higher oil content, the crop is a heavy user of nitrogen and phosphorus. In spite of liberal application of NPK fertilizers, a declining or stagnating yield trend has been observed which might be attributed to multiple nutrient deficiencies and imbalance of nutrients. With the short supply and escalating price of chemical fertilizers, there is increasing awareness in favour of adopting biological routes of soil fertility management for preventing soil degradation and for sustaining crop production. Integrated approach of nutrient supply through chemical fertilizers and bio fertilizers is gaining importance because this sustains the soil nutrients and is an environment friendly approach.

Biofertilizer is an organic by-product containing living microorganisms arrested from plant roots or soil. Choice of bio-fertilizer is becoming increasingly popular for the replacement of chemical fertilizer in order to lower the cost of crop production, enhance the growth and crop yield by increasing the nitrogen availability and by producing certain substances, such as auxin, cytokinin and gibberellins, which are helpful in the growth of plants. Microbial activity plays a key role in agriculture because they are very significant in the movement and availability of minerals required for plant growth and ultimately lower the use of chemical fertilizers.

Considering the drawbacks of chemical fertilizer use, it's critical to employ environmentally friendly plant nutrients from alternate sources. The majority of biofertilizers are microorganisms that fix nitrogen, and they are regarded as a good substitute source of plant nutrition. One of the newly created and introduced technologies is biofertilizers. Farmers have not yet been significantly impacted by it. With the potential to fix 20–2000 kg of nitrogen per hectare annually, biofertilizers can boost crop output potential by 10–30%. Additionally, they aid in enriching and enhancing the soil.

The prices of fertilizers are increasing day by day and therefore, it is necessary to reduce the cost of fertilizes by using Rhizobium and PSB inoculation to increase yield of legume crops. Bio-fertilizers cannot replace chemical fertilizers but certainly are capable of reducing their input. Seed inoculation with effective Rhizobium inoculants is recommended to ensure adequate nodulation and N2

fixation for maximum growth and yield of pulse crop. Bio-fertilizers do not supply nutrient directly to crop plants but have capacity to fix atmospheric nitrogen and convert insoluble phosphate into soluble form hence, soil microorganisms play significant role in mobilizing P for the use of plant and large fraction of soil microbial population can dissolve insoluble phosphate in soil.

Objectives

1. To study the profile of soybean growers
2. 2.To study the relationship of profile of soybean growers and knowledge and adoption of biofertilizers

Materials and methods

The study was conducted in Marathwada region of Maharashtra state. From this region Latur district was purposively selected for research purpose on the basis of maximum area under soybean cultivation. There are ten tahsils in Latur district out of which Ausa, Nilanga and Latur tehsils were selected purposively for the present study on the basis of maximum area under soybean cultivation. From the selected tehsils, four villages from each tehsils were purposively selected. Thus, total 12 villages were selected for the study on the basis of maximum area under soybean cultivation. From each selected village list of soybean growers was obtained from agricultural assistant and from that list 10 soybean growers were selected randomly. In this way, a total 120 soybean growers were considered for the present study. These selections were done by using simple random sampling method for the purpose of the study. Ex-post facto research design of social research was used in the present study. An interview schedule was prepared in view of the objective of the study and data were collected by personal interview of the selected soybean growers at their home or farms. The collected data was organized, analyzed, tabulated with the help of frequency, percentage, mean, standard deviation, correlation of coefficient (r).

Results and Discussion

It was observed from the table 1 that, 52.50 per cent of the soybean growers had middle age, 40.00 per cent of the soybean growers were educated up to secondary school level, 59.16 per cent of soybean growers had medium family size, majority (69.16%) of soybean growers had medium annual income, 44.16 per cent of the soybean growers had semi-medium size of land holding, 57.50 per cent of soybean growers had medium area under soybean cultivation (1.01 to 4.26 ha), 62.50 per cent of the soybean growers had sources of information, 57.50 per cent uses medium sources of extension contact, 51.66 per cent of the soybean growers belonged to medium level of risk orientation and 65.00 percent economic motivation.

Table 1: Distribution of soybean growers according to their Profile

Sl. No.	Category	Soybean growers (N = 120)	
		Frequency	Percentage (%)
1.1 Age			
1.	Young (Up to 31)	31	25.83
2.	Middle (32 to 51)	63	52.50
3.	Old (Above 51)	26	21.67
1.2 Education			
1.	Illiterate	12	10.00
2.	Primary School (1st to 4th)	20	16.67
3.	Middle School (5th to 10th)	48	40.00
4.	Higher Secondary (11th to 12th)	21	17.50
5.	Graduation and above	19	15.83
1.3 Family size			
1.	Low (Up to 3)	27	22.50
2.	Medium (4 to 8)	71	59.16
3.	High (Above 8)	22	18.34
1.4 Annual income			
1.	Low (Up to ₹.1,25,897)	20	16.67
2.	Medium (₹.1,25,898 to ₹.4,84,819)	83	69.16
3.	High (Above ₹. 4,84,819)	17	14.17
1.5 Land holding			
1.	Marginal (up to 1.00 ha)	15	12.50
2.	Small (1.01 to 2.00 ha)	30	25.00
3.	Semi medium (2.01 to 4.00 ha)	53	44.16
4.	Medium (4.01 to 10.00 ha)	22	18.34
5.	Large (above 10.00 ha)	00	00.00
1.6 Area under soybean cultivation			
1.	Low (Up to 1.00 ha)	32	26.66
2.	Medium (1.01 to 4.26 ha)	69	57.50
3.	High (Above 4.26 ha)	19	15.84
1.7 Sources of information			
1.	Low (Up to 35)	28	23.34
2.	Medium (36 to 53)	75	62.50
3.	High (Above 53)	17	14.16

1.8 Extension contact			
1.	Low (Up to 30)	27	22.50
2.	Medium (31 to 47)	69	57.50
3.	High (Above 47)	24	20.00
1.9 Risk orientation			
1.	Low (Up to 20)	33	27.50
2.	Medium (21 to 31)	62	51.66
3.	High (Above 31)	25	20.84
1.10 Economic motivation			
1.	Low (Up to 14)	20	16.66
2.	Medium (15 to 25)	78	65.00
3.	High (Above 25)	22	18.34

Table 2: Correlation coefficient between profile of soybean growers and knowledge of biofertilizers

Sr. No.	Independent variables	Coefficient of correlation (c)
1.	Age	-2.42*
2.	Education	0.253*
3.	Family size	0.193^{NS}
4.	Annual income	0.360**
5.	Land holding	0.367**
6.	Area under soybean crop	0.366**
7.	Sources of information	0.513**
8.	Extension contact	0.524**
9.	Risk Orientation	0.512**
10.	Economic motivation	0.535**

***** = Significant at 0.05% level of probability NS = non-significant
**= Significant at 0.01% level of probability,

It is concluded from table 2 that, the results of correlation coefficient showed that independent variable age had negative and significant education had positive and significant relationship and family size showed positive and non-significant relationship knowledge of soybean growers about biofertilizers. Annual income, Land holding, Area under soybean crop, Sources of information, Extension contact, Risk orientation, Economic motivation positive and highly significant relationship with knowledge of soybean growers about biofertilizers at 0.01 per cent level of probability. Education is positive and significant at 0.05 per cent level of probability

Table 3: Correlation coefficient between profile of soybean growers and adoption of biofertilizers

Sr. No.	Independent variables	Coefficient of correlation (c)
1.	Age	-0.250*
2.	Education	0.213*
3.	Family size	0.131^{NS}
4.	Annual income	0.336**
5.	Land holding	0.321**
6.	Area under soybean crop	0.317**
7.	Sources of information	0.397**
8.	Extension contact	0.482**
9.	Risk Orientation	0.418**
10.	Economic motivation	0.444**

***** = Significant at 0.05% level of probability NS = non-significant
**= Significant at 0.01% level of probability,

It is concluded from table 3 that, the results of correlation coefficient showed that independent variable age had negative and significant education had positive and significant relationship and family size showed positive and non-significant relationship adoption of soybean growers about biofertilizers. Annual income, Land holding, Area under soybean crop, Sources of information, Extension contact, Risk orientation, Economic motivation positive and highly significant relationship with adoption of biofertilizers of soybean growers about biofertilizers at 0.01 per cent level of probability. Education is positive and significant at 0.05 per cent level of probability.

Conclusion

As regard with the profile of soybean growers it was observed that, 60.83 per cent of the soybean growers had middle age, 36.67 per cent of the soybean growers were educated up to middle school, 70.00 per cent of soybean growers had medium family size, majority (70.83%) of soybean growers had medium annual income, 42.50 per cent of the soybean growers had semi-medium size of land holding, 63.33 per cent of soybean growers had medium area under soybean cultivation (1.01 to 4 ha), 62.50 per cent of the soybean growers had medium extension contact, 53.33 per cent uses medium sources of information, 65.00 per cent of the soybean growers belonged to medium level of mass media exposure. The results of the study revealed that majority (68.33%) of soybean growers had medium level of marketing behaviour. The ratio characteristics showed that education, family size, annual income, land holding, area under soybean cultivation, extension contact, sources of information, mass media exposure influenced the marketing behaviour of soybean growers.

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