ROLE OF OPINION LEADERSHIP IN DIFFUSION OF AGRICULTURAL INNOVATION

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ROLE OF OPINION LEADERSHIP IN DIFFUSION OF AGRICULTURAL INNOVATION

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CERTIFICATE

This is to certify that the thesis entitled **"Role of Opinion Leadership in Diffusion of Agricultural Innovation"** submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **Master of Science in Agricultural Extension and Information System**, embodies the result of a piece of *bona fide* research work carried out by **Kazi Anisul Islam**, Registration No. **07-02204** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

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ABSTRACT

The purpose of the study was to determine and describe the role of opinion leadership in diffusion of agricultural innovation. The study was conducted in the Alamdanga upazila under Chuadanga district. Among the unions of Alamdanga upazila Kalidaspur union has been selected purposively as the study area. An update list of 556 farmers of Kalidashpur union was prepared with the help of Upazila Agriculture Office of Alamdanga upazila. Among them 55 farmers as one tenth (1/10) of the farmers were randomly selected to explore the opinion leader. Each farmer was asked to mention 3 names from whom they seek advice and suggestions for their family affairs, agricultural matters, marketing and other social matters. Thus 165 names of opinion leaders were found. After cross checking and deducted the duplicate name a list was prepared with 138 local leaders and communicate with them for interviewing and bring into being available 115. The independent variables were: age, level of education, family size, annual income, extent of advice on adoption of agricultural innovation, innovativeness, organizational participation, agricultural knowledge, motivational activities and diffusion network. The dependent variable of this study was the role of opinion leadership in diffusion of agricultural innovation. Among the respondents, the highest 54.80 percent respondent opinion leaders belongs to the group of lowest role in diffusion of agricultural innovation followed by 34.80 percent in moderate role group and the lowest percentage 10.40 percent in highest group in diffusion of agricultural innovation. Level of education, extent of advice on adoption of agricultural innovation, innovativeness, organization participation, agricultural knowledge, motivational activities and diffusion network had significant positive relationships with role of opinion leadership in diffusion of agricultural innovation. Annual income had non significant positive relationships with role of opinion leadership in diffusion of agricultural innovation. On the other hand, age and family size had non significant negative relationship with role of opinion leadership in diffusion of agricultural innovation. As per Role Playing Index (RPI) obtain agricultural information from extension agent positioned the 1st and serve as center of inter personal communication network in positioned 10th as per different aspects of role of opinion leadership in diffusion of agricultural innovation.

CHAPTER I

INTRODUCTION

1.1 General Background

Bangladesh is predominantly an agricultural country with an area of 147,570 square kilometer and 14.1 million hectares of crop land (Anon., 2013). Agriculture accounts for about one fifths (about 20%) of Gross Domestic Product (GDP) and provides employment for more than two fifth of labor force and contributes large proportion of foreign exchange to the national economy (Bangladesh Economic Review, 2013). It is the single largest sector of Bangladesh and farmers cultivate rice, wheat, jute, maize, potato, pulses, oilseeds, sugarcane, cotton, vegetables throughout the year. There are a number of research institutes continuously doing research on different crops with innovative ideas that leads to maximum yield with minimum input support. Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Bangladesh Jute Research Institute (BJRI), Bangladesh Sugarcane Research Institute (BSRI), Bangladesh Institute for Nuclear Agriculture (BINA) are the major research institutes which have devotion to generate new crops, varieties as innovation or technologies.

Agricultural research all over the world has developed useful innovations, which are promising to increase agricultural production. However, farmers who are the backbone of the nation, are mostly illiterate and traditional, they are often skeptical towards new ideas and practices in agriculture, they often become frustrated with new practices in agriculture due to lack of proper understanding of the relevant factors. Therefore, the prerequisite for agricultural development is the communication of the benefit and know-how of improved agricultural practices among the farmers so that they move forward to use them in crop production. Rural development depends not only on technology generation but also on dissemination of technology as per the needs of the target groups in a particular farming system (Mettric, 1993).

Farmers are the ultimate users of the newly developed technologies. They live in a social system and they cannot decide to adopt technology by their own decisions. There are social structure, social norms, opinion leaders, authority and some other powers which influence them in their innovation decision. Some diffusion agencies- government, non-government or private involve themselves to spread the technological information among client system. An extension service can play an important role in increasing the rate of adoption of innovation that can enhance producer's productivity and welfare. Consequently, extension has the potential role to increase the rate of adoption by being directly involved in increasing awareness, in facilitating skill acquisition and helping farmers to understand a technology and its relevance to their circumstances. In Bangladesh Department of Agricultural Extension (DAE) plays main role for diffusion of agricultural innovations, transfer of technologies with information, education and motivation. DAE uses a number of communication channels and extension teaching methods for transfer of technologies for diffusion of innovation. They are mass media channels (MMC) and interpersonal channels (IPC) and both the process play pivotal roles in transfer of technologies.

Innovation means newly introduced method or device which has some production potentials and recommended by a recognized authority for a social systems (Bhuiyan, 2012). Newly introduced crops, varieties, fertilizers, method of pest control etc. are considered as agricultural innovation. Diffusion is a process which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 1983). Opinion leadership is importantly necessary for diffusion of innovation. Dennis and Andersion (1998) reports regardless of their source and sociometric status, farmers will adopt new technologies and modify their resource use when they believe that a proposed change is relevant to their circumstances and can help them to achieve their objectives. Generally mass people of the society passively attend the message communicated by mass media without proper perception, only few

people obtain and understand the message as beneficial for them who are termed as opinion leaders.

There are some people in the rural areas with experience and leadership qualities. Farmers go to them for opinion and advice. Activities of the farmers are, to a great extent, influenced by the opinion leaders from whom they seek information and advice. Agricultural extension work in the rural areas will be greatly facilitated if the extension agents can utilize the opinion leaders. Generally, opinion leaders of a community are lieutenant of extension agents of that locality. Moreover, extension programs will receive greater acceptance and participation of the people if their leaders are involved in those programs. Opinion leaders of a social system are more cosmopolite and obtain information from mass media channels and extension agents and pass those to fellow farmers. In order to effectively utilize the opinion leaders, it is necessary to have a clear understanding about the nature of opinion leadership among the farmers in the rural area. Extension workers need to know the extent of opinion leadership exhibited by the farmers. For a clear insight, one also needs to ascertain if the characteristics of the farmers are associated with their opinion leadership.

Opinion leadership is the degree to which an individual is able informally to influence other individual's attitude in a desired way with relative frequency (Rogers, 1983). Every social system has its opinion leaders who influence his fellow farmers in respect of social and economic aspect of life. People in the social system avail changes to think over the innovation and make decision to adopt or reject it with the help of opinion leaders. Opinion leaders play a crucial role in diffusion of innovations. But as far as knowledge goes, very few studies on role of opinion leadership in diffusion of agricultural innovation have yet been conducted. Findings of the study may play a great and significant role in gaining knowledge for planners and experts of agricultural extension services. Therefore, the researcher developed a felt need to conduct this sort of research to understand the role of opinion leadership in diffusion of agricultural

innovation. Viewing and considering the aforesaid conditions the researcher has become interested to undertake a research entitled, 'Role of Opinion Leadership in Diffusion of Agricultural Innovation'.

1.2 Statement of Problem

Agriculture sector is the single largest contributor to income and employment generation and accepted the challenge to achieve self sufficiency in food production. It shoulders the responsibility to reduce rural poverty through sustainable agriculture development. But it depends not only on technology generation but also on dissemination of technology. The Government has the responsibility to meet these challenges, and for this purpose, lack of sound mechanism for diffusion of innovation is the main barrier. The researcher undertook the investigation entitled, 'Role of Opinion Leadership in Diffusion of Agricultural Innovation' in a selected area of Alamdanga upazila under Chuadanga district in order to have an understanding of the role of opinion leadership in diffusion of agricultural innovations. The purpose of the study was to investigate the extent of role of opinion leadership in diffusion of agricultural innovation and to explore the relationship of the selected personal, economic, social and psychological characteristics of the opinion leaders with the role in diffusion of agricultural innovation. In order to make the study manageable, the following research questions were taken into consideration.

i) Do the selected opinion leaders have the meaningful role in diffusion of agricultural innovation?

ii) What is the extent of role of opinion leaders in diffusion of agricultural innovation?

iii) What are the selected characteristics of the opinion leaders?

iv) Is there any relationship exists between the selected characteristics of opinion leader and the role of opinion leadership in diffusion of agricultural innovation?

For getting clarification of the above questions the researcher selected the following objectives of the study.

1.3 Specific Objectives

Following specific objectives were selected in order to give proper direction of the study:

1. To determine and describe the role of opinion leadership in diffusion of agricultural innovation
2. To identify and describe the characteristics of identified opinion leaders. The characteristics are:
    - Age
    - Level of education
    - Family size
    - Annual income
    - Extent of advice on adoption of agricultural innovation
    - Innovativeness
    - Organizational participation
    - Agricultural knowledge
    - Motivational activities
    - Diffusion network
3. To explore the relationship between selected characteristics of opinion leaders and their role in diffusion of innovation
4. To prepare a rank order of role of opinion leadership in diffusion of agricultural innovation

1.4 Justification of the Study

Fortunately Bangladesh is favorite playground of nature for agricultural production. It offers a highly congenial environment for the growth of different crops. During last four decades population of Bangladesh increased from 75 million to 160 million, simultaneously food grain production increased from 10 million to about 30 million tons. Agriculture sector accepted the challenge to achieve self sufficiency in food production and shoulders the responsibility to reduce rural poverty through sustainable agricultural development. It is therefore, necessary to develop the agricultural production system into a more dynamic and commercially profitable sector. Agricultural research all over the world has developed useful modern technologies which, if used by the farmers in cultivation, will enormously increase agricultural production. Farmers who are the backbone of the nation, are mostly illiterate and traditional, they are often skeptical towards new ideas and practices in agriculture, they often become frustrated with new practices in agriculture due to lack of proper understanding of the relevant factors. Therefore, the prerequisite for agricultural development is the communication of the benefit and know how of improved agricultural practices among the farmers so that they move forward to use them in production of crops.

The task of educating the farmers about the improved agricultural practices, popularly known as agricultural extension, has been entrusted to the DAE. For carrying on the extension educational program, DAE has one Sub Assistant Agricultural Officer for a block and he has to look after on an average 900-1200 farm families. It is difficult for an extension worker alone to discharge their duties effectively among such a large number of farmers. Now the question arises how this problem to be solved. Obviously the answer is to involve the opinion leaders with the extension personnels. However, very few systematic researches have so far been conducted to determine role of opinion leadership in diffusion of agricultural innovation. Considering the above facts in view, a study entitled ‘Role of Opinion Leadership in Diffusion of

Agricultural Innovation' in the area of Alamdanga upazila under Chuadanga district was conducted.

1.5 Statement of Hypothesis

According to Karlinger (1973), a hypothesis is a conjectural statement of the relation between two or more variables. A null hypothesis states that there is no relationship between the concerned variables. The following null hypothesis was undertaken for the present study:

There is no relationship between the selected characteristics of opinion leadership with their role of diffusion of agricultural innovation'. The related characteristics are age, level of education, family size, annual income, extent of advice on adoption of agricultural innovation, innovativeness, leadership experience, organizational participation, agricultural knowledge, motivational activities and diffusion network.

1.6 Assumptions of the Study

An assumption has been defined as the supposition that an apparent fact or principle is true in the light of the available evidence (Goode, 1945). The researcher had the following assumptions in mind while undertaking this study:

- The respondents, included in the sample were capable of furnishing proper responses to the questions included in the interview schedule.
- Views and opinions furnished by the respondents were the representative views and opinions of the whole population of the study.
- The responses furnished by the respondents were reliable. The researcher was well adjusted to the social environment of the study area. So the respondents gave their opinions without any hesitation.
- All the data concerning the independent and dependent variables were normally and independently distributed with their respective means and standard deviation.

