Research Article

Indian Journal of Extension Education
Vol. 62, No. 1 (January–March), 2026, (21-26)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Attitude of Agricultural Beneficiaries towards NGOs in North Coastal Andhra Pradesh

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HIGHLIGHTS

- Respondents below 50 years of age and those with basic education expressed significantly more favourable attitudes towards Non-Government Organisations.
- Regression and Random Forest models identified scientific orientation as the most influential factor shaping positive attitude towards NGOs.
- Family support and social participation were also found to be most important in shaping a positive attitude towards the NGOs.

ARTICLE INFO

Keywords: Attitude, Housing conditions, Non-Governmental Organisations (NGOs), Scientific orientation.

https://doi.org/10.48165/IJEE.2026.62104

Citation: Badavath, A., Padhy, C., Deb, A., & Ghose, B. (2026). Attitude of agricultural beneficiaries towards NGOs in North Coastal Andhra Pradesh. *Indian Journal of Extension Education*, *62*(1), 21-26. https://doi.org/10.48165/IJEE.2026.62104

ABSTRACT

Non-government organisations play a vital role in meeting societal needs. The study, conducted in 2025, explores the influence of socio-economic factors on attitudes of beneficiaries towards NGOs engaged in agricultural development and poverty alleviation. The purpose of this study was to evaluate beneficiaries' attitudes toward NGOs in the districts of Vizianagaram and Srikakulam in Andhra Pradesh's North Coastal regions. A purposive sampling design was used for the selection of districts. Two NGOs from each district were selected based on their performance. 15% of the beneficiaries from each NGO were randomly selected from each district, resulting in a total of 90 farmers. So, in total, 180 farmers were selected from both districts. The analysis of variance (ANOVA) revealed that attitude scores significantly differed by education, age, income and land holding size ($p<0.01$). The multiple regression analysis revealed that scientific orientation, health security and housing conditions emerged as significant predictors. Respondents with basic education and those below 50 years of age showed more significant attitudes than illiterate, graduate and older individuals. Random forest analysis revealed that scientific orientation, health security, family support and social participation were key contributors.

INTRODCUTION

Non-governmental organisations play a vital role in meeting the requirements of societies, providing crucial services, and supporting causes that enhance societies (Kim et al., 2017). These are independent, non-profit organisations that play a vital role in addressing social, economic, and environmental challenges. NGOs have increasingly contributed to rural development efforts since being formally recognized in the United Nations Charter in 1945 (Lewis et al., 2020). In the agricultural sector NGO contributes significantly by providing a substantial contribution by conducting training programmes, prompting the dissemination of advanced technologies, and the encouragement of adoption of sustainable farming practices (Utuk, 2014). In addition to their role in

Received 27-10-2025; Accepted 07-11-2025

environmental preservation (Sahoo et al., 2021), NGOS are instrumental in enhancing rural livelihood through skill development and entrepreneurship, and social welfare (health, education, and women's empowerment). NGOs have been actively involved in increasing farmer's resilience, enhancing soil health, and crop productivity in regions such as North Coastal Andhra Pradesh (Lewis, 2023). Various programmes are in place specifically oriented towards the socio-economic empowerment of women by the voluntary organizations, and there is a need to do more (Slathia et al., 2014).

However, just as important to the success of these interventions as the quality of the services is how respondents view and interact with them (Mondal & Basu, 2014). While skepticism or apathy may reduce the significance of these achievements, a positive attitude among beneficiaries tends to enhance the adoption and long-term sustainability of innovations (Gotz, 2019). The attitude and perceptions of beneficiaries of rural populations mainly in rural setting are pivotal to the success of and sustainability of NGO led-initiatives (Savari & Khaleghi, 2023). Extension Advisory services play very important role in enhancing rural livelihoods (Ranjan et al., 2025). The training imparted are in thrust areas and the farmers have always shown high degree of training need (Nain & Chandel, 2010). Farmers and rural communities are more likely to accept the technology and practices offered by NGOs (Kobba et al., 2020). The development of community-based infrastructure and provision of employment are identified as key factors that facilitate the rural agriculture productivity (Tripathi et al., 2025). Positive beneficiary attitude contributes to long-term impacts, higher adoption rates, and increased community participation (Odyuo et al., 2017). Even stronger programs may fail due to lack of trust or low participation (De, 2020). Although an extensive presence of NGOs for rural development initiatives, only 45–50% of farmers report sustained benefits from their interventions (Phiri, 2020). This implies that although NGOs are operationally active, there is a wide range in their efficacy, which may be caused by systemic problems like inadequate follow-up procedures, a lack of resources, or insufficient community engagement (Mphahlele, 2023). Moreover, there remains a paucity of focused research examining the relationship between recipients' perceptions and the real effects of NGO-led initiatives (Kriti & Mohapatra, 2025). The lack of targeted evaluation necessitates empirical studies to address this gap to provide evidence-based insights to improve NGO performance and improve outcomes for rural communities (Mansuri & Rao, 2012).

