

Received : 03.08.2022 | Accepted : 11.09.2022 | Online published : 01.10.2022

https://doi.org/10.54986/irjee/2022/oct_dec/1-6I
R
J
ESOCIETY OF
EXTENSION
EDUCATION

RESEARCH ARTICLE

Analysis of Livelihood Diversification among Households in Bundelkhand Region

Pawan Kumar Gautam¹ and Sujeet Kumar Jha²

1. Ph. D Scholar, Division of Dairy Extension, ICAR- NDRI, Karnal, Haryana, India

2. Pr. Scientist, Agril.Ext.Divi., ICAR, New Delhi, India

Corresponding Author E-mail: gautampawan082@gmail.com

ABSTRACT

Livestock in Bundelkhand region occupies a prominent position contributing significantly to the livelihood, mitigation of risks and distress of the farmers. Dairy production is an important component in the entire region with greater focus on the buffalo rearing of milk cattle rearing. The study was conducted purposively in Bundelkhand region, which comprises of Uttar Pradesh (7 districts) and Madhya Pradesh (6 districts). Two districts from each state viz. Lalitpur and Banda from Uttar Pradesh, whereas, Datia and Damoh from Madhya Pradesh were selected. Then, two blocks from each district were selected randomly. Two villages from each block and 20 respondents from each village were randomly selected; thus, making the total sample size of 320 respondents for the study. It was observed that 59.68 per cent of the respondents belonged to a middle aged group (36 to 50 years) followed by category of old age group (Above 50 years) and young (up to 35 years) which accounts for 25.94 per cent and 14.38 per cent, respectively. It was revealed that most (69.69%) of the respondents fell under the medium category (2.2 to 9.76 litre milk per day) of milk production, followed by 15.94 per cent and 14.37 per cent belonged to high (>9.76 litre milk per day) and low (<2.2 litre milk per day) categories, respectively. In case of large farmers, most (43.33%) of the respondents were diversifying their livelihood at high level. Education, land holding, annual income and extension contact had positive and highly significant relationship with livelihood diversification at 1 per cent level of significance.

Key words: Bundelkhand; Livelihood; Dairy; Diversification; Livestock.

Davies (1996) reported that diversification helped in mitigating risk or coping with vulnerability where risk remain high and in setting poor people on a cumulative path towards greater livelihood success. Tribal groups were found to be increasingly involved in diversified strategies involving wage employment, agricultural and non-agricultural activities as they move off forest lands. Both backward classes (BCs) and open classes were found to be more reliant on the external economy and thus more involved in migration and wage employment (Deb et al., 2002). Fafchaps (2003) and Chambers & Conway (1992) viewed that poor people in particular were, as a matter of course, forced to diversify their sources of livelihood in order to survive at risk-prone

environments and uncertain economies prevalent in rural communities in developing countries.

Gautam and Andersen (2016) reported that a household can enhance well-being only when it pulls into its livelihood portfolio the high return sector(s) among various off farm opportunities available. However, pulling the high return sectors is not a matter of free choice. This recognizes that off farm sector for diversification is rooted into and differentiated by background pre-conditions reflecting various assets: both tangible and intangible assets at the household's disposal. In this context, when the well-endowed households diversify, they diversify for 'good reasons' not for survival but for accumulation. So they are more likely to get into high return sectors and achieve

wealth or well-being. The poor households, on the other hand, are less likely to overcome the entry barriers and are confined to low return sectors which make an insignificant contribution to well-being. There is also a positive feedback effect in this nexus that reinforces the well-being conditions: already rich households accumulated assets that form the basis for further lucrative diversification. The poorer households, on the other hand, are trapped in the same low return sectors resulting in overall widening of inequality.

Bhatta et al. (2015) opined that the implication of climatic and non-climatic resources such as rainfall and farm types on livelihood diversification; household food security and farmers' adaptation remain under studied in Indo-Gangetic Plain. Farmers in the medium rainfall regime diversify less on the on-farm but more on the off-farm activities, indicating that agriculture is becoming less important in medium rainfall zone. On contrary, the farmers in the medium rainfall regimes often cope with the changing circumstances by frequently altering farming practices. They also have relatively lower number of food deficit months compared to those at high and very high rainfall regimes. The study also finds that resource rich farmers (such as those having irrigation on the farm) are better adapted, well diverse in terms of livelihood sources and have food available almost throughout the year than resource poor farmers (those who don't have irrigation). Therefore, in order to promote livelihood and adaptation under changing climatic conditions, resource poor farmers should be given proper care and provision of irrigation should be established.

