ADOPTION OF FLOATING VEGETABLE CULTIVATION BY THE FARMERS

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CERTIFICATE

This is to certify that the thesis entitled, **"ADOPTION OF FLOATING VEGETABLE CULTIVATION BY THE FARMERS"** 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 (MS) IN AGRICULTURAL EXTENSION & INFORMATION SYSTEM,** embodies the result of a piece of bona-fide research work conducted by **MD. MAHIDUL ISLAM, Registration No. 18-09148**, under my supervision and guidance. No part of this thesis has been submitted for any other degree or diploma.

I further certify that any help or sources of information, as has been availed of during the course of investigation have been duly acknowledged.

Dated: December, 2020
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DEDICATION

DEDICATED TO

THIS THESIS IS LOVINGLY DEDICATED TO MY PARENTS AND RESPECTED TEACHERS FOR THEIR ENDLESS SUPPORTS, ENCOURAGEMENT THROUGHOUT MY LIFE

ACKNOWLEDGEMENT

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The Author

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ABBREVIATIONS USED

GDP	Gross Domestic Product
BBS	Bangladesh Bureau of Statistics
NGOs	Non-Government Organizations
GOs	Government Organizations
IPM	Integrated Pest Management
BRRI	Bangladesh Rice Research Institute
HYV	High Yielding Varieties
SAU	Sher-e-Bangla Agricultural University
BINA	Bangladesh Institute of Nuclear Agriculture
RDRS	Rangpur Dinajpur Rural Service
SAAO	Sub-Assistant Agriculture Officer
SPSS	Statistical Package for Social Sciences
SD	Standard Deviation
Ag. Ext. Ed.	Agricultural Extension Education
Ag. Ext. and Info. Sys.	Agricultural Extension and Information System

β	Multiple regression
MoYS	Ministry of Youth and Sports
AIS	Agriculture Information Service
et. al	All Others

ADOPTION OF FLOATING VEGETABLE CULTIVATION BY THE FARMERS

ABSTRACT

The objectives of this study were to assess the extent of adoption of floating vegetable cultivation by the farmer; to describe the selected characteristics of floating vegetable farmers and to explore the contribution of the selected characteristics of the farmers to their adoption of the floating vegetable cultivation. The study was conducted with randomly selected 98 floating vegetable cultivators of Dewolbari Dobra and Malikhali unions under Nazirpur upazila of Pirojpur district. A pre-tested interview schedule was used to collect data from the respondents during 18th August, 2020 to 7th November, 2020. Adoption of floating vegetable cultivation was the dependent variable and its was measured by on basis of adoption scores. Adoption of floating vegetable cultivation by the farmers and the ten selected characteristics of the respondents contributed the independent variables of the study. The highest percentage (72.5%) of the farmers had medium adoption compared to 12.2 percent of the farmers had low adoption and 15.3 percent of the farmers had high adoption of floating vegetable cultivation. Multiple regression was used to examine the contribution of the selected characteristics of the farmers. Five characteristics of the respondent's viz. age, education, training on floating vegetable cultivation, media exposure and knowledge on floating vegetable cultivation had significant positive contribution with their adoption of floating vegetable cultivation. Policy focus on these variables might influence the farmers to do more floating vegetable cultivation.

CHAPTER 1
INTRODUCTION

1.1 General Background of the Study

Bangladesh has an agrarian economy. Agriculture is the single largest producing sector of the economy since it comprises about 13.35% of the country's GDP and employs around 40.6% of the total labor force (BBS, 2020). The performance of this sector has an overwhelming impact on major macroeconomic objectives like employment generation, poverty alleviation, human resources development and food security as well. As the population increases over time, it demands for a change about the cultivation systems of agriculture. Moreover, The geographical variation of the country influence change of cultivation system.

In the wetlands of southern Bangladesh (Gopalganj, Pirojpur and Barisal districts) have problems in securing farmlands to provide food and livelihoods due to monsoon flood(from June to October). Flood is a popular phenomenon in Bangladesh. During the past 50 years, at least seven huge floods affected 35-70% area of Bangladesh (Irfanullah et. al., 2011). These vulnerable, marginalized groups are limited by now no longer having cropping residence withinside the case of get admission to and/or possession of land. In that season, those areas were over and over suffering from cyclones, heavy rainfall, flooding etc. Even after the flooding is over, farmlands remain submerged for some time due to poor drainage functionality. Farmers cannot control to cultivate any plant life at the submerged farmlands. For that purpose, why, many local populations especially the farmers are in poverty and starvation at some stage in that factor. Floating cultivation can assist to mitigate this example and reduce lower back the strain on arable lands by means of manner of turning the flooded and waterlogged regions into effective ones (Haq et. al., 2004).

In this context, local groups didn’t select the exceptional manner to triumph over this sever setting, however selected the manner where into cope with the encompassing nature. Farmers have developed the specific floating lawn agricultural practices (withinside the network stated as “Dhap”) to rear flora and flora in nutrient supplemented water without soil. Dhap is a sort of hydroponics. This system employs

the floating beds on the ground of water as the idea of growing plants and plant life without soil. Aquatic flora harking back to Tapapana, Dulalilata, Khudipana were used to assemble floating beds dated once more some thousand years. The production system is the important thing livelihood opportunity for more or less 60-90% (varies from network to neighborhood) of the humans of local groups on this region. The floating agriculture exercise withinside the southern components of the country represent a popular and indigenous agriculture machine for the water logged or the submerged area in Bangladesh.

The humans of the southern quantities of Bangladesh followed the researcher primarily based totally on their traditions, lifestyle and wisdom. Floating gardens are a few of the several alternatives superior and promoted to cope with the dreams of farmers in Bangladesh combining to make an actual difference to manufacturing levels. The floating-mattress approach additionally has a few nice social impacts. It involves each men and women, thereby making improvements to the gender balance, similarly to different humans' notion of express regions as suitable places to live. People who are schooling floating-mattress cultivation are taking element in a more life economically, than those in different flood-affected regions who have not however observed this exercise. This cultivation exercise is supporting to complement humans earnings, which contributes in competition to the relief of poverty, and gives large food protection thru increasing the landholding ability of bad similarly to landless humans by means of letting them develop vegetables and plants with lower input costs, because of the minimal infrastructure required (Irfanullah et. al., 2007). First, at some stage in monsoons, whilst maximum of the land is flooded, floating agriculture is the only preference manner of cultivation. In the monsoon (essentially throughout June-August), farmers cultivate okra, cucumber, snake gourds and plenty of others on the floating system. After the monsoon, farmers use this for cultivating spinach, aurum, spices and some of different greens. During the monsoon, farmers use small boats to control the floating agricultural land. The fundamental intention of the practice is sustainable local herbal useful resource control via floating agriculture practices. A second goal is to cope with the neighborhood climate change scenario. Considering every desire, the researcher felt vital to conduct evaluation on "Adoption of floating vegetable cultivation by the farmer".

1.2 Statement of the Problem

Most important international's maximum densely populated nations (1125 men and women in keeping with rectangular km Bangladesh) with an annual population enlargement rate of 1.37 % (BBS, 2020). In such surroundings, the strain at the land for agricultural manufacturing and the decision for assignment is growing day-to-day. There is a loss of cultivable land in our nation. We are not capable of deliver enough vegetables for our humans. So floating vegetable cultivation normally is a higher choice to produce enough greens for our different human and a higher approach of earning for the peoples of the lowland regions. In view of the want for having an information of the farmers disadvantage in floating vegetable cultivation, the investigator, undertook this study with the purpose of this discover approximately is to set up the quantity of acceptance of floating vegetable cultivation. Considering the character of evaluation, the researcher sought records concerning following evaluation questions:

1. At what extent the farmers of Nazirpur Upazila under Pirojpur districts adopted floating vegetable cultivation?
2. What are the characteristics of the farmers that are to be selected for studying the adoption of floating vegetable cultivation?
3. Are there any contributing relationship with the adoption of floating vegetable cultivation by the farmers and their selected characteristics?

1.3 Specific Objectives

The following specific objectives were formed to give proper direction to the study:

1. To assess the extent of adoption of floating vegetable cultivation by the farmer
2. To describe the following selected characteristics of floating vegetable farmers:
   i. Age
   ii. Education
   iii. Dependency ratio
   iv. Farm size
   v. Annual family income
   vi. Experience in floating vegetable cultivation
   vii. Training exposure on floating vegetable cultivation
   viii. Knowledge in floating vegetable cultivation
   ix. Media exposure

x. Knowledge in floating vegetable cultivation

3. To explore the contribution of the selected characteristics of the farmers to their adoption of floating vegetable cultivation

1.4 Scope of the Study

The present study was once designed to have a figuring out of the adoption of floating vegetable cultivation by the farmer and to explore its contributing relationship with their selected characteristics.

The findings of this learn about will probably be specifically appropriate to the farmers of the respective study area. The findings might also have applicability to other areas of the rustic when the physical, socio-economic and cultural prerequisites are mostly similar with the ones of the learning about area. However, the findings of the study will likely be helpful for the specialist of various organizations and planners, policy makers and extortionists in taking away downside disagreement via the farmers in floating vegetable cultivation.

1.5 Limitation of the Study

The present study was undertaken with a view to have an understanding of the adoption of floating vegetable cultivation by the farmer. Considering the time, money and other necessary resources available to the researcher and also to make the study meaningful and manageable the researcher had to impose certain limitations as follows:

The study was confined to four villages of Nazirpur upazilla under Pirojpur district.

The study was confined mainly to adoption of the farmers in floating vegetable cultivation.

i. Out of many characteristics of floating vegetable cultivators only ten characteristics of farmers were selected for investigation in this study.

ii. For information about the study, the researcher was depended on the data furnished by the selected respondents during data collection.

iii. The respondents for data collection were kept limited within the heads of farm families.

iv. Adoption of the farmer could be measured in various ways. However, in this study these were measured by combining three dimensions of adoption.

1.6 Assumption of the study

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

1. The respondents included in the sample for this study were competent enough to furnish proper responses to the queries included in the interview schedule.
2. The researcher who acted as interviewer was adjusted to social and environmental conditions of the study area. Hence, the data collected by him from the respondents were free from bias and the respondents furnished their opinion without hesitation.
3. The responses furnished by the respondents were valid and reliable.
4. Views and opinions furnished by the floating vegetable growers included in the sample were the representative views and opinions of the whole population of the study area.
5. The findings of the study might have general application to other parts of the country with similar personal, socio-economic and cultural condition of the study area.

1.7 Definition of Terms

Age

Age of a respondent is defined as the period of time from his birth to the time of interview of the farmers.

Education

Education referred to the desirable change in knowledge, skill and attitude of an individual, through reading, writing and other related activities. Education is measured on the basis of class a farmer had passed from formal educational institution

Dependency Ratio

Family size of a farmer was defined as the number of individuals in his family including himself, his wife, children and other dependent members.

Farm size

The term related to the hectare of land owned by a farmer on which he carried his farming and family business, the area being estimated in terms of full benefit to the farmers. A farmer was considered to have full benefit from cultivated area either owned by himself or obtained or, lease from others and half benefit from the area which was either cultivated by borga or given to others for cultivation on borga basis.