METHODOLOGY

The present study was conducted in Vizianagaram and Srikakulam districts of Andhra Pradesh in 2025 which are well known for their agricultural activities. An ex-post-facto research design was used to examine existing conditions and interrelationships among variables. This design is suitable for researching how NGOs affect the spread of agricultural technology and related aspects. A purposive sampling design was used for selection of districts. Two NGOs from each district were selected based on their performance. 15% of the beneficiaries from each NGO were randomly selected from each district resulting in a total of 90 respondent farmers. So, in total 180 respondent farmers were selected from both the districts. A structured interview schedule comprising both close-ended and open-ended questions were used to gather data. The instrument was designed to collect detailed data on attitudes, organizational capacity, technology adoption, NGO activities, and socioeconomic profiles. To extract valuable insights, a number of statistical approaches were applied to the collected data. To summarize respondents' characteristics, a general overview of their socio-economic and behavioural profiles was provided. Analytical tools like regression analysis were used to examine the impact of numerous independent factors on outcomes such as NGO performance and technology uptake. Principal Component Analysis (PCA) was used to reduce dimensionality and expose hidden patterns amongst correlated variables, resulting in the identification of crucial components like institutional support and psychological orientation. In order to improve prediction accuracy and identify the critical elements affecting successful NGO interventions and agricultural technology adoption, the study used the Random Forest algorithm, a potent machine learning technique. This allowed for the identification of the most pertinent elements that contribute to successful technology distribution and recipient participation. This method strengthened the research findings by offering a sophisticated, data-driven comprehension of intricate relationships within the dataset.

RESULTS

Analysis of variance was used to determine whether there are statistically significant differences in the attitude scores of respondents based on different levels or categories of independent variables (Table 1). All four of the socio-economic variables under investigation viz. education, age, income, and landholding showed statistically significant differences in attitude scores, as revealed by the analysis of variance (ANOVA) ($p < 0.01$). Significant differences were found in attitude scores between educational levels; respondents with only primary or middle school education had the most positive attitudes (Mean ≈51), whereas those who were illiterate (42.43) and even graduates (43.91) reported much lower scores. This may indicate that, basic education combined with more direct community involvement may create greater openness towards NGOs than higher academic qualifications alone. Compared to older beneficiaries (>50 years; Mean = 44.03), respondents in younger (<35 years) and middle-aged (35–50 years) had significantly more positive attitudes (Means = 50.91 and 49.59, respectively). This suggests that younger age groups are aligned with development goals promoted by NGOs. This trend was further reflected in income and landholding: respondents with greater landholdings (>5 acres) displayed the strongest attitudes (Mean = 54.83), while attitude scores increased consistently across income levels, peaking among those earning over Rs. 1.5 lakh (Mean = 55.25). These results show that positive opinions of NGOs are highly correlated with economic stability and asset ownership, most likely as a result of improved access to funding and increased participation in development initiatives. All things considered, the findings highlight how important moderate education, economic empowerment, and demographic involvement are in influencing beneficiaries' attitudes of non-governmental organizations.

Table 1. Analysis of variance of the attitude of respondents with independent variables

Variable	F-Value	Sig.	Levels	Mean Attitude Score	DMRT Group
Education	5.38	<0.01	Illiterate	42.43	c
			Can read	49.12	a,b,c
			Can read and write	51.85	a
			Primary level	50.77	a,b
			Middle school	51.05	a,b
			High school	49.17	a,b,c
			Graduate	43.91	b,c
			Post Graduate	49.00	a,b,c
Age	6.90	<0.01	Young <35	50.91	a
			Middle-aged 35-50	49.59	a
			Old >50	44.03	b
Income (Rs.)	19.12	<0.01	<50,0000	41.14	b
			50,000 to 1,00,000	50.28	a
			1,00,000 to 1,50,000	54.70	a
			> 1,50,000	55.25	a
Land holding	11.58	<0.01	Up to 1 acre	44.00	c
			1 to 2.5 acres	47.92	b,c
			2.5 to 5 acres	52.76	a,b
			5.1 and above	54.83	a