Ahmed et al. (2015) reported that Majority of the rural households diversified their livelihoods into several activities and earned significant amount of income from multiple sources. Ninety four per cent of the total sampled households pursued some level of diversification in their livelihoods. Only 6 per cent of households had zero Simpson index, meaning they earned income from just one source for their livelihoods. *Punitha et al. (2016)* reported that the first rank was given to fruit orchard development. It was well clear from the above livelihood diversification choice that farmers were willing to go for fruit orchard development. The second livelihood diversification choice was given to composting/ vermicomposting techniques. Livestock in Bundelkhand region occupies a prominent position contributing significantly to the livelihood, mitigation of risks and distress of the

farmers. Dairy production is an important component in the entire region with greater focus on the buffalo rearing of milk cattle rearing. Hence an effort was made to study socio-personal profile, livelihood diversification were studied with the following objectives.

- i. To study the socio-personal profile of dairy farmers of the region
- ii. To study the livelihood diversification prevalent in the locale of study
- iii. To study the relationship between socio-personal characteristics and livelihood diversification

METHODOLOGY

The ex-post facto research design of social research was used for the present study. The study was conducted purposively in Bundelkhand region, which comprises of Uttar Pradesh (7 districts) and Madhya Pradesh (6 districts). Two districts from each state viz. Lalitpur and Banda from Uttar Pradesh, whereas, Datia and Damoh from Madhya Pradesh were selected. Then, two blocks from each district were selected randomly. Two villages from each block were randomly selected. The selection of respondents is a crucial task, hence due care was taken while selecting the respondents. From each selected village a list of dairy farmers based on land holding was prepared and respondents were selected based on proportionate stratified random sampling method. From each village 20 dairy farmers were selected proportionately from the prepared list. Thus, a total of 320 dairy farmers was selected for the study. The data were collected through personal interview method with the help of pre-structured interview schedule. The collected data were classified, tabulated and analysed using frequency, per centage, mean, standard deviation, correlation and regression.

RESULTS AND DISCUSSION

The details of socio-personal profile of dairy farmers involved in different livelihood activities is presented in Table 1.

Age: The understanding gained in livestock enterprise is commonly reflected through age. Age of the livestock holder, which is important in decision making, knowledge acquiring and utilization in farming has direct influence on productivity and profitability of their respective enterprises. A perusal of Table 1 indicated that 59.68 per cent of the respondents belonged to a middle aged group (36 to 50 years) followed by

Table 1. Socio-personal profile of the respondents (N=320)

Variable/Categories	No.	%
<i>Age (in years)</i>		
Young	46	14.38
Middle	191	59.68
Old	83	25.94
<i>Education</i>		
Illiterate	34	10.62
Functionally literate	58	18.13
Primary	42	13.12
Middle	62	19.38
Matriculation	51	15.93
Higher Secondary	57	17.82
Graduation and above	16	5.00
<i>Experience in dairying (in years)</i>		
Low	45	14.06
Medium	234	73.13
High	41	12.81
<i>Social participation</i>		
No membership	58	18.12
Membership in one organization	194	60.63
Membership in two organizations	32	10.00
Membership in more than two org.	15	4.68
As an office- bearer	21	6.57
<i>Occupation</i>		
Agriculture + Livestock	122	38.13
Agriculture + Livestock +Business	35	10.94
Agriculture + Livestock + Service	46	14.37
Agriculture + Livestock + Labour	68	21.25
Livestock + Business + Labour	29	9.06
Livestock + Service	20	6.25
<i>Land holding (ha)</i>		
Small	136	42.50
Medium	114	35.62
Large	70	21.88
<i>Livestock holding</i>		
Small	122	38.12
Medium	146	45.63
Large	52	16.25
<i>Annual income (Rs.)</i>		
Low	156	48.75
Medium	123	38.44
High	41	12.81
<i>Milk production (litres)</i>		
Low	46	14.37
Medium	223	69.69
High	51	15.94
<i>Mass media exposure</i>		
No mass media exposure	96	30.00
Low	110	34.38
Medium	91	28.43
High	23	7.19
<i>Extension contact</i>		
Low	51	15.94
Medium	227	70.94
High	42	13.12

category of old age group (Above 50 years) and young (up to 35 years) which accounts for 25.94 per cent and 14.38 per cent, respectively. It was observed that young people do not want to take farming as their livelihood option and most of them were migrated to the cities for jobs. The respondents belonged to middle and old age were having lots of experience in dairy farming.