Annual farm income

It refers to the total income earned by the farmer himself and the members of his family from agriculture, livestock, and fisheries during a year. It was expressed in taka.

Training exposure

It referred to the total number of days that a respondent received training in his entire life from different organizations under different training programs.

Media exposure

Media exposure is the degree to which an individual's exposure to or contact with different communication media and sources and personalities being used for dissemination of new technologies among the floating vegetable cultivators.

Time spent

It referred to the average number of hour per day a respondent uses in floating vegetable cultivation.

Knowledge on floating vegetable cultivation

Knowledge is the degree to which an individual knows about a subject fact, person etc. knowledge on floating vegetable cultivation. Knowledge referred to a theoretical or practical understanding of a subject. It refers to farmers understanding of different aspect of floating vegetable cultivation.

Adoption

According to Rogers (1995) “Adoption is a decision to make full use of an

innovation as the best source of action available". Ray (1991) said "when an individual takes up a new idea as the best course of action and practices at the phenomenon is known as adoption". However, adoption of production technologies refers to one's use of different practices of production technologies and the decision to continue their use in future. It is an individual decision-making process.

Adoption of floating vegetable cultivation

According to Rogers (1995) "Adoption is a decision to make full use of an innovation as the best source of action available". Ray (1991) said "when an individual takes up a new idea as the best course of action and practices at the phenomenon is known as adoption". However, adoption of production technologies refers to one's use of different practices of production technologies and the decision to continue their use in future. It is an individual decision-making process. Adoption of floating vegetable cultivation refers acceptance of floating vegetable by the farmer.

CHAPTER 2
REVIEW OF LITERATURE

The purpose of this Chapter is to review of literature having insights to the present study. The present study was mainly concentrated with the adoption of floating vegetable cultivation by the farmers and its relationship with the selected characteristics. Literature having relevance to the present study has been reviewed in three sections. The first section deals with the literature on Adoption of floating vegetable cultivation by the farmers in cultivating various crops and the second section deals with review of studies dealing with the relationships between farmers selected characteristics and adoption of vegetable cultivation. The third section deals with the conceptual framework of the study. However, the available reviews of literatures in connection with this study are briefly discussed below:

2.1 Studies on Adoption of Various Crops by the Farmer

Adoption is decision to use and continue to use of the innovation for a certain period of time. Adoption is a decision to make full use of innovation as the best course of action available (Ray, 1991). When an individual takes up a new idea as the best course of action and practices it, the phenomenon is known as adoption.

Khan (2019) conducted investigation on adoption of selected hybrid rice production technologies by the farmers of Joypurhat district in Bangladesh. The study revealed that about 68.5 percent of the farmers had medium adoption compared to 9 percent having low adoption and 22.5 percent having high adoption of hybrid rice cultivation technologies.

Jahan (2017) conducted investigation on “Socio-Economic Determinants of Adoption of Sunflower Production by the Farmers of Patuakhali Sadar Upazila” in Bangladesh. The study revealed that the highest proportion (69.1 percent) of the sunflower growers fell under the medium adoption category, while 21.2 percent had high adoption and 9.7 percent had low adoption of sunflower production technologies.

Hussen (2001) conducted investigation on adoption of modem sugarcane cultivation

practices by the farmers of Daweangonj Upazila in Jamalpur district. The study revealed that about ninety one percent (91 percent) of the farmers had medium adoption compared to 7 percent having low adoption and only 2 percent having high adoption of modem sugarcane cultivation practices.

Rahman (2001) conducted an investigation on knowledge attitude and adoption of Aalok-6201 hybrid rice by the farmers of sadar upazila in Mymenshingh district. The study revealed that the majority (75 percent) of the farmers had medium adoption while 18 percent and 7 percent had high and low adoption in Aalok-6201 hybrid rice cultivation respectively.

Arif (2015) conducted a study on factors affecting the adoption of organic farming in Peshawar-Pakistan found that age, education, low input cost, productivity and profitability had significant relationship with their adoption of organic farming.

A study conducted by Thapa (2012) mentioned motivation by NGOs and GOs, motivation by fellow farmers, women's role in organic vegetable farming, training on organic vegetable farming, and satisfaction with the price of organic vegetables, had positive influence on the adoption of organic vegetable farming.

Vishal and Patil (2016) studied the adoption of organic farming in shindkheda tehsil and found that age, knowledge, financial support, extension agent's role and environmental awareness had significant positive relationship with the adoption of organic farming.

Ragasa (2012) in a review of technology adoption in agriculture concluded from 35 case studies that, women have much slower rates of adoption than men. This was attributed to differentiated access to complementary inputs and services. Specifically, for organic technology,

Tovignan and Nuppenau (2004) showed that households with large family sizes were more amenable to consumers' perceptions, attitudes and willingness to pay towards

chemical free vegetable in North Sumatera.

Burton et al. (2013) and showed that, the positive coefficient of household size did not impact on the adoption of organic technology significantly.

Zakowska-Biemans (1998) found that the farmers' concern about food quality and their desire to live in harmony with the environment had influence on the adoption of organic farming.

Prasant (2015) found that training, financial support, marketing facilities had significant impact on adoption of organic farming by the farmers of Karimnagar district of Andhra Pradesh.

Chomba (2004) found in his study that financial support, marketing facilities and environmental consciousness had significant impact on adoption of organic farming in Zambia.

2.2 Relationship between selected characteristics of the farmers and Adoption

2.2.1 Age and adoption

Khan (2019) conducted a study on adoption of hybrid rice production technologies by the farmers of Kalai upazila under Joypurhat district. He found that age of the farmers had no significant relationship with their adoption of hybrid rice production technologies.

Jahan (2017) conducted investigation on "Socio-Economic Determinants of Adoption of Sunflower Production by the Farmers of Patuakhali sadar upazila" in Bangladesh. She found that age of the farmers had no significant contribution with their adoption of improved practices of sunflower production.

Pathak et al. (1992) observed that there was positive and significant relationship between the age of the marginal farmers and their adoption of jute technologies.

Sardar (2002) found that the age of the farmers had negative significant correlation with their adoption of IPM practices.

Aurangozeb (2002) observed that there was significant negative relationship between age and adoption of integrated homestead farming technologies.

Ali (2004) found there was no relationship between age of the farmers and adoption of aquaculture technology by them.

Ahmed (2006) found that the age of the farmers had no significant negative relationship with their adoption of selected wheat varieties.

Mahmud (2006) found that the age of the farmers had non significant positive correlation with their adoption of modern wheat cultivation technologies.

Hasan (2006) observed that age of the growers did not show any significant relationship with their adoption of improved practices in litchi cultivation.

Ghosh and Maitra (2008) reported that age of the farmers show negative and significant relationship with their adoption of dairy farming practices.

Nande and Basunathe (2009) revealed that age of the farmers did not show any significant relationship with their adoption of improved dairy cattle management practices.

Singh (2010) observed that age of the farmers shows negative and significant relationship with their adoption of potato cultivation practices.

Ziauddin and Goswami (2010) found that age of the farmers shows negative and significant relationship with their adoption of scientific fish cultivation practices.

Yadaw and Sharma (2012) revealed that age of the farmers shows negative relationship with their adoption of recommended goat rearing practices.

Chander and Akila (2012) reported that age of the farmers did not show any significant relationship with their adoption of draught bullock management.

Mehta and Sonawane (2012) revealed that age of the farmers shows negative relationship with their adoption of recommended mango cultivation practices.

Chouhan and Singh (2013) reported that age of the farmers shows significant relationship with their adoption of improved sugarcane cultivation practices.

Chouhan and Singh (2013) reported that age of the farmers shows significant relationship with their adoption of improved sugarcane cultivation practices.

Devi (2013) found that age of the farmers did not show any significant relationship with their adoption of dairy farming technologies.

Rao and Singh (2014) observed that age of the farmers show negative and significant relationship with their adoption of pineapple cultivation practices.

Hossain (2011) conducted a study to determine the relationship of farmers' characteristics with their adoption behavior of improved farm practices in Sadar upazila of Jamalpur district. He reported that age of the wheat farmers significantly influenced the adoption of improved farm practices.

2.2.2 Education and adoption

Khan (2019) conducted a study on adoption of hybrid rice production technologies by the farmers of Kalai upazila under Joypurhat district. He found that education of the farmers had a positive significant relationship with their adoption of hybrid rice production technologies.

Jahan (2017) conducted investigation on "Socio-Economic Determinants of Adoption of Sunflower Production by the Farmers of Patuakhali sadar upazila" in Bangladesh. She found that education of the farmers had significant contribution with their adoption of improved practices of sunflower production.

Sardar (2002) found that the education of the farmers had significant positive relationship with their adoption of IPM practices.

Aurangozeb (2002) conducted a study on adoption of integrated farming technologies by the rural women in RDRS. He found that there was a positive relationship between education and their adoption of integrated farming technologies.

Islam (2003) conducted a study on adoption of organic manures. He found that there was a positive and significant positive relationship between education of the farmers and their adoption of organic manures.

Hossain (2003) concluded that education of the farmers had a significant and positive relationship with their adoption of modern Boro rice cultivation practices.

Ahmed (2006) found that the education of the farmers had no significant positive relationship with their adoption of selected wheat varieties.

Mahmud (2006) found that the education of the farmers had significant positive correlation with their adoption of modern wheat cultivation technologies.

Hasan (2006) found that education of the growers showed significant and positive relationship with their adoption of improved practices in litchi cultivation.

Nande and Basunathe (2009) reported that education of the growers showed positive and significant relationship with their adoption of improved dairy cattle management practices.

Singh (2010) observed that education of the farmers showed significant and positive relationship with their adoption of potato cultivation practices.

Ziauddin and Goswami (2010) revealed that education of the farmers did not show any significant relationship with their adoption of scientific fish cultivation practices.

Chander and Akila (2012) found that education of the farmers show positive but not significant relationship with their adoption of draught bullock management.

Yadaw and Sharma (2012) reported that education of the farmers did not show any significant relationship with their adoption of recommended goat rearing practices.

Mehta and Sonawane (2012) observed that education of the farmers showed significant relationship with their adoption of recommended mango cultivation practices.

Chouhan and Singh (2013) revealed that education of the farmers show significant relationship with their adoption of improved sugarcane cultivation practices.

Sarkar (2010) in his study found that education had significant and positive relationship with the adoption of organic vegetable farming.

Rahman (2006) found that the education of the farmers had significant positive relationship with their adoption of organic vegetable farming.

Sardar (2002) found that the education of the farmers had significant positive relationship with their adoption of IPM practices.

Devi (2013) reported that education of the farmers showed significant relationship with their adoption of dairy farming technologies.

Rao and Singh (2014) found that education of the farmers showed significant and positive relationship with their adoption of pineapple cultivation practices.

