

Original Research Article

**CORRELATES OF PROFILE AND EXTENT OF ADOPTION OF CLUSTER
FRONTLINE DEMONSTRATIONS (CFLDS) BENEFICIARY AND NON-
BENEFICIARY FARMERS IN GROUNDNUT CONDUCTED BY KRISHI VIGYAN
KENDRAS IN CHITTOOR DISTRICT OF ANDHRA PRADESH**

ABSTRACT

Krishi Vigyan Kendra's (KVKs) were assigned to conduct Cluster Front Line Demonstrations (CFLD's) under NFSM, for demonstrating the production potential of newly released technologies on the farmer's fields at different locations in a given farming system and organize farming and extension activities for farmers and extension workers for diffusion of various technologies. They are conducted under the supervision of scientists of Krishi Vigyan Kendras, SAUs, and Regional Agricultural Research Stations. The present study was conducted in Chittoor district of Andhra Pradesh. The relationship of the profile of CFLDs beneficiary farmers and non-beneficiary farmers with change in Extent of adoption, in case of CFLDs beneficiary farmers the independent variables viz., education, training undergone, mass media, innovativeness, scientific orientation, management orientation, economic orientation and risk orientation were found to be positively significant but age and farming experience were found to be negatively significant, whereas farm size, extension contact, Social participation and achievement motivation are non-significant with change in yield level of beneficiary farmers. Regarding non-beneficiary farmers education, social participation, scientific orientation, management orientation, economic orientation, achievement motivation, were found to be negatively significant but age, farm size, farming experience, training undergone, extension contact, mass media exposure and innovativeness

were found to be non-significant with change in yield level. All the selected 14 independent variables put together explained about 73.60 per cent variation in the change in yield level of beneficiary farmers and 55.20 per cent variation in the change in yield level of non-beneficiary farmers of CFLDs.

Key words: Cluster Frontline Demonstrations (CFLDs), Beneficiary, Non-beneficiary, extent of adoption and Krishi vgyan kendras (KVKs)

1. INTRODUCTION

Krishi Vigyan Kendra, a district level front-line extension system, plays a critical role in technology assessment & refinement and conduct large scale demonstrations on successful technologies to convince the farming community and increase adoption. In order to enlarge the production and productivity of oilseed crops in the country, Ministry of Agriculture and Farmers' Welfare, Government of India sanctioned a project on “Cluster Frontline Demonstrations of Oilseeds in 2017-18” under National Mission on Oilseeds and Oil Palm (NMOOP) implemented through eleven ICAR-Agricultural Technology Application Research Institutes (ATARI) all over India. Cluster Frontline Demonstrations (CFLDs) play a crucial role in agricultural development and innovation adoption. They serve as practical platforms for showcasing and promoting new agricultural practices, technologies, and techniques to farmers. CFLDs aim to bridge the gap between research institutions and farmers, facilitating the transfer of knowledge, improving agricultural productivity, and enhancing farmers' livelihoods.

Cluster frontline demonstrations are conducted in specific geographic clusters, where a group of farmers collectively participates in the demonstration of innovative agricultural practices. These demonstrations are often organized by agricultural extension agencies, research institutions, or non-governmental organizations (NGOs) in collaboration with local

farmers' groups or cooperatives. The primary objective of cluster frontline demonstrations is to provide firsthand experience to farmers by showcasing the benefits and effectiveness of new agricultural technologies and practices.

2. RESEARCH METHODOLOGY

For the present study, Chittoor district of Andhra Pradesh was purposively selected being a native of the district, the researcher was familiar with social conditions, local language, culture of the people, officers and KVK scientists which helped for in depth study combined with personal observations. Krishi Vigyan Kendra, Kalikiri and Rashtriya Seva Samithi - Krishi Vigyan Kendra (RASS-KVK), Karakambadi in Chittoor district were selected purposively for the study. Two mandals adopted by each KVK were selected purposively for the study. Three villages from each of the selected mandals, were selected by purposive sampling technique, thus making a total of six villages. From each of the selected villages, 10 CFLDs beneficiary and 10 non-beneficiary farmers were selected by following simple random sampling procedure, thus making a total of 120 respondents. Primary data was collected with the help of a well-structured and pre-tested interview schedule. The required secondary data was collected from various KVKs (Krishi Vigyan Kendras), journals, magazines, publications etc. For analyzing the relationship between the variables, Karl Pearson's correlation coefficient test was applied.

