USE OF MEDIA TO COLLECT AGRICULTURAL INFORMATION BY ROOFTOP GARDENERS IN RANGPUR CITY

JEBA JANNAT

DEPARTMENT OF AGRICULTURAL EXTENSION AND INFORMATION SYSTEM

SHER-E-BANGLA AGRICULTURAL UNIVERSITY

DHAKA -1207

DECEMBER 2020

USE OF MEDIA TO COLLECT AGRICULTURAL INFORMATION BY ROOFTOP GARDENERS IN RANGPUR CITY

BY

JEBA JANNAT

Registration No.: 18-09258

A Thesis

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

SEMESTER: January-June, 2020
Approved by:

Tanushree Mondal
Supervisor
Assistant Professor
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

Prof. Md. Mahbubul Alam, PhD
Co-Supervisor
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University Dhaka-1207

Mohammad Zamshed Alam
Professor & Chairman
Department of Agricultural Extension & Information System
Sher-e-Bangla Agricultural University Dhaka-1207

DEPARTMENT OF AGRICULTURAL EXTENSION AND INFORMATION SYSTEM

Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar, Dhaka-1207

CERTIFICATE

This is to certify that the thesis entitled "**USE OF MEDIA TO COLLECT AGRICULTURAL INFORMATION BY ROOFTOP GARDENERS IN RANGPUR CITY**" 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, embodies the result of a piece of bona fide research work carried out by **JEBA JANNAT** Registration No. **18-09258** 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.

Dated: DECEMBER, 2020
Dhaka, Bangladesh

Tanushree Mondal
Supervisor
Assistant Professor
Department of Agricultural Extension
and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

Dedicated
to
my beloved
Family

ACKNOWLEDGEMENTS

One of the satisfied snapshots of composing this note of acknowledgement is to think back the whole voyage of my investigation and recollect every one of the general populations, beginning from supervisor, co-supervisor to course instructors, friends and family, or more all Almighty Allah.

At first, author devote an extraordinary pleasure and respect to express my ardent appreciation, most profound feelings of gratefulness, best respects and significant obligation to her reverend supervisor, ***Tanushree Mondal****, Assistant Professor, Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka, without whom author would not have been able to come this far. She did not only supervise this thesis but also guide the author immensely to successfully accomplish this research work.*

Second, the author feels proud to express my deepest respect, sincere appreciation and immense indebtedness to her co-supervisor, ***Md. Mahbubul Alam, PhD,*** *Professor, Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka, for his scholastic and continuous guidance during the entire period of course, research work and preparation of this thesis.*

The author is glad to stretch out her heartfelt thanks on account of the considerable number of resources of the Department of Agricultural Extension and Information System, SAU, for their important instructions, recommendations and consolation amid the time of the examination.

The author

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

USE OF MEDIA TO COLLECT AGRICULTURAL INFORMATION BY ROOFTOP GARDENERS IN RANGPUR CITY

JEBA JANNAT

Abstract

The major purpose of this research was to analyse the use of media for rooftop gardening related information by the gardeners' and also explore the relationship between selective characteristic and rooftop gardeners in Rangpur City. The study was conducted in one ward of Rangpur city corporation of Rangpur Sadar Thana under Rangpur district. The populations of rooftop gardeners in this ward were 587, from where 85 were drawn by using random sampling technique. An interview schedule was used for data collection during 10 April to 10 May, 2020. Use of media for rooftop gardening related information by the gardeners was determined by a validated test. Descriptive statistics such as mean, standard deviation, range and percentage were used to describe the variables under consideration. In order to explore the contributing relationship of the selected characteristics of rooftop gardeners with their use of media for rooftop gardening related information by the gardeners, multiple regression analysis was used. The highest proportion (60%) of the gardeners had medium use of media for rooftop gardening related Information by the gardeners. Age and experience had negative significant influence to the extent of use of media for rooftop gardening related Information by the gardeners. Knowledge and attitude towards rooftop gardening had positive significant influence to the extent of use of media for rooftop gardening related Information by the gardeners. It is observed that the integrated use of media for rooftop gardening related information by the gardener needs to maximize and sustain to sustainable rooftop gardening.

Keywords: Rooftop Gardening, media, information, agriculture

CHAPTER I
INTRODUCTION

1.1 General Background

Bangladesh is regarded as a survivor of the adverse effects of climate change as one of the vulnerable countries. Throughout today's rapidly growing population, the country's leading development issues include poverty alleviation, sustainable development, food security, and environmental management. Whereas, being a densely populated city, Rangpur has surpassed its capacity to carry. In Bangladesh, the number of low-income consumers in cities is also increasing rapidly due to migration from rural areas to urban areas. Urban agriculture can provide a source of fresh product for urban residents, a better diet, and substantial budgetary savings for households.

The practice of cultivating food on the rooftop of buildings is sometimes referred to as rooftop farming. Rooftop farming is usually done using green roofs, hydroponics, aeroponics or air-diaphonic systems or container gardens. Due to scarcity of cultivated land in town area, rooftop gardening can play an alternate method of usual land based cultivation. A rooftop garden contains variety of vegetables, fruits, decorative trees etc. in such small area. Vegetated surfaces have important properties for sound insulation and are often used in urban settings for their potential for noise reduction. Green roofs can provide major incentives for buildings to reduce noise. It can also build jobs and economic facilities through its backward and forward relations. Besides the decorative benefit, roof plantings may provide food, temperature control, hydrological benefits, architectural enhancement, habitats or corridors for wildlife, recreational opportunities, and on a large scale, it may even have ecological benefits. Rooftop gardens could complement the community's diets by providing fresh produce and a tangible benefit to food production (Bellows and Hamm, 2003). With rapid and unplanned urbanization, the incidence of urban deprivation and food insecurity has also increased.

Nowadays media like TV, radio, newspapers including new social media like Facebook and video based media like Youtube are widely used by the gardeners in receiving gardening related information. Due to availibality and wisdespread Internet, digital platform mainly aids gardeners to collect relevant information. More focus on sharing knowledge and information to the gardeners is essential to make the rooftop gardening

lucrative. However, sometimes gardeners do not understand proper way of gardening due to lack of proper system, lack of information, lack of communication facilities etc.

1.2 Statement of the Problems

Gardener often struggle to get help and manage resources. Sometimes they lack interest as it requires regular time and man to maintain the garden. Government organizations come up with a set of facilities or packages to help those gardeners. Many private organizations, including individual entrepreneurs from rural areas, often offer a good bunch of help from their expertise and staff. There are many useful communication media for each of them like for individual person they love to use personal relation, nursery or private company try to involve integrated communication media especially television and government organizations on traditional communication media like Hand Books, leaflet, rally, fair etc. Besides these mediums of communication, there are few other media that are ignored or less emphasize by the stakeholder like social media, the Internet, etc. The reality is there are a huge gardening community is growing from social media which can be observed in a social group like "Green Bangladesh", "Esho Bagan Kori", "Sobuj Sena", etc. This community is not limiting themselves over the internet; they are meeting together, exchanging plants and arranging workshops using this media.

In view of the importance of roof top gardening in diversity measurement the investigators of this survey were highly interested to find out the role and use of media for agricultural information access of roof top gardening in Rangpur city entitled "Access and use of media for agricultural information by rooftop gardeners in Rangpur city''. This study attempted to find out the answer of the following research questions:

1. What are the respondents selected characteristics?
2. What is the level of use media for agricultural information access of the rooftop gardening of the respondents?
3. Are there any relationships between the selected characteristics of the respondents and the role media for agricultural information for rooftop gardening?

1.3 Specific Objectives of the Study

The urban people are smart enough to google their problems, ideas and inspiration. So, the use of media in receiving information is an important aspect in the context of the

above discussion. In order to get a clear view of the above questions, the investigator undertook a study entitled the following objectives have been formulated to guide the research;

1. To describe the selected socio-economic characteristics of the rooftop gardeners in Rangpur City
2. To determine rooftop gardeners' access to media and their extent of media use in Rangpur City for receiving gardening related information,
3. To explore the contribution of the selected socio-economic characteristics of the rooftop gardeners' in Rangpur City to their extent of media use for receiving rooftop gardening related information.

1.4 Justification of the Study

Population of Rangpur city is increasing day by day. On the other hand, the number of plants in this city are decreasing rapidly. For the modern civilization, our children have to live with relatively less green environment that is plants. In order to provide green city, it is essential to undertake a program or project to motivate the building owners of Rangpur city to increase the rooftop gardening . However, before making awareness of the respondents for roof top garden, it is necessary to gain a clear-cut idea about the present status of media use in roof top gardening activities. On the above circumstances the researcher has undertaken the present study entitled "Access and use of media to collect Agricultural information by rooftop gardeners' in Rangpur city".

1.5 Assumption of the Study

It has been stated that science is based upon assumptions that are unprovable and that are essentially value judgments. It has been shown further that science itself has developed an ethic based upon the assertion that knowledge is superior to ignorance. (Good and Hatt, 1952). Following assumption were in the mind of the researcher during conducting the study:

- The study respondents were competent enough to furnish proper responses to the questions contained in the interview schedule.
- The researcher who acted as interviewer feels comfortable with study areas social and environmental conditions. Hence, the data collected by her from the respondents were free from bias.

- Respondents view and opinions were the representative's views and opinions of the whole population of the study area.
- The responses furnished by the respondents were valid and reliable.
- The findings might generally apply to other parts of the country where similar socio-economic and cultural conditions are in view.

1.6 Limitation of the Study

In order to conduct the research in a meaningful and manageable way, it becomes necessary to impose some limitations in certain aspects of the study. Considering the time, money, labor and other necessary resources to the researcher, the following limitations have been observed throughout the study:

1. The study was conducted only one (1) metropolitan area under Rangpur city.
2. Characteristics of the garden owners were many and varied but only ten (10) characteristics were selected for investigation in this study.
3. It is difficult to get exact information on use of media in receiving information indicator from the respondents as many of them are elite society member.
4. There were challenging situations at the time of data collection. So, the researcher had to manage proper rapport with the respondents to collect maximum proper information.
5. Several methods, scales and statistical tests have been utilized in this study over a relatively short period of time

1.7 Definition of Important Terms

A researcher needs to know the meaning and contents of every term that he uses. 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:

Information: Information is that which informs. Information is any propagation of cause and effect within a system. Information is conveyed either as the content of a message or through direct or indirect observation of anything. That which is perceived can be construed as a message in its own right, and in that sense, information is always conveyed as the content of a message.