Table 2. Regression Analysis of Independent Variables with Attitude

Unstandardized Coefficients		Standardized Coefficients			
Variables	B	Std. Error	Beta	t	Sig.
Age	-1.006	0.539	-0.067	-1.867	.064
Education	-0.131	0.167	-0.029	-0.785	.433
Landholding	0.482	0.424	0.046	1.136	.258
Family type	0.581	0.576	0.036	1.009	.315
Family support	0.123	0.155	0.074	0.791	.430
Annual income	-0.278	0.603	-0.020	-0.461	.646
Material possession	-0.671	0.227	-0.235	-2.953	.004
Information accessing behaviour	0.003	0.136	0.003	0.025	.980
Scientific orientation	0.721	0.117	0.537	6.141	.009
Extension contact	-0.221	0.201	-0.159	-1.096	.275
Social participation	0.333	0.200	0.185	1.663	.098
Health security	1.965	0.412	0.383	4.775	.003
Housing condition	1.877	0.541	0.145	3.467	.001
Sanitation	0.128	0.696	0.007	0.184	.854
Drinking water	0.515	0.635	0.030	0.811	.419

R^2 value of 0.805

The Table 2 from the regression analysis shows how respondents' attitudes about NGOs relate to a number of independent socioeconomic factors. The high R^2 value of 0.805 means that these factors account for 80.5% of the variation in respondents' attitudes. At the 5% level, four of the 15 factors were determined to be statistically significant. The greatest positive predictor was Scientific Orientation (Beta = 0.537, Sig. = 0.009), indicating that people who are more inclined to think scientifically have a more positive opinion of NGOs. Better living circumstances and access to health services are linked to more receptiveness toward NGO initiatives, as seen by the strong influence of housing condition (Beta = 0.145, Sig. = 0.001) and health security (Beta = 0.383, Sig. = 0.003) on positive sentiments. Since their p-values were higher than the 0.05 cut-off, other factors like age, education, landholding, family support, and extension contact did not substantially affect attitude. Overall, the findings from the regression analysis show that material possession, scientific orientation, housing condition and health security rather than conventional socioeconomic indicators are the main factors influencing attitudinal attitude toward NGOs.

To address the potential redundancy and multicollinearity among the predictor variables, Principal Component Analysis (PCA) was applied. Through Principal Component Analysis (PCA), 4 significant latent components, having eigenvalues >1, were found to account for the majority of the dataset's variance.

From Table 3 it is observed that PC1(first Principal Component) alone explained 46.6% of variance, and the first four components together explained 70.20% of total variation. The

Table 3. Principal Component Analysis (PCA) of the independent variables with attitude

PC	Explained Variance Ratio	Eigenvalues
PC1	0.4664	7.0344
PC2	0.0931	1.4036
PC3	0.0748	1.1277
PC4	0.0679	1.0244
PC5	0.0634	0.9563
PC6	0.0526	0.7928
PC7	0.0474	0.7151
PC8	0.0399	0.6022
PC9	0.0370	0.5584
PC10	0.0237	0.3572
PC11	0.0119	0.1800
PC12	0.0089	0.1338
PC13	0.0065	0.0984
PC14	0.0039	0.0592
PC15	0.0027	0.0404

heatmap illustrates the direction and magnitude of variable loadings, where darker red indicates a stronger positive association. The components capture underlying latent structures that influence respondents' attitudes toward NGOs.

PC1: Information accessing behaviour, extension contact, social participation, scientific orientation, family support, and health security all exhibit significant positive loadings. It documents the beneficiaries' assimilation into institutional and social networks, which directly improves their involvement in and exposure to NGO activities.

PC2: This component, which represents the socioeconomic standing and living standards of recipients, is significantly impacted by education, land holding, and housing conditions.

PC3: Age, sanitation facility, and drinking water all have a significant impact on this dimension. It shows how demographic maturity and basic amenities influence both the quality of life and access to benefits from development projects.

PC4: Age, annual income, and housing condition are important factors in this case. This element illustrates how age-related experience and financial stability lead to increased control over decisions made at the local level.