- The findings of the study would be applicable to other parts of the country with similar personal, socio-economic and cultural conditions.

1.7 Limitation and Scope of the Study

Considering the time, money and other necessary resources available to the researcher and to make the study manageable and meaningful it became necessary to impose certain limitations & scopes and also to make meaningful and manageable. The limitations were as follows:

i) The study was confined to Alamdanga upazila under Chuadanga district as a study area.

ii) Population for the present study was kept confined within the opinion leaders determined by the sociometric method.

iii) There were many characteristics of the opinion leaders in the study area but only eleven of them were selected for investigation.

iv) For information about the study, the researcher depended on the data furnished by the selected respondents during their interview with this researchers.

v) Facts and figures collected by the researcher applied to the situation prevailing during the year 2014.

Findings of the study will be particularly applicable in a selected area of Alamdanga upazila under Chuadanga district. However, the findings may also have applications for other areas of Bangladesh where the physical, socio-economic and cultural condition do not differ much from those of the study area. Thus the findings will be helpful to the researchers, planners, policy makers and extension workers for diffusion of agricultural innovations as well as agricultural development in our country.

1.8 Definition of Terms

A concept is an abstract of observed thing; events or phenomenon or in other words, it is a short hand representation of variety of facts. A researcher needs to know the meaning and contents of every term that used for a study. It should

clarify the issue as well as explain the fact to the investigator and readers. However, for clarity of understanding, a number of key concepts/terms frequently used throughout the study defined are interpreted as follows:

Respondents

People who are selected for face to face interview the questions by an interviewer for a social survey are known as respondents. They are the people from whom a social research worker usually gets most data required for his research. In this study the respondents were the opinion leaders of Alamdanga upazila under Chuadanga district.

Opinion Leadership

Katz and Lazarsfeld (1952) defined opinion leaders as individuals who receive information from the media and pass it along to their peers. According to Rogers (1962), opinion leaders are those individuals to whom others seek information and advice. Opinion leaders are individuals who are knowledgeable about various topics and whose advice is taken by others in their society seriously (Solmon, 1994). Opinion leaders can be found in all types of groups: occupational, social, community and others (Littlejohn, 1996). They often tend to be very socially active and highly interconnected within the community. Moreover, effective opinion leaders tend to slightly higher than the people they influence in terms of status and educational attainment, but not so high as to be in a different social class. To sum up, opinion leaders are those to whom farmers go for seeking information and advice.

Technology

A technology is a device being generated through the combination of knowledge, inputs and management practices, which are used together with productive resources to gain a desired output.

Innovation

An innovation is an idea or practice perceived as new by the individuals. It is the newness of the idea, technology, concept etc. to the individual that determines his reaction to it.

Diffusion

Diffusion is a special form of communication related to new ideas. It is a specific form of social change, defined as a process by which alteration occurs in the structure and function of a social system.

Variable

A general indication in statistical research of characteristic that occurs in a number of individuals, objects, groups etc. and that can take on various values, for example the age of an individual.

Assumption

An assumption is "The supposition that an apparent fact or principle is true in the light of the available evidence" (Goode and Hatt, 1952).

Hypothesis

Defined by Goode and Hatt (1952), a proposition this can be put to "a test to determine its validity". It may be true or false, it may seem contrary to or in accord with common sense. However, it leads to an empirical test.

Null hypothesis

The hypothesis which we pick for statistical test is null hypothesis (h_o). In this study the null hypothesis is stated that there is no relationship between the concerned variables.

Age

Age of a respondent is defined as the span of life and is operationally measured by the number of years from his/her birth to the time of interviewing.

Level of Education

Empirically it was defined to the development of desirable changes in knowledge, skill and attitudes in an individual through reading, writing, walking, observation and other selected activities. It was measured on the basis of classes a respondent has passed from a formal educational institution.

Family size

Family size refers to the number of member including the respondent himself/herself, his/her wife/husband children and other permanent dependents, who live and live together in a family unit.

Annual income

Annual income of a respondent referred to the total earning by him and other members of his family from agricultural (field crop, fruits, vegetables, poultry, fish cultivation) and non agricultural (service, business, daily wage labors and others) sources during a year. Annual family income of the respondent also included the cost of maintaining his family. It was expressed in Taka.

Extent of advice on adoption of agricultural innovation

Extent of advice on an adoption of agricultural innovation means the extent of advice in different activities related to agriculture technology for crop production like as, variety, irrigation, fertilizer applications, seeds sowing, crop growth and development and harvest and post harvest activities that was provided by the opinion leaders.

Innovativeness

Innovativeness is the degree to which an individual is relatively earlier in adopting innovations, new ideas, practices and things than the other members of a social system (Rogers, 2003). This was comprehended by the quickness of accepting innovations by an individual in relation to others and was measured on the basis of time dimension.

Organizational participation

Organizational participation of the respondent is measured in two dimension status of his participation and duration of participation in different organizations during the time of interviewing.

Agricultural knowledge

Literally knowledge means knowing or what one knows about a subject, fact, person etc. Agricultural knowledge referred to the understanding of the opinion

leaders about the different aspects of scientific agriculture such as improved seed, fertilizer, plant protection, irrigation, etc.

Motivational activities

Motivational activities means the activities that motivate one to believe that a proposed change is relevant to their circumstances and can help them to achieve their goals.

Diffusion network

It refers to the extent of contact with different network sources by the respondent opinion leaders to acquire information and knowledge regarding innovation. It referred to the respondent's exposure to the nearest places of innovations having agricultural importance.

CHAPTER II

REVIEW OF LITERTURE

To carry out the research program review of literature gives the clear and concise direction of the researcher. In this chapter, review of literatures relevant to the objectives of this study is presented. This was mainly concerned with 'Role of Opinion Leadership in Diffusion of Agricultural Innovation'. There was serious dearth of literature with respect to research studies on this aspect. So the directly related literatures were not readily available for this study. Some researchers addressed various aspects of the role of opinion leader for diffusion of innovation, their opinion on diffusion of innovation and its effect on client group and suggesting strategies for their emancipation from socio-economic deprivations. A few of these studies relevant to this research are briefly discussed in this chapter under the following four sections:

Section 1: Diffusion of innovation

Section 2: Concept of opinion leadership

Section 3: Review on the past studies in concerning the relationships between dependent and independent variables

Section 4: Conceptual framework of the study

The first section is concerned with the concept of diffusion of innovation. The second section contains the concept of opinion leadership. The third section deals with the review on the past studies in concerning the relationships between dependent and independent variables. Conceptual framework of the study is cited in the fourth section.

2.1 Diffusion of innovations

Innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption (Rogers, 2003). Pejanovic and Njegovan (2009) stated that "*innovation is a new method of production of known goods,*

discovery and production of new types of products, introduction of new production combinations".

Innovation as a social construction is created in interaction of awareness and the need for innovation (utility, acceptability, compatibility of innovation, the need to overcome the existing and well-known), openness and focus on creating a system of social innovation, creative personalities. Anyway, innovation is the result of synthesis of innovative individuals - talented and brilliant personalities, their physical and mental characteristics, as well as social conditions and scientific environment, and a position within the wider scientific community (Jankovic, 2005). In this regard Aeberhard and Rist (2008) states that new ideas can be generated by individuals, but only through collective cooperation in the process of social interaction. The adoption of innovations in agriculture is positively correlated with the level of education of the adoption unit (farmer), the experience and the property of holdings (measured in assets of the farm), (Rijn *et al*., 2012).

Diffusion theory, developed in the U.S. by rural sociologists, is a very important theory that describes the process of change, for example, diffusion of innovations in a community. This theory attempts to predict the behavior of individuals and social groups in the process of adoption of innovation, considering their personal characteristics, social relations, time factor and the characteristics of the innovation (Padel, 2001).

According to Padel (2001), diffusion theory could help understanding the process of diffusion of organic agriculture in a community and the way in which this process can be supported and improved, for example, through the information system in agriculture or agricultural extension.

According to Rogers (2003), diffusion of innovation is a kind of social change. It is a social process that involves interpersonal communication.
Communication is a process in which participants create and share information with one another in order to reach mutual understanding. Diffusion is a special

form of communication related to new ideas. It is a specific form of social change, defined as a process by which alteration occurs in the structure and function of a social system. Hall (2003) states that in the study of innovation the term diffusion is most often used to describe the process by which individuals or groups (companies) in the society/economy adopt a new technology or replace old technology with new.

The roots of the modern theory of diffusion of innovations can be found in the research that was most represented in the American rural sociology from the 1940`s to the 1970`s4. Scientific research area of diffusion of innovation, especially in rural areas and agriculture, was one of the main themes of early American rural sociology and it was developed for practical needs (Jankovic, 2005). Sociological research of the diffusion of innovation developed mostly from anthropology, due to its qualitative methodology. However, as Rogers (2003) noted, creation of the paradigm had to wait for the rural sociology tradition which has the highest percentage of participation in studies of diffusion of innovations.

At first glance, the diffusion of innovation theory looks good and is applicable to the process of adoption of organic farming (Padel, 2001). However, there are some concerns. The diffusion theory was developed in the 1980`s, during the paradigm of productivity of agriculture and "green revolution". Organic farming is a challenge to this paradigm, because it is characterized by a series of goals related to environmental protection and sustainable development (Padel, 2001). Organic farming is the closest to the ecological principle of sustainable agriculture, which is, compared to conventional agriculture, rather innovative (Beauchesne and Bryant, 1999). Considering organic agriculture as complex of agricultural innovations, Sutherland and Darnhofer (2012) stated that it has becoming more acceptable nowadays, especially "*when it was seen to be profitable, especially if it was more profitable than neighbouring conventional farms*".

2.2 Concept of opinion leadership

Perhaps the most famous research on opinion leadership was done by Elihu Katz and Paul Lazarsfeld stated in their book Personal Influence. Katz and Lazarsfeld (1955) define opinion leaders as individuals who receive information from the media and pass it along to their peers. They are individuals who are knowledgeable about various topics and whose advice is taken seriously by others (Solomon, 1994). Opinion leaders can be found in all types of groups: occupational, social, community, and others (Littlejohn, 1996). They often tend to be very socially active and highly interconnected within the community (Solomon, 1994). Moreover, "effective opinion leaders tend to be slightly higher than the people they influence in terms of status and educational attainment, but not so high as to be in a different social class" (Solomon, 1994). This way, the leaders are still a part of their audience's reference group. During the 1980's, theorists added a new dimension to the list of opinion leader characteristics. Public individuation is a state in which "people feel differentiated, to some degree, from other people and choose to act differently from them" (Chan and Misra, 1990).This is important to being an opinion leader, because such people must be willing to set themselves apart from their audience. Additionally, certain personal characteristics like high confidence, high self-esteem, the ability to withstand criticism, and a strong need to be unique (Chan and Misra, 1990).

It is important to remember, however, that social power, educational attainment, and public individuation are not absolute requirements for opinion leadership. Despite the existence of opinion leaders, it is not always easy to distinguish them from the other members of groups. This is because opinion leadership is not a trait, but rather a role taken by some individuals under certain circumstances (Katz and Lazarsfeld, 1955). In other words, anyone can be an opinion leader at any given time. Such leadership changes from time to time and from issue to issue (Littlejohn, 1996).