Rooftop Garden (RTG): A roof garden is a garden on the roof of a building. Besides the decorative benefit, roof plantings may provide food, temperature control, hydrological benefits, architectural enhancement, habitats or corridors for wildlife, recreational opportunities, and in large scale it may even have ecological benefits. The practice of cultivating food on the rooftop of buildings is sometimes referred to as rooftopfarming.

Variable: The variable is a characteristic, which can assume varying, or different values in successive individual cases.

Independent variable: An independent or causal variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon.

Dependentvariable: A dependent or focus variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variable.

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

Education: Education referred to the development of desirable knowledge, skill, attitudes, etc. of an individual through the experiences of reading, writing, observation and related matters.

Family size: The family member was defined as total number of family members by the respondents during the data collection period.

Space: The space was defined as a total area utilized for rooftop gardening by the respondents.

Annual Family Income: The term annual family income refers to the annual gross income of respondents and members of his family from different sources.

Annual Income from House Rent: Annual income from house rent refers to the total financial return from house rent in one year.

Rooftop Gardening Experience: It refers to the total number of years that a respondent participated roof gardening and practiced the roof gardening as calculated till the time of data collection.

Time Spent for Rooftop Gardening: Time spent in rooftop gardening was determined by the total of time involved in gardening per week.

Knowledge in Rooftop Gardening: Literally knowledge means knowing or what one knows about a subject, fact, person etc. Knowledge, however, refers to the number of facts or information about an idea, object or person which a person knows. Regarding technological aspect (gardening) knowledge occurs when an individual is exposed to a technology's existence and gains some understanding of how it functions (Rogers, 1983).

Attitude towards Rooftop Gardening: The attitue refers as a perception towards rooftop gardening by the respondents.

Hypothesis: A supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Population: Population is the entire pool from which a statistical sample is drawn. The information obtained from the sample allows statisticians to develop hypotheses about the larger population. Researchers gather information horn a sample because of the difficulty of studying the entire population.

Sampling: Sampling is a statistical procedure that is concerned with the selection of the individual observation; it helps us to make statistical inferences about the population.

Data: Facts and statistics collected together for reference or analysis.

Variance: In probability theory and statistics, variance is the expectation of the squared deviation of a random variable from its mean, and it informally measures how far a set of (random) numbers are spread out from their mean.

Media: Media (the singular form of which is medium) of collective communication outlets or tools that are used to store and deliver information or data. It is either associated with communication media or the specialized mass media communication businesses

such as print media and the press, photography, advertising, cinema, broadcasting (radio and television) and publishing.

CHAPTER II
REVIEW OF LITERATURE

In this Chapter, review of relevant literatures to the objectives of this study and mainly concerned with the use of media in receiving information of rooftop gardeners was presented. There was a 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 use of media in receiving information 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 three sections:

Section 1: Review of literature regarding using of media for related information of rooftop gardening by the gardeners
Section 2: Review on the selected characteristics of rooftop gardeners and their use of media
Section 3: Conceptual Framework

2.1 Review of Literature regarding using of media in receiving gardening related information

Wangu (2014) remarked that most gardeners use social media to seek a variety of agricultural information, mostly scientific, educational and technology based, including training information, agrochemicals and technological information. A majority of gardeners however do not take as much interest in market based agricultural information, including market trends, price, and stock availability as well as credit facilities, source, terms and conditions at Lower Kabete, Kiambu County in Kenya.

Gakuru *et al.,* (2009) suggest that with the widespread use of mobile phones, voice and SMS solutions should find more use as they offer easy accessibility. However, they point out that they may have some challenges as the SMS carries only a limited amount of information and requires a basic level of literacy. Voice-based solutions are also complicated to develop as they require machines to produce natural speech or good speech synthesis. They also do not offer detailed information such as pictorial illustrations as in web solutions.

Lucky (2012) stated that the telephone is a quick way of making "contact" with the extension workers or farmers. Whenever we want to, it does not need any traveling up and down. Farmers can ask questions and answer by extension workers on the telephone on the spot without wasting too much time, especially very urgent questions.

According to Gakuru *et al.,* (2009) agricultural informatics is a new concept that has arisen following the rapid development in ICT and the internet. Referred to as agriculture, agricultural informatics is an emerging field which combines the advances in agricultural informatics, agricultural development and entrepreneurship to provide better agricultural services, enhanced technology dissemination, and information delivery through the advances in ICT and the internet.

Djankov *et al.,* (2001) reported that independent radio broadcasting services were found to be positively and significantly correlated with a range of development outcomes which included improved lives and better functioning markets.

Mittal and Tripathi (2009) on the use and Effect of mobile phones and mobile enabled services on agricultural productivity it was found that some of the farmers who used mobile phones for at least some agricultural activities reported about significant productivity gains.

Banglar Krishi (2015) reported that the farmers are benefited by the instant solutions to their different problems regarding diseases and insects of crop, cultivation practices, fertilizer management, different agricultural aspects, livestock and fisheries from the experts and field level specialists over phone from Krishi Call Centre operated by Agriculture Information Service (AIS) under the Ministry of Agriculture (MoA).

AIS (2013) reported that the farmers are provided with the instant solutions to their problems related to agriculture, fisheries and livestock by the specialists in the relevant fields in Krishi Call Centre over phone in Bangladesh. Katalyst (2012) reported that the farmers were able to access the timely and accurate information and become more knowledgeable about opportunities to improve agricultural practices, production, and farm investment decisions with the help of Grameenphone Community Information Centre (CIC) and the helpline services in Bangladesh. According to Muhammad *et al.,* (2004), Nothing seems more important in agricultural development than the dissemination of latest agricultural technologies among the farmers. Agricultural

extension organizations are entrusted with this primary task for which they use a variety of extension teaching methods/media.

2.2 Review on the selected characteristics of Rooftop Gardeners and their use of Information Sources

2.2.1 Age and use of media

Pandian (2002) found that farmers' age had direct positive effect between age of the farmers and effect of use of video education on knowledge retention. Nuruzzaman (2003) conducted a study and found that age of the farmers had significant negative relationship with the use of media. Reza (2007) reported that there was no significant relationship between the age of the farmers and their perceived effect of media use.

Ahmed (2012) it was observed that there was no significant relationship between age of the farmers and media utilization in agriculture by them.

Ali (2011) that age of the farmers had no significant relationship with adoption of mass media-based information for decision-making in vegetable cultivation.

Jannat (2015) revealed that age had significant contribution to the impact of using media by the farmers.

2.2.2 Education and use of media

Uddin (2015) found that education had significant contribution on their use of media. Alam (2015) found that education showed significant and positive relationship with their use of cell phone.

Anisuzzaman (2003) concluded that the education of the farmers had significant positive relationship with their use of information and communication media.

Nuruzzaman (2003) in his study observed that education of the farmers had significant positive relationship with their use of mass media.

2.2.3 Family size and use of media

Kafura (2015) observed that there was no significant relationship between the family size of the farmers and the level of use of different ICT tools for agricultural purpose by them.

Ahmed (2012) observed that family size of the farmers had no significant relationship with ICT utilization in agriculture by them. However, there was different result also.

Okello *et al.* (2012) found in a study that the household size of the farmers was a factor negatively influencing the use of the mobile phone for agricultural transactionpurposes by them

2.2.4 Space for rooftop gardening and use of media

Alam (2015) found land possession and effective farm size showed significant and positive relationship with their use of cell phone.

Uddin (2015) found that farm size had significant contribution on their use of ICT media. Jannat (2015) revealed that effective farm size had significant contribution to the impact of using ICT by the farmers.

Khatun (2006) in her study concluded that farm size of the respondents had significant positive relationship with their homestead gardening.

Anisuzzaman (2003) found that the farm size of the respondents had no significant relationship with their use of communication technologies.

Nuruzzaman (2003) in his study conducted that farm size of the farmers had no significant relationship with the use of communication technologies

2.2.5 Annual Family Income and use of media

Alam (2015) found that annual family income showed significant and positive relationship with their use of cell phone.

Kafura (2015) revealed that there was positive significant relationship between the annual income of the farmers and the level of use of different ICT tools for agricultural purposes by them.

Uddin (2015) found that annual family income had significant contribution on their use of ICT media.

Ahmed (2012) observed that there was no significant relationship between the annual income of the farmers and utilization of ICT in agriculture by them.

Ali (2011) that income levels of the farmers are more likely to affect the adoption of mass media based information for decision-making in vegetable cultivation.

Reza (2007) noticed that annual income of the farmers had a positive significant

relationship with their perceived effect of ICT use.

Lio and Liu (2006) revealed that the farmers in richer countries began to utilize new ICT (especially the internet) much more effectively to get enhanced agricultural productivity.

2.2.6 Annual income from house rent and use of media

Mithon (2016) found that from house rent : Medium annual income constituted the highest proportion (67.1%), while the lowest proportion in low annual income from houserent (13.4%) category.

Rahaman (2014) concluded from the finding that there was no significant relationship between family annual income of the respondents and their problems of roof top gardening.

Nira (2006) found that there is no relationship between family annual income of the respondents and their adoption of roof gardening.

2.2.7 Rooftop gardening experience and use of media

Kafura (2015) noted that there was negative significant relationship between the farming experience of the farmers and the level of use of different media tools in agriculture by them.

Ogutu *et al.,* (2014) revealed that no significant relationship was observed between the farming experience of the farmers and their participation in media-based market information service projects for accessing to agricultural market information.

Reza (2007) revealed that no significant relationship was observed between farming experience of the farmers and the impact of use of media.

Staub *et al., (*2019) investigated that, this investigation sought to elucidate the association between gardening experience and FV intake among college students over a two-year period. Students (N = 593) from eight universities were assessed at the end of their freshman (Y1) and sophomore (Y2) years during the springs of 2016 and 2017,

respectively. Participants completed the NCI FV Screener and questions related to gardening experience and FV-related attitudes and behaviors at each time point.