From the Table 4, the most significant predictor among the factors examined was Scientific Orientation (score = 0.183126), suggesting that people with a stronger scientific background are more sympathetic to non-governmental organizations. Health Security came in second (score = 0.170355), underscoring how important access to healthcare is in influencing how people view NGOs. Social participation (score = 0.112761) and family support (scoring = 0.159832) were also significant, indicating that family support and social networks increase people's involvement in NGO operations. The significance of information flow and advisory services was shown in the moderate contributions of variables like Extension Contact (0.088471) and Information Accessing Behaviour (0.086928) to the model. Remarkably, Material Possession scored 0.082331, which is consistent with regression results but indicates a more complex function in affecting views. Housing Condition (0.029233) was somewhat relevant but had a smaller impact. At the lowest end of the spectrum, factors with scores < 0.02 included

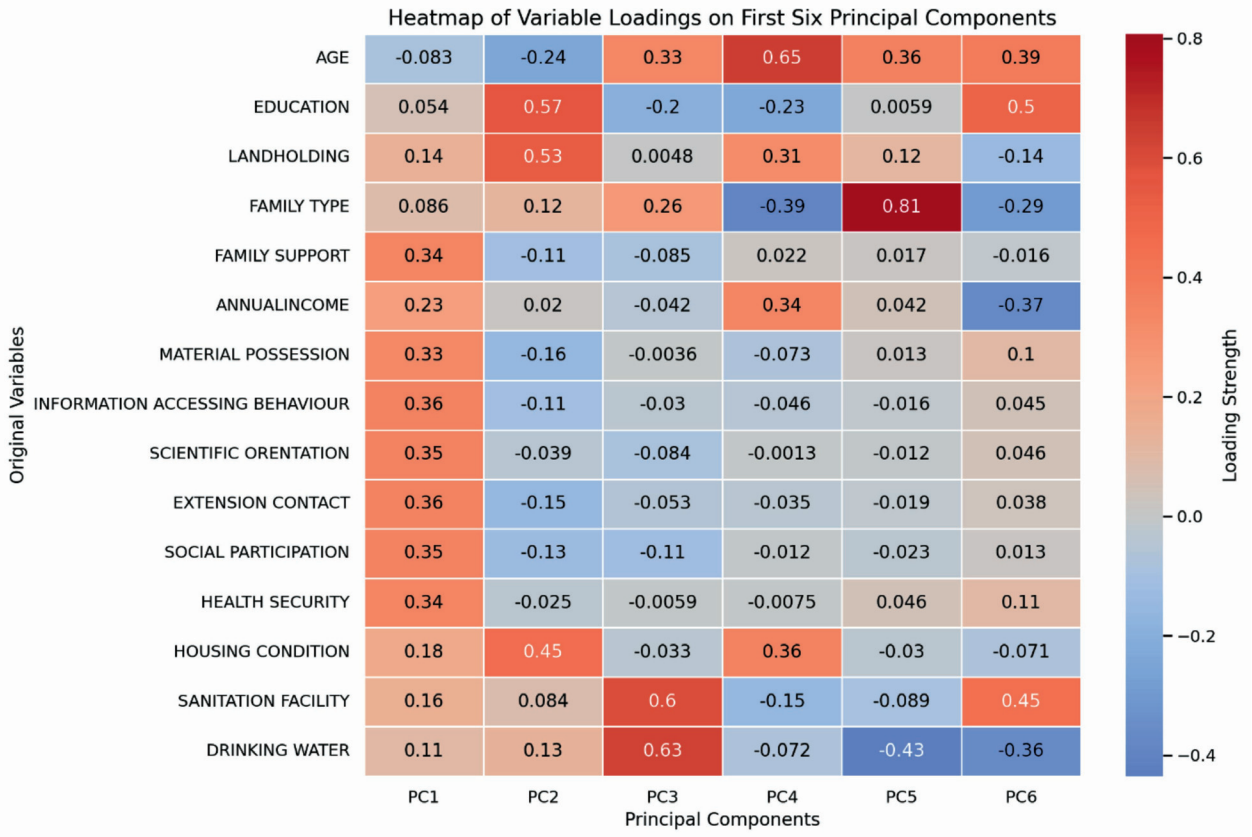

Figure 1. Heatmap illustrating the direction and magnitude of variable loadings

Table 4. Ranking of socio-economic variables based on feature importance (Random Forest Model)

Feature	Score
Scientific orientation	0.183126
Health security	0.170355
Family support	0.159832
Social participation	0.112761
Extension contact	0.088471
Information accessing behaviour	0.086928
Material possession	0.082331
Housing condition	0.029233
Education	0.017862
Annual income	0.015425
Sanitation facility	0.014148
Landholding	0.011738
Family type	0.011232
Drinking water	0.008476
Age	0.008080

education, annual income, landholding, family type, drinking water, sanitation facility, and age. According to these findings, views toward NGOs may be more strongly influenced by cognitive orientation, health access, and family or community integration than by traditional socio-economic level measures, notwithstanding their importance & demonstrates strong predictive accuracy, explaining 85% of the variation in the data with an R^2 of 0.85. The correctness of the model is confirmed by the error metrics, Mean Square Error (9.26) and Root Mean Square error (3.04), which indicate comparatively low prediction errors.