Opinion leaders also play important roles in movements of social change. Opinion leaders can bring legitimacy to a social movement (Stewart *et al*., 1994). Known as "legitimizers," these social opinion leaders are judges, politicians, business executives, clergy members, sports figures and entertainers. Such people help "legitimize" a cause in the eyes of the public by marching in demonstrations, appearing at rallies, donating money, speaking in favor of the cause, and so forth (Stewart *et al*., 1994)

As mentioned above, anyone can be an opinion leader, depending on the moment in tine and the issue at hand. Opinion leaders can be as small-scale as family members or as grand as celebrities. Some well-known examples of social opinion leaders who have helped bring legitimacy to various causes are: celebrities such as Robert Redford, Alan Alda, jane Fonda, Joanne Woodwaed, Barbara Streisand, the late John Denver, and Michael Jackson, politicians like Vice President Albert
Gore, Senator Ted Kennedy, and clergy members Jerry Farrewell and Jesse Jackson. These people have donated tine, money, and support to such contemporary causes as the environmental, women's liberation, gay-rights, prochoice, pro-life, and other movements (Stewart *et al*., 1994). Rogers (1962) points out that all persons do not exert equal amount of influence on the adoption decisions of others. These individuals who have a greater share of influence are called opinion leaders. According to Rogers, opinion leaders are these individuals from whom others seek advice and information.

Singh (1961) describes these persons as local leaders who show special interest and initiative in a local program.

Trent (1966) considers these lay people as opinion leaders who by virtue of the social position, age, education, family reputations, wealth, prestige or political contacts influence opinions on most action programs in the country.

Hays (1961) definition is significant in the sense that it defines leadership as a series of behaviors, not something inherent by the individual himself. For the

present purpose and as far as the extension activities are concerned, the concept of leadership will be discussed and interpreted in terms of leadership will be discussed and interpreted in terms of leadership behavior.

From the above definitions, emerge a picture which is helpful to have clear understanding of the concept of opinion leader. Opinion leaders are those persons who influence the actions of others by their advice and information. These persons possess some good qualities. The people respect them and go to them for advice.

Opinion leadership, in the light of foregoing discussions, may be defined as the activity of influencing the actions of others by advice and information. Rogers has rightly pointed out that opinion leadership is a fairly widespread trait even though it is especially concentrated in a few individuals. Influence is a matter of degree and should properly be viewed as a continuous variable, rather than as dichotomy of leaders and followers.

2.3 Review of past studies concerning the relationship between dependent and independent variables

2.3.1 Age and opinion leadership

Shah and Patel (1970) investigated that most the opinion leaders (77%) belonged to the 31-50 gears age group. More importantly, 11 out of 12 “very effective opinion leaders came from this age group.

Islam (1971) undertook a study in Comilla Kotwali thana on the characteristics of the leaders (Managers) of the primary cooperative societies. He found that almost half of the managers were within the age group (35-49) years and about one fifth of them were above 49 years. Only 33 percent of the managers belonged to the comparatively younger age group (20-34 years). He opined that leadership would be more effective if managers were selected from among people of comparatively older age group.

Reddy and Sahy (1971) observed opinion leaders in two Andhra Pradesh villages belonged mostly to the middle age groups.

Mannan (1972) conducting a research on rural leadership at Comilla Kotwali thana in Bangladesh found that the age of the leaders varied from 21 to 55 years. Seventy six percent of the leaders fell within the age group of (26-45) years as compared to 9 and 15 percent of leaders who fall within the age groups of (21-25) and (46-55) years. From these findings he concluded that rural leaders were neither too young nor too old.

Zainuddin (1972) studied the factors associated with leadership in a rural village in Malaysia and found no association between leadership and age.

Ahmed (1974) conducted a research on opinion leadership among rural area at Dhaljura union of Dhaka district and found that 37 percent of the farmers fell in the old category (50-70), compared to 34 percent in the middle aged (36-50) category and 29 percent in the young category (26-35). He opined that decision making relating to farming affairs in the rural area depends mostly on the old and middle aged farmers.

Supe and Kulkarni (1975) reported opinion leaders were found to be slightly younger in age, belonging mostly to the 21-40 years age group.

Dubey *et al*. (1978) observed no significant relationship between age and opinion leadership.

Sarkar (1996) observed that there was no relationship between the age of the farmers and their opinion on effectiveness of information dissemination through ARP's to the farmers.

Farrell (1994) studied influential persons' awareness of community problems in a rural Wisconsin country. The findings of the study indicated that influential were more likely to be over fifty years of age.

Islam (1998) indicated that there was no significant relationship between age of the farmers and their on the effectiveness of Mati-O-Manush TV programs in disseminating agricultural information.

Abbasuddin (2006) reported that age of the farmers had a significant and positive relationship with their opinion leadership

2.3.2 Education and opinion leadership

Rahudkar (1962) studied opinion leaders can very easily call on the block development officer and Agricultural Extension officer. Their information contacts are also wide. Even their Kinship relations are spread over a wide area. They are able to purchase agricultural books or subscribe to agricultural magazines and news papers. Thus these farmers have a number of contacts which they utilize for new information large farmers can afford to take the risk of implementing the contents of the information they obtain from various sources.

Wilson (1963) studied the characteristics of adults associated with leadership participation and interest in youth organization. The findings of the study Implied that the efforts of professional workers would be more effective if local leaders were recruited from adults who had higher formal education.

Farrell (1964) in conducting a study on influential persons' awareness of community problems in a rural Wisconsin county found that influential had a higher level of education.

Douglah (1965) found that youth leadership status was significantly related to formal education.

Bose and Saxena (1966) observed seventy five percent of the opinion leaders in a Rajasthan village were literate while the literacy rate among the average farmers was only 29 percent.

Skeleton and Clark (1968) recommended graduates of twelve grade or more of formal schooling as the educational level for lay leaders in 4-H club activities.

Raju (1969) reported more than half of the opinion leaders in Andhra Pradash villages were found to have up to secondary or higher education while only of six percent of the average farmers had a similar level of education.

Zaidi (1970) reported in his study that educated people were going to reported in his study that educated people were going to replace the traditional leaders in the rural community of Bangladesh.

Steele (1971) reported that opinion leadership in family living among low income home makers in the expanded food and nutrition program in Ohio. He found that majority of opinion leaders had an education level of 10 to 12 years.

Islam (1971) found that all the cooperative societies' leaders were educated, the educational levels varying from primary to the realization of the people that some education is necessary for performing the functions as leaders.

Zainuddin (1972) conducted a research in a rural village of Malaysia and found no association between leadership and education.

Mannan (1972) found that the leaders were educated up to the levels of primary, secondary, matriculate, and above matriculate and the corresponding percentages were 28, 63, 6, and 3. Upon analysis of data he concluded that some educational background was needed to exhibit leadership role effectively.

Dubey *et al*. (1978) studied the mean education score of the opinion leaders of two Uttar Prasdash villages was more than twice as large as that of average farmers.

Abbasuddin (2006) found that education of farmers had significant and positive relationship with their opinion leadership. This indicated that the higher the formal education of the farmers was the higher their opinion leadership.

2.3.3 Family size and opinion leadership

Alam (2001) in his study observed that family size had no significant relationship with the role of opinion leadership.

Chowdhury (2000) in this study reported that family size of the rural women had no significant relationship with their opinion for participation in development activities.

2.3.4 Annual income and opinion leadership

Dev and Sharma (1968) found income and opinion leadership two variables significantly related. While almost one-half of the opinion leaders in two Panjab villages had an annual income of Rupees 1100 or above only 14 percent of the average farmers had such a high income.

Raju (1969) observed in Andhra Pradesh, over tow thirds of the opinion leaders, compared to only 14 percent of the average farmers, had an average annual income of Rupees 6,000 or over from agriculture. Income appears to be related to opinion leadership in the same way the ownership of large holdings is related to the latter.

A study by Rahman (1973) shows the influence of income on adoption of innovation. The findings indicate a positive relationship between income of the farmers and adoption of improved farm practices.

Ahmed (1974) found a positive relationship between income of the farmers and their agricultural knowledge. Research findings as presented above reveal a positive relationship of income with adoption of improved farm practices and agriculture knowledge of the farmers. It is therefore; likely that income of the farmers will have a positive association with the opinion leadership.

2.3.5 Extent of advice on adoption of agricultural innovation and opinion leadership

The researcher did not get any post reviews on the extent of advice on adoption of agricultural innovation and opinion leadership.

2.3.6 Innovativeness and opinion leadership

Rahudkar (1962) in a study observed that opinion leaders had higher adoption rate than their followers.

Rogers and Burdge (1962) in seven Ohio truck growing communities observed that the average innovativeness score for the sociometric leaders was 28 percent higher than the score obtained by the average truck growers in the sample. All but one of the 14 opinion leaders was more innovative than the average grower in their community. Similar results were also obtained by Rahim (1963) in Bangladesh and found that opinion leaders had higher adoption score then the average farmers.

Zainuddin (1972) found in his study in Malaysia that leadership was positively associated with adoption of new practices.

Ulla (1974) reported that 45 percent of the farmers had medium innovativeness while 28 percent had low innovativeness and 26 percent had high innovativeness.

2.3.7 Organizational participation and opinion leadership

Singh (1965) found in a comparative study between an agriculturally developed and a less developed village, the opinion leaders have a much higher level of participation in formal organizations than average farmers in the villages of both types. The opinion leaders tended to had important offices in the formal organizations in which they participated.

Bose and Saxena (1966) reported the opinion leaders in a Rajasthan village participated in 15 organizations on an average compared with only nine for the average farmers.

Shah and Patel (1970) found opinion leaders have a higher level of social and organizational participation than average farmers. The “very effective” leaders in two Gujrat villages participated in 46 formal and informal organizations while the “less effective” leaders participated only in 15 of such organizations.

Mannan (1972) observed that 50 percent of the cooperative leaders were associated with different organizations other than the cooperative societies.

Zainuddin (1972) in his study found that leadership was associated positively with participation in local organizations.

Abbasuddin (2006) demonstrated that the organizational participation of the farmers had significant and positive influence on their opinion leadership. It means that farmers with larger organizational participation were high opinion leadership.

2.3.8 Agricultural knowledge and opinion leadership

Rahim (1963) in a study of Pakistani village reported that opinion leaders (local leaders) used more magazines, newspapers and extension service bulletins. The findings indicate that the opinion leaders read more farm magazines and other printed materials in agriculture. It is likely that the opinion leaders, through such reading, acquire knowledge and skill which help them to function as opinion leaders. Such consideration suggests a positive relationship between agricultural knowledge of the farmers and opinion leadership in rural areas.

Islam (1971) examined the relationship of agricultural knowledge of the managers of primary agricultural cooperative societies with the adoption of innovations by their societies. Adoption on three innovations, namely, new crop, tractor cultivation and irrigation was investigated by Islam. He found positive relationship of agricultural knowledge of the managers with adoption of all the three innovations by their societies. The findings indicate that agricultural knowledge of the managers helps them to perform their leadership function better.

Ahmed (1974) conducted a study on the agricultural knowledge of the farmers. He found a positive relationship between extension contact of the farmers and their agricultural knowledge. Findings of research as presented above indicate that extension contact has favorable influence on the adoption of improved

farm practices and agricultural knowledge. Opinion leaders in the rural areas are the persons who generally have higher adoption of improved practices and more agricultural knowledge.

Sohi and Sandhu (1976) conducted a knowledge test on recommended practices in plant breeding, agronomy, soil management, plant protection, vegetables, fruit cultivation, and animal husbandry to 86 village level workers in Punjab. On a possible range of knowledge score from 0 to 100, 12 received a low score of 0-36, 38 a medium score of 37- 47, and 36 received a high score of 36-100. The average knowledge score of the VLWs also 45, that is, it fell in the medium range. According to the author of the study, since the VLWs also had to engage in work that was not related agriculture, they spent inadequate time in communicating agricultural information to farmers and consequently, they themselves did not always have the knowledge about the more recent innovations. The VLWs, however, had a high knowledge score for practices relating to soil management, plant protection, animal husbandry, and plant breeding, for they advised farmers on these practices more frequently. Their knowledge scores were low for the practices on vegetables, fruit cultivation and agronomy.

Abbasuddin (2006) concluded that the agricultural knowledge of the farmers had positive significant relationship with their opinion leadership.

2.3.9 Motivational activities and opinion leadership

The researcher did not get any post reviews on the motivational activities and opinion leadership.