However, poor access to technical advice, non-availability of services and quality inputs at reasonable price, potential leakages, lack of training and follow-up etc. were the major hindrances found in sustaining the practice.

2.2.8 Time spent for rooftop gardening and use of media

Mithon (2016) found that the highest proportion (65.5 percent) of the roof top gardeners had spent medium time compared to 21.2 percent in low spent time in rooftop gardening.

Sana (2003) found that gardeners who spent more time on rooftop gardening got positive attitude.

Haque (2003) found that time spent of the respondent had positive significant relationship with their practices in farmer's adoption of modern maize cultivation technologies.

2.2.9 Knowledge in rooftop gardening and use of media

Ahmed (2012) observed that agricultural knowledge of the farmers had no significant relationship with the utilization of media in agriculture by them. Reza (2007) found that positive significant relationship between agricultural knowledge of the farmers and the effect of use of media as perceived by them.

Karim (2005) observed that knowledge of the farmers had a significant positive relationship with the use of communication sources by them in improving cultural practice. Qiang *et al.,* (2012) that farmers‟ access to knowledge and information had contribution to the expansion of their capacity through the use of ICT media. Jannat (2015) revealed that agricultural knowledge had significant contribution to the impact of using ICT by the farmers.

2.2.10 Attitude towards rooftop gardening and use of media

Uddin (2016) studied that cent per cent respondents of the selected metro areas of household in Dhaka and Chittagong city have shown their positive willingness and

interest to improve the current RTGs if they get the proper logistic and technical support from the respective departments/agencies.

Athulya et al (2021) texperimented that 99% of the respondents agreed that terrace gardening would be a source of oxygen production. Most of them (98%) of the respondent says that it would reduce the stress levels. Finally, 100% replied that it would perform as a habitat for the city wearing birds.

Hui (2011) found that, many urban cities in the world are trying to enhance sustainability by improving urban greenery and promoting urban farming, by installing green roofs with urban farming, it is possible to achieve environmental, social and economic sustainability for the buildings in urban cities because it can contribute to the mitigation of environmental problems, enhancement of community functions and development of urban food systems.

The positive attitude towards rooftop gardening and available information in different digital media make the respondent more confident on rooftop gardening.

2.3 Research Gap of the Study

There have been several studies on rooftop gardening such as adaption and nutritional aspect in rooftop gardening but there are very few studies which are focused on investigating information receiving behaviour for doing the rooftop gardening. In addition to that, most of the studies are mainly focusing the metropolitan city like Dhaka but so far there is no study conducted on other cities of Bangladesh on that topic. Therefore, this study is going to invastigate people's behaviour regarding information receiving for rooftop gardening from Rangpur City.

2.4 Conceptual Framework

The research hypothesis while constructed properly consists of at least two important elements i.e., a dependent or focus variable and an independent or causal variable. A focus variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variables (Townsend, 1953). A causal 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.

This study is concerned with the use of media for rooftop gardening related information by the gardeners. Thus, the use of media in receiving information was the focus variable, and 10 selected rooftop gardeners characteristics were considered causal variables under the study. The use of media in receiving rooftop gardener information may be affected by interacting forces of many causal variables. It is not possible to deal with all of the causal variables in a single study. It was therefore, necessary to limit causal variables, which age, level of education, family size, experience in rooftop gardening, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, time spent in rooftop gardening and knowledge on rooftop gardening for this study. Considering the above-mentioned situation and discussion, a conceptual framework has been developed for this study, which is diagrammatically presented in the following Figure.

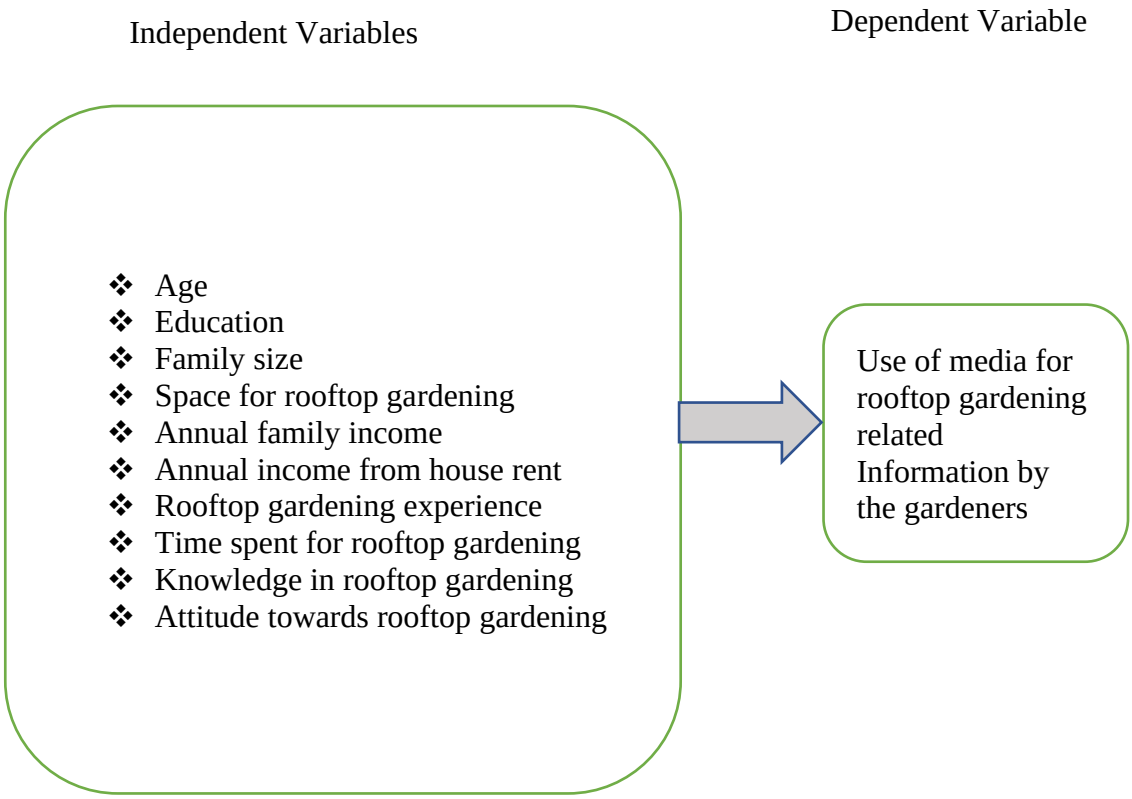

Figure 1: Conceptual framework of the study

CHAPTER III

METHODOLOGY

Methodology plays an important role in scientific research. To fulfill the objectives of the study, a researcher should be very careful while formulating methods and procedures in conducting the research. According to Mingers (2001), research method is a structured set of guidelines or activities to generate valid and reliable research results. This chapter of the thesis illustrates the research methods and procedures used to collect and analyze the data to answer the research questions and attain the purposes. The methods and operational procedures followed in conducting the study are selection of study area, sampling procedures, instrumentation, categorization of variables, collection of data, measurement of the variables and statistical measurements. A chronological description of the methodology followed in conducting this research work has been presented in this chapter.

3.1 Location of the Study

For the present study. a preliminary survey was conducted in covering municipal administrative wards of the Rangpur City Corporation of Rangpur sadar thana under Rangpur District. The municipal administrative wards of the Rangpur City Corporation of Rangpur sadar thana under Rangpur District was selected considering the following characteristics:

a. Researchers understanding to the socio-economic status of the urban people of this city.
b. Researcher wants to explore the contribution of the selected socio-economic characteristics of the rooftop gardeners in Rangpur City to their extent of media use for receiving gardening related information.
c. The information required for the study was considered available in the following area.
d. No study of this type was done previously in this area.

3.2 Population and Sample of the Study

The study was conducted covering administrative municipal wards of the Rangpur City Corporation of Rangpur sadar thana under Rangpur district. Rangpur City Corporation is

a big Corporation having an area of 203.19 sq km. and densely populated with 33 administrative wards.

3.2.1 Determination of sample size

There are approximately 587 different homesteads in this selected area with rooftop garden. Out of 587 hoseholds, a sample of 85 representative homesteads were selected for the survey, to explore the contribution of the selected socio-economic characteristics of the rooftop gardeners to their extent of media use for receiving gardening related information. Final selection of homesteads had been done by using Yamane formula (Yamane, 1967);

$n= N/ \{1+N (e^2)\}$

$=587/ \{1+ 587 (e^2)\}= 85$

Where,

n= Sampling size, N= Population, e= Error of precision (0.1%)

The gardener of the area was selected for data collection by random sampling technique.