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\sum x^2 - \frac{(\sum x)^2}{n}} \sqrt{\sum y^2 - \frac{(\sum y)^2}{n}}}$$

where,

r = Co-efficient of correlation between x and y

Σx = Sum of independent variables x

Σy = Sum of dependent of variables y

Σx^2 = Sum of squares of x variables

Σy^2 = Sum of squares of y variables

Σxy = Sum of scores of two variables

n = Size of the sample

The computed 'r' values were then compared with the table values for 5 per cent and 1 per cent level of significance at n-2 degree of freedom. If the 'r' calculated value was greater than or equal to 'r' table value, the relationship between the selected variables was considered significant otherwise it was considered as non-significant.

2.1 OBJECTIVE OF THE STUDY

To study the relationship between profile and extent of adoption of CFLDs beneficiary and non-beneficiary farmers.

3. RESULTS AND DISCUSSION

In order to study the relationship between the profile and extent of adoption of Cluster Frontline Demonstrations (CFLDs) beneficiary farmers and non-beneficiary farmers, correlation coefficients (r) were computed and the values are presented in Table 1.

3.1 Age Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = -0.334^{**}, -0.284^{*}$) between age and adoption of the CFLDs beneficiary farmers and non-beneficiary farmers was greater than the table value of 'r' at 0.01 level and 0.05 level of significance respectively.

Therefore, it could be inferred that there was a negative and significant relationship between age and adoption by the beneficiary and non-beneficiary farmers of CFLDs.

Majority of the farmers belonged to middle age group. They had medium innovativeness, high scientific orientation and medium mass media exposure. As the individuals grow older, their willingness to adopt new ideas or technologies lowers since they are inclined to more conventional methods and do not desire to try new things. Therefore, as the age increases the extent of adoption decreases. This finding was in agreement with Sreenivasulu (2011)

3.2 Education Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.808^{**}$) between education and adoption of beneficiary farmers was greater than the table value of 'r' at 0.01 level of significance. Hence, null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and highly significant relationship between education and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers co-efficient of correlation ($r = 0.200^{NS}$) between education and adoption of the non-beneficiary farmers was less than the table value of 'r' at 0.05 level of significance.

This might be due to the reason that if education of farmers is more, their mental horizons are sharpened and they will acquire more knowledge about new technologies and try to practice in their field. Non-beneficiary farmers had non-significant relationship because majority of them were educated up to primary school so, they were interested to follow traditional farming in their fields. This finding was in line with the findings of Sreenivasulu (2011) and Kadalgi (2017).

3.3 Farm size Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = -0.014^{NS}$, -0.047^{NS}) between farm size and adoption of the respondents was less than the table value of 'r' at 0.05 level of significance. Hence, null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be inferred that there was a negative and non-significant relationship between farm size and adoption by the beneficiary and non-beneficiary farmers of CFLDs.

The possible reason for this was irrespective of their farm size farmers might have adopted new technologies in their fields. These findings were similar with the findings of Siddeswari (2015) and Chouhan (2019).

3.4 Farming Experience Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = -0.289^*$) between farming experience and adoption of the beneficiary farmers was greater than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a negative and significant relationship between farming experience and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers, co-efficient of correlation ($r = -0.143^{NS}$) between farming experience and adoption of the non-beneficiary farmers was less than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a negative and non-significant relationship between farming experience and adoption of non-beneficiary farmers of CFLDs.