2.3.10 Diffusion network and opinion leadership

Rahudkar (1960) noticed opinion leaders had more frequent formal and informal outside contacts in a Maharashtra village. In other words, opinion leaders not only use the mass media and institutional sources more frequently than average farmers but are also more exposed to ideas originating from outside their frequent external contact with different network sources.

Rahudkar (1962) observed that the opinion leaders had more informal and formal contacts outside the village than they had with their followers inside the village.

Bose and Saxena (1966) found opinion leaders have a significantly higher level of contact with the world outside village than average farmers. Findings revealed that the frequency of visits to the nearest city, fairs, and exhibitions, was found to be significantly higher for the opinion leaders than the average farmers in a Rajasthan village.

Rogers (1967) found in his study that the more influential IOWA farmers were more cosmopolite in their friendships, attended in formal organization and possessed reading behavior.

Shah and Patel (1970) observed opinion leaders to visit fairs and exhibitions, the research station and the agricultural college and participate in group meetings and crop competitions outside the village more frequently than the average farmers in Gujarat village.

Triveddi (1972) studied the Village Level Workers, agricultural Extension Officer, and Block Development Officer were the most used sources by the opinion leaders.

Dubey and Dwivedi (1978) observed opinion leaders use institutional sources of information more frequently than average farmers. The exposure to the mass

media is higher among opinion leaders than average farmers. Opinion leaders also have a greater contact with extension agents.

2.4 Conceptual framework of the study

In scientific research, selection and measurement of variables constitute an important task. The hypothesis of a research while constructed properly consist at least two important elements i.e.: a dependent variable and an independent variable. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variables (Townsend, 1953)**.** An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. Variables together are the causes and the phenomenon is effect and thus, there is cause effect relationship everywhere in the universe for a specific events or issues.

The conceptual framework of Rosenberg and Hovland (1960) was kept in mind while making structural arrangements for the dependent and independent variables. This study is concerned with the role of opinion leadership in diffusion of agricultural innovation'. Thus, the role of opinion leadership in diffusion of agricultural innovation was the dependent variable and 10 selected characteristics of the opinion leaders were considered as the independent variables. Role of opinion leaders in diffusion of agricultural innovation may be affected through interacting forces of many independent variables. It is not possible to deal with all independent variables in a single study. It was therefore, necessary to limit the independent variables, which include age, level of education, family size, annual income, extent of advice on adoption of agricultural innovation, innovativeness, organizational participation, agricultural knowledge, motivational activities and diffusion network for this study.

Considering the above mentioned discussion, a conceptual framework has been developed for this study, which is diagrammatically presented in the following Figure 2.1.

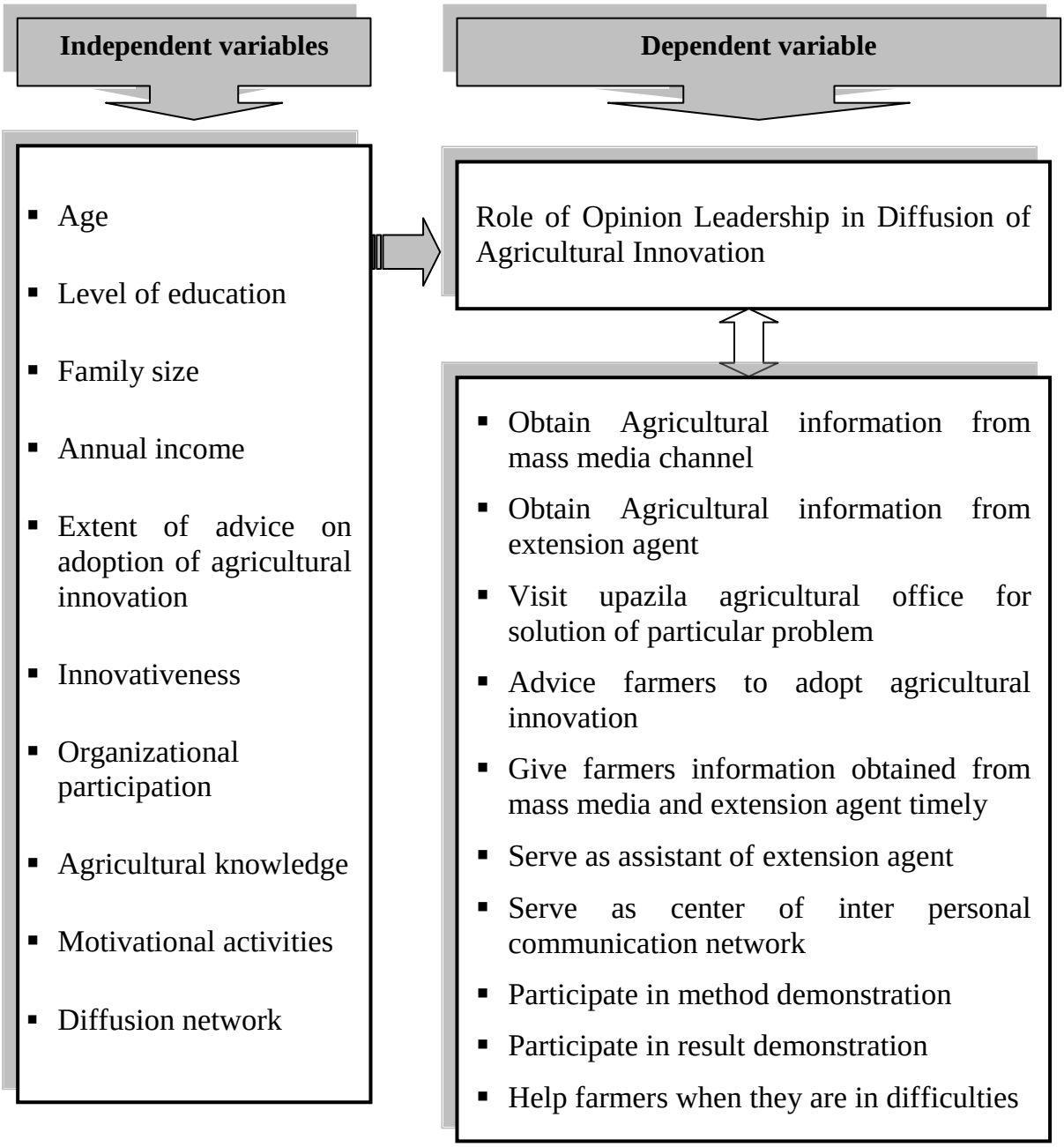

Figure 2.1 The conceptual framework of the study

CHAPTER III

METHODOLOGY

Methodology enables the researcher to collect valid information. It is impossible to conduct research work smoothly without proper methodology and it is very difficult to address the objectives with a scientific manner. It requires a very careful consideration on the part of the researcher to collect valid and reliable data and to analyze the same for meaningful conclusion. A sequential description of the methodologies was followed in conducting this research work has been presented in this chapter.

3.1 Locale of the study

The study was conducted in Alamdanga Upazila under Chuadanga District, situated around 20 km east from Chuadanga Districts head quarter. Alamdanga Upazila has 16 unions and out of 16 unions Kalidaspur union was selected purposively as the study area. Opinion leaders play a crucial role in diffusion of innovations so it is necessary to find out the role of opinion leader in diffusion of innovation and to bring the area in the light of great concern it was selected as study locale. A map of Alamdanga Upazila area is presented in Figure 3.1.

3.2 Sample size

Firstly, an update list of 556 farmers of Kalidashpur Union was collected from Upazila Agriculture Office of Alamdanga Upazila. Among them 55 farmers at the rate of 10% were randomly selected to explore the opinion leaders. The selected 55 farmers were brought together unofficially in a discussion meeting. Each farmer was asked to mention 3 names from whom they seek advice and suggestions for their family affairs, agricultural matters, marketing and other social matters. Thus 165 names of opinion leaders were found. After cross checking, 27 of duplicate names were found in the list which were discarded and communicated with them for interviewing. Thus, 138 names were found as local leaders. Out of which 115 were available at the time of interview. Thus these 115 local leaders constituted the sample of the study.

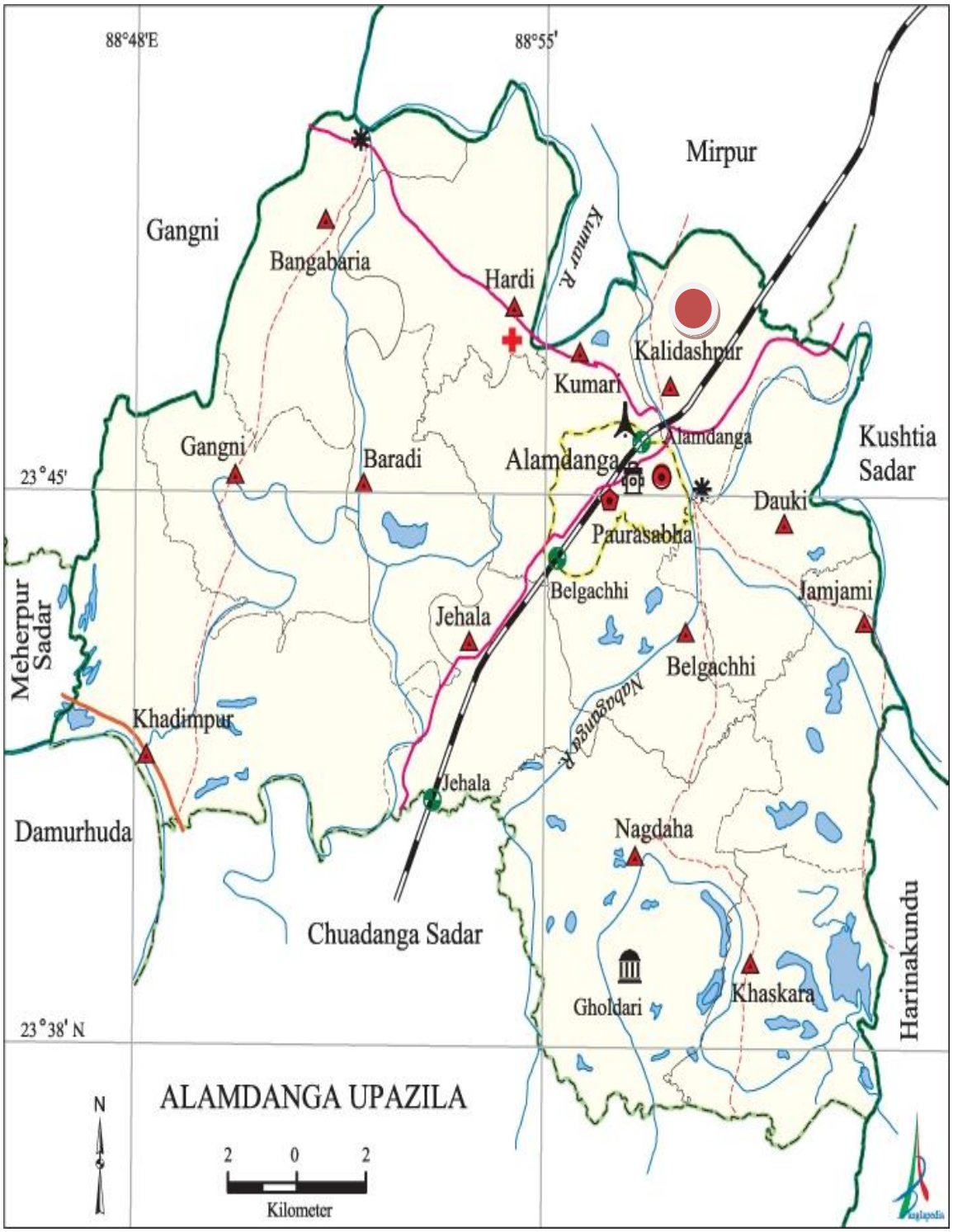

Figure 3.1 A Map of Alamdanga Upazila Showing the Study Area

3.3 The research instrument

A well structured interview schedule was developed based on objectives of the study. Direct and simple questions were exerted in open form and close form keeping in view the dependent and independent variables. Appropriate scales were developed to measure both independent and dependent variables.