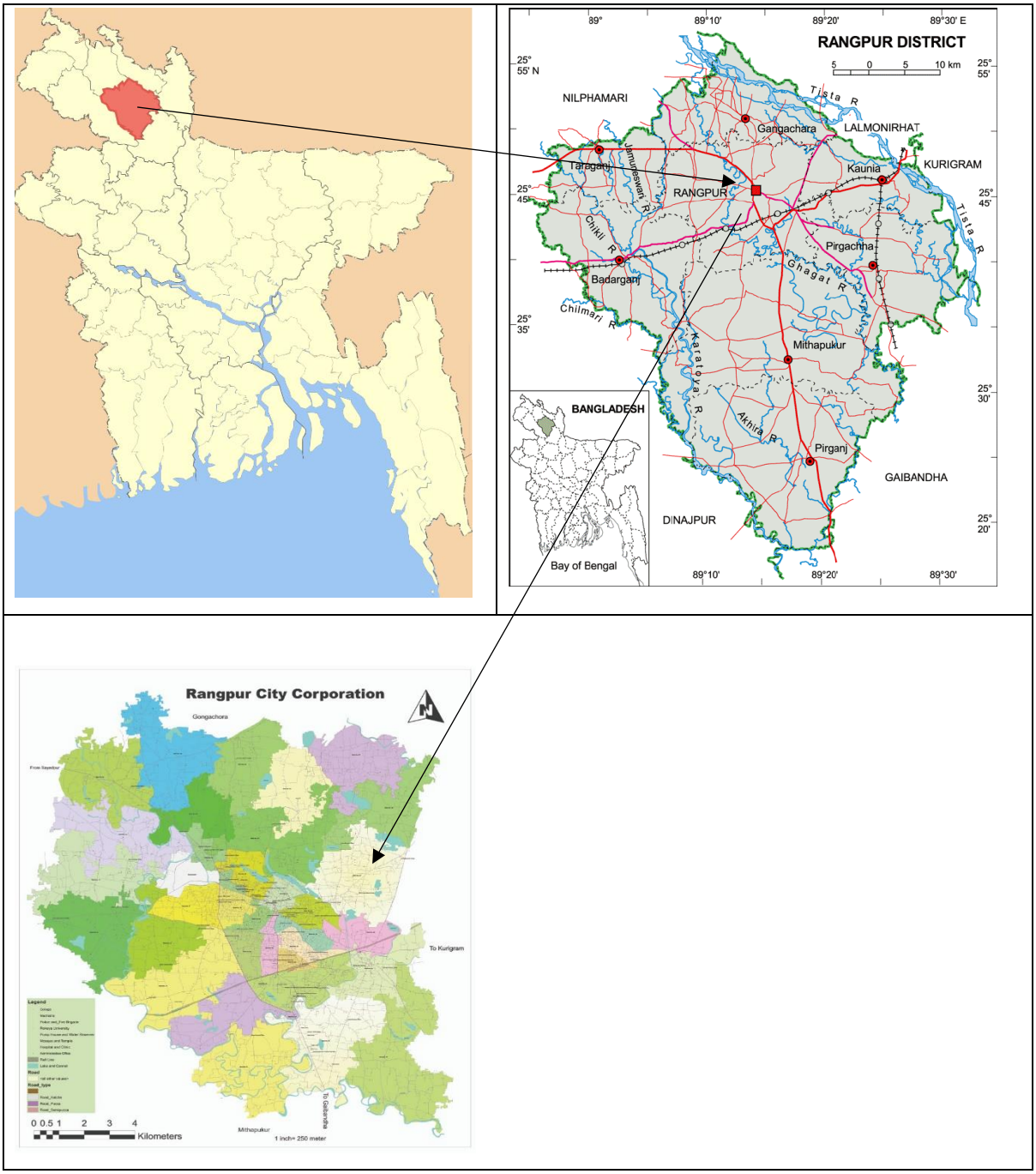

Fig 2: Maps show the study area where the Bangladesh Rangpur district and the study area under Rangpur city corporation

3.3 Data Collection Methods and Tool

3.3.1 Data collection methods

The survey method was used to collect quantitative and qualitative data that allow to answer the research questions framed and to understand the determinants of

respondents' use of media in receiving information. The researcher used individual interviews in the survey and were conducted in a face-to-face (Bryman, 2001) situation. This method is useful for getting unanticipated answers and allowing respondents to describe the world as they really see it rather than as the researcher does (Bryman, 2001).

3.3.2 Data collection tool

Structured interview schedule was prepared to reach the objectives of the study. A structured interview schedule was prepared containing open and closed form questions. The open questions allowed the respondents to give answers using their own language and categories (Casley and Kumar, 1998). The questions in this schedule were formulated in a simple and unambiguous way and arranged in a logical order to make it more attractive and comprehensive.

The instruments were first developed in English and then translated into Bengali. The survey tools were initially constructed based on an extensive literature reviews and pre- tested. The schedule was pre-tested with ten randomly selected respondents in the study area. The pre-test was helpful in identifying faulty questions and statements in the draft schedule. Thus, necessary additions, deletions, modifications and adjustments were made in the schedule on the basis of experiences gained from pre-test. The questionnaires were also checked for validity by supervisor, co-supervisor and educational experts at Sher-e- Bangla Agricultural University (SAU). Finally, the interview schedule was finalized based on background information, an expert appraisal, and the pre-test. Data was gathered by the researcher personally. During data collection, necessary cooperation was obtained from Agriculture Extension Officer (AEO). The data were collected from 10 April, 2020 and completed on 27 April, 2020.

3.4 Variables and their Measurement Techniques

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: independent or causal and dependent or focus variables. A independent variable is that factor manipulated by the researcherthe researcher manipulates to ascertain its relationship to an observed phenomenon. In scientific research, the selection and measurement of variables constitute a significant task. Following this conception, the researcher reviewed the literature to widen this understanding of the natures and

scopes of the variables relevant to this research. At last, the researcher had selected 10 independent variables and one dependent variable. The causal variables were: age, education, family size, space for RTG, annual family income, annual income from house rent, RTG expereience, time spent for RTG, knowledge in RTG, attitude towards RTG. The dependent variable of this study was the, use of media for rooftop gardening related information by the gardeners. The methods and procedure in measuring variables of this study are presented in the following sections.

3.4.1 Measurement of independent variables

The ten characteristics of the gardeners mentioned above constitute the independent variables of this study. The following procedures were followed for measuring the causal variables.

3.4.1.1 Age

The age of the gardeners was measured in terms of actual years from their birth to the time of the interview, which was found on the basis of the verbal response of the people (Rashid, 2014). A score of one (1) was assigned for each year of one's age. This variable appears in item number 1 in the interview schedule as presented in Appendix-I.

3.4.1.2 Education

The education was measured by assigning a score against successful years of schooling by a gardener. One score was given for passing each level in an educational institution (Rashid, 2014). For example, if a gardener passed the final examination of class five or equivalent examination, his/her education score has given five (5). Each gardener of cannot read & write given a score of zero (0). A person not knowing reading or writing but being able to sign only has given a score of 0.5. If a gardener did not go to school but took non-formal education, his educational status was determined as the equivalent to a formal school student. This variable appears in item number 2 in the interview schedule as presented in Appendix-I.

3.4.1.3 Family size

The family size of a respondent was determined by the total number of members in his/her family, including him/her, children and other dependents. The actual number made the scoring of family members expressed by the respondents. For example,

if a respondent had five members in his/her family, his/her score was given as 5. This variable appears in item number 3 in the interview schedule as presented in Appendix-I.

3.4.1.4 Space for Rooftop Gardening

The surface area of roof (sq. ft.) garden refers to the total space of the roof on which his family carried out roof garden operation, the area being in terms of full benefit to the family. This variable appears in item number 4 in the interview schedule as presented in Appendix-I.

3.4.1.5 Annual Family Income

The annual family income refers to the total income earned in taka for doing job, service, business, agriculture etc. by the earning members of the family in the 12-month period . This variable appears in item number 5 in the interview schedule as presented in Appendix-I.

3.4.1.6 Annual Income from House Rent

The annual income from house rent refers to the total income (BDT) of the family by providing house rent in the 12-month period . This variable appears in item number 6 in the interview schedule as presented in Appendix-I.

3.4.1.7 Rooftop Gardening Experience

Experience in gardening of the gardener was determined by the total number of year involved in rooftop gardener. A score of one (1) was assigned for each year rooftop gardening. It was located in the item number 7 of the interview schedule as presented in Appendix-I.

3.4.1.8 Time Spent for Rooftop Gardening

Spending time for gardening of a respondent will be measured in terms of hours/week, options of the interview which will be found on the basis of the response. It was located in the item number 8 of the interview schedule as presented in Appendix-I.

3.4.1.9 Knowledge in Rooftop Gardening

The knowledge of a gardener was measured by asking 12 questions related to different components of rooftop gardening. It was measured assigning weight age 2 marks for each question. So, the total assigned scores for all the questions became 24. This

variable appears in the interview schedule in the item number 9 as presented in Appendix-l.

3.4.1.10 Attitude towards Rooftop Gardening

The attitude towards rooftop gardening was measured by asking 7 questions related to different components of rooftop gardening. The response was categorized into five extent scoring from 1 (strongly disagree) to 5 (strongly agree). This variable appears in the interview schedule in the item number 10 as presented in Appendix-l.

3.4.2 Measurement of the dependent variable

The dependent variable of the study is the extent of use of media for rooftop gardening related information by the gardeners. It was defined as one's extent of exposure to different communication media related to rooftop gardening. The extent of use of media of a rooftop gardener was measured by computing media contact score on the basis of their nature of use of media with selected twelve media. Each rooftop gardener was asked to indicate his nature of use of media with five alternative responses, like Never (0), Rarely (1), Occasionally (2), Often (3) and Regularly (4) were assigned for those alternative responses, respectively. Logical frequencies were assigned for each of the five alternative nature of use of media. The extent of media use of the rooftop gardener was measured by adding the scores of twelve selected media. This variable appears in item number 11 in the interview schedule as presented in Appendix-I.

3.5 Rank Order of Use of Media in Receiving Information

To ascertain the use of media in receiving information by the gardeners Media Use Index (MUI) was computed for each media. Media Use Index (MUI) was computed by using the formula:

MUI = urg × 4 + uf × 3 + us × 2 + ur × 1 + un× 0

Where,

MUI= Media use index

urg = No. of respondents used media regularly

uf = No. of respondents used media frequently

us = No. of respondents used media seldom

ur = No. of respondents used media rarely

un = No. of respondents used media not at all

Media Use Index (MUI) for each media use could range from 0 to 340, where 0 indicating no media use and 340 indicating highest media use by the rooftop gardeners.

3.6 Hypothesis of the Study

According to Kerlinger (1973) a hypothesis is a conjectural statement of the relation between two or more variables. Hypothesis are always in declarative sentence form and they are related, either generally or specifically, from variables to variables. In broad sense hypotheses are divided into two categories:

a) Research hypothesis
b) Null hypothesis.

3.6.1 Research hypothesis

Based on review of literature and development of conceptual framework, the following research hypothesis was formulated:

"Each of the ten selected characteristics (age, education, family size, space for RTG, annual family income, annual income from house rent, RTG expereience, time spent for RTG, knowledge in RTG, attitude towards RTG) of the gardeners has significant relationship with their use of media in receiving information."