In case of beneficiary farmers, irrespective of their farming experience in farming, the grasping level of new innovations and adopting it in the field situation was dependent on

individual's personal interest. This finding of the study was in agreement with the findings of Sreenivasulu (2011).

3.5 Training undergone Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.484^{**}$) between training undergone and adoption of the beneficiary farmers was greater than the table value of 'r' at 0.01 level of significance. Therefore, it could be inferred that there was a positive and highly significant relationship between training undergone and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers, co-efficient of correlation ($r = 0.031^{NS}$) between training undergone and adoption was less than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a positive and non-significant relationship between training undergone and adoption of non-beneficiary farmers of CFLDs.

Probably this could be due to the fact that beneficiary farmers who have attended more number of trainings had a greater understanding and exposure to new technology. After being acquainted with this technology, individuals develop a favourable attitude towards the technology and decided to adopt it. Non-beneficiary farmers were unaware of new technology since they were not interested in attending trainings conducted by KVKs.

3.6 Extension contact Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.310^{**}, -0.219^{*}$) between extension contact and adoption of the respondents was greater than the table value of 'r' at 0.01 and 0.05 level of significance respectively. Therefore, it could be inferred that there was a positive and significant relationship between extension contact and adoption of

beneficiary farmers whereas, negative and significant relationship between extension contact and adoption of non-beneficiary farmers of CFLDs.

The probable reason for this trend might be that beneficiary farmers who were participated in CFLDs scheme could have frequent contact with extension personnel than non-beneficiary farmers. This might be because beneficiary farmers contact the KVK functionaries for acquiring more knowledge on new technologies and management practices, it helps them to adopt the technologies and know how to manage it. This finding of the study was in agreement with the findings of Siddeswari (2015) and Chouhan (2019).

3.7 Mass media exposure Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.727^{**}$) between mass media exposure and adoption of the beneficiary farmers was greater than the table value of 'r' at 0.01 level of significance. Therefore, it could be inferred that there was a positive and highly significant relationship between mass media exposure and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers co-efficient of correlation ($r = 0.208^{NS}$) between mass media exposure and adoption was less than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a positive and non-significant relationship between mass media exposure and adoption of non-beneficiary farmers of CFLDs.

It is natural that increased mass media exposure broadens the understanding and awareness on the recommended practices and which in turn leads to better adoption. Messages sent by extension personals through mass media channels also help beneficiary farmers to know about the management practices and weather forecasting than non-beneficiary famers. This finding was in line with the finding of Sreenivasulu (2011).

3.8 Social Participation Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.209^{NS}$) between social participation and adoption of the beneficiary farmers was less than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a positive and non-significant relationship between social participation and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers co-efficient of correlation ($r = 0.220^*$) between social participation and adoption was greater than table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a positive and significant relationship between social participation and adoption of non-beneficiary farmers of CFLDs.

3.9 Innovativeness Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.654^{**}, 0.340^{**}$) between innovativeness and adoption of the respondents was greater than the table value of 'r' at 0.01 level of significance. Therefore, it could be inferred that there was a positive and highly significant relationship between innovativeness and adoption of beneficiary and non-beneficiary farmers of CFLDs.

Innovativeness is associated with the individual's earliness in the use of new practices. Innovative farmers will always be experimenters. During any constraint situation, farmers with high level of innovativeness will experiment the new ways of doing things to change the existing situation. This finding was in line with the finding of Sreenivasulu (2011), Siddeswari (2015), Kadalgi (2017) and Gajanan (2019)

3.10 Scientific Orientation Vs Change in Extent of Adoption

From the Table 2 and Figure 1, it is evident that co-efficient of correlation ($r = 0.480^{**}, 0.383^{**}$) between scientific orientation and adoption of the respondents was greater

than the table value of 'r' at 0.01 level of significance. Therefore, it could be inferred that there was a positive and highly significant relationship between scientific orientation and adoption of beneficiary and non-beneficiary farmers of CFLDs.