The questionnaire was pre-tested with ten local leaders in actual situation before preparing the final draft. Necessary corrections, additions, alternations, rearrangements and adjustments were made in the interview schedule based on pretest experience. The questionnaire was then multiplied by printing in its final form. A copy of the interview schedule is presented into Appendix I.

3.4 Measurement of variables

The variable is a characteristic, which can assume varying, or different values in successive individual cases. A research work usually contains at least two important variables viz. independent and dependent variables. An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variable (Townsend, 1953). In the scientific research, the selection and measurement of variable constitute a significant task. Following this conception, the researcher reviewed literature to widen this understanding about the natures and scopes of the variables relevant to this research. At last 10 independent variables and one dependent variable were selected for the study. The independent variables were: age, level of education, family size, annual income, extent of advice on adoption of agricultural innovation, innovativeness, leadership experience, organizational participation, agricultural knowledge, motivational activities and diffusion network. The dependent variable of this study was the role of opinion leadership in diffusion of agricultural innovation. The methods and procedures in measuring these variables are presented below:

3.5 Measurement of independent variables

The 10 characteristics of the local leaders mentioned above constitute the independent variables of this study. The following procedures were followed for measuring the independent variables.

3.5.1 Age

Age of a respondent opinion leader was measured by the period of time from his/her birth to interview and it was measured in terms of complete years on the basis of their response. A score of one (1) was assigned for each year age.

3.5.2 Level of education

Level of education was measured in terms of class passed by respondent opinion leader. If a respondent received education from the school, their education was assessed in terms of year of schooling, i.e. one (1) score was given for one year of schooling. For example, if the respondent passed the final examination of class V, his/her education score was taken as 5. If the respondent had education outside school and the level of education was equivalent to class V of the school than his education score was taken as 5. Each illiterate person was given a score of zero.

3.5.3 Family size

The family size of a respondent was measured in terms of total number of members in his family including himself, spouse, children, brothers, sisters, parents and other person who jointly live and ate together.

3.5.4 Annual income

The term annual income refers to the annual gross income of a respondent opinion leader himself and the members of his family from different sources. It was expressed in taka. In measuring this variable, total earning in taka of an individual respondent was converted into score. A score of one was given for every one thousand taka. The total annual income was determined by summing

up of incomes from all the sources such as agriculture, business, jobs and labor wage etc.

3.5.5 Extent of advice on adoption of agricultural innovation

Extent of advice on adoption of agricultural innovation of the respondent opinion leaders was measured on the basis of the type of activities through which they advice to their fellow farmers. Score was computed by adding total ten types of activities as advice on adoption of agricultural innovation. Following scores were assigned for extent of advice on adoption of agricultural innovation:

Extent of advice	**Scores assigned**
Not at all	0
Rarely	1
Occasionally	2
Often	3
Regular	4

The extent of advice on adoption of agricultural innovation could range from '0'-40 where '0' indicated no extent of advice on adoption of agricultural innovation and 40 indicated highest extent of advice on adoption of agricultural innovation.

3.5.6 Innovativeness

Innovativeness of a respondent opinion leader was measured on the basis of the use of different technologies as duration after hearing of the technology. Score was computed by adding all the score of selected opinion leaders.

Following scores were assigned as innovativeness:

Duration of use after hearing	**Scores assigned**
1st year	5
2nd year	4
3rd year	3

4th year	2
5th year	1
Don't use	0

The innovativeness of opinion leaders could range from '0'-85 where '0' indicated no innovativeness and 85 indicated high innovativeness.

3.5.7 Organizational participation

Organizational participation of respondent opinion leader was measured on the basis of the nature of his participation in a selected organization. Score was computed by adding all the score of selected organization.

Following scores were assigned for nature of participation (N):

Nature of participation	**Scores assigned**
No participation	0
Participation as ordinary member	1
Participation as executive member	2
Participation as executive officer	3

The duration (D) as a nature of participation for the corresponding organization also collected and the organization participation score for an opinion leader was obtained by using the following formula:

$$\text{Organizational participation score} = \sum\{(N) \times (D)\}$$

Where,

N = Score for nature of participation

D = Score for the duration of participation

3.5.8 Agricultural knowledge

Agricultural knowledge of an opinion leader referred to the knowledge gained by the respondent in agricultural related activities. Thirty (30) questions on different aspect of agriculture were asked to the respondent opinion leaders to ascertain their knowledge score. The score was assigned as 2 for full correct answer and zero (0) for incorrect or no answer for each question. Partial score was assigned for partial correct answers. Thus agricultural knowledge scores of the respondents could range from '0' to 60 where zero (0) indicated very low knowledge and 60 indicated very high agricultural knowledge.

3.5.9 Motivational activities

Motivational activities of opinion leaders were measured on the basis of 10 different defined activities and the extent of motivation. The score were assigned on the basis of extent of motivation as high, medium and low motivation and score assigned as follows:

Extent of motivation	**Weights**
High	3
Medium	2
Low	1

Motivational activities score of opinion leader was determined by summing up the weights for their responses to all the 10 motivational activities. Thus, motivational activities scores could range from 0 to 30, where 0 score indicated no motivational activities and 30 indicates high motivational activities.

3.5.10 Diffusion network

Diffusion network of an opinion leader was measured by computing a network source score. A total of 14 items of diffusion network source were used for the calculation of diffusion network. Each opinion leader was asked to indicate his extent of contact for different diffusion network. Extent of contact was categorized with continuative degree as regularly, frequently, occasionally,

rarely and not at all with assigned score 4, 3, 2, 1 and 0, respectively. For every statement, weights were assigned as follows:

Extent of contact	Weights
Regularly	4
Frequently	3
Occasionally	2
Rarely	1
Not at all	0

Diffusion network score of opinion leaders was determined by summing the weights for their responses to all the 14 statements. Thus, diffusion network scores could range from 0 to 56, where 0 score indicated no diffusion network and 56 indicates very high diffusion network.

3.6 Measurement of dependent variable

Role of opinion leadership in diffusion of agricultural innovation was measured in the following ways:

(i) The roles of opinion leadership in diffusion of agricultural innovation were first identified. In this regard 10 roles of opinion leaders were recorded.

(ii) Then each opinion leader was asked to indicate the extent of role performance against each of the roles expressed in a continuous degree as regularly, occasionally, rarely and not at all and score was assigned as 3,2,1and 0 respectively.

iii) Thus, total role of opinion leader score was calculated by summing up all the obtaining scores against each role. The score then could range from 0-30, where 0 indicated no role performance and 30 indicated high role performance.

3.7 Role Playing Index(RPI)

Role playing index was constituted with 10 leadership activities using the following formula

$RPI=\sum R_{not} X\ 0 + R_{ra} X\ 1 + R_{occ} X\ 2 + R_{re} X\ 3$

Where,

R_{not} =Score of opinion leaders playing not any extent role

R_{ra} = Score of opinion leaders playing rarely extent role

R_{occ} = Score of opinion leaders playing occasionally extent role

R_{re} = Score of opinion leaders playing regularly extent role

3.8 Hypothesis of the study

In the present study the following null hypotheses were formulated:

"There are no relationships between each of 10 selected characteristics of the opinion leaders and their role in diffusion of agricultural innovation".

3.9 Data collection procedure

The researcher himself collected the data from the sample respondents through face to face contact with the help a pre-tested interview schedule. Whenever any respondent faced difficulty in understanding questions, more attention was taken to explain the same with a view to enabling the respondent's local opinion leaders to answer properly. No serious problem was faced by the investigator during data collection but obtained cooperation from the respondents. Data collection was started in 07 October, 2014 and completed in 12 November, 2014.

3.10 Data processing

For data processing and analysis the following steps were followed:

3.11.1 Compilation of data

After completion of field survey all the interview schedule were compiled, tabulated and analyzed according to the objectives of the study. In this process all the responses in the interview schedule were given numerical coded values. The responses to the question in the interview schedule were transferred to a master sheet to facilitate tabulation. Tabulation was done on the basis of categories developed by the investigator himself.

3.11.2Categorization of respondents

For describing the various independent and dependent variables the respondents were classified into various categories. In developing categories the researcher was guided by the nature of data and general consideration prevailing on the social system. The procedures have been discussed while describing the variable in the sub-sequent sections of next chapter.

3.12 Data analysis

Data collected from the respondents were complied, coded, tabulated and analyzed in accordance with the objectives of the study. Various statistical measures such as frequency counts, percentage distribution, average, and standard deviation were used in describing data. SPSS (version 11.5) computer program were used for analyzing the data. The categories and tables were used in describing data. The categories and tables were also used in presenting data for better understanding.

For determining the relationship of the selected characteristics of the respondent opinion leaders with their role in diffusion of agricultural innovation Pearson Product Moment Correlation was used. Five percent (0.05) level of probability was used as the basis for rejecting any null hypothesis.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter deals with the findings that were recorded in accordance with the objective of the study with the help of an interview schedule and probable discussion of the findings with justifiable interpretation. The chapter content in four (4) sections. The first section of this chapter deals with the characteristics of the opinion leaders. The second section deals with the role of opinion leadership in diffusion of agricultural innovation. The third section deals with the rank order of the role of opinion leadership in diffusion of agricultural innovation. The fourth section deals with the relationship between individual characteristics of the opinion leaders with their role in diffusion of agricultural innovation.

4.1 Characteristics of the opinion leaders

An individual possesses various interrelated characteristics of the opinion leaders were collected under the present study. However, the 10 selected salient features of the opinion leaders such as age, level of education, family size, annual income, extent of advice on adoption of agricultural innovation, innovativeness, organizational participation, agricultural knowledge, motivational activities and diffusion network that might be greatly influences of affected the role of opinion leadership in diffusion of agricultural innovation that are presented below:

4.1.1 Age

The age of the respondent opinion leaders who have the role in diffusion of agricultural innovation have been varied from 22 to 70 years with a mean and standard deviation of 41.69 and 10.66 respectively. Considering the observed age of the respondent opinion leaders, they were classified into three categories namely ‘young’, ‘middle’ and ‘old’ aged. The distribution of opinion leaders on accordance of their age are presented in Table 4.1.

Table 4.1 Distribution of the respondents according to their age

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Young aged (below 35 years)	31	26.96	41.69	10.66
Middle aged (35-50 years)	57	49.56		
Old aged (above 50 years)	27	23.48		
Total	115	100		

Table 4.1 indicates that the middle aged opinion leaders comprised the highest proportion (49.56 percent) followed by young aged category (26.96 percent) and old aged category (23.48 percent). Data also indicates that the middle and young aged respondents constitute 76.52 percent of the respondents. The young and middle aged respondents were generally involved in diffusion of agricultural innovation than the older. It was revealed that young and middle aged person were more dynamic with leadership quality and basically they have significant role in diffusion of agricultural innovation.

4.1.2 Level of education

The level of educational scores of the respondent opinion leaders ranged from 0 to 17 with a mean and standard deviation of 7.03 and 4.82, respectively. Based on their educational scores, the respondents were classified into four categories such as ‘illiterate’ (0), ‘primary education’ (1 to 5), ‘secondary education’ (6 to 10), higher secondary and above (above 10). The distribution of the respondent opinion leaders according to their level of education are presented in Table 4.2.

Table 4.2 Distribution of the respondents according to their level education

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Illiterate (0)	30	26.09	7.03	4.82
Primary education (1-5)	7	6.09		
Secondary education (6-10)	58	50.43		
Above secondary (above 10)	20	17.39		
Total	115	100		

Table 4.2 shows that respondent opinion leaders under 'secondary education category' constitute the highest proportion (50.43 percent) compared to 26.09 percent 'illiterate' category and 17.39 percent above secondary level category. On the other hand the lowest proportion (6.09 percent) constituted primary education level category. Education broadens the horizon of outlook of opinion leaders and expands their capability to analyze any situation related to agricultural production. It was found that appreciable proportions (67.82 percent) of the respondent opinion leaders were secondary to above secondary level educated. An educated opinion leader is likely to be more responsive to the modern facts, ideas, technology and information of agricultural production. To adjust with the same, they would be progressive minded to adopt as well as involve with modern cultural, processing and storage facilities of agricultural innovations.