DISCUSSION

The study demonstrates that beneficiaries' opinions about NGOs are heavily influenced by their scientific orientation, social and family support systems. It was discovered that respondents who were younger, more educated, and more scientifically minded had a notably favourable opinion of NGOs, indicating more participation, trust, and openness to NGO-led projects (Gupta, 2014). These individuals showed higher levels of participation and openness towards NGO led programmes and activities. According to the regression analysis, 80.5% of the attitudinal variance could be explained by the statistically significant predictors of positive attitudes, which included housing conditions, health security, and scientific orientation. Beneficiaries with proper housing conditions expressed more favourable attitudes as NGOS supporting housing indirectly improved their quality of life. When respondents felt secure about their health due to NGO interventions, they were more appreciative and trusting. Scientific orientation emerged as the strongest predictor reflecting a strong association between openness to new ideas and favourable attitudes towards NGO led interventions. These results were further supported by the Random Forest model, which showed that scientific orientation was the best predictor, followed by social participation, family support, and health security. NGOs should involve family members while planning training, health interventions or awareness programmes. Individuals actively involved in social groups are more likely to receive timely information about NGO activities, training, schemes and support services. This exposure increases their awareness and understanding to make them more receptive towards NGO interventions. Individuals with openness to scientific ideas, innovation and modern practices showed a more positive attitude towards NGO interventions. Scientifically oriented individuals are more likely to comprehend and appreciate the programmes of NGOs resulting in stronger support and engagement. This correlates with the study that NGOs play an important role by introducing public service innovations and acting as a co-creation partner in government service innovations (Gesierich et al., 2025). Education, annual income, landholding, age, and sanitation facility were found to have little influence.

In general, cognitive engagement and fundamental changes in quality of life have a greater influence on views than conventional socioeconomic measures (Morais & Ahmad, 2011). NGOs must recognise that health is gateway to trust and engagement. Programmes focussing on health care can directly improve community participation. Investment in community health, sanitation, nutrition and hygiene will strengthen the NGO's credibility and long-term impact. Health security should be treated as both an entry point and development goal for broader social transformation. The findings showed a paradigm shift in how attitudes towards NGOS are formed. Rather than solely determined by demographic factors; attitudes are strongly shaped by community participation, improved quality of life and psychological readiness. These findings have important implications for NGOs for increasing the community participation and trust. They must prioritise interventions that enhance cognitive and social empowerment of community.

CONCLUSION

The study used statistical and machine learning methods to explore the multifaceted relationship between the socioeconomic traits of the beneficiaries and their attitudes towards NGOs. The regression results show that cognitive and perceptual factors, such as scientific orientation, health security and housing condition, have a greater influence on attitudes than conventional measures like education or income. NGOs should be encouraged to collaborate with Krishi Vigyana Kendras, agricultural universities and research institutes for scientific capacity building initiatives. NGOs should collaborate with health departments to conduct health camps, telemedicine services in rural and underserved areas. They should give importance to health outreach programmes focusing on nutrition education, maternity health and preventive health care. Social participation and family support were also significant factors, indicating that strong family support and social networks enhance beneficiaries' involvement in NGO activities and play a crucial role in shaping their attitudes towards such organisations.

DECLARATIONS

Ethics approval and informed consent: Informed consent was sought from the respondents regarding the study during the course of the data collection.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The authors declare that during the preparation of this work, they thoroughly reviewed, revised, and edited the content as needed. The authors take full responsibility for the final content of this publication.