Education: Table 1 reveals that 10.62 per cent of the respondents were illiterate, 18.13 per cent of the respondents were functionally literate, 13.12 per cent studied up to primary level, 19.38 per cent studied up to middle level, 15.93 per cent were educated up to matriculation, 17.82 per cent of the respondents were studied up to higher secondary level and 5 per cent of the respondents were studied up to graduation level and above. As around 70 per cent respondents were formally educated, but not having much exposure to various sources of information that could help in diversifying their farming.

Experience in dairying: Table 1 show that most of the respondents (73.13%) had a medium level of experience (7 to 27 years) followed by low (14.06%) level of experience (less than 6 years) and higher (12.81%) level of experience (more than 27 years). Most of the respondents fell in medium level of experience, this indicates, they were having higher indigenous knowledge and work experience in dairy farming, but most of them were specialized farmers having very less diversified farming activities.

Social participation: Table 1 reveals that the majority of the respondents (60.63%) were having membership in one social organization; while, 10 per cent of the respondents were having membership in two social organizations. Only 4.68 per cent of the respondents were having membership in more than two organizations.

More than six per cent of the respondents were having participation in social organization as an 'Office- bearer'. At the same time, it was also found out that 18.12 per cent of the respondents were having no membership in any type of social organization. From the results, we can interpret that more than 80 per cent of the respondents in the study area were socially aware and having the social participation in at least one of the social organization like, Gram Panchayat Samitis, Cooperative societies, Farmers' Organization, etc.

Occupation: From the results given in Table 1, it was found that 38.13 per cent of the respondents were engaged in agriculture along with livestock rearing

followed by 21.25 per cent were engaged in agriculture + livestock rearing + labour while 14.37 per cent in agriculture + livestock rearing + service. 10.94 per cent of the respondents were engaged in agriculture + livestock rearing + business while 9.06 per cent in livestock rearing + business + labour and 6.25 per cent of the respondents were engaged in livestock rearing along with the service.

The above results show that the majority of the respondents engaged in agriculture along with livestock rearing as their occupation and considered to be the main income earning activities for their livelihood.

Land holding: Table 1 reveals that the most of the respondents (42.50%) had small land holding (<2 ha) followed by 35.62 per cent had medium land holding (2-4 ha) and 21.88 per cent of the respondents had large land holding (>4 ha). Land is considered as one of the imperative socio-economic indicators in the agricultural sector and countryside development. It was observed in the study area that the majority of the land was un-irrigated, rocky and bushy, which was infertile. It can be concluded that the majority of the respondents fell in small to medium category of land holding. The probable reason could be fragmentation of land in the study area.

Livestock holding: The classification of respondents with respect to livestock holding has been presented in Table 1. It was clearly enunciated that most of the respondents, i.e., 45.63 per cent of the respondents belonged to the medium livestock holding category, whereas, 38.12 per cent of the respondents had small livestock holding and 16.25 per cent of the respondents had a large livestock holding. In the study area livestock rearing is the major source of livelihood due to frequent discrepancy in climatic conditions, i.e., drought and flood, in which most of the crops were damaged. So, it is evident that maximum respondents were reliant on livestock rearing.

Annual income: Table 1 reveals that 48.75 per cent of the respondents were having low annual income (<Rs.54600) category, followed by medium and high income comprising of 38.44 per cent and 12.81 per cent, respectively. Most of the farmers had annual income less than Rs.80,000 which was not substantial for their sustainable livelihood. As the majority of the respondents belonged to small and medium land holdings and these workforce were engaged only in agriculture and livestock rearing instead of diversified occupation.

Milk production: Table 1 revealed that most (69.69%) of the respondents fell under the medium category (2.2 to 9.76 litre milk per day) of milk production, followed by 15.94 per cent and 14.37 per cent belonged to high (>9.76 litre milk per day) and low (<2.2 litre milk per day) categories, respectively. On an average in each household dairy animals were producing around 5.68 litres of milk per day. The above results show that the average productivity of the animal was very low as the majority of the respondents fell under medium and low category.

Mass media exposure: It could be inferred from Table 1 that about 30 per cent of the respondents were not using any mass media to obtain information related to dairy as well as agriculture. While, about 34.38 per cent of the respondents had low level followed by 28.43 per cent had medium and only 7.19 per cent had a high level of mass media exposure. It was also found that television and radio were generally used mass media channels to update their knowledge vis-à-vis dairying and agriculture. The probable reason might be that less literacy, poor affordability to purchase T.V., radio, electricity, etc., lack of awareness and more interested to watch entertainment programmes instead of instructional programmes within the available time after the farming activities.