Farmers having more scientific orientation will be motivated to know more about improved agricultural technologies. Due to this, they might develop favourable attitude towards technologies, which in turn led them to adopt new agricultural technologies. Hence, the above trend was noticed. This finding was in line with the finding of Siddeswari (2015).

3.11 Management Orientation Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.683^{**}, 0.407^{**}$) between management orientation and adoption of the respondents was greater than the table value of 'r' at 0.01 level of significance. Therefore, it could be inferred that there was a positive and highly significant relationship between management orientation and adoption of beneficiary and non-beneficiary farmers of CFLDs.

CFLDs empowers the farmers to implement quality decisions in their fields based on more scientific understanding of the agro ecosystem thus developing their capability to be better managers of their farming systems. Management orientation is the ability of a farmer in scientific farm management in planning, production and marketing. Farmers endowed with these attributes could naturally strive hard to get maximum profits by adopting the ICM practices. This might be the reason for such relationship between the variables. The finding was in conformity with the findings reported by Siddeswari (2015) and Kadalgi (2017).

3.12 Economic Orientation Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.526^{**}, 0.431^{**}$) between economic orientation and adoption of the respondents was greater than the table

value of 'r' at 0.01 level of significance.. Therefore, it could be inferred that there was a positive and significant relationship between economic orientation and adoption of beneficiary and non-beneficiary farmers of CFLDs.

CFLDs inculcate cost reduction technologies and measures to manage crop pests which improve the quality of produce. The farmers with high economic orientation will work towards higher yields and economic returns. During this process, they will acquire more knowledge and skills from different sources of information and adopt the same in their fields. Hence, the above trend was observed. The above finding is in conformity with the findings of Kadalgi (2017) and Padiyar (2017)

3.13 Risk Orientation Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.552^{**}$) between risk orientation and adoption of the beneficiary farmers was greater than the table value of 'r' at 0.01 level of highly significance. Therefore, it could be inferred that there was a positive and significant relationship between risk orientation and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers co-efficient of correlation ($r = 0.070^{NS}$) between risk orientation and adoption was less than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a positive and non-significant relationship between risk orientation participation and adoption of non-beneficiary farmers of CFLDs.

Risk orientation is the ability to take the right decision during uncertainties these uncertainties are nothing but the constraints. The farmer who is willing to take calculated risks during constraint situation will gain better results. Farmers with higher risk preference would be much ahead of others in exploiting the potentialities of eco-friendly cardamom cultivation. These farmers will be very much critical and cautious in understanding different

aspects of this technology which directly or indirectly might have helped them to acquire different components essential for better adoption of location specific technologies.

3.14 Achievement Motivation Vs Change in Extent of Adoption

From the Table 1, it is evident that co-efficient of correlation ($r = 0.347^{**}$) between achievement motivation and adoption of the beneficiary farmers was greater than the table value of 'r' at 0.01 level of significance. Therefore, it could be inferred that there was a positive and highly significant relationship between achievement motivation and adoption by the beneficiary farmers of CFLDs. Whereas, in case of non-beneficiary farmers co-efficient of correlation ($r = 0.177^{NS}$) between achievement motivation and adoption was less than the table value of 'r' at 0.05 level of significance. Therefore, it could be inferred that there was a positive and non-significant relationship between achievement motivation and adoption of non-beneficiary farmers of CFLDs.

Individuals with high achievement motivation would be determined to reach his goal with concentrated efforts. In this process, he knows the importance of recommended practices and this leads to high adoption. It is obvious that a farmer with high achievement motivation will definitely conceive new ideas and skills better than others and this might have influenced to have a better level of adoption. This finding was in line with the finding of Kadalgi (2017).