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REFERENCES

Gesierich, S., Nordli, A. J., & Arundel, A. (2025). NGO engagement in the creation of public service innovations: A configurational, explorative approach. *Public Money & Management*, *45*(5), 424-434. https://doi.org/10.1080/09540962.2024.2410806

Götz, N. (2019). The emergence of NGOs as actors on the world stage. In Routledge *Handbook of NGOs and International Relations* (pp. 19-31). https://doi.org/10.4324/9781315268927-2

Gupta, S. (2014). From demanding to delivering development: Challenges of NGO-led development in rural Rajasthan, India. *Journal of South Asian Development*, *9*(2), 121-145. https://doi.org/10.1177/0973174114536099

Kim, M., Mason, D. P., & Li, H. (2017). Experimental research for nonprofit management: Charitable giving and fundraising. *Experiments in Public Management Research: Challenges & Contributions*, 415-436. https://doi.org/10.1017/9781316676912.021

Kobba, F., Nain, M. S., Singh, R., Mishra, J. R., & Shitu, G. A. (2020). Observational analysis of the effectiveness of entrepreneurship training programme in rural development and self-employment training institutes (RUDSETI). *Indian Journal of Extension Education*, *56*(1), 13-17. https://journals.acspublisher.com/index.php/ijee/article/view/4478

Kriti, K., Singh, A., & Mohapatra, S. (2025). Effectiveness of NGO-led livelihood initiatives on income generation among rural women of Bihar. *Indian Journal of Extension Education*, *61*(1), 61-65. https://doi.org/10.48165/IJEE.2025.61111

Lewis, D. (2023). Non-governmental organizations, definitions, and history. In *International Encyclopedia of Civil Society* (pp. 1-9). Springer, Cham.

Lewis, D., Kanji, N., & Themudo, N. S. (2020). Non-governmental organizations and development. Routledge. https://doi.org/10.4324/9780429434518

Mansuri, G., & Rao, V. (2012). Publication: Localizing development: Does participation work? A World Bank policy research report. https://doi.org/10.1596/978-0-8213-8256-1

Mondal, D., & Basu, D. (2014). A comparative study of performance of SHGs promoted by NGO and panchayat. *Indian Journal of Extension Education, 50*(1&2), 28-31. https://epubs.icar.org.in/index.php/IJEE/article/view/144290

Morais, N., & Ahmad, M. M. (2011). NGO led microfinance: Potentials and challenges in conflict areas. *Journal of International Development*, *23*(5), 629-640. https://doi.org/10.1002/jid.1672

Mphahlele, R. B. (2023). Evaluating the impact of government support programme on the development of land reform farms in South Africa (Doctoral Dissertation, University of the Free State).

Nain, M. S., & Chandel, S. S. (2010). Determinants of farmers' training need in agri-horti farming system: A study of *Doda* district of J&K State. *Journal of Community Mobilization and Sustainable Development, 5*(1), 23-27.

Odyuo, M. N., Patra, N. K., & Makar, A. K. (2017). Management problems in implementing development works as perceived by the NGOs: A case study in Nagaland, India. *Indian Journal of Extension Education*, *53*(1), 21-27. https://epubs.icar.org.in/index.php/IJEE/article/view/143901

Phiri, C. (2020). NGOs interventions for rural communities' resilience to climate change and variability case study: Mulanje district, southern Malawi (Doctoral Dissertation, University of the Free State).

Ranjan, A., Satyapriya, Lenin, V., Bishnoi, S., Barua, S., Ray, M., Sharma, D. K., Roy, S. K., & Abrar, P. N. F. (2025). Evaluating the effect of extension advisory services (EAS) using economic index score in aspirational districts. *Indian Journal of Extension Education*, *61*(3), 58-63. https://doi.org/10.48165/IJEE.2025.61311

Sahoo, A. K., Burman, R. R., Lenin, V., Sajesh, V. K., & Sarkar, S. (2021). Attitude of stakeholders towards IARI-post office linkage extension model. *Indian Journal of Extension Education*, *57*(2), 73-77.

Savari, M., & Khaleghi, B. (2023). Application of the extended theory of planned behavior in predicting the behavioral intentions of Iranian local communities toward forest conservation. *Frontiers in Psychology*, *14*, 1121396. https://doi.org/10.3389/fpsyg.2023.1121396

Slathia, P. S., Nain, M. S., Sharma, J. P., Ali, L., Chahal, V. P., & Kumar, R. (2014). NGO in socioeconomic development of rural women: A case study. *Journal of Community Mobilization and Sustainable Development, 9*(1), 101-106.

Tripathi, S., Yadav, P., Bharne, S., & Tiwari, H. (2025). Agricultural productivity through rural assets: Evaluating MGNREGA's role in boosting agricultural performance in India. *Indian Journal of Extension Education*, *61*(3), 19-24. https://doi.org/10.48165/IJEE.2025.61304

Utuk, I. O. (2014). The role of non-governmental organizations (NGOs) in participatory and sustainable rural economic development in Nigeria. *Journal of Economics and Finance*, *4*(1), 22-30. doi: 10.9790/5933-0412230