4.1.3 Family Size

Family size of the respondent opinion leaders ranged from 2 to 11 with the mean and standard deviation of 5.24 and 1.38, respectively. According to family size the respondents were classified into three categories viz. 'small', 'medium' and 'large' family. The distribution of the respondents according to their family size is presented in Table 4.3.

Table 4.3 Distribution of the respondents according to their family size

Categories	Respondents'		Mean	Standard deviation
	Number	Percent		
Small family (upto 4)	33	28.70	5.24	1.38
Medium family (5-7)	77	66.96		
Large family (above 7)	5	4.35		
Total	115	100		

Data in Table 4.3 indicate that the medium size family constitute the highest proportion (66.96 percent) followed by the small size family (28.70 percent). Only 4.35 percent respondents had large family size. Such finding is quite normal as per the situation of Bangladesh. Table 4.3 also showed that average

family size of the respondents was lower than that of national average of 5.40. Opinion leaders are usually educated. They know the advantages of small family. So they keep their family small.

4.1.4 Annual income

Annual income of the respondent opinion leaders ranged from 83 to 1735 thousand taka with a mean and standard deviation of 334.69 thousand and 262.90 thousand respectively. On the basis of their annual income, the opinion leaders were classified into three categories, viz. low, medium and high annual income. The distribution of the respondent opinion leaders according to the annual income are presented in Table 4.4.

Table 4.4 Distribution of the respondents according to their family income

Categories (‘000)	Respondents		Mean	Standard deviation
	Number	Percent		
Low income (below 150)	19	16.52	334.69	262.90
Medium income (150-450)	68	59.13		
High income (above 450)	28	24.35		
Total	115	100		

Data in Table 4.4 revealed that the respondent opinion leaders having medium annual income constitute the highest proportion (59.13 percent) followed by high annual income (24.35 percent) and low annual income (16.52 percent). Medium income level constitutes the highest percentage because their annual income level within 150,000 to 450,000 taka. Overwhelming majority 85% respondents have medium to high income level. Income of an individual allows him to act as a leader in a community and also diffusion of agricultural innovation.

4.1.5 Extent of advice on adoption of agricultural innovation

Extent of advice on adoption of agricultural innovation score of the respondent opinion leaders ranged from 13 to 29 against the possible range of 0-40, with a mean and standard deviation of 20.85 and 3.38, respectively. Based on their extent of advice on adoption of agricultural innovation score, the respondents

were classified into three categories. These categories were low, medium and high extent of advice on adoption of agricultural innovation. The distribution of the respondent opinion leaders according to their extent of advice on adoption of agricultural innovation score is presented in Table 4.5.

Table 4.5 Distribution of the respondents according to their extent of advice on adoption of agricultural innovation

Categories	Respondents'		Mean	Standard deviation
	Number	Percent		
Low extent of advice (below 20)	37	32.17	20.85	3.38
Medium extent of advice (20-25)	70	60.87		
High extent of advice (above 25)	8	6.96		
Total	115	100		

Data revealed that about (60.87 percent) of the respondents had medium extent of advice on adoption of agricultural innovation, while 32.17 percent had low extent of advice and the lowest 6.96.05 percent had high extent of advice on adoption of agricultural innovation. Farmers seek advise from opinion leaders on various issues like variety selection, irrigation, fertilizer application, seed treatment, seed sowing, intercultural operation, crop protection, harvesting, post harvest operation and marketing. Opinion Leaders give adequate information on these issues for betterment of farmers.

4.1.6 Innovativeness

The innovativeness score of the respondent opinion leaders ranged from 28 to 71 against the possible range of 0-85, with a mean and standard deviation of 50.17 and 10.34, respectively. Based on their innovativeness score, the respondents were classified into three categories. These categories were 'low', 'medium' and 'high' innovativeness. The respondent's distribution according to innovativeness is presented in Table 4.6.

Table 4.6 Distribution of the respondents according to their innovativeness

Categories	Respondents'		Mean	Standard deviation
	Number	Percent		
Low innovativeness (below 40)	22	19.13	50.17	10.34
Medium innovativeness (40-60)	79	68.70		
High innovativeness (above 60)	14	12.17		
Total	115	100		

Table 4.6 indicates that respondent opinion leaders having medium innovativeness category constitute the highest proportion (68.70 percent) followed by low innovativeness (19.13 percent) and high innovativeness (12.17 percent). Data revealed that the maximum percentage (87.83 percent) was the category of the group of low to medium innovativeness group. It may be concluded that, almost all the respondents of the study area were innovative. These results would help the extension planners to chalk out future extension programmes for transfer of technologies to potential farmers.

4.1.7 Organizational participation

Organizational participation score of the respondent opinion leaders ranged from 8 to 100 with a mean and standard deviation of 31.36 and 19.04, respectively. According to organizational participation the respondents were classified into three categories viz. 'Low, 'medium and 'high level organizational participation' on the basis of their observed scores. The distribution of the respondent opinion leaders according to organizational participation under the present study are presented in Table 4.7.

Table 4.7 Distribution of the respondents according to their organizational participation

Categories	Respondents'		Mean	Standard deviation
	Number	Percent		
Low participation (upto 30)	71	61.7	31.36	19.04
Medium participation (31-60)	33	28.7		
High participation (above 60)	11	11.4		
Total	115	100		

Data in Table 4.7 indicates that the low levels organizational participation constitutes the highest proportion (61.7 percent) followed by medium level participation (28.7 percent) and high level participation (11.4 percent). Table 4.7 showed that the overwhelming majority percentage (90.43) of respondents were the category of the group of low to medium level organizational participation. More organizational participation could create opportunity for changing attitude towards new and improved or modern technology for agricultural production activities. Most of the respondents of the study area were involved in business and service along with agriculture. So, they had not enough time to engage in different organization.

4.1.8 Agricultural knowledge

Agricultural knowledge score of the respondent opinion leaders could range from 43 to 59 against the possible range of 0-60. The mean and standard deviation of agricultural knowledge score was 51.66 and 3.83, respectively. On the basis of agricultural knowledge scores, the respondents were classified into three categories namely, 'low, 'medium' and 'high' knowledge. The distribution of the respondents according to their agricultural knowledge is given in Table 4.8.

Table 4.8 Distribution of the respondents according to their agricultural knowledge

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low knowledge (below 50)	37	32.17	51.66	3.83
Medium knowledge (50-55)	57	49.57		
High knowledge (Above 55)	21	18.26		
Total	115	100		

Data of Table 4.8 reveals that majority (49.57 percent) of the respondents felt in medium knowledge category followed by 32.17 percent in low knowledge category and only 18.26 percent in high knowledge category. Knowledge helps an individual to foresee the consequence he may have to face in future. It makes individuals to become rational and conscious about related field. To perform optimum production, farmers should have adequate knowledge on different aspects of the concern areas. The findings of the present study reveal that 50 percent of the respondent opinion leaders in the study area had medium knowledge on agricultural activities. These local leaders may capable of providing opinion leadership in diffusion of agricultural innovation in rural areas.

4.1.9 Motivational activities

Motivational activities score of the respondent opinion leaders ranged from 16 to 27 against the possible range of 0-30 with a mean and standard deviation of 22.14 and 2.82, respectively. Based on their motivational activities score, the respondents were classified into three categories. These categories were ‘low’, ‘medium’ and ‘high’ motivational activities. The distribution of the respondent opinion leaders according to their motivational score is presented in Table 4.9.

Table 4.9 Distribution of the respondents according to their motivational activities

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low motivational activities (below 20)	10	8.70	22.14	2.82
Medium motivational activities (20-23)	73	63.5		
High motivational activities (above 23)	32	27.8		
Total	115	100		

Table 4.9 indicates that respondent opinion leaders have medium motivational activities category constitutes the highest proportion (63.5 percent), followed by high motivational activities (27.8percent) and low motivational activities (8.70 percent). Farmers may face difficulty in obtaining information about improved agricultural practices. They are skeptical towards new ideas and practices in agriculture. Opinion Leaders may render valuable help to such farmers through motivational activities.

4.1.10 Diffusion network

Diffusion network score of the respondent opinion leaders ranged from 17 to 45 against the possible range of 0-56 with a mean and standard deviation of 32.54 and 6.40, respectively. According to diffusion network score, the respondents were classified into three categories viz. ‘poor, ‘moderate and ‘sound’ diffusion network on the basis of their observed scores. The distribution of the respondent opinion leaders according to diffusion network experience is presented in Table 4.10.

Table 4.10 Distribution of the respondents according to their diffusion network

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Poor diffusion network (below 30)	27	23.48	32.54	6.40
Moderate diffusion network (30-40)	81	70.43		
Sound diffusion network (Above 40)	7	6.09		
Total	115	100.0		

Data of Table 4.10 reveals that majority (70.43 percent) of the respondents fell in moderate diffusion network category followed by 23.48 percent in poor diffusion network category and only 6.09 percent in sound diffusion network category. Diffusion is a special form of communication related to new ideas. It is a specific form of social change, defined as a process by which alteration occurs in the structure and function of a social system. Diffusion is a process through which an innovation is communicated through certain channels over time among the members of a social system. It makes individuals to become rational and conscious about related field in different alternative way. The findings of the present study reveal that above 70 percent of the respondent opinion leaders in the study area had moderate diffusion network and it indicate that the in technological aspect the opinion leaders of the study area have moderate communication with different network sources.

4.2 Dependent Variable

Role of opinion leadership in diffusion of agricultural innovation is the dependent variable of this study. Role of opinion leadership in diffusion of agricultural innovation of the respondents was measured on the basis of 10 specific role with 4 level of extent of activity.

Role of opinion leadership in diffusion of agricultural innovation ranged from 12 to 29 against the possible range of 0-30. The mean and standard deviation of

role of opinion leadership in diffusion of agricultural innovation was 18.89 and 3.71, respectively. On the basis of role of opinion leadership in diffusion of agricultural innovation scores, the respondents were classified into three categories namely, 'lowest role', 'moderate role' and 'highest role'. The distribution of the respondents according to their role of opinion leadership in diffusion of agricultural innovation under the study is given in Table 4.11.

Table 4.11 Distribution of the respondents according to their role in diffusion of agricultural innovation

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Lowest role (upto 18)	63	54.80	18.89	3.71
Moderate role (19-23)	40	34.80		
Highest role (above 25)	12	10.4		
Total	115	100		

Table 4.11 indicates that among the respondents, the highest proportion (54.8 percent) of the respondent opinion leaders belonged to the group of lowest role in diffusion of agricultural innovation followed by 34.8 percent in moderate role group and the lowest proportion 10.4 percent in highest role group in diffusion of agricultural innovation. Among the respondent opinion leaders overwhelming majority (89.6 percent) of the opinion leaders have lowest to moderate role in diffusion of agricultural innovation. Data revealed that although the opinion leadership is importantly necessary for diffusion of innovation but in the study area they have lowest to moderate role in diffusion of agricultural innovation.

4.3 Rank order of role of opinion leadership in diffusion of agricultural innovation

There were ten different role identified for opinion leadership in diffusion of agricultural innovation. The respondent opinion leaders play different extent of activity against identified different role in diffusion of agricultural innovation. They are presented below in rank order. A Role Playing Index (RPI) for selected ten aspects was computed to serve the purpose by using the following formula.