Table 1. Correlation coefficients between profile with change in extent of adoption of the beneficiary and non-beneficiary farmers of CFLDs

(n = 120)

S. No.	Variable	Correlation coefficients ('r' values)	
		CFLDs Beneficiary farmers	CFLDs Non-beneficiary

			farmers
1.	Age	-0.334**	-0.284*
2.	Education	0.808**	0.200 ^{NS}
3.	Farm size	-0.014 ^{NS}	-0.047 ^{NS}
4.	Farming experience	-0.289*	-0.143 ^{NS}
5.	Training undergone	0.484**	0.031 ^{NS}
6.	Extension contact	0.310**	-0.219*
7.	Mass media exposure	0.727**	0.208 ^{NS}
8.	Social participation	0.209 ^{NS}	0.220*
9.	Innovativeness	0.654**	0.340**
10.	Scientific orientation	0.480**	0.383**
11.	Management orientation	0.683**	0.407**
12.	Economic orientation	0.526**	0.431**
13.	Risk orientation	0.552**	0.070 ^{NS}
14.	Achievement motivation	0.347**	0.177 ^{NS}

* : Significant at 0.05 level of probability

** : Significant at 0.01 level of probability

NS : Non-significant

Dependent variable
 Y_2 : Change in Extent of adoption

- Independent variable**
- X_1 : Age
 - X_2 : Education
 - X_3 : Farm size
 - X_4 : Farming experience
 - X_5 : Training undergone
 - X_6 : Extension contact
 - X_7 : Mass media exposure
 - X_8 : Social participation
 - X_9 : Innovativeness
 - X_{10} : Scientific orientation
 - X_{11} : Management orientation
 - X_{12} : Economic orientation
 - X_{13} : Risk orientation
 - X_{14} : Achievement motivation

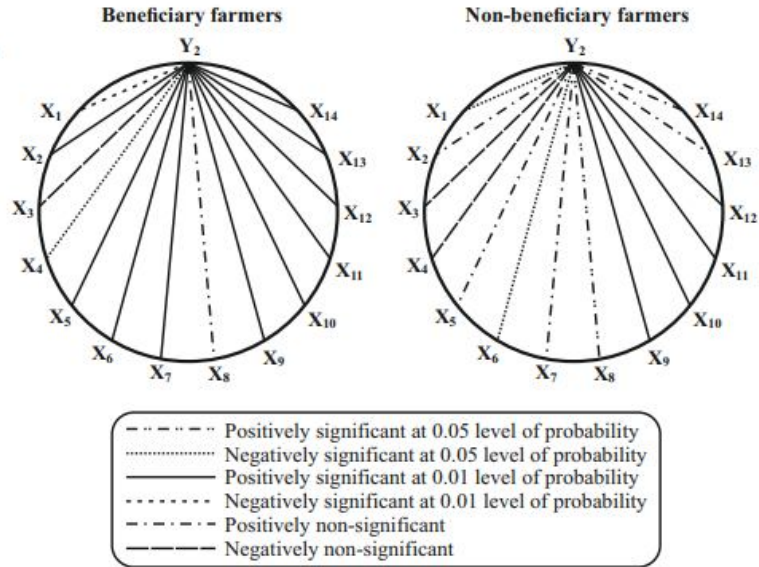


Figure 1. Correlation between profile of CFLDs beneficiary and non-beneficiary farmers and change in extent of adoption

Table 2. Multiple linear regression analysis of the selected independent variables with change in extent of adoption of the beneficiary and non-beneficiary farmers of CFLDs

(n = 120)

S. No.	Variable	CFLDs beneficiary farmers				CFLDs non-beneficiary farmers			
		Std. error	'b' values	't' values	'p' values	Std. error	'b' values	't' values	'p' values
1.	Age	0.097	0.011	0.114 ^{NS}	0.910	0.140	0.041	0.290 ^{NS}	0.773
2.	Education	1.789	5.488	3.068**	0.004	0.557	0.208	0.374 ^{NS}	0.710
3.	Farm size	0.468	-0.140	-0.299 ^{NS}	0.767	0.468	0.626	1.337 ^{NS}	0.188
4.	Farming experience	0.117	-0.113	-0.964 ^{NS}	0.340	0.165	0.032	0.195 ^{NS}	0.846
5.	Training	0.429	-0.295	-0.687 ^{NS}	0.495	0.807	-1.657	-2.052 ^{NS}	0.046