2.2.3 Dependency ratio and adoption

Dependency ratio is a value comes from family size. So, literature related to family size and effectiveness are mentioned below:

Zohra (2016) conducted a study at Sariakandi upazila under Bogura in Bangladesh that showed a non-significant relationship of family size on adoption of BRRI dhan29 production technologies.

Amin (2015) conducted a study at Rajapur upazila under Jhalokathi district in Bangladesh that showed a non-significant contribution of family size on adoption of modern technologies by the rice cultivators.

Islam (2007) conducted a study at Dhamrai upazila under Dhaka district in Bangladesh that showed a non-significant relationship of family size on adoption of BRRI dhan29 production technologies.

Hossain (2003) revealed that family size of the farmers had a significant and positive relationship with their adoption of modern Boro rice cultivation practices.

Sardar (2002) found that the family size of the farmers had significant positive relationship with their adoption of IPM practices.

Mussei et al. (2001) adds that large household sizes are able to provide the necessary labor required to adopt the recommended practice.

Hossain (1999) conducted a study to determine the farmers' perception of the effects of agro-chemicals on environment. He found no relationship between the farmer's family sizes with their adoption of fertilizer.

Chowdhury (1997) conducted a research study on adoption of selected BINA technologies by the farmers of Boira union in Mymensingh district. He observed that family size of the farmers had positive and significant relationship with the adoption of selected BINA technologies.

Fivawo (1976) noted that the bigger the size of a family in a household the higher the chance of adopting recommended agricultural practices.

Hossain (1991) in his study in sadar thana of Jamalpur observed that family size of

the farmers had no significant effect on their adoption of improved farm practices. Similar results were observed by Sobhan (1975), Hoque (1993), Bashar (1993), Hossain (1999) also found that family size of the farmers had positive significant relationship with the adoption of agro-chemical. Similar results were also observed by Pal (1995), Muttalab (1995), Sarker (1997), Chowhdury (1997), Rahman (1986), Hoque (1993) and Khan (1993).

2.2.4 Farm size and adoption

Khan (2019) conducted a study on adoption of hybrid rice production technologies by the farmers of Kalai upazila under Joypurhat district. He found that farm size of the farmers had a positive significant relationship with their adoption of hybrid rice production technologies.

Jahan (2017) conducted investigation on "Socio-Economic Determinants of Adoption of Sunflower Production by the Farmers of Patuakhali sadar upazila" in Bangladesh. She found that farm size of the farmers had no significant contribution with their adoption of improved practices of sunflower production.

Islam (2002) conducted a study on adoption of modem agricultural technologies by the farmers of Sandwip. He observed that farm size of the farmers had a positive significant relationship with their adoption of modem agricultural technologies. Technologies by the farmers under PETRRA project of RDRS. He found that farm size of the farmers had a positive significant relationship with their adoption of IPM practices.

Aurangozeb (2002) conducted a study on adoption of integrated homestead farming technologies by the rural women in RDRS. He found that there had no relationship between homestead area and their adoption of integrated homestead farming technologies.

Gogoi and Gogoi (1989) in their study observed that size of land holding of farmers had a significant relationship and positive effect on their adoption of plant protection

practices.

Rahman (2001) conducted an investigation on knowledge, attitude and adoption of Aalok-6201 hybrid rice by the farmers of sadar upazila in Mymenshigh district. He observed that there was a significant positive relationship between farm size of the farmers and their adoption of Aalok-6201 hybrid rice.

Hussen (2001) conducted an investigation on adoption of modem sugarcane cultivation practices by the farmers' of Dewangonj upazila in Jamalpur district. He observed that there was a significant positive relationship between farm size of the farmers and their adoption of modem sugarcane cultivation practices.

Chowdhury (1997) conducted a research on adoption of selected BINA technologies by the farmers. He indicated that farm size of the farmers had a strongly positive significant relationship with their adoption of selected BINA technologies. Okoro and Obibuak. (1992), Khan (1993). Hoque (1993) and Sarkar (1997) observed similar results in their respective studies.

2.2.5 Annual income and adoption

Sarkar (2010) found that the annual family income of the farmers had no significant relationship with their adoption of organic vegetable farming.

Rahman (2006) found that the annual income of the farmers had no significant correlation with their adoption of organic vegetable cultivation technologies.

Singh (2011) in a study found that income of the farmers was significantly associated with the level of adoption of organic vegetable farming.

Ahmed (2006) found that the annual family income of the farmers had no significant positive relationship with their adoption of selected wheat varieties.

Sardar (2002) conducted a study on adoption of IPM practices by the farmers under PETRRA project of RDRS. He found that the annual income of the farmers had no

relationship with their adoption of IPM practices.

Aurangozeb (2002) conducted a study on adoption of integrated homestead farming technologies by the rural women in RDRS. He found that there was a positive significant relationship between annual income of the respondents and their adoption of integrated homestead farming Technologies.

Rahman (2001) conducted an investigation on knowledge; attitude and adoption of Alok-6201 hybrid rice fry the farmers of sadar upaziia in Mymensingh district. He observed that there was a significant positive relationship between annual income of the farmers and their adoption of Alok-6201 hybrid rice.

Hussen (2001) conducted an investigation on adoption of modem sugarcane cultivation practices by the farmers of Dewangonj upazila in Jamalpur district. He observed that there was a significant positive relationship between annual income of the farmers and their adoption of modem sugarcane cultivation practices.

Islam (2002) conducted a study on adoption of modem agricultural technologies by the farmers of Sandwip. He observed that the annual income of the farmers had no relationship with their adoption of modem agricultural technologies.

Chowdhury (1997) found a significant and positive relationship between annual income and adoption of selected BINA technologies. Okoro and obibuak (1992), Khan (1993), Sarker (1997) observed similar result in their respective studies. Tolawar and Hirevenkaragouder (1989) studied on factors of adoption of poultry management practices. They revealed that the farmers having high income tend to own bigger size of poultry unit and possess more knowledge of improved practices leading to higher level of adoption.

2.2.6 Experience and adoption

Amin (2015) conducted a study at Rajapur upazila under Jhalokathi district in Bangladesh that showed a non-significant contribution of training exposure on adoption of modern technologies by the rice cultivators.

Zohra (2016) conducted a study at Sariakandi upazila under Bogura in Bangladesh that showed a significant positive relationship of farming experience and adoption of BRRI dhan29 production technologies.

Hossain et. al. (2006) concluded that the farming experiences of the farmers had positive significant relationship with their adoption of selected HYV rice.

Haque (2003) concluded that farming experiences of the farmers had significant positive relationship with their adoption of modern maize cultivation technologies.

Hossain (2003) revealed that farming experiences of the farmers had a significant relationship with their adoption at modern Boro rice cultivation practices.

Aurangozeb (2002) conducted a study on adoption of integrated homestead farming technologies by the rural women in RDRS. He found that there was a positive significant relationship between farming experiences of the respondents and their adoption of integrated homestead farming technologies.

Rahman (2001) conducted a study on knowledge attitude and adoption of the farmers regarding Aalok 6201 hybrid rice in Sadar upazila of Mymensingh district. He found that farming experiences of the farmers had a significant and positive relationship with their adoption regarding Aalok 6201 hybrid rice.

Sarker (1997) conducted a study on correlates of selected characteristics of potato growers with their adoption of improved potato cultivation practices in five village of Comilla district. He observed that farming experiences of the potato growers had significant relationship with their adoption of improved potato cultivation.

2.2.7 Training exposure and adoption

Islam (2007) revealed that extension contact of the farmers had a non significant and positive relationship at 0.05 level of probability with their adoption of cropping in rabi season by the farmers of Madaripur Sadar Upazila.

Hossain (2007) revealed that agricultural training of the farmers had a significant and

positive relationship at 0.01 level of probability with their adoption of modern high yielding varieties (HYV) of wheat.

Sadekuzzaman (2007) revealed that agricultural training of the farmers had a significant and positive relationship at 0.01 level of probability with their adoption of intercropping in sugarcane by the farmers.

Rahman (2001) observed in study that training received of the farmers had a significant and positive relationship with their adoption regarding Aalok-6201 hybrid rice.

Islam (2002) conducted a study on farmers‟ knowledge and adoption of ecological agricultural practices under the supervision of Proshika. He found that agricultural training exposure of the farmers had no significant relationship with their adoption of ecological agricultural practices.

2.2.8 Time spent and adoption

Uttam (2015) studied that the time spent in vegetables farming had no significant relationship with their adoption of IPM practices in vegetables production.

Parvez (2016) found that the time spent in organic vegetables farming had no significant relationship with their adoption of organic vegetable farming.

2.2.9 Media exposure and adoption

Khan (2019) conducted a study on adoption of hybrid rice production technologies by the farmers of Kalai upazila under Joypurhat district. He found that extension media contact of the farmers had a positive significant relationship with their adoption of hybrid rice production technologies.

Jahan (2017) conducted investigation on “Socio-Economic Determinants of Adoption of Sunflower Production by the Farmers of Patuakhali sadar upazila” in Bangladesh. She found that extension media contact of the farmers had significant contribution with their adoption of improved practices of sunflower production.

Ali (1984) found that contact and non-contact farmers differed significantly in respect of their extension contact. He observed that extension contact of the contact and non-contact farmers had significant contribution toward their agricultural knowledge.

The study of Ismail (2001) revealed that there was not significant relationship between farm youths extension contact and their agricultural problem confrontation. Similar findings were obtained by Raha (1989) and Hoque (2001) in their respective studies.

Rahman (2001) found that the extension media contact of the farmers had significant positive correlation with their adoption of organic vegetable farming.

Sardar (2012) concluded that the extension contact had positively significant, relationship with their adoption of IPM practices.

2.2.10 Knowledge and adoption

Khan (2019) conducted a study on adoption of hybrid rice production technologies by the farmers of Kalai upazila under Joypurhat district. He found that Knowledge on hybrid rice production of the farmers had a positive significant relationship with their adoption of hybrid rice production technologies.

Jahan (2017) conducted investigation on "Socio-Economic Determinants of Adoption of Sunflower Production by the Farmers of Patuakhali Sadar upazila" in Bangladesh. She found that knowledge of the farmers had significant contribution with their adoption of improved practices of sunflower production.

Ruma (2014) revealed that agricultural knowledge of the farmers had a significant and positive relationship at 0.01 level of probability with their adoption of rice production technologies.

Sadekuzzaman (2007) revealed that agricultural knowledge of the farmers had a significant and positive relationship at 0.01 level of probability with their adoption of

intercropping in sugarcane by the farmers.

Ekram (2014) revealed that agricultural knowledge of the farmers had a non significant and positive relationship at 0.05 level of probability with their adoption of commonly used integrated pest management (IPM) practices by the boro rice growers.

Rahman (2006) found that knowledge of the farmers had no significant relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj district.

Sadder (2012) in his study revealed that agricultural knowledge of the farmers had positively significant with their adoption of IPM practices.

Koch (2005) conducted a study in the north-west organic free, state South Africa concerning perception of agriculture innovativeness, aspiration, knowledge and innovation adoption. He observed that there was a strong positive relationship between perception, knowledge and practice adoption.