Role Playing Index (RPI)) = $R_{not} \times 0 + Rra \times 1 + Rocc \times 2 + R_{re} \times 3$

Where,

R_{not} = Score of opinion leaders playing not any extent role

R_{ra} = Score of opinion leaders playing rarely extent role

R_{occ} = Score of opinion leaders playing occasionally extent role

R_{re} = Score of opinion leaders playing regularly extent role

Role Playing Index (RPI) for opinion leaders in diffusion of agricultural innovation could range from 0 to 345, where 0 indicating no leadership role and 345 indicating highest extent of leadership role. However, computed Role Playing Index (RPI) ranged from 293-143. Rank order was made based on the descending order of RPI as shown in Table 4.12.

Table 4.12 Rank order of role of opinion leadership in diffusion of agricultural innovation

Role of opinion leader	Role Playing Index (RPI)	Rank
Obtain agricultural information from extension agent	293	1
Participate in method demonstration	252	2
Participate in result demonstration	251	3
Give farmers information obtained from mass media and extension agent timely	242	4
Visit upazila agricultural office for solution of particular problem	220	5
Advice farmers to adopt agricultural innovation	219	6
Obtain agricultural information from mass media channel	215	7
Serve as assistant of extension agent	172	8

Help farmers when they are in difficulties	165	9
Serve as center of inter personal communication network	143	10

Table 4.12 represents the ten aspects of role of opinion leadership in diffusion of agricultural innovation. As per Role Playing Index (RPI) allow obtain agricultural information from extension agent positioned the 1st, participate in method demonstration in 2nd, participate in result demonstration in 3rd, give farmers information obtained from mass media and extension agent timely in 4th, visit upazila agricultural office for solution of particular problem in 5th, advice farmers to adopt agricultural innovation in 6th, obtain agricultural information from mass media channel in 7th, serve as assistant of extension agent in 8th, help farmers when they are in difficulties in 9th and serve as center of inter personal communication network in 10th.

4.4 Relationship of the selected characteristics of opinion leaders with their role if diffusion of agricultural innovation

Pearson Product Moment Correlation Co-efficient was computed in order to find out the extent of relationship between the dependent variable and independent variables. To reject or accept the null hypothesis 0.05 level of probability was used. A statistically significant and non-significant relationship was observed when the computed value or "r" was greater or smaller than the tabulated value, respectively.

Table 4.13 Pearson's product moment co-efficient of correlation showing relationship between dependent and independent variables

Dependent variable	Independent variables	Tabulated value		Value of co-efficient of correlation
		0.05 level	0.01 level	
Role of opinion leadership in diffusion of agricultural innovation	Age	0.182	0.238	-0.047
	Level of education			0.202*
	Family size			-0.133
	Annual income			0.144
	Extent of advice on adoption of agricultural innovation			0.236*
	Innovativeness			0.185*
	Organizational participation			0.210*
	Agricultural knowledge			0.341**
	Motivational activities			0.229*
	Diffusion network			0.253**

**: Correlation is significant at the 0.01 level; *: Correlation is significant at the 0.05 level

4.4.1 Age VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between age and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found -0.047. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (-0.047) was found to be smaller than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could not be rejected.*

c. *The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*

d. *The relationship showed a negative trend between the concerned variables.*

Based on the above findings it was concluded that age had non significant negative relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that age of the opinion leaders was not an important factor in role of opinion leadership in diffusion of agricultural innovation but with the increases of age of the respondent's role of opinion leadership in diffusion of agricultural innovation also decreases.

4.4.2 Level of education VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between level of education and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.202. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.202) was found to be greater than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.05 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that level of education had significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that level of education of the opinion leaders was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of level of education of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

4.4.3 Family size VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between family size and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found -0.133. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (-0.133) was found to be smaller than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*
b. *The null hypothesis could not be rejected.*
c. *The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
d. *The relationship showed a negative trend between the concerned variables.*

Based on the above findings it was concluded that family size had non significant negative relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that family size of the opinion leaders was not an important factor in role of opinion leadership in diffusion of agricultural innovation but with the increases of family size of the respondent's role of opinion leadership in diffusion of agricultural innovation also decreases.

4.4.4 Annual income VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between annual income and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.144. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.144) was found to be smaller than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could not be rejected.*

c. *The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that annual income had non significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that annual income of the opinion leaders was not an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of annual income of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

4.4.5 Extent of advice on adoption of agricultural innovation VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between extent of advice on adoption of agricultural innovation and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.236. The following observations

were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.236) was found to be greater than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.05 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that extent of advice on adoption of agricultural innovation had significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that extent of advice on adoption of agricultural innovation of the opinion leaders was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of extent of advice on adoption of agricultural innovation of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

4.4.6 Innovativeness VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between innovativeness and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.185. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.185) was found to be greater than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.05 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that innovativeness had significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that innovativeness was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of innovativeness of the respondent's role of opinion leadership in diffusion of agricultural innovation increases..

4.4.7 Organizational participation VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between organizational participation and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.210. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.210) was found to be greater than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.05 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that organizational participation had significant positive relationships with the role of opinion leadership in

diffusion of agricultural innovation. This represent that organizational participation was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of organizational participation of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

4.4.8 Agricultural knowledge VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between agricultural knowledge and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.341. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.341) was found to be greater than the tabulated value (r = 0.238) with 113 degrees of freedom at 0.01 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.01 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that agricultural knowledge had significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that agricultural knowledge was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of agricultural knowledge of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

4.4.9 Motivational activities VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between motivational activities and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.229. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.229) was found to be greater than the tabulated value (r = 0.182) with 113 degrees of freedom at 0.05 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.05 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that motivational activities had significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that motivational activities was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of motivational activities of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

4.4.10 Diffusion network VS role of opinion leadership in diffusion of agricultural innovation

The coefficient of correlation between diffusion network and role of opinion leadership in diffusion of agricultural innovation is presented in Table 4.13. The coefficient of correlation between the concerned variables was found 0.253. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study.

a. *The observed value between the concerned variables "r" (0.253) was found to be greater than the tabulated value (r = 0.238) with 113 degrees of freedom at 0.01 level of probability.*

b. *The null hypothesis could be rejected.*

c. *The relationship between the concerned variables was statistically significant at 0.01 level of probability.*

d. *The relationship showed a positive trend between the concerned variables.*

Based on the above findings it was concluded that diffusion network had significant positive relationships with the role of opinion leadership in diffusion of agricultural innovation. This represent that diffusion network was an important factor in role of opinion leadership in diffusion of agricultural innovation and with the increases of diffusion network of the respondent's role of opinion leadership in diffusion of agricultural innovation increases.

Pearson Product Moment Correlation Co-efficient between dependent and independent variable revealed that level of education, extent of advice on adoption of agricultural innovation, innovativeness, organization participation, agricultural knowledge, motivational activities and diffusion network had significant positive relationships with role of opinion leadership in diffusion of agricultural innovation. Annual income had non significant positive relationship with the role of opinion leadership in diffusion of agricultural innovation. On the other hand, age and family size had non significant negative relationship with role of opinion leadership in diffusion of agricultural innovation under the present study.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study was conducted in the Alamdanga upazila under Chuadanga district. Among the unions of Alamdanga upazila Kalidaspur union has been selected purposively as the study area. An update list of 556 farmers of Kalidashpur union was collected from Upazila Agriculture Office of Alamdanga upazila. Among them 55 farmers as one tenth (1/10) of the farmers were randomly selected to explore the opinion leaders. Each farmer was asked to mention 3 names from whom they seek advice and suggestions for their family affairs, agricultural matters, marketing and other social matters. Thus 165 names of opinion leaders were found. After cross checking and deduction of duplicate names a list was prepared with 138 local leaders and communicates with them for interviewing and bring into being available 115. A well structured interview schedule was developed based on objectives of the study for collecting information. The researcher himself collected data through personal contact. The independent variables were: age, level of education, family size, annual income, extent of advice on adoption of agricultural innovation, innovativeness, leadership experience, organizational participation, agricultural knowledge, motivational activities and diffusion network. The dependent variable of this study was the role of opinion leadership in diffusion of agricultural innovation. Data collection was started in 07 October, 2014 and completed in 12 November, 2014. Various statistical measures such as frequency counts, percentage distribution, average, and standard deviation were used in describing data. Co-efficient of correlation test was used to explore relationship between the concerned variables. The major findings of the study are summarized below:

5.1 Major Findings

5.1.1 Selected characteristics of the farmers

Age: The middle aged opinion leaders comprised the highest proportion (49.56 percent) followed by young aged category (26.96 percent) and the lowest proportion were made by the old aged category (23.48 percent).

Level of education: Opinion leaders under 'secondary education category' constitute the highest proportion (50.43 percent) compared to 26.09 percent 'illiterate' category and 17.39 percent above secondary level category, while the lowest 6.09 percent primary education level category.

Family size: The medium size family constitute the highest proportion (66.96 percent) followed by the small size family (28.70 percent) and only 4.35 percent respondents had large family size.

Annual income: The opinion leaders having medium annual income constitute the highest proportion (59.13 percent) followed by high annual income (24.35 percent) and low annual income (16.52 percent).

Extent of advice on adoption of agricultural innovation: About (60.87 percent) of the respondents had medium extent of advice on adoption of agricultural innovation, while 32.17 percent had low extent of advice and the lowest 6.96 percent had high extent of advice on adoption of agricultural innovation.

Innovativeness: The respondent opinion leaders having medium innovativeness category constitute the highest proportion (68.70 percent) followed by low innovativeness (19.13 percent) and high innovativeness (12.17 percent).

Organizational participation: The low levels organizational participation constitutes the highest proportion (61.70 percent) followed by medium level participation (28.70 percent) and high level participation (9.60 percent).

Agricultural knowledge: The majority (49.57 percent) of the respondents fell in moderate knowledge category followed by 32.17 percent in poor knowledge category and only 18.26 percent in high knowledge category.

Motivational activities: The respondent opinion leaders have medium motivational activities category constitute the highest proportion (84.35 percent), followed by (8.70 percent) low motivational activities and high motivational activities (6.96 percent).

Diffusion network: The majority (70.43 percent) of the respondents fell in moderate diffusion network category followed by 23.48 percent in poor diffusion network category and only 6.09 percent in sound diffusion network category.

5.1.2 Role of opinion leadership in diffusion of agricultural innovation

Among the respondents, the highest 54.80percent respondent opinion leaders belongs to the group of lowest role in diffusion of agricultural innovation followed by 34.80 percent in moderate role group and the lowest percentage 10.4 percent in highest role group in diffusion of agricultural innovation.

5.1.3. Rank order of opinion leadership in diffusion of agricultural innovation

As per Role Playing Index (RPI) agricultural information from extension agent positioned the 1st and serve as center of inter personal communication network in positioned 10th as per different aspects of role of opinion leadership in diffusion of agricultural innovation.

5.1.4. Relationship of the selected characteristics of opinion leaders with their role of diffusion of agricultural innovation

Level of education, extent of advice on adoption of agricultural innovation, innovativeness, organizational participation, agricultural knowledge, motivational activities and diffusion network had significant positive relationships with role of opinion leadership in diffusion of agricultural innovation. Annual income had non significant positive relationships with role of opinion leadership in diffusion of agricultural innovation. On the other hand,

age and family size had non significant negative relationship with role of opinion leadership in diffusion of agricultural innovation.

5.2 Conclusions

1. The diffusion experts comprehend that diffusion of agricultural innovation in rural areas is largely depended on role of opinion leaders of the community.The findings of the present study showed almost similar trend.It was revealed from the data of the table 4.11 that more than 45% of the opinion leaders performed leadership roles ranged from the moderate (34.8%) to the highest (10%) that scored 19-29. The findings correspond to their diffusion network at Alamdanga Upazila. About three-fourths of the opinion leaders had diffusion network ranged from moderate (70.43%) to sound (6.09%) . From this view point conclusion can be drawn that neither farmers nor local extension service use opinion leaders to the highest of their necessity.
2. Role of opinion leadership were assessed with the extent of performance of the selected activities . The findings revealed that opinion leaders did not perform their roles at same speed. Some performed regularly and some performed occasionally. So the rank order of the activities had emerged differently. From the role playing index it was found that obtaining information from the mass media channel topped the list with RPI 293, whereas participation in method demonstration secured second position in the rank order (252). Participation in result demonstration secured third position securing RPI 251.But the important activities like obtaining information from mass media channel and help farmers when they are in difficulties had low RPI score. Conclusion could be drawn that lowest

scored activities should be bought into light so that they also have opportunity to serve as item one , two and three.

3. The findings of Pearson`s Product Moment Co-efficient of Correlation showed significant relationship between roles of opinion leadership and their education, of advice on adoption of agricultural innovation, innovativeness, organization participation, agricultural knowledge, motivational activities and diffusion network . Conclusion can be drawn that the variables that influence the role of opinion leadership are to be improved to the standard that the DAE can use opinion leadership in time of need like diffusion of innovation.

5.3 Recommendations

5.3.1 Recommendations for policy implications

On the basis of observation and conclusions drawn from the findings of the study following recommendations are made:

1. Among the respondents, about 89.6 percent opinion leaders have lowest to moderate role in diffusion of agricultural innovation. So in order to increase the role of opinion leaders in diffusion of agricultural innovation, agricultural technology development institute, DAE and other leadership development organization may arrange training for the local leaders for playing more active role in diffusion of agricultural innovation.
2. Among the respondent opinion leaders about 61 percent falls in the group of medium extent of advice on adoption of agricultural innovation. So it is necessary to increase their extent of advice through different training, workshop, seminar related program.
3. About 90 percent opinion leaders have low to medium organizational participation. Different government and non-government organizations

necessary to undertake different initiative for increasing the organizational participation of opinion leaders.

4 About 82 percent local leaders have low to medium agricultural knowledge agricultural technology development institute and DAE may arrange different program for increasing agricultural knowledge of local leaders.

5. About 64 percent local leaders have medium motivational activities, so it is necessary to undertake proper extension work for use their motivational activities in diffusion of agricultural innovation.

6. About 94 percent local leaders have low to medium diffusion network, so it is necessary to undertake proper initiatives for increasing diffusion network of opinion leaders in diffusion of agricultural innovation.

5.3.2 Recommendations for further study

On the basis of scope and limitations of the present study and observation made by the researcher, the following recommendations are made for future study.

1. Other factors might have influence over the role of opinion leaders in diffusion of agricultural innovation, which need to be identified through further study.
2. This study was conducted in Kalidaspur union under Alamdanga upazila of Chuadanga district. Similar studies are required to be conducted in other areas of Bangladesh where similar environmental, socio-economic and physical conditions exist to compare the findings.
3. The study investigated the direct and indirect effects of certain variables. Further studies should be conducted to explore the direct and indirect effects of all the variables under investigation.

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APPENDICES

Appendix I. An Interview Schedule for the Study

Department of Agricultural Extension and Information System

Sher-e-Bangla Agricultural University

Dhaka-1207

An interview schedule for the study entitled

ROLE OF OPINION LEADERSHIP IN DIFFUSION OF AGRICULTURAL INNOVATION

Respondent No:……

Respondent
Name:……Village:……

Union:……
Upazila:……...

District:…… Occupation :……...

1. Age
How old are you? …….. Years

2. Education
Mention your educational qualification (give tick mark against appropriate answer)

a) Do not know reading and Writing……..( )

b) Can sign only …….. ( )

c) Read upto class ……...

3. Family size
How many members are there in your family?.....

4. Annual income

Please indicate the amount of income from following sources

SL. No.	Sources	Area of Cultivation	Yield	Price
1	Field crops: a. Aus rice b. Aman rice c. Boro rice d. Wheat e. Maize			
2	Fruits			
3	Vegetables: a. Summer vegetables b. Winter vegetables c. Year round vegetables			
4	Poultry			
5	Fish cultivation			
6	From service			
7	From business			
8	Daily wage labor			
9	Others			
	Total			

5. Extent of advice on adoption of agricultural innovation

Please express your extent of advice to your fellow farmers by giving tick marks.

SL. No.	Name of Activities	Extent of advice				
		Regular	Often	Occasionally	Rarely	Not at all
1	Variety Selection					
2	Irrigation					
3	Fertilizer application					
4	Seed treatment					
5	Seed sowing					
6	Intercultural operation					
7	Crop protection					
8	Harvesting					
9	Post Harvest Operations					
10	Marketing					
	Total					

6. Innovativeness

Please give your innovativeness information by giving tick marks

SL. No.	Name of technologies	Don't use	Duration of use after hearing				
			1st year	2nd year	3rd year	4th year	5th year
1	Use of green manure						
2	Use of crop rotation(for last 5 years)						
	a)						
	b)						
3	Use of intercropping (for last 5 years)						
4	Use of compost manure						
5	Use of new variety						
	a. Use of BRRI dhan…						
	b. Use of BRRI dhan…..						
	c. Use of ……Wheat variety						
	d. Use of ……..Wheat variety						
7	Use of weedicide						
8	Use of pesticide						
	a) Use of ……. for stemborer						
	b) Use of …… for sucking pest						
	c) Use of …… for blight disease						
9	Use of rotavator						
10	Use of IPM						
	a. Use of Parching						
	b. Use of Pheromone trap						
	c. Use of light trap						

7. Organizational participation

Please mention the nature of your participation with the following organization.

(Tick in right place)

SL. No	Organization	Nature of participation				Duration
		No participation	Ordinary member	Executive member	Executive officer	
1	Union council					
2	School committee					
3	Madrasah Committee					
4	Farmer cooperative society					
5	Mosque committee					
6	Bazar committee					
7	Youth club					
8	NGO society					
9	Other cooperative society					
	Total					

8. Agricultural Knowledge

SL. No.	Questions	Total number	Obtained number
1	State the qualities of good seed	2	
2	Mention name of 2 chemicals which are used for seed treatment	2	
3	State the function of urea fertilizer	2	
4	Name 2varieties of modern rice of each season	2	
5	Name 2 major insect of rice	2	
6	Name2 major diseases of rice	2	
7	Mention management practices of 2 major insect and pest of rice	2	
8	Mention fertilizer dose of rice	2	
9	Mention the seed rate of rice	2	
10	Mention spacing of rice plant in rice field	2	
11	Name 2 varieties of modern wheat	2	
12	Name2major insect of wheat	2	

13	Name 2 major diseases of wheat	2	
14	Mention management practices of 2 major insect and pest of wheat		
15	Mention fertilizer dose of wheat		
16	Mention spacing of wheat plant in wheat field		
17	Name 2 varieties of modern maize	2	
18	Name 2 major insect of maize	2	
19	Name 2 major diseases of maize	2	
20	Mention management practices of 2 major insect and pest of maize		
21	Mention fertilizer dose of maize	2	
21	Mention spacing of maize plant in maize field	2	
22	Name 2 major insect and pest of mango	2	
23	Mention management practices of 2 major insect and pest of mango		
24	Why do you use light trap	2	
25	Why do you use pheromone trap	2	
26	What do you know about AWD (magic pipe)	2	
27	Mention how pest of rice are controlled by IPM	2	
28	What is the importance of crop rotation	2	
29	What will you do to save seedlings from cold injury	2	
30	What are the benefits of using organic matter	2	
	Total	60	

9.Motivational activities

Please give tick mark against appropriate answer

SL. No.	Name of activities	Extent of motivation		
		High	Medium	Low
1	Farm and home visit of neighbors and farmers			
2	Personal contact with relatives and neighbors			
3	Invite farmers for group discussion			
4	Conduct method demonstration			
5	Conduct result demonstration			
6	Visit in DAE office			
7	Participation in field day			
8	Inviting farmers in result demonstration meeting			
9	Visiting result demonstration plot			
10	Staying with DAE officials during motivational activities			

10.Diffusion network

Please give tick mark on extent of your diffusion network about technological information

SL. No.	Network source	Extent of contact				
		Regularly	Frequently	Occasionally	Rarely	Not at all
1	Neighbors	7-8times/m	5-6times/ m	3-4 times/m	1-2times/m	0
2	School teachers	7-8times/m	5-6times/ m	3-4times/m	1-2times/m	0
3	Youth club	7-8times/y	5-6times/y	3-4times/y	1-2times/y	0
4	Village fairs	4times/y	3times/y	2times/y	1times/y	0
5	Village market	7-8times/m	5-6times/ m	3-4times/m	1-2times/m	0
6	Local NGO worker	7-8times/m	5-6times/ m	3-4times/m	1-2times/m	0
7	Local fertilizer/seed dealer	>7times/season	5-6times/ season	3-4times/ season	1-2times/ season	0
8	Progressive farmers	>7times / season	5-6times/ season	3-4times/ season	1-2times/ season	0
9	Farmers cooperative society	7-8times/m	5-6times/ m	3-4times/m	1-2times/m	0
10	Tea stall	>7times /week	5-6times/ week	3-4times/ week	1-2times/ week	0
11	agricultural information service through ICT	7-8times/m	5-6times/ m	3-4times/m	1-2times/m	0
12	Training by seed company representative	4times/y	3times/y	2times/y	1times/y	0
13	Upazila agricultural office	>7times /year	5-6times/ year	3-4times/ year m	1-2times/ year	0
14	Other local leader	>7times / season	5-6times/ season	3-4times/ season	1-2times/ season	0

11. Role of opinion leadership in diffusion of agricultural innovation

Please give tick mark against appropriate answer

Sl. No.	Role of opinion leader	Extent of activity			
		Regularly	Occasionally	Rarely	Not at all
1	Obtain Agricultural information from mass media channel	5-6times/ season	3-4 times/ season	1-2times/ season	0
2	Obtain Agricultural information from extension agent	5-6times/ season	3-4 times/ season	1-2times/ season	0
3	Visit 80pazila agricultural office for solution of particular problem	5-6times/y	3-4times/y	1-2times/y	0
4	Advice farmers to adopt agricultural innovation	5-6times/m	3-4 times/m	1-2times/m	0
5	Give farmers information obtained from mass media and extension agent timely	5-6times/ y	3-4 times/ y	1-2times/ y	0
6	Serve as assistant of extension agent	>5times/ y	3-4 times/ y	1-2times/ y	0
7	Serve as center of inter personal communication network	>5times/m	3-4 times/m	1-2times/m	0
8	Participate in method demonstration	>5times/life	3-4times/ life	1-2times/ life	0
9	Participate in result demonstration	>5times/ life	3-4times/ life	1-2times/ life	0
10	Help farmers when they are in difficulties	>10times/y	6-10times/y	1-5times/y	0

Thank you for giving your valuable time.

Date: **Signature of the Interviewer**

Appendix II. Correlation Matrix

	A	B	C	D	E	F	G	H	I	J	K
A	1.00										
B	-0.249**	1.00									
C	0.160	0.111	1.00								
D	0.043	0.130	0.378**	1.00							
E	-0.244**	0.448**	0.124	0.083	1.00						
F	0.132	0.329**	0.095	0.202*	-0.010	1.00					
G	0.607**	0.259**	0.153	0.317**	0.089	0.401**	1.00				
H	-0.205*	-0.005	-0.185*	0.133	0.160	-0.090	-0.079	1.00			
I	-0.080	0.328**	0.106	0.014	0.194*	0.017	0.075	0.108	1.00		
J	-0.207*	0.428**	-0.025	0.082	0.276**	0.466**	0.129	0.068	0.144	1.00	
K	-0.047	0.202*	-0.133	0.144	0.236*	0.185*	0.210*	0.341**	0.229*	0.253**	1.00

A: Age

B: Level of education

C: Family size

D: Annual income

E: Extent of advice on adoption of agricultural innovation F: Innovativeness

F: Innovativeness

G: Organizational participation

H: Agricultural knowledge

I: Motivational activities

J: Diffusion network

K: Role of opinion leadership in diffusion of agricultural innovation