	undergone									
6.	Extension contact	0.133	0.243	1.819 ^{NS}	0.076	0.087	-0.184	-2.102 ^{NS}	0.041	
7.	Mass media exposure	0.791	-1.190	-1.504 ^{NS}	0.140	0.284	0.404	1.422 ^{NS}	0.162	
8.	Social participation	0.918	0.701	0.764 ^{NS}	0.449	0.814	0.724	0.889 ^{NS}	0.379	
9.	Innovativeness	0.058	0.236	4.109**	0.000	0.118	0.192	1.622 ^{NS}	0.112	
10.	Scientific orientation	0.392	0.021	0.054 ^{NS}	0.957	0.501	0.119	0.238 ^{NS}	0.813	
11.	Management orientation	0.173	0.120	0.691 ^{NS}	0.493	0.119	0.027	0.227 ^{NS}	0.821	
12.	Economic orientation	0.346	0.294	0.850 ^{NS}	0.400	0.260	0.465	1.789 ^{NS}	0.080	
13.	Risk orientation	0.328	-0.325	-0.990 ^{NS}	0.327	0.173	-0.385	-2.221 ^{NS}	0.031	
14.	Achievement motivation	3.394	-13.982	-4.120 ^{NS}	0.000	0.210	0.098	0.468 ^{NS}	0.642	
		R² = 0.724					R² = 0.405			

* : Significant 0.05% probability

** : Significant 0.01% probability

NS : Non-significant

3.15 REGRESSION ANALYSIS:

Table 2 shows that the coefficient of determination 'R²' value was significant. The 'R²' value of 0.724 which depicted that all the selected fourteen independent variables put

together explained about 72.40% variation in change in extent of adoption of CFLDs beneficiary farmers . The remaining 27.60% might be due to the effect of extraneous variables. Hence, it indicates that the profile selected to a large extent explained the variation in change in extent of adoption of CFLDs beneficiary . The multiple regression coefficients presented in Table 2 further revealed that the independent variables viz., education (Sig. = .004) and innovativeness (Sig. = .000) were found positively and statistically significant as evident from their significant 't' values in CFLDs beneficiary farmers. Whereas in case of non-beneficiary farmers 'R²' value of 0.405 which depicted that all the selected fourteen independent variables put together explained about 40.50% variation in change in extent of adoption of CFLDs non-beneficiary farmers .

The remaining 59.50% might be due to the effect of extraneous variables. The multiple regression coefficients presented in Table 2 further revealed that the independent variables didn't explain more about CFLDs non-beneficiary farmers. This implied that education and innovativeness have contributed to most of the variation in the change in extent of adoption of CFLDs beneficiary farmers . Normally a farmer with high education makes him to strive hard to get more information through various means to meet his requirements. High level of innovativeness helps to farmers to adopt the new technologies recommended by the scientist which directly help them to get more benefits the the non-beneficiary farmers.

4. CONCLUSION

The extent to which beneficiary farmers adopt new practices showcased in cluster frontline demonstrations is influenced by their educational background and exposure to agricultural information, including contact with extension agents and training programs. Beneficiary farmers with higher education levels and greater exposure to such resources demonstrate a greater receptiveness towards adopting these innovations. They possess a

better understanding of the advantages associated with these practices and are more likely to adopt them in order to enhance their agricultural productivity and income, in comparison to non-beneficiary farmers. The profile of cluster frontline demonstration beneficiary farmers holds a significant impact on the adoption levels of these practices, distinguishing them from non-beneficiaries. Consequently, it becomes imperative to comprehend the distinct needs, constraints, and motivations of different farmer profiles in order to effectively disseminate and successfully implement agricultural innovations. By doing so, the benefits of cluster frontline demonstrations can be extended to all farmers, regardless of their backgrounds or available resources.

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