Reddy et al. (2007) found significant association between knowledge and use of organic farming practices in paddy production by participant and non-participant farmers.

2.3 The Conceptual Framework of the Study

It is evident from the previous research that every incidence or phenomenon is the outcome of various variables, which would possibly or will not be interdependent or interrelated with every other. In other words, no single variable can contribute wholly to a phenomenon. Variables in combination are the trigger and the phenomenon is impact and thus, there may be cause- impact courting in all places within the universe. The conceptual framework of Rosenberg and Holland (1960) was once kept in thoughts whilst framing the structural association for the dependent and unbiased variables. The provide study used to be excited about the issue disagreement by means of the farmers in floating vegetable cultivation. Thus, the adoption word used to be the principle focus of the find out about and constituted the dependent variable. The characteristics of the farmers were considered because the impartial variables. It

isn't possible to care for the traits in a single study. It used to be due to this fact, necessary to limit the traits, which come with age, training, area under floating vegetable cultivation, family measurement, enjoy in floating vegetable cultivation, annual income, training publicity, media exposure, time spent and data on floating vegetable cultivation Based on this discussion and review of literature the conceptual model of this study has been formulated and shown in the Figure 2.1.

INDEPENDENT VARIABLES **DEPENDENT VARIABLE**

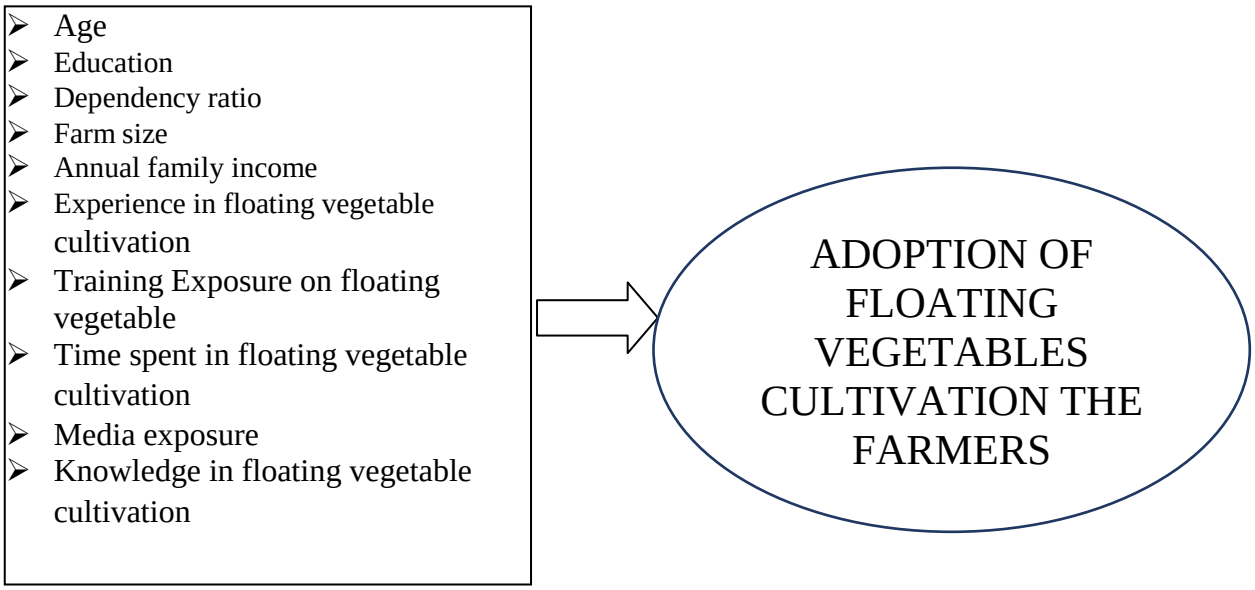

Figure: 2.1 A Conceptual Framework of the Study

CHAPTER III
METHODOLOGY

Methods play crucial role in a systematic analysis. To fulfill the goals of the find out about, a researcher must be very careful while formulating strategies and procedures in engaging in the research. According to Mingers (2001), analysis method is a structured set of pointers or activities to generate legitimate and dependable research results. This chapter of the thesis illustrates the research methods and procedures used to collect and analyze the data for answering the research questions and reaching the purposes. The methods and operational procedures followed in engaging in the learn about e.g. selection of learn about space, sampling procedures, instrumentation, categorization of variables, choice of knowledge, measurement of the variables and statistical measurements. A chronological description of the methodology adopted in conducting this analysis work has been offered in this bankruptcy.

3.1 Locale of the Study

The study was conducted in Nazirpur upazila under Pirojpur district. The find out about used to be performed within the Nazirpur upazila below Pirojpur district. The space of Nazirpur upazila (Pirojpur district) is 233.63 square km, located in between 22°40' and 22°52' north latitudes and in between 89°52' and 90°03' east longitudes. It is bounded by Tungipara, Kotalipara and Uzirpur upazilas at the nortn, Pirojpur sadar and Kachua (Bagerhat) upazilas at the south Nesarabad and Banaripara upazilas on the east and Chilmari on the west. The farmers of the study areas are all in favor of floating vegetable cultivation. The map of the Pirojpur district has been presented in Figure 3.1. and the specific study locations of Dewolbari and Malikhali union under Nazirpur upazila of Pirojpur district have been shown in Figure 3.2.

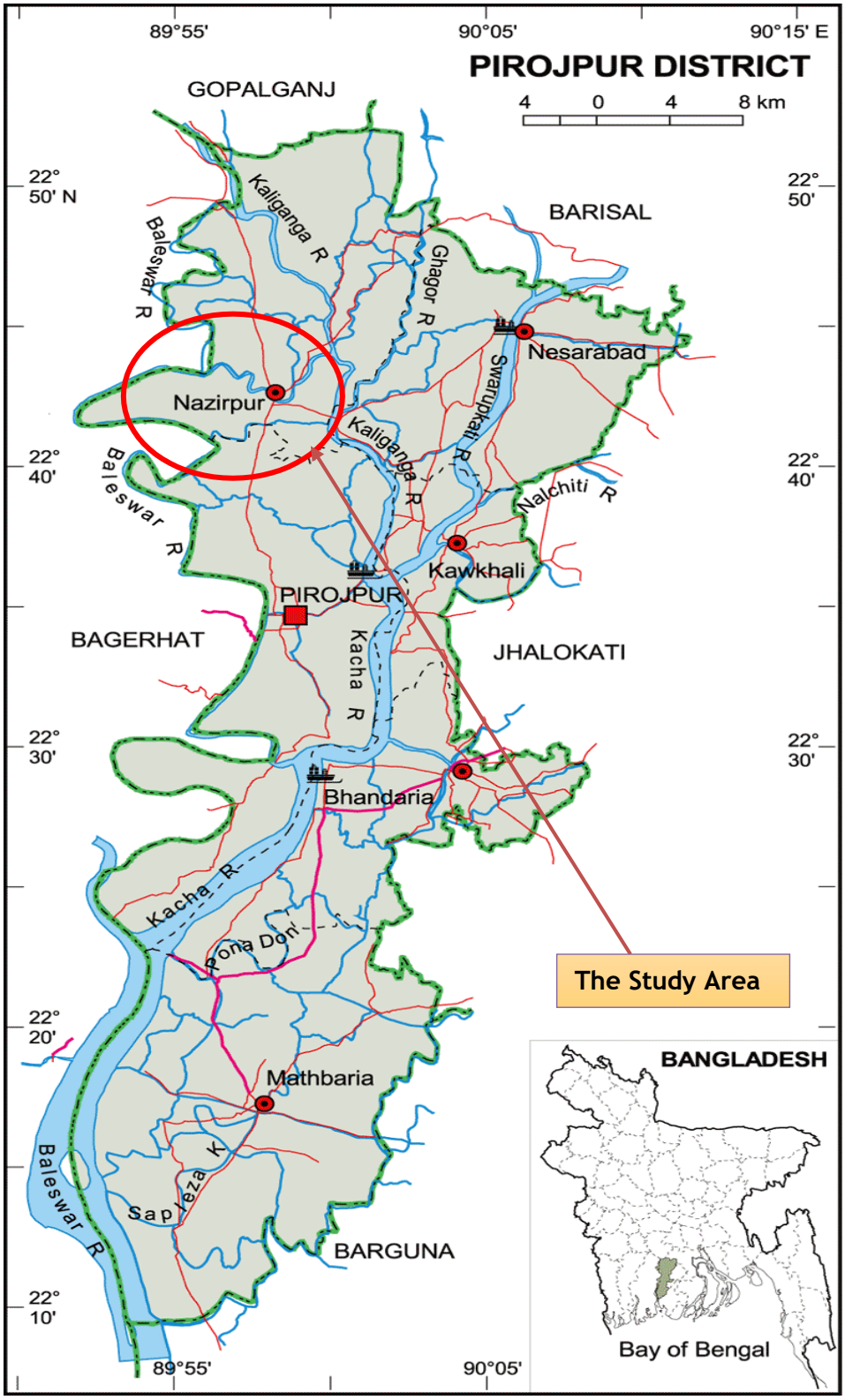

Figure 3.1 Map of Pirojpur district showing the study area -Nazirpur

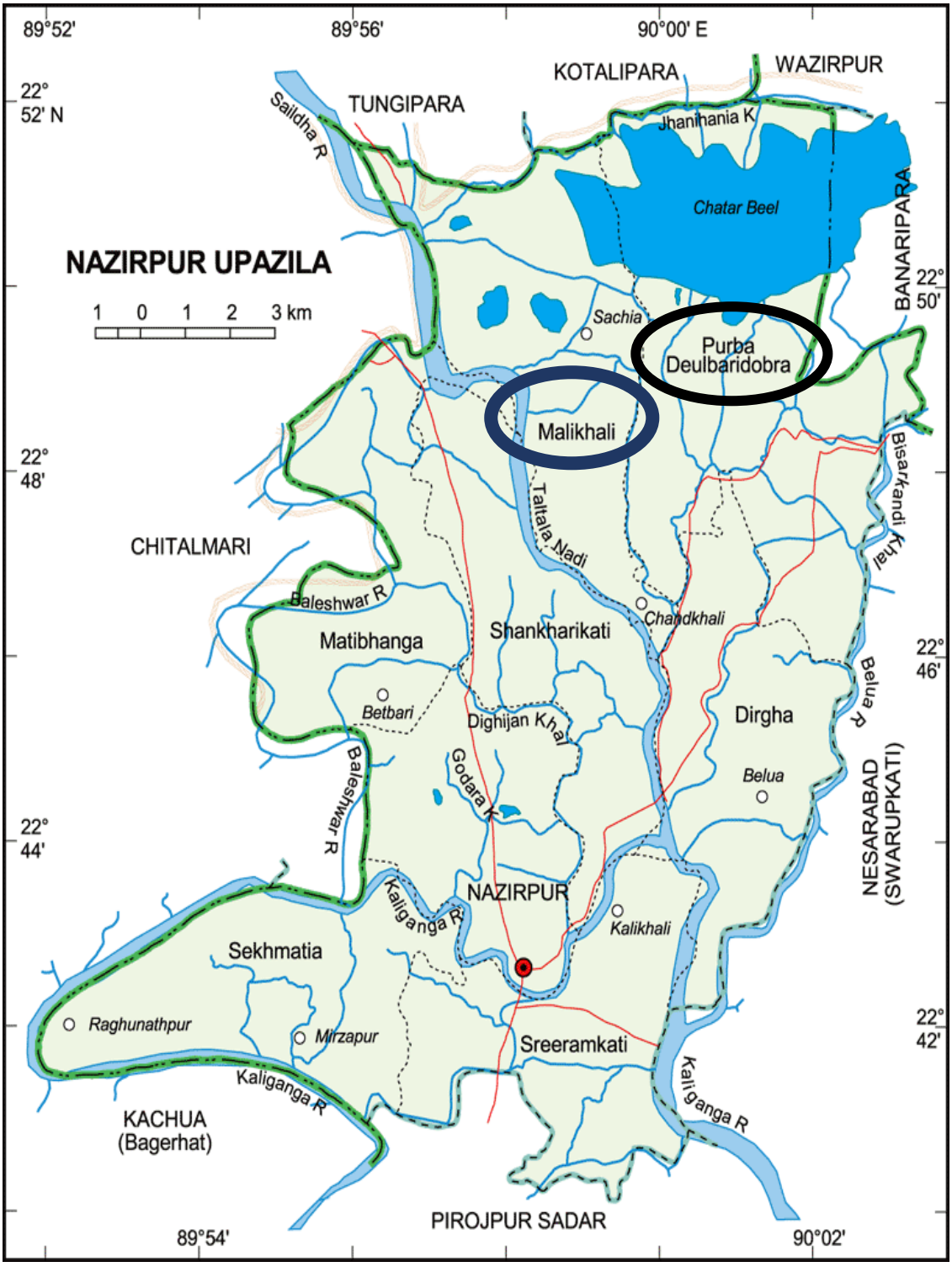

Figure 3.2 Map of Nazirpur upazila showing the study area- Dewolbari and Malikhali unions

Nazirpur upazila has 9 unions; out of these unions Dewolbari and Malikhali unions were selected purposively as the study area. Among 17 villages of these two unions, t four villages namely Bildumuriya, Pakuria, Gaokhali and West Lora villages were selected purposively for the study as the total of the study.

3.2 Population and Sample of the Study

Farmers who permanently reside in the selected villages of Dewolbari Dobra and Malikhali union and cultivate floating vegetable were constituted the active population of this study. Thus, a total 982 farmers of these selected villages were involved in floating vegetable cultivation, which constituted the population of the study. However, representative sample from the population were taken for collection of data considering 10% of population.An updated lists of all floating vegetable cultivation farmers of the selected villages were prepared with the help of SAAOs and local leaders. A proportionate random sampling procedure was followed to select the sample per village. A reserve list of 6 farmers also considered for data collection if anyone of sample farmers was not available. Distribution of the population sample and reserve list of the study has been shown in (Table 3.1).

Table 3.1 Distribution of the vegetable cultivators according to population and reserve list

Selected upazila	Selected union	Selected villages	Population	Sample size	Reserve list size
Nazirpur upazila	Dewolbari Dobra	Bildumuriya	380	38	2
		Pakuria	210	21	1
		Gaokhali	241	24	2
	Malikhali	West Lora	151	15	1
Total			982	98	6

3.3 Data Collection Tools

Structured interview schedules were prepared to reach the objectives of the study. The schedule was prepared containing open and closed form of questions. The open questions allowed for 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 15 randomly selected floating vegetable cultivators 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 validity by the experts at Sher-e-Bangla Agricultural University (SAU). Finally, based on background information, an expert appraisal and the pre-test, the interview schedule was finalized. Data were gathered by the researcher personally. During data collection, necessary cooperation was obtained from field staff of different GOs and NGOs and local leader. The data were collected for pilot survey from 13 August to 16 August, 2020. The final data collection was started from 18 August and completed in 7 November, 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 viz. independent and dependent variables. An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variable (Townsend, 1953).

I had selected 10 independent variables and one dependent variable. The independent variables were: age education family size area under floating vegetable cultivation on farm income of farm income experience in floating vegetable cultivation, training exposure time spends in floating vegetable cultivation, media exposure, knowledge on floating vegetable cultivation. The dependent variable of this study was the ‘adoption of floating vegetable cultivation by the farmers. The methods and procedures in measuring the variables of this study are presented below:

3.5 Measurement Of Independent Variables

The 10 characteristics of the floating vegetable farmers mentioned above constitute the independent variables of this study. The following procedures were followed for measuring the independent variables.

3.5.1 Age

Age of the farmers 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 rural people (MoYS, 2012). 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.

3.5.2 Education

Education was measured by assigning score against successful years of schooling by a farmer. One score was given for passing each level in an educational institution (Rashid, 2014). For example, if a farmer passed the final examination of class five or equivalent examination, his/her education score has given five (5). Each farmer of can't read and write has 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.

3.5.3 Dependency ratio

The dependency ratio compares the number of dependent individuals by age to the total population. Specifically, it measures people between the ages up to 14 and above 65 to those who are 15 to 64. By doing so, it shows who is and is not working, which thereby signals how unemployment causes economic burden. This variable appears in item number 3 in the interview schedule as presented in Appendix-I.

3.5.4 Farm size

Farm size of the respondent was measured as the size of his farm (including vegetable and other crops) on which he continued his/her farm practices during the period of study. Each respondent was asked to mention the homestead area, the area of land under his/her own cultivation, own land given to others on borga system, land taken from others on borga system, and land taken from others on lease system. The area was estimated in terms of full benefit to the farmers or his family. The following

formula was used in measuring the farm size:

Farm size=A_1+ A_2 + 1/2 (A_3 + A_4) + A_5

Where, A_1 = Homestead area,

A_2=Own land under own cultivation,

A_3= Own land given to others on borga,

A_4= Land taken from others on borga,

A_5= Land taken from others on lease.

The unit of measurement was hectares. The data was first recorded in terms of local measurement unit i.e. ekor or shotok and then converted into hectare. The total area, thus, obtained is considered as his farm size score (assigning a score of one for each hectare of land)

3.5.5 Annual family income

The term Annual income refers to the annual gross income of farmer and the members of his family from farming sources. It was expressed in taka. In measuring this variable, total earning taka of an individual farmer was converted into score. A score of one was given for every one thousand taka. This variable appears in item number 5 (five) in the interview schedule as presented in Appendix-I

3.5.6 Experience in floating vegetable cultivation

Experience in floating vegetable cultivation of the farmer was determined by the total number of year involved in floating vegetable cultivation. A score of one (1) was assigned for each year floating vegetable cultivation .This variable appears in item number 6 in the interview schedule as presented in Appendix-I.

3.5.7 Training exposure

Training exposure of farmers was determined by the total number of agricultural training received in his/her life regarding farming activities**.** A score of one (1) was assigned for each type of training attended. This variable appears in item number eight (7) in the interview schedule as presented in Appendix-I.

3.5.8 Time spent in floating vegetable cultivation

Time spent in floating vegetable cultivation was determined by the total hour involved in floating vegetable cultivation per week. A score of one (1) was assigned for each hour floating vegetable cultivation activities. This variable appears in item number 8 in the interview schedule as presented in Appendix-I.

3.5.9 Media exposure

It was defined as one's extent of exposure to different communication media related to floating vegetable cultivation. Media exposure of farmers was measured by computing media exposure score on the basis of their nature of media exposure with nine media. Each farmer was asked to indicate his nature of media exposure with five alternative responses, like regularly, often, occasionally, rarely and not at all basis to each of the nine media and score of four, three, two, one and zero were assigned for those alternative responses, respectively. Logical frequencies were assigned for each of the four-alternative nature of contact. Media exposure of the farmers was measured by adding the scores of nine selected source of information. Thus, media exposure score of a farmer could range from 0 to 36, where zero indicated no media exposure and thirty-six indicated highest level of media exposure. This variable appears in item number 9 in the interview schedule as presented in Appendix-I.

3.5.10 Knowledge on floating vegetable cultivation

Floating vegetable cultivation knowledge of farmers was measured by asking him/her 10 questions related to different components of floating vegetable cultivation. It was all the questions became twenty. The score was given according to response at the time of interview. Answering a question correctly an individual could obtain full score. While for wrong answer or no answer he obtained zero (0)score. Partial score was assigned for partially correct answer. Thus, the agricultural knowledge score of a farmer could range from zero (0) to twenty (20), where zero indicates no knowledge and twenty indicates highest knowledge on vegetable production technologies. This variable appears in item number eleven (10) in the interview schedule as presented in Appendix-I

3.6 Measurement of Dependent Variable

Adoption of floating vegetable cultivation by the farmers was the dependent variable

of this study. To measure this variable the average decimal of land in last two years where floating vegetable farming was done by the farmers was considered. Adoption of floating vegetable was calculated by floating vegetable cultivation area divided by potential area and multiplied by 100.

$$\text{Adoption of floating vegetable cultivation } (in\ year) = \frac{\text{Floating vegetable cultivation area}}{\text{Potential area}} \times 100$$

Here, potential area means the area suitable for floating vegetable cultivation. Adoption of floating vegetable cultivation was measured separately for 2019 and 2020.Finally,adoption of floating vegetable cultivation was measured by the average of two years (2019 and 2020).Thus, the range of adoption of floating vegetable cultivation of the farmers was 0-100,where, '0'indications no adoption of floating vegetable cultivation and '100'indications highest adoption of floating vegetable cultivation Parvez (2019).

3.7 Data Collection

The researcher himself gathered information from the respondents with the assistance of interview schedule in face-to-face setting. The researcher collected data using pre-tested interview schedule and based on pre-test experiences necessary corrections, additions, modifications and alternations were made before finalizing the interview schedule for final data collection Meeting with the respondents was made ahead of time with the assistance of AFO of Gram unnayan prokolpo. Researcher took all conceivable care to build up affinity with the respondents so they don't equivocate to reply to the inquiries and explanations. At whatever point any respondent confronted any trouble in seeing any question care was taken to portray the same unmistakably. The researcher was likewise cognizant about side talking amid information accumulation and attempted to stay away from that issue thoughtfully.

3.8 Processing of Data

The collected raw data were analyzed thoroughly to detect errors and exclusions. Qualitative data were converted into quantitative data by means of suitable scoring whenever necessary. For this the collected data were given numerical coded values. The obtained data were then compiled on a master sheet and then tabulated and analyzed with keeping the objectives of the study in mind. A wide range of relevant theories and empirical researches were collected and reviewed. The researcher

contacted different relevant sources such as books, journals, articles, theses, abstracts, and internet to set a concrete research plan and to outline the research background.

3.9 Hypothesis of the Study

According to Karlinger (1973), a hypothesis is a conjectural statement of the relation between two or more variables. Hypotheses are always in declarative sentence form and they a hypothesis are divided into two categories: (a) Research hypothesis and (b) Null hypothesis.

3.9.1 Research hypothesis

Based on review of literature and development of conceptual framework, the following research hypothesis was formulated: "The selected characteristics (age, level of education, dependency ratio, farm size, annual family income, experience in floating vegetable cultivation, training exposure, time spend in floating vegetable farming, media exposure and knowledge on floating vegetable cultivation).

3.9.2 Null hypothesis

A null hypothesis states that there is no contribution between the concerned variables. The following null hypothesis was formulated to explore the contribution of the selected characteristics of farmers of floating vegetable cultivation. Hence, in order to conduct tests, the earlier research hypothesis was converted into null form as follows: "There is no contribution of the selected characteristics of the farmers to their adoption of floating vegetable cultivation."

3.10 Data Analysis

Data collected from the respondents were analyzed and interpreted in accordance with the objectives of the study. The analysis of data was performed using statistical treatment with SPSS (Statistical Package for Social Sciences) computer program, version 21. Statistical measures such as number, range, mean, standard deviation and percentage were used in describing the variables whenever applicable. In order to explore the contribution of the concerned variables, multivariate regression analysis was used. Throughout the study, five percent (0.05) and one percent (0.01) level of significance was used as the basis for rejecting any null hypothesis.

CHAPTER IV
RESULTS AND DISCUSSION

The recorded observations in accordance with the objective 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 presented in three sections according to the objective of the study. The first section deals with the selected characteristics of the floating vegetable cultivators, while the second section deals with the extent of adoption of floating vegetable production. The third section deals with contribution of the farmers' selected characteristics to their adoption of floating vegetable cultivation.

4.1 Characteristics of the farmers

Behavior of an individual is determined to a large extent by one's personal characteristics. There were various characteristics of the farmers that might have consequence to food security. But in this study, ten characteristics of them were selected as independent variables, which included their age, education, dependency ratio, farm size, annual family income, experience in floating vegetable cultivation, training exposure, time spend in floating vegetable cultivation, media exposure and knowledge on floating vegetable cultivation that might be greatly influenced the adoption of floating vegetable cultivation has been presented in Table 4.1.

Table 4.1. The salient features of the selected characteristics of the farmers

Characteristics	Measuring unit	Minimum	Maximum	Mean	SD
Age	Years	24	72	43.46	11.56
Education	Years of schooling	.00	16.00	6.9847	4.18
Dependency ratio	Score	50	800	297.82	167.91
Farm size	Ha	.15	3.46	1.06	0.79
Annual family income	('000' tk)	50	550	149.20	95.19
Experience in floating vegetable cultivation	Score	1	40	16.42	9.98
Training exposure	Days	0	5	1.67	1.44
Time spent in floating vegetable cultivation	Hours/week	20	50	39.90	7.62
Media exposure	Score	14	29	22.90	3.41
Knowledge on floating vegetable cultivation	Score	6	18	13.72	3.28

4.1.1 Age

The age of the farmers has been varied from 24 to 72 years with a mean and standard deviation of 43.46 and 11.56, respectively. Considering the recorded age farmers were classified into three categories namely 'young', 'middle' and 'old' aged following MoYS (2012). The distribution of the farmers in accordance of their age is presented in Table 4.2.

Table 4.2 Distribution of the farmers according to their age

Category	Range (years)		Farmers		Mean	SD
	Score	Observed	Number	Percent		
Young aged	≤ 35	24-72	19	19.5	43.46	11.56
Middle aged	36-50		56	56.8		
Old aged	> 50		23	23.7		
Total			98	100.0		

Table 4.2 reveals that the middle-aged farmers comprised the highest proportion (56.8 percent) followed by old aged category (23.7 percent) and the lowest proportion were made by the young aged category (19.5 percent). Data also indicates that the middle and old aged category constitute (80.5 percent) of total farmers. The middle-aged farmers were generally more involved in farm activities than the older that might be due to the energetic, enthusiastic nature of middle-aged farmers.

4.1.2 Education

The level of educational scores of the farmers ranged from 0 to 16 with a mean and standard deviation of 6.98 and 4.18, respectively. Based on the educational scores, the farmers were classified into four categories. The distributions of farmers according to their level of education are presented in Table 4.3.

Table 4.3 Distribution of the farmers according to their education

Categories	Farmers		Mean	SD
	Number	Percent		
Illiterate (0-0.5)	22	22.4	6.98	4.18
Primary level (1-5)	8	8.2		
Secondary level (6-10)	61	62.2		
Above secondary level (>10)	7	7.2		
Total	**98**	**100**		

Table 4.3 shows that farmers under secondary education category constitute the highest proportion (62.2 percent) followed by illiterate (22.4 percent). On the other hand, the lowest 7.2 percent was above secondary category and 8.2 percent respondents were primary level of education. Education broadens the horizon of outlook of farmers and expands their capability to analyze any situation related to confrontations against constraints in floating vegetable production. To adjust with same, they would be progressive minded to confront against constraints in floating vegetable production and involve with modern cultural, processing and marketing facilities in floating vegetable production.

4.1.3 Dependency ratio

Dependency ratio of the farmers ranged from 3 to 8 with the mean and standard deviation of 297.82 and 167.91, respectively. According to dependency ratio of the farmers were classified into three categories (Mean ± Standard Deviation) viz. 'low', 'medium' and 'high' dependency. The distribution of the cultivators according to their dependency ratio are presented in Table 4.4.

Table 4.4 Distribution of the farmers according to their dependency ratio

Categories	Farmers		Mean	S D
	Number	Percent		
Low (up to 125)	18	18.6	297.82	167.91
Medium (125-500)	75	76.4		
High (above 500)	5	5		
Total	**98**	**100**		

Table 4.4 indicate that the medium dependency ratio constitutes the highest proportion (76.4 percent) followed by the low dependency ratio (18.6 percent). Only 5 percent of the farmers had high dependency ratio.

4.1.4 Farm size

The farm size of the farmers ranged from 0.15-3.46 ha with a mean and standard deviation of 1.06 and 0.79, respectively. Based on their farm size, the vegetable cultivators were classified into four categories namely 'marginal farm', 'small farm', 'medium' and 'large farm'. The distribution of the farmers according to their farm size is presented in Table 4.5.

Table 4.5 Distribution of the farmers according to their farm size

Categories	Farmers		Mean	SD
	Number	Percent		
Marginal farm (up to 0.2 ha)	5	5	1.06	0.79
Small farm (0.21-1.0 ha)	51	51.6		
Medium farm (1.01-3.0 ha)	33	37.4		
Large farm (>3.01 ha)	5	5		
Total	**98**	**100**		

Table 4.5 indicates that the small farm holder constitutes the highest proportion (51.6 percent) followed by medium farm holder (37.4 percent) and (5 percent) marginal and only 5 percent of the farmers had large farm size. The findings of the study reveal that most of the farmers were medium to small size. Due to the enhancing the economic status of the farmers at the study area, the farmers are likely to motivate to buy the land.

4.1.5 Annual family income

The score of annual family income of the vegetable cultivators ranged from 50 to 550 thousand (BDT) with a mean and standard deviation of 149.20 and 95.19, respectively. On the basis of income, the vegetable cultivators were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' annual family income. The distribution of the vegetable cultivators according to their annual income is presented in Table 4.6.

Table 4.6 Distribution of the farmers according to their annual income

Categories	Farmers		Mean	SD
	Number	Percent		
Low (up to 54 thousand)	2	2	149.20	95.19
Medium (55-245 thousand)	79	80.4		
High (above 245 thousand)	17	17.6		
Total	**98**	**100**		

Data reveals that the vegetable cultivators having medium income constitute the highest proportion (80.4 percent), while the lowest proportion in low income (2.00 percent) followed by high income (17.6 percent). Overwhelming majority (98 percent) vegetable cultivators have medium to high level of annual income.

4.1.6 Experience in floating vegetable cultivation

Score of experience in floating vegetable cultivation of vegetable cultivators could range from 1 to 40 with mean and standard deviation of 16.42 and 9.98, respectively. On the basis of experience scores, the vegetable cultivators were classified into three categories (Mean ± Standard Deviation) namely 'low, 'medium' and 'high' experience in floating vegetable cultivation. The distribution of the vegetable cultivators according to their experience in floating vegetable cultivation is given in Table 4.7.

Table 4.7 Distribution of the farmers according to their farming experience

Categories	Farmers		Mean	SD
	Number	Percent		
Low (up to 7)	18	18.4	16.42	9.98
Medium (8-25)	59	60		
High (above 25)	21	21.6		
Total	**98**	**100**		

Table 4.7 reveals that the majority (60.0 percent) of the vegetable cultivator had medium experience in floating vegetable cultivation category, whereas only 18.4 percent had low experience category followed by 21.6 percent had high experience in floating vegetable cultivation category. The findings of the present study reveal that around 81.6 percent of the vegetable cultivators in the study area had medium to high experience in floating vegetable cultivation.

4.1.7 Training exposure

Training exposure score of the vegetable farmers ranged from 0 to 5 with a mean and standard deviation of 1.67 and 1.44, respectively. Based on the training exposure score, the vegetable farmers were classified into three categories namely 'no training', 'low', and 'medium' training exposure. The distribution of the vegetable farmers according to their training exposure is presented in Table 4.8.

Table 4.8 Distribution of the farmers according to their training

Categories (Scores)	Farmers		Mean	SD
	Number	Percent		
No (0)	30	30.6	1.67	1.44
Low (1-3)	57	58.2		
Medium (above 3)	11	11.2		
Total	**98**	**100**		

Table 4.8 indicates that the highest proportion (58.2 percent) of the vegetable farmers had medium training exposure compared to 30.6 percent in no training exposure and 11.2 percent of the farmers had medium training exposure category, respectively. Training makes the vegetable farmers skilled and helps them to acquire deep knowledge about the respected aspects. Trained vegetable farmers can face any kind of challenges about the adverse situation in their vegetable cultivation. So, they show favorable behavior toward positive attitude towards floating vegetable cultivation. This result might have due to the positive attitude towards floating vegetable cultivation.

4.1.8 Time spent in floating vegetable cultivation

Time spent in floating vegetable cultivation growers ranged from 20 to 50 with a mean and standard deviation of 39.90 and 7.62, respectively. Based on the time spent in vegetable farming score, the vegetable growers were classified into three categories (Mean ± Standard Deviation) namely minimum, average and maximum time spent in floating vegetable cultivation. The distribution of the vegetable growers according to their time spent in floating vegetable cultivation is presented in Table 4.9.

Table 4.9 Distribution of the vegetable growers according to their time spent in vegetable farming

Category	Range (hr/week)		Vegetable growers		Mean	SD
	Score	Observed	Number	Percent		
Minimum time spent	≤ 32	20-50	17	15.9	39.90	7.62
Average time spent	33-46		69	64.5		
Maximum time spent	> 46		21	19.6		
Total			98	100.0		

Table 4.9 indicates that the highest proportion (64.5 percent) of the floating vegetable growers had average time spent compared to 15.9 percent in minimum time spent and 19.6 percent vegetable growers in maximum time spent category, respectively. This result might have due to the positive attitude towards floating vegetable cultivation and floating vegetable cultivation climatic condition.

4.1.9 Media exposure

The observed score of media exposure of the farmers ranged from 14 to 29 against a possible range of 0 to 36. The average score of the farmers' media exposure was 22.90 with a standard deviation 3.41 (Table 4.10). The farmers were classified into three categories on the basis of their exposure to vegetable farming information through communication exposure scores and distribution of the three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' media exposure of the farmers. The distribution of the vegetable growers according to their media exposure is presented in Table 4.10.

Table 4.10 Distribution of the farmers according to their media exposure

Categories (Scores)	Farmers		Mean	SD
	Number	Percent		
Low (up to 19)	20	20.4	22.90	3.41
Medium (20-25)	53	53.9		
High (above 25)	25	25.7		
Total	**98**	**100**		

Data shows that the highest proportion (53.9 percent) of the farmers had medium media exposure and lowest media exposure was 20.4 percent of them having low media exposure and 25.7 percent of the farmers had high media exposure. From this Table, it might be concluded that majority of the farmers had medium media exposure. It could be concluded that different media of the study area were available to the farmers. The finding was interesting but logical because in general the farmers in the rural areas of Bangladesh are less cosmopolite in nature and less exposed to different information sources. Finding revealed that 20.4 percent of the farmers had low media exposure which demands for strengthening and improving the communication strategy. Low media exposure might be the reason that some respondent may think that they have enough knowledge about floating vegetable cultivation. Media exposure pertains to ones contact with multifarious sources of farming knowledge and information about floating vegetable cultivation. This results in cognitive change of the users with an eventual change in behavior and also in skill. They receive information from their neighbors, relatives and workmates etc. at the study area.

4.1.10 Knowledge on floating vegetable cultivation

Knowledge on floating vegetable cultivation scores of the vegetable farmers ranged from 6 to 18 against possible score of 0 to 20. The average score and standard deviation were 13.72 and 3.28, respectively. Based on the knowledge on floating vegetable cultivation scores, the vegetable farmers were classified into three categories (Mean ± Standard Deviation) namely low, medium and high knowledge on floating vegetable cultivation. The distribution of the vegetable growers according to their knowledge on floating vegetable cultivation is presented in Table 4.11.

Table 4.11 Distribution of the farmers according to their knowledge on floating vegetable cultivation

Categories (Scores)	Farmers		Mean	SD
	Number	Percent		
Low (up to 10)	19	19.4	13.72	3.28
Medium (11-16)	62	63.3		
High (above 16)	17	17.3		
Total	**98**	**100**		

Data presented in the table 4.11 revealed that 63.3 percent of the vegetable farmers had medium knowledge on floating vegetable cultivation, 19.4 percent had low knowledge and 17.3 percent had high knowledge on floating vegetable cultivation. Thus, an overwhelming majority (81.6 percent) of the vegetable farmers had medium to high knowledge on floating vegetable cultivation. This lead to understanding that knowledge on floating vegetable cultivation would reflected more by the medium knowledge on vegetable production farmers' group in the present study. helps to enhance the eagerness to be acquainted with new variety or technology. In addition, Knowledge on floating vegetable cultivation of the farmer is definitely affected by the media exposure because with the increase of the communication exposure new thing can be taught. Knowledge on floating vegetable cultivation is very important aspects for creating positive attitude towards floating vegetable cultivation.

4.2 Adoption of Floating Vegetables Cultivation

Adoption of floating vegetable cultivation by the farmers was the dependent variable of the study. Adoption of floating vegetable cultivation scores ranged from 10 to 90 against possible score of 0 to 100. The average score and standard deviation were 50.83 and 15.70, respectively. Based on the adoption of floating vegetable cultivation scores, the respondents were classified into three categories (Mean ± Standard Deviation) namely low, medium and high adoption of floating vegetable cultivation. The distribution of the vegetable growers according to their adoption of floating vegetable cultivation is presented in Table 4.12.

Table 4.12 Distribution of the farmers according to the adoption of floating vegetables cultivation

Categories	**Farmers**		Mean	SD
	Number	Percent		
Low (up to 35)	12	12.2	50.83	15.70
Medium (36-65)	71	72.5		
High (>65)	15	15.3		
Total	**98**	**100**		

Data presented in the table 4.12 revealed that 72.5 percent of the respondent had medium adoption of floating vegetable cultivation, 12.2 percent had low adoption and 15.3 percent had high adoption of floating vegetable cultivation. Thus, about three fourths (87.8 percent) of the respondents had medium to high adoption of floating vegetable cultivation at the study area.

4.3 Contribution of the Selected Characteristics of the Respondents to Their Adoption of Floating Vegetable Cultivation

In order to estimate the adoption of floating vegetable cultivation from the independent variables, multiple regression analysis was used which is shown in the Table 4.13.

Table 4.13 Multiple regression coefficients of contributing factors related to the adoption of floating vegetable cultivation

Dependent variable	Independent variable	β	ρ	R^2	Adj. R^2	F
Adoption of Floating Vegetable Cultivation	Age	0.309	.001**	.441	.377	6.86
	Education	0.243	.005**			
	Dependency Ratio	0.006	.946^{NS}			
	Farm size	0.100	.470^{NS}			
	Annual family income	0.110	.417^{NS}			
	Experience in floating cultivation	0.003	.974^{NS}			
	Training Exposure	0.217	.012*			
	Time spent in floating vegetables cultivation	0.022	.813^{NS}			
	Media Exposure	0.259	.007**			
	Knowledge on floating vegetable cultivation	0.191	.045*			

** Significant at p < 0.01; * Significant at p < 0.05 and NS= Non-significant

Table 4.13 shows that there is a significant contribution of respondents' age, education, training on floating vegetable cultivation, media exposure and knowledge on floating vegetable cultivation. Of these, age, education and media exposure were the most important contributing factors (significant at the 1% level of significance) and training on floating vegetable cultivation and knowledge on floating vegetable cultivation were (significant at the 5% level of significance) while coefficients of other selected variables don't have any contribution with their adoption of floating vegetable production.

The value of R^2 is a measure of how of the variability in the dependent variable is accounted for by the independent variables. So, the value R^2 0.441 means that independent variables account for 44% of the variation in problems faced by the farmers in floating vegetable cultivation. The F ratio is 6.86 which is highly significance (p<.001). This ratio indicates that the regression model significantly improved the ability to predict the outcome variable.

4.3.1 Significant contribution of age to their adoption of floating vegetable cultivation

The contribution of age to their adoption of floating vegetable cultivation was measured by testing the following null hypothesis;

"There is no contribution of age to their adoption of floating vegetable cultivation".

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

a. The contribution of the age was at 5% significance level (p=0.001).
b. So, the null hypothesis could be rejected.
c. The b-value of level of age is (0.309). So, it can be stated that as age increase by one unit, adoption of floating vegetable cultivation increases by 0.309 units. Considering effects of all other predictors are held constant.

Based on the above finding, it can be said that a floating vegetable cultivator with higher age, adoption of floating vegetable cultivation increased. So, age has significantly contributed to the adoption of floating vegetable cultivation.The result is supported by Yadaw and Sharma (2012).

4.3.2 Significant contribution of education to their adoption of floating vegetable cultivation

The contribution of education to their adoption of floating vegetable cultivation was measured by testing the following null hypothesis;

"There is no contribution of education to their adoption of floating vegetable cultivation".

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

a. The contribution of the education was at 1% significance level (p=0.005).
b. So, the null hypothesis could be rejected.
c. The b-value of level of education is (0.243). So, it can be stated that as education increase by one unit, adoption of floating vegetable cultivation increases by 0.243 units. Considering the effects of all other predictors are held constant.

Based on the above finding, it can be said that a floating vegetable cultivator had

higher education increased the adoption of floating vegetable cultivation. The finding is simultaneous with the research study of Sarkar (2010).So, education has significantly contributed to the adoption of floating vegetable cultivation.

4.3.3 Significant contribution of media exposure to their adoption of floating vegetable cultivation

The contribution of media exposure to their adoption of floating vegetable cultivation was measured by testing the following null hypothesis;

"There is no contribution of media exposure to their adoption of floating vegetable cultivation".

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

a. The contribution of the media exposure was at 1% significance level (p=0.007).
b. So, the null hypothesis could be rejected.
c. The b-value of level of media exposure is (0.259). So, it can be stated that as media exposure increase by one unit, adoption of floating vegetable cultivation increases by 0.259 units. Considering the effects of all other predictors are held constant.

Based on the above finding, it can be said that a floating vegetable cultivator had more media exposure increased the adoption of floating vegetable cultivation. So, media exposure has high significantly contributed to the adoption of floating vegetable cultivation. The result is simultaneous with the research study of Khan (2019).

4.3.4 Significant contribution of training exposure to their adoption of floating vegetable cultivation

The contribution of training exposure to their adoption of floating vegetable cultivation was measured by testing the following null hypothesis;

"There is no contribution of training exposure to their adoption of floating vegetable cultivation".

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

a. The contribution of training exposure was at 5% significance level (p=0.012).
b. So, the null hypothesis could be rejected.
c. The b-value of level of training exposure is (0.217). So, it can be stated that as training exposure increase by one unit, adoption of floating vegetable cultivation increases by 0.217 units. Considering effects of all other predictors are held constant.

Based on the above finding, it can be said that a floating vegetable cultivator had more training floating vegetable cultivation increased the adoption of floating vegetable cultivation. The finding is supported by Islam (2007) . So, training exposure has significantly contributed to the adoption of floating vegetable cultivation.

4.3.5 Significant contribution of knowledge on floating vegetable cultivation to their adoption of floating vegetable cultivation

The contribution of knowledge on floating vegetable cultivation to their adoption of floating vegetable cultivation was measured by testing the following null hypothesis;

"There is no contribution of knowledge on floating vegetable cultivation to their adoption of floating vegetable cultivation".

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

a. The contribution of the knowledge on floating vegetable cultivation was at 5% significance level (p=0.045).
b. So, the null hypothesis could be rejected.
c. The b-value of level of knowledge on floating vegetable cultivation is (0.191). So, it can be stated that as knowledge on floating vegetable cultivation increase by one unit, adoption of floating vegetable cultivation increased by 0.191 units. Considering the effects of all other predictors are held constant.

Based on the above finding, it can be said that more knowledge on floating vegetable cultivation increased the adoption of floating vegetable cultivation. So, knowledge on floating vegetable cultivation has significantly contributed to the adoption of floating vegetable cultivation. The finding is consistent with the study of khan (2019).