3.6.2 Null hypothesis

A null hypothesis states that there is no relationship between the concerned variables. The following null hypothesis was formulated to explore the relationship of the selected characteristics with their use of media in receiving information. Hence, in order to conduct tests, the earlier research hypothesis was enlivened into null form as follows:

"There is no relationship of the selected characteristics (age, education, family size, experience in rooftop gardening, size of rooftop, house ownership, annual family income. Community participation, time spent in gardening and knowledge on rooftop gardening) of rooftop gardeners with their use of media for rooftop gardening related information by the gardeners."

3.7 Statistical Analysis

As outlined before, there are wide ranges of structures and methods that can be utilized to analyze both quantitative and qualitative data as per the objectives of the study. Both descriptive and analytical methods were utilized in order to analyze the data. Descriptive

techniques have been used to illustrate current circumstances, depict wide range of variables separately and construct tables presented in results. These included: sample, percentage, range, mean and standard deviation.

Analytical techniques have been utilized to investigate the contribution of the selected characteristics of the gardeners with their use of media for rooftop gardening related information by the gardeners. Regression analysis was used in order to explore the relationships between each of the selected characteristics of the gardeners and their use of media for rooftop gardening related information by the gardeners. Five percent (0.05) level of probability was the basis for rejecting any null hypothesis throughout the study. The SPSS computer package version 25.0 was used to perform all these processes.

CHAPTER IV

RESULTS AND DISCUSSION

The recorded observations in accordance with the objectives of the study were presented and probable discussion was made of the findings with probable justifiable and relevant interpretation under this Chapter. The findings of the study and their interpretation have been presented in this Chapter. These are illustrated in four sections according to the objective of the study. The first section deals with selected characteristics of the rooftop gardeners, while the second section deals with the extent of use of media for rooftop gardening related information by the gardeners. The third section deals in the rank order of the selected media in receiving information by the rooftop gardeners. The fourth section deals in the relationship of the rooftop gardeners selected characteristics with their use of media in receiving information.

4.1 Selected Characteristics of the Respondents

Socio-economic parameters of an individual are act as determiner to a large extent by one's personal characteristics. There were various characteristics of rooftop gardeners that might have influence in rooftop gardening but in this study, ten characteristics of them were selected as independent variables, which included their age, education, family member, space for RTG, annual family income, annual income from house rent, RTG expereience, time spent for RTG, knowledge in RTG, attitude towards RTG that might be greatly influenced the use of media for rooftop gardening related information by the gardeners are presented following table.

Table 4.0 Distribution of the respondents according to gardeners selected characteristics

Variables	Sample Size	Range	Mean	Std. Deviation
Age	85	18-60 (yr)	30.24	10.20
Education		5-16 (yr)	9.78	3.31
Family size		1-10 (No of family size)	5.45	1.68
Space for RTG		400-3500 (sq feet)	1495	619
Annual family income		120-650 (Thousand Tk)	348	159
Annual income from house rent		0-400 (Thousand Tk)	167	105
RTG experience		1-16 (yr)	7.70	3.22
Time spent for RTG		7-12(Hours/ week)	8.47	1.33
Knowledge in RTG		12-22 (Score)	17.98	2.78
Attitude towards RTG		16-29(Score)	22.54	3.96
Use of media		16-29(Score)	21.07	3.56

4.1.1 Age

The age of the respondents has been varied from 18 to 60 years with a mean and standard deviation of 30.24 and 10.20 respectively. Considering the recorded age, the respondents were classified into three categories namely “young”, “middle” and “old” aged. The distribution of the respondents in accordance of their age is presented in Table 4.1.

Table 4.1 Distribution of the respondents according to their age.

Categories	Frequency	Percent
Young (upto 35 years)	69	81.2
Middle (36-50 years)	9	10.6
Old (above 50 years)	7	8.2
Total	85	100

From Table 4.1 it was revealed that the young-aged respondents comprised the highest proportion (81.2%) followed by middle-aged category (10.6%) and lowest proportion is old-aged category (8.2%). Data indicates that regardless their age more or less every age-group were involved in gardening.

4.1.2 Education

The level of educational scores of the respondents ranged from 5 to 16 with a mean and standard deviation of 9.78 and 3.31 respectively. Based on the educational scores, the respondents were classified into five categories. The distributions of respondents according to their level of education are presented in Table 4.2.

Table 4.2 Distribution of the respondents according to their level of education

Categories	Frequency	Percent
Secondary (6-10)	13	15.3
Higher secondary (11-12)	42	49.4
Above higher secondary (above 12)	30	35.3
Total	85	100

Table 4.2 shows that respondents on "higher secondary" education category constitutes the highest proportion (49.4%). On the other hand, the lowest proportion (15.3%) from "secondary" education category.

4.1.3 Family size

Family member of the respondents ranged from 1 to 10 with the mean and standard deviation of 5.45 and 1.68 respectively. According to family size the respondents were classified into three categories (Mean ± Standard Deviation) namely 'small', 'medium' and 'large' family. The distribution of the respondents according to their family member is presented in Table 4.3.

Table 4.3 Distribution of the respondents according to their family size

Categories	Frequency	Percent
Small (4 members)	27	31.8
Medium (5-6 members)	39	45.9
Large (more than 6 members)	19	22.4
Total	85	100

Data in Table 4.3 indicate that the medium size family constitute the highest proportion (45.9%) followed by the small size family (31.8%). Lowest 22.4 percent respondents had large family size.

4.1.4 Space for rooftop gardening

Rooftop garden area score of the respondents ranged from 400 to 3500 square feet. The mean and standard deviation were 1495 and 619, respectively. Based on rooftop area, the respondents were categorized into three classes (Mean ± Standard Deviation) namely small, medium and high rooftop area. Distribution of the respondents according to their space for RTG is presented in Table 4.4.

Table 4.4 Distribution of the respondents according to the space for RTG

Categories	Frequency	Percent
Small (upto 875)	16	18.8
Medium (876-2115)	56	65.9
Large (above 2115)	13	15.3
Total	85	100

The observed data shows that most of the respondents (65.9%) had a medium rooftop area while 18.8 and 15.3 percent had small and large rooftop areas, respectively (Table 4.4).

4.1.5 Annual Family Income

Annual family income of the respondents ranged from 120 to 650 thousand taka . The mean and standard deviation were 348 and 159, respectively. Based on annual family income, the respondents were categorized into three classes (Mean ± Standard Deviation) namely Low, medium and high income. Distribution of the respondents according to their annual family income is presented in Table 4.5.

Table 4.5 Distribution of the respondents according to their annual family income.

Categories	Frequency	Percent
Low (upto 199)	14	16.5
Medium (200-500)	58	68.2
High (above 500)	13	15.3
Total	85	100

The observed data shows that most of the respondents (68.2%) had a medium ranged family income while 16.5 and 15.3 percent had low and high family income, respectively (Table 4.5).

4.1.6 Annual Income from house rent

Annual income fromhouse rent of the respondents ranged from 0 to 400 thousand taka . The mean and standard deviation were 167 and 105, respectively. Based on annual incme from house rent, the respondents were categorized into three classes (Mean ± Standard Deviation) namely Low, medium and high income. Distribution of the respondents according to their annual income from house rent is presented in Table 4.6.

Table 4.6 Distribution of the respondents according to their annual income from house rent

Categories	Frequency	Percent
Low (upto 62)	18	21.2
Medium (63-270)	53	62.4
High (above 270)	14	16.5
Total	85	100

The observed data shows that most of the respondents (62.4%) had a medium ranged annual income from house rent while 21.2 and 15.5 percent had low and high annual income from house rent, respectively (Table 4.6).

4.1.7 Rooftop gardening experience

Year of experience in rooftop gardening ranged from 1 to 16 with mean and standard deviation of 7.69 and 3.22 respectively. On the basis of experience years, gardeners were classified into three categories (Mean ± Standard Deviation) namely low, medium and high experience in gardening. The distribution of rooftop gardeners according to their experience is given in Table 4.7.

Table 4.7 Distribution of the gardeners according to their RTG experience

Categories	Frequency	Percent
Low (upto 5)	22	25.9
Medium (6-10)	50	58.8
High (above 10)	13	15.3
Total	85	100

Table 4.7 reveals that the majority (58.8 %) of rooftop gardening fell in medium experienced category, whereas only 15.3% in high experienced category followed by 25.9% in low experienced category.

4.1.8 Time Spent for Rooftop Gardening

Time spent for RTG by the rooftop gardeners ranged from 7 to 12 (hours/week) with a mean and standard deviation of 8.47 and 1.33 respectively. Based on the time spent, the rooftop gardeners were classified into three categories namely 'no training', 'low', 'medium' and 'high' spent. The distribution of the rooftop gardeners according to their time spent for RTG is presented in Table 4.8.

Table 4.8 Distribution of the respondents according to their time spent for RTG

Categories	Frequency	Percent
Low (upto 7)	19	22.4
Medium (8-10)	60	70.6
High (above 10)	6	7.1
Total	85	100

Table 4.8 indicates that the highest proportion (70.6%) of the rooftop gardeners had spent medium time compared to 7.1% in high spent respectively. 22.4 % of the respondents had spent low time for RTG.

4.1.9 Knowledge in Rooftop Gardening

Rooftop gardening knowledge scores of the respondents ranged from 12 to 22. The average score and standard deviation were 17.98 and 2.78 respectively. Based on the rooftop gardening knowledge scores, the respondents were classified into three

categories (Mean ± Standard Deviation) namely Low knowledge, medium knowledge and High knowledge on rooftop gardening (Table 4.9).

Table 4.9 Distribution of the respondents according to their knowledge in rooftop gardening

Categories	Frequency	Percent
Low (upto 15)	18	21.2
Medium (16-21)	61	71.8
High (above 21)	6	7.1
Total	85	100

Data presented in Table 4.7 reveals that 71.8% of the respondents had medium rooftop gardening knowledge, 21.2% had low knowledge and 7.1% had high knowledge on rooftop gardening. This led to understanding that urban rooftop gardener most of the time consider gardening as their recreational activity. So, lack of interest in depth study, most gardener achieve low to medium knowledge.