Extension contact: Table 1 revealed that the majority of the respondents (70.94%) were in the medium category of extension contact followed by 15.94 per cent in low and 13.12 per cent in the high category. It was observed that fellow farmers, progressive farmers and Gram Pradhan were generally contacted extension functionaries. Govt. functionaries were less sought acquisition of information by the farmers as regards animal husbandry and agriculture. This might be due to the less reliability attached by the farmers to these functionaries, non-cooperative approach of the government personnel and lack of awareness among the farmers.

Extent of livelihood diversification among respondents: The majority of the respondents diversified their livelihoods in to numerous activities and earned a considerable amount of income from multiple sources. As depicted in the Table 2, the most (48.15%) of the respondents among marginal farmers were diversifying their livelihood at low level. Similarly, in case of small farmers, most (43.24%) of the respondents were diversifying their livelihood at low level. Most of the semi-medium and medium farmers diversifying their

Table 2. Distribution of sampled household as per the level of diversification (N=320)

Farmer category / Level of diversification	SID range	No.	%
<i>Marginal (n=81)</i>			
No	<0.01	0	0.00
Low	0.01 to 0.25	39	48.15
Medium	0.26 to 0.50	24	29.63
High	0.51 to 0.75	11	13.58
Very high	>0.75	7	8.64
<i>Small (n=78)</i>			
No	<0.01	0	0.00
Low	0.01 to 0.25	32	43.24
Medium	0.26 to 0.50	23	31.08
High	0.51 to 0.75	13	17.57
Very high	>0.75	6	8.11
<i>Semi- medium (n=78)</i>			
No	<0.01	0	0.00
Low	0.01 to 0.25	28	35.89
Medium	0.26 to 0.50	31	39.74
High	0.51 to 0.75	11	14.11
Very high	>0.75	8	10.26
<i>Medium (n=57)</i>			
No	<0.01	0	0.00
Low	0.01 to 0.25	21	36.84
Medium	0.26 to 0.50	24	42.11
High	0.51 to 0.75	8	14.03
Very high	>0.75	4	7.02
<i>Large (n=30)</i>			
No	<0.01	0	0.00
Low	0.01 to 0.25	5	16.67
Medium	0.26 to 0.50	9	30.00
High	0.51 to 0.75	13	43.33
Very high	>0.75	3	10.00
<i>Total (N=320)</i>			
No	<0.01	0	0.00
Low	0.01 to 0.25	125	39.06
Medium	0.26 to 0.50	111	34.69
High	0.51 to 0.75	56	17.50
Very high	>0.75	28	8.75

livelihood at medium level. In case of large farmers, most (43.33%) of the respondents were diversifying their livelihood at high level. The result revealed that out of the total respondents, 39.06 per cent had low, 34.69 per cent had medium, 17.50 per cent had high and 8.75 per cent had a very high level of livelihood diversification. The result implies that the majority of the respondents were diversifying their livelihoods at low and medium level. Thus, there is a need to motivate farmers towards livelihood diversification i.e. depending upon a single source of income to multiple sources of income for increasing their overall livelihood. *Saha and Bahal (2010)* in West Bengal found that about 38.84 per cent

of the adults had no other activity in addition to a base livelihood activity while almost 50 per cent per cent of all adults had some diversification activities. *Lokhande (2012)* in Maharashtra revealed that the overall extent of livelihood diversification was found to be 51 per cent, and nearly 39.58 per cent of the respondents was having a high extent of livelihood diversification.

Relationship between the socio-personal attributes with livelihood diversification: The relationship between the independent variables viz., age, education, experience in dairying, social participation, occupation, land holding, livestock holding, annual income, milk production, mass media exposure and extension contact with livelihood diversification were analyzed with coefficient of correlation (r) and results were represented in Table 3.

It was clear from the Table 3 that education, land holding, annual income and extension contact had positive and highly significant relationship with livelihood diversification at 1 per cent level of significance. It indicates that by increasing the values of the above factors, the value of livelihood diversification of the respondent's increases.

Other factors, such as age, livestock holding, milk production and mass media exposure had a positive and significant relationship with livelihood diversification at 5 per cent level of significance. However, variables such as experience in dairying, social participation and occupation were not found to be correlated with the livelihood diversification of the respondents.

Regression analysis between socio-personal characteristics and livelihood diversification:

Table 3. Correlation between the socio-personal characteristics with livelihood diversification (N=320)

Variables	Correlation coefficient (r)
Age	0.352*
Education	0.437**
Experience in dairying	0.092 _{NS}
Social participation	0.213 _{NS}
Occupation	0.116 _{NS}
Land holding	0.464**
Livestock holding	0.372*
Annual income	0.641**
Milk production	0.395*
Mass media exposure	0.283*
Extension contact	0.527**

**Significant at 1% level of significance, *Significant at 5% level of significance, NS: Non significant

Table 4. Multiple regression analysis between socio-personal characteristics and livelihood diversification (N=320)

Variables	Regression coefficients (b) value	"t" value
Age	0.063	2.491*
Education	-0.102	2.067* ^{NS}
Experience in dairying	0.075	1.183 ^{NS}
Social participation	-0.053	2.475*
Occupation	0.132	4.301**
Land holding	0.074	3.782**
Livestock holding	0.027	2.935**
Annual income	-0.069	4.741** ^{NS}
Milk production	-0.127	1.242 ^{NS}
Mass media exposure	0.054	2.297*
Extension contact	0.127	3.403**

R²= 0.652; F stat= 19.372**

**Significant at 1% level of significance, *Significant at 5% level of significance, NS: Non significant

Table 4 reveals that the results of regression analysis administrated to isolate the prediction potentialities and the amount of variability to be explained by the independent variables towards livelihood diversification. The beta coefficient and their corresponding value indicate varying level of contribution towards dependent variables.

When the data was put into a regression analysis for asserting the R² value, then it was found that they were cumulatively responsible for accounting 65.20 per cent variability towards dependent variable i.e. livelihood diversification. The fitted regression model was observed to be significant at 1 per cent level of significance with F stat value of 19.372. Further, the variables occupation, land holding, livestock holding, annual income and extension contact were found to be highly significant (p<0.01) while, age, education, social participation and extension contact were found to be significant (p<0.05).

CONCLUSION

The majority of the respondents belonged to middle aged group. Majority of the respondents fell under the medium category of milk production. Most of the respondents had a low to medium level of mass media exposure and more than one third of the respondents had no mass media exposure. The majority of the respondents were in the medium category of extension contact. Most of the respondents were

diversifying their livelihoods at low and medium level. Education, land holding, annual income and extension contact had positive and highly significant relationship with livelihood diversification. It indicates that by increasing the values of the above factors, the value of livelihood diversification of the respondent's increases. The fitted regression model shows that the variables occupation, land holding, livestock holding, annual income and extension contact were found to be highly significant while, age, education, social participation and extension contact were found to be significant.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

REFERENCES

- Ahmed, M.T.; Bhandari, H.; Gordoncillo, P.U.; Quicoy, C.B. and Carnaje, G.P. (2015). Diversification of rural livelihoods in Bangladesh. *J. Agril. Eco. and Rural Devel.*, 2(2): 32-38.
- Bhatta, G. D.; Aggarwal, P.K. and Shrivastava, A. (2015). Livelihood diversification and climate change adaptation in indo-gangetic plains: Implication of rainfall regimes. *The J. Agril. and Envir.*, 16:77-94.
- Chambers, R. and Conway, G. R. (1992). Sustainable rural livelihoods: practical concepts for the 21st century. IDS discussion paper 296, The Institute of Development Studies (IDS), UK. 33.
- Davies, S. (1996). Adaptable livelihoods: Coping with food insecurity in the Malian Sahel, Macmillan Press, London.
- Deb, U.K.; Rao, Y.M. and Slater, R. (2002). Diversification and livelihood options: a study of two villages in AP, India. Working Paper. 178.
- Fafchaps, M. (2003). Rural poverty and development. Edward Elgar Publishing: Cheltenham.
- Gautam, Y. and Andersen, P. (2016). Rural livelihood diversification and household well-being: Insights from Humla, Nepal. *J. Rural Studies.* 44:239-249.
- Lokhande, J. (2012). Assessment of livelihood security among farmers of Vidarbha region of Maharashtra: An exploratory study. *Ph.D. Thesis*, NDRI Deemed University, Karnal (Haryana), India.
- Punitha, P.; Pandey, D.K.; Feroze, S.M.; Singh, R.J.; Ram, D.; Singh, N.O.; Jyothi, S.S.P. and Monika, A. (2016). Socio economic profile and perceived livelihood diversification choice of jhumias of Manipur in North East India. *Progressive Res. – An Intl. J.*, 11 (Special-VI) : 4314-4319.
- Saha, B. and Bahal, R. (2010). Livelihood diversification pursued by farmers in West Bengal. *Indian Res. J. Ext. Edu.*, 10 (2):1-9.