CHAPTER V
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The study was conducted in the Dewolbari and Malikhali unions of Nazirpur upazila under Pirojpur district to find out the adoption of floating vegetable production. Total 982 vegetable cultivators were selected from the study area as the population and 10 percent of the total, the respondents comprised of 98 floating vegetable cultivators constituted the sample of the study. A well-structured interview schedule was developed based on objectives of the study for collecting information. The independent variables were: age, education, dependency ratio, farm size, annual family income, experience in floating vegetable cultivation, training exposure, time spend in floating vegetable cultivation, media exposure and knowledge on floating vegetable cultivation. Data collection was started in 24 March, 2020 and completed in 25 April, 2020. Various statistical measures such as frequency counts, percentage distribution, average, and standard deviation were used in describing data. In order to estimate the contribution of the selected characteristics of vegetable cultivators to their adoption of floating vegetable production, multiple regression analysis (β) was used. The major findings of the study are summarized below:

5.1 Major Findings

5.1.1 Selected characteristics of the floating vegetable cultivators

Age: The middle-aged vegetable cultivators comprised the highest proportion (56.8 percent) and lowest proportion by the young aged category (19.5 percent).

Education: Secondary education constituted the highest proportion (62.2 percent) and the lowest 5.2 percent was above secondary level of education.

Dependency ratio: The medium dependency ratio constituted the highest proportion (76.4 percent),the lowest 5.00 percent in high dependency ratio.

Farm size: The small farm holder constitutes the highest proportion (51.6 percent) followed by marginal and large farm size (5 percent).

Annual family income: The vegetable cultivators having medium income constitute the highest proportion (80.4 percent), while the lowest proportion in low income (2 percent) followed by high income (17.6 percent).

Experience in floating vegetable cultivation: The majority (60 percent) of vegetable cultivator fell in medium experience in floating vegetable cultivation category, whereas only 18.4 percent in low experience category.

Training exposure: The highest proportion (58.2 percent) of the vegetable farmers had low training exposure and the lowest (11.2 percent) vegetable farmers had medium training.

Time spent in floating vegetable cultivation: The highest proportion (64.5 percent) of the floating vegetable growers had average time spent compared to 15.9 percent in minimum time spent.

Media exposure: The highest proportion (53.9 percent) of the farmers had medium media exposure and lowest media exposure was 20.4 percent of them having low media exposure.

Knowledge on floating vegetable cultivation: The majority 63.3 percent of the vegetable farmers had medium knowledge on floating vegetable cultivation, 19.4 percent had low knowledge and 17.3 percent had high knowledge on floating vegetable cultivation.

5.1.2 Adoption of floating vegetable cultivation

Adoption of floating vegetable cultivation scores ranged from 10 to 90 against possible score of 0 to 100. The highest 72.5 percent of the respondent had medium adoption of floating vegetable cultivation, 12.2 percent had low adoption and 15.3 percent had high adoption of floating vegetable cultivation.

5.1.3 Factors related to the adoption of floating vegetable cultivation

There is a significant contribution of respondents' age, education, training on floating vegetable cultivation, media exposure and knowledge on floating vegetable cultivation and the rest five characteristics namely, dependency ratio, farm size, annual family income, experience in floating vegetable cultivation, time spent in floating vegetables cultivation and had no significant contribution with their adoption of floating vegetable cultivation. The 44.1% (R^2=0.441) of the variation in the respondents changed adoption of floating vegetable cultivation was attributed to the significant independent.

5.2 Conclusions

Conclusion is the final decision or judgment, which is placed through contention at the end or termination of a research work. Conclusion should be so constructive that its words and contentions must draw the attention of the concerned individuals/organizations. The findings and relevant facts of research work prompted the researcher to draw following conclusions.

i. The findings revealed that an overwhelming majority of the respondents had medium to high category adoption of floating vegetable cultivation at the study area. Therefore, it may be concluded that there is still scope to increase the extant of adoption of floating vegetable cultivation by the farmers.

ii. Age of the farmers showed as important contributing factor to the adoption of floating vegetable cultivation. This means that age might have influenced in adoption of floating vegetable cultivation.

iii. The co-efficient of co-relation between Education of the farmers and their adoption of floating vegetable cultivation was significant and positive. This means that high literacy and educational level among the farmers might have influenced to increase the adoption of floating vegetable cultivation.

iv. Maximum (58.9%) vegetable cultivators had medium media exposure on vegetable cultivation category and regression analysis revealed that media exposure of the vegetable cultivators was a contributing factor to the adoption of floating

vegetable cultivation. Therefore, it may be said that the higher the media exposure of the farmers the higher the adoption of floating vegetable cultivation.

v. Overwhelming (69.4%) vegetable cultivators had low to medium training on floating vegetable cultivation and regression analysis revealed that training on floating vegetable cultivation was a contributing factor to the adoption of floating vegetable cultivation. Therefore, it may be concluded that initiative for more training would be better for the adoption of floating vegetable cultivation.

vi. Knowledge on floating vegetable production of the farmers had a significant contribution to the adoption of floating vegetable cultivation. Consequently, they became motivated practice plant protection management in vegetable cultivation.

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:

i. An increased rate and extent of adoption of floating vegetable cultivation by the farmers are vitally important for increasing the yield of vegetable production .It is recommended that step should be taken by the Department of Agricultural Extension (DAE) and related Non-Government Organizations (NGOs) for strengthening the respondents' qualities in favor of increase the adoption of floating vegetable cultivation to a higher degree.

ii. Education of the respondents had a significant contribution to the adoption of floating vegetable cultivation. It indicates the importance of education for increasing the adoption of floating vegetable cultivation. It may be recommended that arrangements should be made for enhancing the education level of the vegetable cultivators by the concerned authorities through the establishment of night school, adult education and other extension methods as possible.

iii. Age had a significant contribution to the adoption of floating vegetable cultivation. It may be recommended that arrangements should be made for enhancing the awareness of the young vegetable cultivators by the SAAOS authorities in case of large-scale floating vegetable production.

iv. The DAE and NGOs should take necessary steps to increase the media exposure for the farmers. The extension worker should provide supplementary supports to motivate farmers.
v. Training exposure was important contributing factors to the adoption of floating vegetable cultivation. Therefore, it is recommended that the extension agent should arrange more training programs related to floating vegetable cultivation issues with experienced farmers in floating vegetable cultivation.
vi. Knowledge on floating vegetable production technologies should be selected on priority basis for any motivational training by Department of Agricultural Extension (DAE) and concern Non-Government Organizations (NGOs) for gaining sustainable floating vegetable production.

5.3.2 Recommendations for Further Study

This study which mainly highlights some aspects of dimensions (adoption extent of floating vegetable farming by the farmers) for agricultural improvement. On the basis of scope and restrictions 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 Deowlbari Dobra and Malikhali union of Nazipur upazila under Pirojpur district. It is recommended that identical studies should be conducted in other relevant areas of Bangladesh.
2. This study investigated the contribution of ten characteristics of the farmers with adoption of floating vegetable cultivation by the farmer as dependent variables. Therefore, it is recommended that further study should be conducted with other characteristics of the farmers with adoption of floating vegetable cultivation by the farmer.
3. The study was based on adoption of floating vegetable cultivation by the farmer. Research should also be undertaken to identify the factors causing hindrance towards adoption extent of floating vegetable cultivation.

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APPENDIX-A

ENGLISH VERSION OF THE INTERVIEW SCHEDULE

Department of Agricultural Extension

Sher-e-Bangla Agricultural University Dhaka-1207

An Interview Schedule for the Study Entitled

ADOPTION OF FLOATING VEGETABLE CULTIVATION BY THE FARMERS

Serial No:……

Name of the respondent:…….

Village:…….Union: .....

Upazila:……..District:…….. ……

Mobile No:……..

(Please answer the following questions put tick wherever necessary)

1. **Age:** How old are you?

   Ans:.....years

2. **Education:** Please mention your educational status

a. I can't read or write----
b. I can sign only----------
c. I read up to class ----------

3. **Dependency ratio:**

$$\text{Total dependency Ratio} = \frac{(Population\ 0-14 + Population\ 65>)}{Working\ age\ population\ 15-64} \times 100$$

4. **Farm size:** What is your total farm size according to use?

Sl. No.	Use of land	Land possession	
		Local unit	Hectare
1	Homestead area (A_1)		
2	Own land under own cultivation (A_2)		
3	Land taken from others as borga system (A_3)		
4	Land given to others as borga system (A_4)		
5	Land taken from others as lease (A_5)		
Total			

Total farm size = A1+ A2 + 1/2 (A3 + A4) + A5

5. **Annual family income:** Please indicate your annual income (TK) from following different sources (last year)

Sl.	Source of Income	Total price (Tk)
1.	Rice	
2.	Wheat or Maize	
3.	Vegetables	
4.	Livestock	
5.	Poultry	
6.	Fisheries	
7	Business	
8	Service	
9	Labor	
10	Others(If any)	

6. Experience in floating vegetable cultivation

How many years are you involved in floating vegetable cultivation?

Ans:..... year/s.

7. Training Exposure

Have you received any training related to vegetable cultivation?

(Please Put a Tick mark)

i)YES ii) No
If YES. Then mention the name the following ones:

Sl. No.	Name of the training course	Organization	Days
01.			
02.			
03.			
04.			

8. Time spent in floating vegetable cultivation

How much time do you spend in floating vegetable cultivation?

Ans:.....hours/week

9. Media exposure: Please indicate the nature of your contact with the following information media.

Sl. No.	Media/ Sources	Nature of visit				
		Regularly	**Often**	**Occasionally**	**Rarely**	**Not at all**
1.	Experienced floating vegetable cultivated farmers					
2.	Dealers (fertilizer, pesticide)					
3.	Sub- Assistant Agriculture extension officer					
4.	Agriculture extension officer					
5.	Neighbor					
6.	Group discussion					
7.	News paper					
8.	Radio					
9.	Television					

10. Knowledge on floating vegetable Cultivation: Please answer the following questions

Sl. No	**Questions**	**Total Marks**	**Marks Obtained**
1.	Mention the suitable time for floating vegetable cultivation.	2	
2.	What are the procedures of preparing the floating vegetable seedlings?	3	
3.	What elements are needed in floating vegetable cultivation?	2	
4.	What type of temperature needed in floating vegetable cultivation?	1	
5.	What intercultural operations are practiced in floating vegetable cultivation?	2	
6.	What types of moisture are needed in floating vegetable cultivation?	3	
7.	Name two disease of floating vegetable	2	
8.	Name two harmful insects of floating vegetable	1	
9.	What type of irrigation needed in floating vegetable cultivation?	3	
10.	Name one control measure of disease in floating vegetable cultivation	1	
Total		20	

11. Adoption of floating vegetable cultivation:

Please mention the potential and used area of your farm for floating vegetable cultivation in last two cropping seasons

Year	Potential area(dl)	Used area(dl)	Adoption Score
2019			
2020			

$$\text{Adoption of floating vegetable cultivation } (in\ 2019) = \frac{\text{Floating vegetable cultivation area}}{\text{Potential area}} \times 100$$

$$\text{Adoption of floating vegetable cultivation } (in\ 2020) = \frac{\text{Floating vegetable cultivation area}}{\text{Potential area}} \times 100$$

$$\text{Adoption of floating vegetable cultivation}(over\ all) = \frac{\text{year 1+year 2}}{\text{No of years (here,2)}}$$

Date:

…….

(Signature of the interviewer)