4.1.10 Attitude towards Rooftop Gardening

The score of attitudes towards rooftop gardening of the respondents ranged from 16 to 29. The average and standard deviation were 22.54 and 3.96 respectively shown in the following Table 4.8. On the basis of attitude towards rooftop gardening, the respondents were categorized into three classes (Mean ± Standard Deviation) namely poorly favorable attitude, moderately favorable attitude and highly favorable attitude. The observed data (Table 4.10) showed that most of the respondents (61.2 percent) had a moderately favorable attitude towards rooftop gardening while 20.0 and 18.8 percent of them had highly and poorly favorable attitudes.

Table 4.10 Distribution of the respondents according to their attitude towards rooftop gardening

Categories	Frequency	Percent
Poorly favorable (upto 18)	16	18.8
Moderately favorable (19-26)	52	61.2
Highly favorable (above 26)	17	20.0
Total	85	100

The attitude of the respondents expressed their perception about rooftop gardening. It helped the researcher to judge or measure the acceptance/rejection of rooftop gardening in the area.

4.2 Use of Media for Rooftop Gardening related Information by the Gardeners

The observed score of use of media in receiving information by the rooftop gardener ranged from 16 to 29. The average score of the rooftop gardener uses of media in receiving information was 21.07 with a standard deviation 3.56 (Table 4.11).

Table 4.11 Distribution of the rooftop gardeners according to their use of media for rooftop gardening related information by the gardeners

Categories	Frequency	Percent
Low (upto 17)	17	20
Medium (18-24)	51	60
High (above 24)	17	20
Total	85	100

Data shows that the highest proportion (60%) of the gardeners had medium use of media for rooftop gardening related information by the gardeners and 20% of the gardeners had low and high use of media for rooftop gardening related information by the gardeners (Table 4.11).

Rank order by use of media for rooftop gardening related information by the gardeners in Table 4.12. As per descending order of the Media Use Index (MUI), social media (e.g., Facebook) ranked the 1st followed by video based media like YouTube while handbooks ranked as last position.

Table 4.12 Rank order of use of media for rooftop gardening related information by the gardeners

Name of media	MUI	Rank
Social media (e.g., Facebook)	331	1st
Video (e.g., YouTube)	217	2nd
Private Nursery Owner	194	3rd
Internet	171	4th
Neighbors	141	5th
Friends /Relatives	138	6th
Local Govt. Nursery	131	7th
Television	121	8th
Newspaper	80	9th
Radio	78	10th
Agri Fair	51	11th
Hand Books	49	12th

The highest use of media for rooftop gardening related information by the gardeners was social media (e.g., Facebook). Urban people cannot imagine their life without smartphone and social media (e.g., Facebook). So, they easily get influence by social media (e.g., Facebook) activities like events, photos, videos and sharing of knowledge. The lowest use of media for rooftop gardening related information by the gardeners was Hand Books. Hand Books are finding in special events like fairs or workshop and often in government and NGOs. People also give up the habits of reading paper printed letters.

4.3 Relationships between Selected Characteristics of the Rooftop Gardeners and their Use of Media for Rooftop Gardening related information

In order to estimate the influential factors on the extent of use of sources of information for rooftop gardening from the independent variables, multiple regression analysis was used which is shown in Table 4.13.

Table 4.13 Multiple regression analysis to estimate the contribution of influential factors on the extent of use of media for rooftop gardening related information by the gardeners (n=85)

Dependent Variable	Independent Variables	β	P	R^2	Adjusted R^2	F value
Use of media for rooftop gardening related information by the gardeners	Age	-0.251**	0.008	0.456	0.383	6.214
	Education	0.102	0.258			
	Family Member	0.124	0.178			
	Space for RTG	0.109	0.450			
	Annual family income	0.098	0.664			
	Annual income from house rent	-0.289	0.112			
	RTG Experience	-0.200*	0.034			
	Tme spent for RTG	-0.123	0.253			
	Knowledge in RTG	0.442**	0.000			
	Attitude Towards RTG	0.213*	0.036			

* Significant at p < 0.05; **Significant at p<0.001

Among the ten variables, two variables namely knowledge and attitude towards rooftop gardening were found to be the significant positive influence where as two variables namely age and experience were showed negative significant influence to the extent of use of media for rooftop gardening related information by the gardeners. The remaining six variables, education, family size, space for rooftop gardening, annual family income, annual income from house rent, time spent for rooftop gardening while did not find significant at 5% and at 1% level of significance. All the variables to some extent influence gardeners' extent of use of media for receiving RTG related information. These variables altogether contribute 38.3% of the variance of their use of media (adj. R^2= 38.3%). The overall model was found significant (F=6.214).

Contribution of rooftop gardeners' age to their use of media for rooftop gardening related information by the gardeners:

The contribution of rooftop gardeners age to their use of media for rooftop gardening related information by the gardeners was measured by testing the following null hypothesis; "there is no level of contribution of gardeners age to gardeners use of media for rooftop gardening related information''

- The adjusted p value of the concerned variable was found 0.008. The following observations were made on the basis of the value of the concerned variable of the study under consideration.
- The contribution of age was significance at 1% level. So, the null hypothesis could be rejected.

Unstandardized coefficients are the 'raw' coefficients created by the regression analysis when the analysis is performed on the original unstandardized variables. The unstandardized coefficient represents the amount of change of the dependent variable Y due to the change of 1 unit of the independent variable X. A standardized beta coefficient compares the strength of the influence of each independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect. From the Table 4.13 standardized beta coefficient -0.251 which clearly represent the negative effect of gardeners age on the use of media for rooftop gardening related information by the gardeners. As higher the age the extent of use of media for rooftop gardening related information by the gardeners is less and at the lower the age they frequently used media. Based on the above finding, it was concluded that with age increased, respondents use of media for rooftop gardening related information is decresed.

Contribution of rooftop gardeners' gardening experience to their use of media for rooftop gardening related information by the gardeners:

The contribution of rooftop gardeners' gardening experience to their use of media for rooftop gardening related information by the gardeners as measured by testing the following null hypothesis; "there is no level of contribution of gardening experience to their use of media for rooftop gardening related information by the gardeners.

- The adjusted p value of the concerned variable was found .034. The following observations were made on the basis of the value of the concerned variable of the study under consideration.
- The contribution of gardening experience was significance at 5% level. So, the null hypothesis could be rejected.

Unstandardized coefficients are the 'raw' coefficients created by the regression analysis when the analysis is performed on the original unstandardized variables. The unstandardized coefficient represents the amount of change of the dependent variable Y due to the change of 1 unit of the independent variable X. A standardized beta coefficient compares the strength of the influence of each independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect. From the Table 4.13, standardized beta coefficient -.200 which clearly represent the negative effect of rooftop gardeners' gardening experience to their use of media for rooftop gardening related information by the gardeners. As much the gardening experienc rooftop gardeners, lower the use of media for rooftop gardening related information, and lower the gardeners' experience, higher the use of media for rooftop gardening related information by the gardeners.

Based on the above finding, it was concluded that a rooftop gardener had more gardening experience decreased their use of media for rooftop gardening related information.

Gardening experience enhances the abilities of the farmers to take necessary decision for their gardens and they so less need to contact or use any media for information. Therefore, their extent of use of media is less compared to less experienced garderners.

Contribution of knowledge to rooftop gardeners' use of media for rooftop gardening related information by the gardeners:

The contribution of knowledge to rooftop gardeners' use of media for rooftop gardening related information by the gardeners was measured by testing the following null hypothesis; "there is no level of contribution of knowledge in rooftop gardening to rooftop gardeners' use of media for rooftop gardening related information by the gardeners'

- The adjusted p value of the concerned variable was found 0.000. The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- The contribution of knowledge was significance at 1% level. So, the null hypothesis could be rejected.

Unstandardized coefficients are the 'raw' coefficients created by the regression analysis when the analysis is performed on the original unstandardized variables. The unstandardized coefficient represents the amount of change of the dependent variable Y due to the change of 1 unit of the independent variable X. A standardized beta coefficient compares the strength of the influence of each independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect. From the Table 4.13, standardized beta coefficient 0.442 which clearly represent the positive effect of knowledge to rooftop gardeners' use of media for rooftop gardening related information by the gardeners**.** As much the knowledge rooftop gardeners' use of media for rooftop gardening related information by the gardeners is higher and lesser the knowledge, lower the gardeners' use of media for rooftop gardening related information by the gardeners. Based on the above finding, it was concluded that a rooftop gardener had more knowledge increased their use of media for rooftop gardening related information by the gardeners.

Knowledge enhances the abilities of the rooftop gardeners to adopt a new technology at a short time than others. In fact, knowledge make up-to-date the rooftop gardeners. Therefore, they can make more consent decision related to use of media for rooftop gardening related information by the gardeners.

Contribution of attitude towards rooftop gardeners' use of media for rooftop gardening related information by the gardeners:

The contribution of attitude towards rooftop gardeners' use of media for rooftop gardening related information by the gardeners was measured by testing the following null hypothesis; "there is no level of contribution of attitude towards rooftop gardeners' use of media for rooftop gardening related information by the gardeners."

- The adjusted p value of the concerned variable was found 0.036. The following observations were made on the basis of the value of the concerned variable of the study under consideration.
- The contribution of content appropriateness was significance at 5% level. So, the null hypothesis could be rejected.

Unstandardized coefficients are the 'raw' coefficients created by the regression analysis when the analysis is performed on the original unstandardized variables. The unstandardized coefficient represents the amount of change of the dependent variable Y due to the change of 1 unit of the independent variable X. A standardized beta coefficient compares the strength of the influence of each independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect. From the Table 4.13, standardized beta coefficient .213 which clearly represents the positive effect of attitude towards rooftop gardeners' use of media.

As much the positive attitude towards rooftop gardeners', the use of media for rooftop gardening related information by the gardeners is higher and lesser the attitude towards rooftop gardeners, lower the use of media for rooftop gardening related information by the gardeners.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study was conducted in the selected area covering administrative municipal wards of the Rangpur City Corporation of Rangpur sadar thana under Rangpur district. Rangpur City Corporation is big Corporation having an area of 203.19 sq km. and densely populated with 33 administrative wards. A well-structured interview schedule was developed based on objectives of the study for collecting information. The causal variables were age, education, family size, space for RTG, annual family income, annual income from house rent, RTG expereience, time spent for RTG, knowledge in RTG, attitude towards RTG. Various statistical measures such as frequency counts, percentage distribution, average, and standard deviation were used in describing data. In order to explore the relationship of the selected characteristics of rooftop gardeners with their use of media for rooftop gardening related information by the gardeners', multiple regression analysis (R^2) was used. The major findings of the study are summarized below:

5.1 Major Findings

5.1.1. Selected characteristics of the rooftop gardeners

Age: Analyzed data revealed that the young-aged respondents comprised the highest proportion (81.2%) followed by middle-aged category (10.6%) and lowest proportion is old aged category (8.2%). Data indicates that regardless their age more or less every age-group were involved in gardening.

Education: Respondents data shows that the respondents from "higher secondary" education category constitutes the highest proportion (49.4%). On the other hand, the lowest proportion (15.3%) from "secondary education" category.

Family member: Data indicate that the medium size family constitute the highest proportion (45.9%) followed by the small size family (31.8%). Lowest 22.4% respondents had large family size. Such finding is quite normal as per the situation of Bangladesh.

Space for rooftop gardening: Most of the respondents (65.9%) had medium income while 18.8% and 15.3% of them had small and large rooftop space respectively.

Annual family income: The highest proportion (68.2%) of the respondents had medium annual income in rooftop gardening.Low and high experience got 16.5% and 15.3% respectively.

Annual income from house rent: The highest proportion (62.4%) of the rooftop gardeners' had medium annual income from house rent compared to 21.2% in low and 16.5% high income respectively.

Gardening experience: The highest proportion (58.8%) of the rooftop gardeners had medium experience in rooftop gardening compared to 25.9% in low and 15.3% in high experience respectively.

Time spent for rooftop gardening: Majority of the responents (70.6%) of the rooftop gardeners had spent medium time in rooftop gardening compared to 22.4% in low and 7.1% in high time spent respectively.

Knowledge in rooftop gardening: Majority of the responents **(**71.8%) had medium rooftop gardening knowledge while 21.2% had low knowledge and 7.1% had high knowledge on rooftop gardening.

Attitude tawards on rooftop gardening: The highest proportion (61.2%) of the respondents had medium favorable attitude towards rooftop gardening while 18.8% had poorly favorable attitude and 20.0% had high favorable attitude towards rooftop gardening.

5.1.2. Use of media for RTG related information by the rooftop gardeners

The highest proportion (60%) of the gardeners had medium use of media for rooftop gardening related information by the rooftop gardeners and 20% of the gardeners had low and high use of media for rooftop gardening related information by the rooftop gardeners.

5.1.3. Rank order of the use of media for RTG related information by the rooftop gardeners

As per Media Use Index (MUI), social media (e.g., Facebook) ranked the 1st and Hand Books ranked as last position while video based media (Youtube) got 2nd position.

5.2. Conclusions

The findings and relevant facts of research work prompted the researcher to draw following conclusions.

1. The findings revealed that maximum 60% of the respondents had medium use of media for rooftop gardening related information. It is concluded that the integrated use of communication media in receiving information needs to maximize and sustain to sustainable rooftop gardening.
2. Age on rooftop gardening of the rooftop gardener had significant relationship with their use of media for rooftop gardening related information. It is assumed that young people have more contact with information sources like nursery, relatives, office, etc. So, they easily get lots of information and motivation from the media.
3. Gardening experience in rooftop gardening of the rooftop gardeners had significant relationship with their use of media for rooftop gardening related information. Experienced people easily understand and become interested to earn information from media.
4. Knowledge in rooftop gardening of the rooftop gardener had significant relationship with their use of media for rooftop gardening related information. Through rooftop gardening knowledge of an individual gardener gets aware of the information on the various aspects of selected gardening practices.
5. Attitude towards rooftop gardening of the gardeners shows significant relationship with their use of media for rooftop gardening related information. From the study, it seems that respondent were medium favorable on rooftop gardening.
6. Social media (e.g., Facebook) ranked the 1st and Hand Books ranked as last position as per Media Use Index (MUI) which led to the conclusion that the use of social media (e.g., Facebook) in receiving information needs to sustain for sustainable rooftop gardening.

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. Various step should be taken by the Department of Agricultural Extension (DAE), Metropolitan Agriculture Office and Non-Government Organizations (NGOs) to increase the use of media for rooftop gardening related information by the gardeners to a higher degree.

2. Age on rooftop gardening of the rooftop gardeners had significant relationship with their use of media for rooftop gardening related information by the gardeners.

   It is assumed that young aged people have more contact with different information sources like nursery, relatives, office, etc. It is recommended that government organizations like DAE and private organizations like private nursery ownersgovernment organizations like DAE and private organizations like private nursery owners introduce programs and represent information more strongly to attract young aged people. according to their interest through their community, they can go for rooftop gardening and receive information to get motivation.
3. The rooftop gardener's experience on rooftop gardening had a significant relationship with their use of media for rooftop gardening related information by the gardeners. Respondents by this time have earned medium experience in rooftop gardening. The DAE and other agricultural organizations should introduce and focus their information in such a way that a low experienced novice gardener or interested people get easily influenced for more habitual gardening.
4. Majority of the rooftop gardeners having medium knowledge in rooftop gardening technologies. It should be selected on priority basis for any motivational training by Department of Agricultural Extension (DAE) and NGOs for gaining sustainable rooftop gardening and enhancing the use of media for rooftop gardening related information by the gardeners.
5. Attitude towards rooftop gardeners had significant relationship with their use of media for rooftop gardening related information by the gardeners. It may be recommended that DAE should make arrangements, other NGOs should arrange motivational campaign and other events where rooftop gardeners can collaborate with each other and improve the positivity towards rooftop gardening.
6. The Hand Book ranked last position as per media use index (MUI) though it has positive effects on gardeners. People like to feel what they see and a Hand Books has this feature. So, government and non-government organizations that want to promote gardening should emphasize Hand Books printing and distribution. Again, social media (e.g., Facebook), which is ranked first position as per media use index, is a very important key factor in disseminating rooftop

gardening information. The stakeholder of rooftop gardening needs to updated change of social media (e.g., Facebook) to keep the high intensity of motivation for rooftop gardening.

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. The present study was conducted in Rangpur City Corporation (RCC), Rangpur city. It is recommended that similar studies should be conducted in other areas of Rangpur city.
2. This study investigated the relationship of ten characteristics of the rooftop gardeners with their use of media in receiving information as focus variables. Therefore, it is recommended that further study should be conducted with other characteristics of the rooftop gardeners with their use of media for RTG related information by the rooftop gardeners.

REFERENCES

Ahmed, S.U. (2012). *Utilization and Effectiveness of ICT for Disseminating Agricultural Technologies among the Farmers*. PhD Thesis. Bangabandhu Sheikh Mujibur Rahman Agricultural University.

AIS (2013). *Establishment of Call Centre (In Bengali: Call Centre Sthapon). ICT in Agriculture (In Bengali: Krishite Taththya Prajukti).* Agriculture Information System. Ministry of Agriculture, Bangladesh.

Alam, S.M.N. (2015). *Use of Cell Phone in Receiving Agricultural Information by the Farmers*. MS (Ag. Ext.) Thesis, Department of Agricultural Extension and Information System. Sher-e-Bangla Agricultural University, Dhaka.

Ali, J. (2011). *Adoption of mass media information for decision-making among vegetable growers in Uttar Pradesh*. Indian J. of Agril. Eco. 66 (2): 241-254.

Anisuzzaman, M. (2003). *Use of Communication Media by the Farmers in the Adoption of Improved Rice Production Technology*. MS. (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymansingh.

Athulya V and Dr. M Ramya (2021): *Consumer Attitude Towards Organic Terrace Gardening- A Study in Bangalore City*, IJMER, Volume 10 (Apr 2021) (SSN:2277-7881), PP 110-115.

Banglar Krishi. (2015). *Banglar Krishi 89 (kisoker janala, online fatilaiger, Krishi call center, Digital world 15*. May 13, 2015. Retrieved from http://www.youtube.com.

Bellows, A. C. & Hamm, M. W. (2003). *Community food security: background and future directions.* Journal of Nutrition Education and Behavior, 35(1), 37-43.

Bryman, A. (2001). *Social Research Methods*. Oxford: Oxford University Press.

Casley, D.J. and Kumar, K. (1998). *The Collection, Analysis and Use of Monitoring and Evaluation Data*. Washington DC: World Bank/Johns Hopkins University Press.

Djankov, S., McLeish, C., Nenova, T., and Sheifer, A. (2001). *Who owns the media?* J. of Law and Eco. 46(2): 341-381.

Gakuru, M., Winters, K. and Stepman, F. (2009). *Inventory of Innovative Farmer Advisory Services using ICTs*. The Forum for Agricultural Research in Africa (FARA).

Goode, W.J. and Hatt, P.K. (1952). *Methods in Social Research*, McGraw-Hill Inc.,US; International Ed edition (December 1, 1952), p36.

Islam, M.N. 2008. *Knowledge on Vegetables Production Activities by Woman Members In Homestead Area Under World Vision Project.* M.S. (AEIS). Thesis, Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka.

Jannat, S.T. (2015). *Impact of Using Information and Communication Technologies (ICT) by the Farmers of Sadar Upazila under Gazipur District.* MS (Ag. Ext.) Thesis, Department of Agricultural Extension and Information System. Sher-e-Bangla Agricultural University, Dhaka.

Haque, M. M. 2003. *Farmer's Adoption of Modern Maize Cultivation Technologies*. M.S. (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Hui, D. S. C. M. (2011). *Green roof urban farming for buildings in high-density urban cities*. Hainan China World Green Roof Conference 2011 18-21 March 2011, Hainan (Haikuo, Boao and Sanya), China.

Kafura, R.A. (2015). *Use of ICT as Extension Tool by the Farmers in Selected Areas of Gazipur District.* MS Thesis. Bangabandhu Sheikh Mujibur Rahman Agricultural University.

Karim, A.M.A. (2005). *Information Media Used by the cotton Farmers in Producing cotton in a Ten-country Area of North central Texas*. M.S. Thesis, Texas A & M University.

Katalyst. (2012). *Making ICT work for Bangladesh's farmers*. Case Study Number6.TheKatalystCases. Retrieved from http://www.katalyst.com.bd.

Kerlinger, F.N. (1973). *Foundations of Behavioral Research, Educational and Psychological Inquiry*. Rinehart and Winston Inc. Halt, New York, USA.

Khatun, R. (2006). *Communication Exposure of Rural Women Regarding Homestead Gardening.* M.S. *('AgriLExL*) thesis, Department of Agricultural Extension, Sher-e-Bangla Agricultural University, Dhaka.

Lio, M and Liu, M. 2006. ICT and agricultural productivity: *Evidence from crosscountry data*. Agril. Eco. 34: 221–228.

Lucky, A.T. (2012). *Department of Library and Information Science*, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.

Mingers, J. (2001). *Combining IS Research Methods: Towards a Pluralist Methodology*. Information System Research 12(3): 240-259.

Mithon, M. M. (2016). *Attitude of the house owners towards rooftop gardening at Dhaka city.* MS (Ag. Ext.) Thesis, Department of Agricultural Extension and Information System, Sher-E-Bangla Agricultural University, Dhaka.

Mittal, S and Tripathi, G. (2009). *Role of mobile phone technology in improving small farm productivity.* Agril. Eco.s Res. Review. 22: 451-459.

Muhammad, S., Butt, S.A. and Ashraf, I. (2004). *Role of television in agricultural technology transfer*. Pak. J Agri. Sci. Vol 41(3-4).

Nira, K.N. (2006). *Adoption of Roof Gardening at Mirpur-10 Area under Dhaka City.* MS (Agril. Ext.) Thesis. Department of Agricultural Extension and Information System. Sher-e-Bangla Agricultural University, Dhaka.

Nuruzzaman, M. (2003). *Use and Preference of Mass Media in Receiving Agricultural Information by the Farmers*. M.S. (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Ogutu, S.O., Okello, J.J., Otieno, D.J. (2014). *Impact of information and communication technology-based market information services on smallholder farm input use and productivity*: The case of Kenya. World Dev. 64: 311–321.

Okello, J.J., Kirui, O.K., Njiraini, G.W. and Gitonga, Z.M. (2012). *Drivers of use of Information and Communication Technologies by farm households: The case of smallholder farmers in Kenya.* J. of Agril. Sci. 4(2): 111-124

Pandian, S. (2002). *Impact of video education on knowledge retention*. Indian of Ext. Edu. 38 (3 and 4): 153-157.

Parveen, S. 2010. *Rice Farmers' Knowledge about the Effects of Pesticides on Environmental Pollution in Bangladesh*. Bangladesh Res. Pub. J. 3(4): 1214-1227.

Porsche, U and Kohler, M. (2003). *Life cycle costs of green roofs - a comparison of Germany, USA, and Brazil.* World Climate & Energy Event, 1-5 December 2003, Rio de Janeiro, Brazil. 461-467.

Qiang, C.Z., Kuek, S.C., Dymond, A. and Esselaar, S. (2012). *Mobile Applications for Agriculture and Rural Development.* May, 2012. ICT Sector Unit, World Bank.

Rahman, M.S. (2014). *Problems of Roof Top Gardening at Mohammadpur Thana under Dhaka City*. MS (Ag. Ext.) Thesis, Department of Agricultural Extension and Information System, Sher-E-Bangla Agricultural University, Dhaka.

Rashid, S. M. M. (2014). *Empowering Farmers through e-Agriculture*. M.S. (Ag. Ext. & Info. Sys.) Thesis, Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka.

Reza, A.A. (2007). *Impact of Information and Communication Technologies (ICTs) Use as Perceived by the Farmers of Bangladesh*. MS (Ag. Ext.) Thesis, Department of Agricultural Extension and Information System. Sher-e-Bangla Agricultural University, Dhaka.

Rogers, E.M (1983). *Diffusion of innovations* (3rd edition). The Free Press. A Division of Macmillan Publishing Co., Inc. New York. Collier Macmillan Publishers, London.

Sana, M. C. *Farmers' Knowledge of Shrimp Cultivation in Assouni Upazila Under Satkhira District*. An M.Sc. (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh

Staub, D., Colby, S.E., Olfert, M.D. Kettlemann, K., Zhou, W., Horacek, T.M., Green, G.W., Roadsavljevic, L., Castle, L.F. and Mathews, A.E. (2019). *A multi-year examination of gardening experience and fruit and vegetable intake during college*. J. Nutri. 11(9), 2088.

Townsend, J.C. (1953). *Introduction to experimental methods.* International Student Edition. New York: McGraw Hill Book Company, Inc.

Uddin, Jamal. (2016). *Baseline Study on Rooftop Gardening in Dhaka and Chittagong City of Bangladesh- Enhancing Urban Horticulture Production to Improve Food and Nutrition Security* (TCP/BGD/3503).

Uddin, M.R. (2015). *Use of Information and Communication Technologies (ICT) by the Farmers in Receiving Agricultural Information*. MS (Ag. Ext.) Thesis, Department of Agricultural Extension and Information System. Sher-e-Bangla Agricultural University, Dhaka.

Wangu, K. C. (2014). *Use of social media as a source of agricultural information by small holder farmers; a case study of lower Kabete, Kiambu county*. M.A. (Communication Studies) Thesis, School of journalism and mass communication, University Of Nairobi, Kenya.

Wong, N.H., Tey, S.F., Onh, C.L. and Sia, A. (2003). *Life cycle cost analysis of rooftop gardens in Singapore.* Building and Environment. 38(3): 499-509.

Yamane, Taro. 1967. *Statistics, An Introductory Analysis*, 2nd Ed., New York: Harper and Row.

APPENDIX I

Interview Schedule for Data Collection for the Research on
"Access and Use of Media to Collect Agricultural Information by Rooftop Gardeners in Rangpur City"

Sl. No.
House and Road No.: Upazila:
Post-Office: District:

(Provided information will be kept strictly confidential and will be used for research purpose only)

1. **Age**: What is your present age? …….. (in years)
2. **Education**: Please mention your education level:
    a. Can't read and write
    b. Can sign only
    c. Upto or equivalent to class:……..
3. **Family size**: Please mention the number of your family members……..
4. **Space for rooftop gardening:** What is the total space available for rooftop gardening? …….. (sq. feet)
5. **Annual family income**: Would you please inform us about your last year annual family income.

Sl No.	Sources of income	Amount of annual income (Thousand Taka)
1	Job/Service	
2	Business	
3	Agriculture	
4	Others	
Total		

6. **Annual income from house ren**t: What is your last year income from house rent? …… (Thousand Taka)
7. **Rooftop gardening experience:** How long have you been engaged in rooftop gardening?..... (in years)
8. **Time spent for rooftop gardening (hours/week**): How much time do you spend for gardening? ……. Hours/week
9. **Knowledge in rooftop gardening**: Please answer the following questions.

Sl. No.	**Questions**	**Full Marks (2)**	**Obtained Marks**
A. Remembering			
1.	What are the principles of rooftop gardening?		
2.	Mention the name of few propagating materials.		
3.	Name one major insect each of your planted flowers and vegetables?		

B. Understanding			
4.	What plants/vegetables/flowers are suitable for rooftop gardening? Why?		
5.	Do you think rooftop is feasible for gardening?		
C. Applying			
6.	What type of plants do you choose for rooftop gardening?		
7.	How many times of a month you utilize fertilizer and what is the rate?		
D. Analyzing			
8.	How do you understand need of irrigation in your RTG?		
9.	When de-potting is necessary?		
10.	Why do you need to maintain plant nutrition of your RTG?		
E. Evaluation			
11.	How does rooftop gardening impact on local economy?		
12.	What is the negative effect of rooftop gardening?		
Total		**24**	

10. **Attitude towards rooftop gardening**: Please indicate your agreement or disagreement regarding the following statements.

Sl. No.	**Questions**	**Strongly disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**
1.	Rooftop gardening helps me to provide an extra source of income					
2.	Rooftop gardening provides an extra source of nutrient for my family					
3.	I enjoy my leisure time with rooftop gardening					
4.	I have the privileges to distribute vegetables, fruits, flowers					

	among the neighbours					
5.	Rooftop gardening helps to improve the environment					
6.	Rooftop gardening adds value to the beauty of my buildings					
7.	Rooftop gardening helps me to improve my (social) status within the society					

11. **Use of media for rooftop gardening related information by the gardeners':** Please mention the extent of contact with the following rooftop in receiving rooftop gardening related information.

Sl. No.	**Information sources**	**Regularly (4)**	**Often (3)**	**Occasionally (2)**	**Rarely (1)**	**Never (0)**
1.	Friends/ Relatives	10 or more/Month	6-9/Month	4-5/Month	1-3/Month	
2.	Neighbours	10 or more/Month	7 - 9/Month	4-6/Month	1-3/Month	
3.	Local Govt. Nursery	10 or more/Year	7-9/Year	4-6/year	1-3/Year	
4.	Private Nursery Owner	7 or more/year	5-6/year	3-4/year	1-2/Year	
5.	Hand Books	7 or more/year	5-6/year	3-4/year	1-2/Year	
6.	Agri Fair	6 or more time/year	5-6 time/ year	3-4 times/ year	1-2/year	
7.	Television	10 or more/month	7-9 times/ month	5-6 times/month	1-5 times/ month	
8.	Radio	10 or more/month	7-9 times/ month	5-6 times/month	1-5 times/ month	
9.	Newspaper	10 or more/month	7-9 times/ month	5-6 times/month	1-5 times/ month	

10.	Social Media (e.g., Facebook)	10 or more/month	7-9 times/ month	5-6 times/month	1-5 times/ month	
11.	Internet	10 or more/month	7-9 times/ month	5-6 times/month	1-5 times/ month	
12.	Video (e.g., YouTube)	10 or more/month	7-9 times/ month	5-6 times/month	1-5 times/ month	

Thank you for your sincere support.

Respondent's Contact: