Information network assessment of farm women in Sub-Himalayan terai region of Indiaand the role of KVK

Abstract

KrishiVigyanKendra play an important role of information network development among the farmers and farm women through different training and extension programme. This empirical study was conducted to find out the role of KrishiVigyan Kendra on information networks development of the farm women in sub Himalayan terai region of India and to identify the different factors influencing agricultural information network output of the farm women in terms of knowledge. The study was conducted in the Cooch Behar District of West Bengal with the help of an ex post facto research design. It is found from the study that social participation of farm women was highin case of the members of Self Help Groups, Mobility of the farm women were more in *panchayat* office. Majority of the farm women received farm information from farmers club/FPO, sources of informal farm information of the female farmers were higher in case of discussion with fellow farmers, mass media exposure of the farm women was higher in case of mobile phone andfarm women visit the farm science centre whenever problems occur. It is also found from the study thatthe variables livestock possession, material possession, participation of FSC programme, communication skill, attitude of the farm women towards FSC scientist, mass media exposure, e resources exposure, decision making ability, type of family andoccupation were influence more than 70% of the variability of the dependent variable agricultural information network output of the farm women. So, it is very essential for taking consideration above mentioned variable before implementation of any farm women orientated programme. It is revealed from the study that the residual errors were less in the regression model and there was some of variationthat is not explained by the model. The research work would play important guidelines for expanding the information network in the field of agriculture through KrishiVigyan Kendra.

Keywords: Agricultural information network output, communication skill, e-resource exposure, mass media exposure, information seeking behavior, information exchange

1. Introduction:

In India, farm women play a significant contribution for food production both in terms of quantity and quality. Rural women are proficient in the process of producing, preparing, and marketing food, but societal and financial constraints have prevented them from accessing rational and creative knowledge (Daman, 1997). FAO (1998) observed that rural women face challenges from their household responsibilities and social constraints, ultimately resulting in their being required to spend a significant amount of time away from their homes to oversee extension training initiatives. Farm women are those who actively participated in almost all the farming activities. Farm women are the major agricultural workers in India. They are an active coworker of crop production and allied agricultural enterprise process (Beohar*et al.* 1999; Sharma *et al.* 1999; Unnati*et al*. 2012; Gilbert *et al*., 2013). But it was shown

that accessibility of the agricultural information was limited to the farm women due to inadequate extension organization and proficient information sources (Olowu and Yahaya, 1998). Bhattacharya *et al.* (2001) expressed from their study that knowledge level of the farm women about farming practices were significantly associated with the decision-makingprocess but the financial position of the farm women had not been significantly related with the decision-making process. They also found that family type had significantly influenced the knowledge level of the farm women about farming practices. knowledge about improve cultivation practices among the farmers and farm women can be increased by more utilized source of information like training, farm literature, TV and Radio (Rathore*et al*. 2003, Kumari*et al.* 2010, Bihari *et al.* 2012). Singh (1990) found that knowledge level of farmers was change after receiving information from farm science centre. Kanaujia (2003) and Joshi *et al.* (2011) found that knowledge of farm women was higher after networking with the farm science centre. Ajrawat and Kumar (2012) reported that majority of the respondents had high knowledge level (73.00%) followed by medium (26.00%) and low (1.00 %) knowledge level after received training from farm science centre. Sharma *et al.* (2013) found that majority of the farm women had medium level of knowledge after getting training from farm science centre whereas, non-trainee farm women had low level of knowledge. Veeraiah (1991) revealed that age had a negative and significant relationship, whereas other variable viz. educational level, socio-economic status, cosmopoliteness, mass media exposure, extension contact, scientific orientation and risk preference had a positive and significant relationship with the knowledge of the respondents. Gaikwad and Gunjal (1999) reported that education, occupation, social participation, Information seeking behaviour, psychological variables were significantly related to knowledge of the farmers. Khatri *et al.* (2022) found that education, caste, land holding, annual income, occupation, participation in local institution, source of information and extension participation were significantly related with the knowledge level of rural women. Vashishtha and Kunwar (2005) observed that favourable mass media exposure had positively affected overall knowledge as well as adoption of improved farm practices by the farm women. Deo*et al.* (2010) found that majority of the untrained women had low level of knowledge whereas majority of the trained women had medium level of knowledge. So, there is need to provide timely and appropriate information to the farm women for agricultural information network output development (Shailaja and Reddy, 2003). So far, a few studies were found on role of KrishiVigyanKendra on information networks development of the farm womenand factors influencing on agricultural information network output of the farm women. So, on the basis a study was conducted to find out the role of KrishiVigyanKendra (farm science centre)on information networks development of the farm women and to identify the important factors influencing on agricultural information network output of the farm women.

2. Theoretical framework:

2.a.) Information

Information is any substance or structure that resolves vulnerability or gives the response to an issue or some likeness thereof. It is accordingly identified with information and learning, as information speaks to qualities ascribed to parameters, and information implies comprehension of genuine articles or conceptual ideas information is passed on either as the substance of a message

or through immediate or roundabout perception. That which is seen can be interpreted as a message in its very own right, and in that sense, information is constantly passed on as the substance of a message. Information can be encoded into different structures for transmission and understanding. The vulnerability of an occasion is estimated by its likelihood of an event and is conversely relative to that. The more questionable an occasion, the more information is required to determine the vulnerability of that occasion.

2.b.) Information literacy

The concept of Information literacy appeared as a result of the technological development in the 1970s. Information literacy is not the competence to use certain device or equipment but the skill to access and use of information. Information literacy is the skill to access information and use it for value creation, and an individual can be regarded as information literate if he/she recognize when he/she needs information. It can be seen that information literacy requires and demands several skills from the conscious citizens of the digital world.

2.c.) Sources of Information

Basically there are two types of sources of Information. These are i) Primary Sources and ii) Secondary Sources**.** Primary sources of Information allow the learner to access original and unedited information. A Primary source requires the learner to interact with the sources and extract information. Secondary sources are edited primary sources, Second hand versions they represent someone else's thinking. In another point of view, Information can be divided into two categories, Formal and Informal information. Formal Information is typically written and may be divided into information and processed information that is based on interpretation and analysis of raw information. Informal Information consists of information obtained through conversation and business transmissions (David & David, 2002).Mooko (2005) reported that interpersonal sources, Such as friends, neighbours, relatives and village heads played an important role in the communication of information to and among the rural women.

2.d.) Information seeking behaviour

Information seeking behaviour is mainly concerned about who needs what sort of information and for what reason; how data is found assessed and utilized, and how there need can be distinguished and fulfilled, Information seeking for is a human procedure that requires versatile and intelligent command over the afferent and efferent activities of the information searcher. Information processing is the perceived, analyse, manipulate, use and memorize the information. Information need is a term firmly identified with the idea of information looking for conduct. A client perceiving an information need, expresses it into an inquiry, or, solicitation which is passed on through formal or/and casual channels of communication and information network, so as to get a reaction (verbal composed, visual) which will fulfill that need. Information need can be conceptualized as the information or set of information exceptionally required to play out an errand or settle on a suitable choice about an issue identified with cultivating at a specific time. Research on information needs and information seeking for conduct agrees that information is custom fitted to people's activity or undertaking. Consequently, we must evaluate the Information needs of farm women with the goal that they can play out their cultivating tasks proficiently and contribute in expanding agricultural productivity (Ansari and Sunetha, 2014).

2.e.) Agricultural information network

Information output is the outcome of information process that generated from human mind in terms of cognition, skill or behavioural perspective.Samuel (2001) defined that agricultural information is the information for decision-making and resource that must be acquired and used in order to make an good decision. Rolling (1988) characterizes an "agricultural information network is produced, changed, moved, merged, got, and nourished back in such a way, that these procedures work synergistically to support information use methods". In like manner, the idea of agricultural information network reflects the segments in the framework, the information related procedures, system components and system tasks. Research, extension and farmer can be viewed as the significant parts of an agricultural information network. Be that as it may, different actors and associations can be found in a network. It tends to be applied to a particular cultivating framework so as to investigate how the information system functions. This methodology is likewise helpful to characterize the potential defaults and to improve the coordination between segments (Demiryurek, 2000). Moreover, the information exchange through systems among the framework segments is basically significant for the effective technology generation and information moves (Rogers, 1995; Ramirez, 1997; Garforth and Usher, 1996; Leeuwis, 2004).

2.f)Communication network

A communication network comprises of interconnected people who are connected by the designed progressions of information, and its investigation distinguishes the communication structure in the framework (Rogers and Kincaid 1981). Rogers (1995) stresses that the exchanging of information and its dispersion occur inside a social system. Actors, for example, individuals, casual gatherings, associations and subsystems are the individuals from the framework and the structure of the social framework and their entertainers or individuals' jobs influence the dissemination procedure.Communication skills are the capacity to send messages that are appropriately completely received and comprehended by the intended interest group. Communication skills are those aptitudes that are expected to talk and compose appropriately. An individual who can talk properly while keeping in touch with the crowd, utilizes differed jargon and well-spoken discourse to suit the need of the crowd is for the most part said to be a successful speaker. Thus, a successful author ought to have the option to utilize composed words in different styles and methods to convey his/her message and thoughts to the per users. One ought to be able to listen cautiously and compose and talk plainly in any circumstance. Consequently, reception skill, processing skill, expression skill and feedback orientation are basic for effective communication.

2.g.) Information Preservation'

Information Preservation' is the methods by which chronicles are ensured for the utilization of present and people in the future. It is a word generally utilized by record workplaces, libraries and exhibition halls to depict the manners by which their assortments are protected and kept in great state of being. This should be possible through an assortment of measures pointed both at limiting the danger of loss of records and easing back down, however much as could reasonably be expected, the procedures of physical crumbling that influence most chronicle materials. Information may be preserved in a different mode such as memorizing, notebook, farm literature, newspaper, and soft format. It depends on the situation, type, and people.

2.h.) Information Network theory

Network theory is the investigation of charts as a portrayal of either symmetric relations or awry relations between discrete articles. System hypothesis has applications in numerous controls including Agricultural, software engineering, electrical building, science, financial aspects, money, climatology humanism and material science. Uses of system hypothesis incorporate strategic systems, the World Wide Web, Internet, quality administrative systems, metabolic systems, interpersonal organizations and information systems. Actor-Network Theory (ANT) was created by French researchers, Michel Callon, Bruno Latour and the British humanist John Law (Latour 1987; Callon and Law, 1989; Law, 1992). In their perspective, they thought most about the investigations of sociology in the past depended on the perspective on human driven. There exists a paired characterization of common versus social, and human versus nonhuman. Nonetheless, this sort of characterization doesn't fit into true encounters we are utilized to see. We live on the planet consolidating both of people and nonhumans. Hence, ANT gives a perspective on equivalent treatment on both human and non-human actors dependent on three standards: rationalism, summed up balance, and free association. ANT inspects the inspirations and activities of actors who structure components, connected by relationship, of heterogeneous systems of adjusted interests. (Murdoch, 1997). It expects that numerous relations are both material and semiotic. A significant focal point of the hypothesis applied specifically settings is "to attempt to follow and clarify the procedures whereby generally stable systems of adjusted interests are made and looked after" (Walsham and Sahay, 1999). Callon and Law (1989) built up the four periods of the interpretation procedure: problematization, interessement, enrolment and mobilization. Interpretation is a roundabout procedure of elucidation of intrigue. A multifaceted cooperation where actors build basic definitions and implications, characterize agents and co-select each other in the quest for individual and aggregate goals. The two actors share in the recreation of the system of collaboration prompting framework adjustment. Information network theory considers the information conveying limit of a network. Information network theory manages how to convey information over a system with various sources and different goals. We have a framework with different senders and beneficiaries containing numerous new components in the communication issues, for example, impedance, participation and input. It includes the crucial furthest reaches of correspondence and information theory in networks with different senders and beneficiaries and ideal coding methods and conventions which accomplish these cut off points (Gamal and Kim, 2012). An information network incorporates clients, information assets, information focuses, and the absolute information move structure connecting client, information assets and information focuses. Any message move structure is appeared in diagram hypothesis ideas to be either isographic or non-isographic. Among the isographic structures, the cyclic and decentralized systems are characterized. Proportions of system structure, specifically the openness and adaptability in message move, are created. These measures for the fundamental structures are utilized to portray increasingly broad structures.

2.i.) Social participation

Social participation is a lifelong engagement method in a kind of social occupations that enclose interactions and shared experiences with others that contributed to self-made aging and quality of life. Social participation means the involvement of communities in choices concerning their own future.Social participation is defined as an individual's inclusion in social activities that offer collaborations with others in the network (Levasseur*et al*. 2010).

2.j.) Scientific and economic orientation

Scientific orientation is a technique for examination wherein an issue is first distinguished and perceptions, tests, or other pertinent information are then used to build or test theories that imply to unravel it.Economic orientation is a business theory where the attention is on distinguishing client needs or wants and meeting them.

2.k.)Mass media exposure

Mass media refers to a differing exhibit of media advances that contact a huge crowd through mass correspondence. The advances through which this correspondence happens incorporate an assortment of outlets.Mass media transmit information electronically by means of media, for example, films, radio, recorded music, or TV. Computerized media involves both the Internet and portable mass correspondence. Web media involve such administrations as email, online life destinations, sites, and Internet-based radio and TV. Numerous different mass media outlets have an extra nearness on the web, by such methods as connecting to or running TV promotions on the web, or print media to guide versatile clients to a site. Right now, can utilize the simple availability and effort capacities the internet bears, as in this manner effectively communicate data all through a wide range of areas of the world all the while and cost-proficiently. Open air media transmit data by means of such media as AR publicizing; boards; dirigibles; flying announcements (signs close by of planes); bulletins or booths set inside and outside transports, business structures, shops, sports arenas, tram vehicles, or trains; signs; or skywriting. Print media transmit data through physical items, for example, books, funnies, magazines, papers, or flyers. Occasion arranging and open talking can likewise be viewed as types of broad communications.

2.l.) E resource exposure

An Internet-based asset is whatever can be obtained from the World Wide Web. Some example are website pages, email, Facebook, WhatsApp, youtube, information from databases, and web administrations. Web assets have changed since the Internet was first made. Electronic agriculture (e-agriculture) is an approach to promoting agriculture information for development of the agriculture. It is a platform that provides sharing of information for farmers. E agriculture mainly includes the rural electronics, electronic farmers and agricultural electronics (Chunhua and Bo, 2010).

2.m.)KrishiVigyan Kendra (KVK) exposure

Farm Science Centre or KrishiVigyan Kendra (KVK) is an innovative science-based organization in India that embraces professional training of farmers, farm women, and rural youth; leads on-farm research about for innovation refinement and cutting edge showings to expeditiously exhibit the most recent agricultural advancements to the farmers as well as extension agents. The KVK capacities on the standards of the collective interest of researchers, subject matter specialists, extension agents and farmers. The technological socialization process for farm women through KVK has ended up being an extraordinary social procedure. In the principal organize, KVK suits the developments or versatile innovations in the miniaturized scale cultivating framework through a limited working farm woman. It is better marked as an intellectual period of the innovation socialization process.

2.n.) **Social Network:** The social network works at the family level and assumes a focal job in the endurance technique of the rural poor. Such progressions of help and backing work in an unnoticed way,

legitimately, either pair-wise or through middle people in the system. Along this procedure works underneath the surface, staying under the profile, yet consistently, to meet different earnest prerequisites of the day by day life and living that one can't satisfy by one's assets. An interpersonal organization is a lot of individuals or associations or other social elements associated by a lot of social connections, for example, kinship, collaborating or information exchange, and SNA shows social relations as examples of focuses and lines in a scientific space with formal properties that can be dissected with exactness (Crossley *et al*., 2009). The focal point of the request comprises a lot of entertainers and a lot of relations between them (Wasserman and Faust, 1994). SNA has created as a methodology for considering 'social relations 'as opposed to 'singular characteristics' (Burt, 1978). That demonstrates the manners by which individuals are associated through different social familiarities running from easygoing colleagues to close natural securities (Hanneman and Riddle, 2005). It centers around the investigation of examples of connections among individuals, associations, states, and such social elements – both outwardly and numerically (Jamali and Abolhassani, 2006). Social Network analysis examines the structure of connections between social substances (Wasserman and Faust, 1994). These substances are regularly people, yet may likewise be gatherings, associations, country states, sites, or insightful productions. Since the 1970s, the exact investigation of systems has assumed a focal job in sociology, and a large number of the numerical and factual devices utilized for contemplating systems have been first created in human science (Newman, 2010). Among numerous different applications, informal organization examination has been utilized to comprehend the dispersion of advancements, news and gossipy tidbits. So also, it has been utilized to look at the spread of the two sicknesses and wellbeing related practices. It has likewise been applied to the investigation of business sectors, where it has been utilized to analyze the job of trust in return connections and of social instruments in setting costs. Likewise, it has been utilized to consider enrollment into political developments and social associations. The utilization of Social Network Analysis (SNA) is of specific significance for frameworks described by an assortment of actors and decent variety in their sharing of information and additional benefits (Scott and Carrington, 2011). Rural livelihoods, all over the place, is a mind-boggling framework set apart by enormous decent variety out in the open and private actors and incomprehensible assorted variety in their sharing of information and additionally benefits. Additionally, these assorted variety is connected to the large scale real factors (structures and procedures) of a job framework. These should be investigated for educated dynamics in work intercession and institutional rebuilding and changes. Thus, utilization of SNA is of vital significance for rural development as a rule and rural extension benefits specifically. (Anderson and Feder, 2007).

2.o.) Farm women:

Pearson (1979) identified four categories of farm women: 1) Independent producer, 2) Agricultural Partners, 3) Agricultural helper, and 4) Farm homemakers.Farm women characterize as women who have basic leadership control over an arable plot (or plots) of land. These choices may incorporate how to get ready land, sow crops, weed, collect, process and sell the produces (World Bank, 2014).In India farm women are polymorphic work in nature which is extending from child care to crop cultivation, dietary consideration of the family to post-harvesting activity (Kanungo*et al.* 2015).

2.p.) Knowledge

Knowledge is a term that alludes to the accumulation of actualities, information and experience that an individual has gathered for an incredible duration and training that they can utilize and

apply to new beneficial encounters. There are varied varieties of information counting on its functions and its carrier systems, for example, agricultural knowledge, management knowledge, manager knowledge etc. Knowledge varies relying on cultural, social, and economical factors. The type of information individuals have depends on their age, sex, occupation, labor division within the family, enterprise or community, socio-economic status, experience, environment, history, etc. Knowledge will conjointly be seen from the read purpose of coverage and degree of understanding of bound things such as: public knowledge is control by most of the people in a very community; e.g. almost everybody is aware of however to cook rice; shared information is control by several, but not all community members. Knowledge is two types:

Explicit Knowledge: This sort of learning is formalized and systematized and is now and again alluded to as comprehend what (Brown &Duguid, 1998). It is subsequently genuinely simple to recognize, store, and recover (Wellman, 2009).

Tacit Knowledge: This sort of learning was initially characterized by Polanyi in 1966. It is now and then alluded to as ability (Brown &Duguid, 1998) and alludes to natural, difficult to characterize information that is to a great extent experience based. Along these lines, implied information is regularly setting reliant and individual in nature. It is difficult to impart and profoundly established in real life, responsibility, and inclusion (Nonaka, 1994).

3. Material and Methods

3.a.)Study area

The study was conducted on the farm women in sub Himalayan terai region of India. The study was conducted from 2017 to 2020. Cooch Behar district was purposively selected from the region for the study since it has significantly highest share of rural population and sex ratio was low (Economic Review 2011-2012), the socio-economic patterns of the farm women were more or less proportionate with other districts of the North Bengal region, India, Coochbehar district has one farm science centre and one agricultural university. Cooch Behar District lies in the range of 25°57'47" and 26°36'20" north latitude; between 88°47'44" and 89°54'35" east longitude. The District headquarter lies between 26°19'86"N scope and 89°23'53"E longitude. The area of the district is 3387 sq. KMs, which contributes 3.82% of the land mass of the territory of West Bengal. Cooch Behar is basically a level nation with a slight south-eastern slant along which the fundamental waterways of the area stream. The greater part of the high grounds relate to Sitalkuchi area and the vast majority of the marshes lie in Dinhata area. The soil is alluvial of very recent formation. It is mostly sandy and loose. The surface soil is loamy. Total geographical area of the district 3,38,700 ha, gross cropped area 5,72,700 ha and net cropped area 2,54,180. The rivers flow in a slanting way from north-west to south-east. Six river systems cut through the district flowing in a south-easterly direction. From the west to east these are: the Tista, Jaldhaka, Torsa, Kaljani, Raidak and Gadadhar. Some prominent rivers are Dharla, Dudua, Gadadhar, Ghargharia, Jaldhaka, Kaljani, Mansai, Raidak – I, Raidak-II, Sankosh, Teesta and Torsa.

3.b.) Research design

The study made use of both qualitative and quantitative research methods to achieve the objective. The research design adopted for this study was of ex-post facto research design. Ex-post research deign was used since the variables chose for investigation had already resulted in cause and effect relationship. The manifestation of the effect of the independent variables on the dependent variable had already occurred and the researchers, therefore did not manipulate them. In the light of the objectives and scope of the study, decisions were taken on the techniques of investigation, research materials and tools to be used and pattern of statistical analysis to be incorporated.

3.c.) Sampling procedure

This study used a five-stage sampling procedure in which both purposive and simple random sampling techniques were used to select the sample respondents. In the first stage Cooch Behar district was selected purposively. In the second and third stage three numbers of subdivision and one block from each subdivision were selected randomly. In the fourth and fifth stage random sampling methods were used for selection of four numbers of village from each block and 25 numbers of respondents from each village. A total of 300 respondents (n) in the sample were selected for the study. In this way total 12 numbers of villages from 3 numbers of blocks and 3 numbers of sub divisions were selected randomly and from the selected area total of 300 respondents (n, sample) were taken randomly for the study.

3.d.) . A brief description of the selected villages

A. Selected village under Cooch Behar-II block:

a.i) Goplapur: Gopalpur village is situated in Cooch Behar II block of Cooch Behar district (map 1). It is located 8 km away from sub-district headquarter Pundibari and 23 km away from district headquarter Cooch Behar. Gopalpur is the gram panchayat of Gopalpur village. Total geographical area of village is 2005.69 ha. Gopalpur has a total population of 18,297. There are around 3,904 houses in Gopalpur village. Cooch Behar and Alipurduar is the closest town to Gopalpur which is about 25 km and 23 km away (Census report, Govt. of India, 2011).

a.ii) MaranadirKuthi: MaranadirKuthi village is situated in Cooch Behar II Block of Cooch Behar district (map 2). It is situated 10 km away from sub-district headquarter Pundibari and 5 km away from district headquarter Cooch Behar. Dhangdhinguri is the gram panchayat of MaranadirKuthi. Total geographical area of village is 300.7 ha. MaranadirKuthi has a total population of 3,074. There are around 692 houses in MaranadirKuthi. Cooch Behar is closest town to MaranadirKuthi which is about 5 km away (Census report, Govt. of India, 2011).

a.iii) Khagribari: Khagribari village is situated in Cooch Behar II block of Cooch Behar district (map 3). It is located 10 km away from sub-district headquarter Pundibari and 25 km away from district headquarter Cooch Behar. Patlakhawa is the gram panchayat of Khagribari. Total geographical area of the village is 730.12 ha. Khagribarihas a total population of 6,226. There are around 1,413 houses in Khagribari village. Cooch Behar is closest town to Khagribari which is about 25 km away (Census report, Govt. of India, 2011).

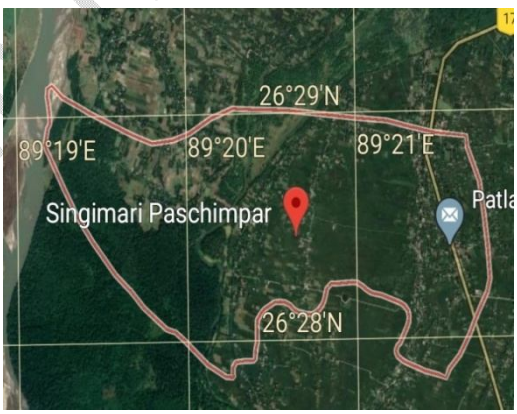
a.iv) SingimariPaschimpar: SingimariPaschimpar village is situated in Cooch Behar II block of Cooch Behar district (map 4). It is located 13 km away from sub-district headquarter Pundibari and 28 km away from district headquarter Cooch Behar. Patlakhawa is the gram panchayat of SingimariPaschimpar village. Total geographical area of village is 649.57 ha. SingimariPaschimpar has a total population of

4,545. There are around 1,033 houses in SingimariPaschimpar. Cooch Behar is closest town to SingimariPaschimpar which is around 28 km away (Census report, Govt. of India, 2011).

Map 1: Gopalpur village
(Source: Google earth, 2018)

Map 2: Maranadirkuthi village
(Source: Google earth, 2018)

Map 3: Khagribari village
(Source: Google earth, 2018)



Map 4: SingimariPaschimpar village
(Source: Google earth, 2018)

B. Selected village under Dinhata-II block:

b.i) HokadahaPrathamKhanda: HokadahaPrathamKhanda village is situated in Dinhata II block of Cooch Behar district (map 5). It is located 12 km away from sub-district headquarter Sahebganj and 40 km away from district headquarter Cooch Behar. KishamatDasgram is the gram panchayat of

HokadahaPrathamKhanda. Total geographical area of village is 385.91 hectares. HokadahaPrathamKhanda has a total population of 3,134. There are around 807 houses in HokadahaPrathamKhanda. Dinhata is closest town to HokadahaPrathamKhanda which is around 13 km away (Census report, Govt. of India, 2011).

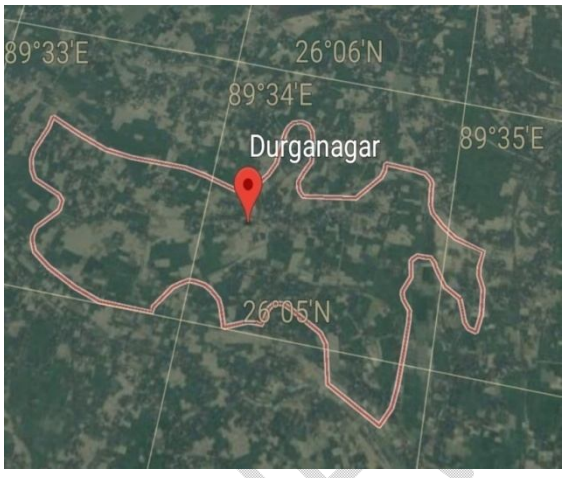
b.ii) Joygopalganj: Joygopalganj village is situated in Dinhata II block of Cooch Behar district (map 6). It is located 10 km away from sub-district headquarter Sahebganj and 38 km away from district headquarter Cooch Behar. KishamatDasgram is the gram panchayat of Joygopalganj. Total geographical area of village is 66.82 ha. Joygopalganj has a total population of 396. There are around 104 houses in Joygopalganj. Dinhata is closest town to Joygopalganj which is around 18 km away (Census report, Govt. of India, 2011).

b.iii) KismatMokarari: KismatMokarari village is situated in Dinhata II block of Cooch Behar district (map 7). It is located 15 km away from sub-district headquarter Sahebganj and 34 km away from district headquarter Cooch Behar. GobraChharaNayarhat is the gram panchayat of KismatMokarari. Total geographical area of village is 147.11 ha. KismatMokarari has a total population of 1,974. There are around 465 houses in KismatMokarari. Dinhata is closest town to KismatMokarari which is around 10 km away (Census report, Govt. of India, 2011).

b.iv) Durganagar: Durganagar village is situated in Dinhata II block of Cooch Behar district (map 8). It is located 7.5 km away from sub-district headquarter Sahebganj and 40.5 km away from district headquarter Cooch Behar. Bamanhat I is the gram panchayat of Durganagar. Total geographical area of village is 440.3 ha. Durganagar has a total population of 2,191. There are around 586 houses in Durganagar. Dinhata is closest town to Durganagar which is roughly 15 km away (Census report, Govt. of India, 2011).

Map 5: HokadahaPrathamKhanda village (Source: Google earth, 2018)

Map 6: Joygopalganj village (Source: Google earth, 2018)

	
Map 7: KismatMokarari village (Source: Google earth, 2018)	**Map 8: Durganagar village (Source: Google earth, 2018)**

C. Selected village under Mathabhanga-II block:

c.i) UnishBisha: UnishBisha village is situated in Mathabhanga II block of Cooch Behar district (map 9). It is located 4.5 km away from sub-district headquarter Bhogmara and 27 km away from district headquarter Cooch Behar. Unishbisha is the gram panchayat of UnishBisha village. Total geographical area of village is is 389.64 ha. UnishBisha has a total population of 8,818. There are around 1,963 houses in UnishBisha. Mathabhanga is closest town to UnishBisha which is roughly 25 km away (Census report, Govt. of India, 2011).

c.ii) Lotapota: Lotapota village is situated in Mathabhanga II block of Cooch Behar district (map 10). It is located 29 km away from sub-district headquarter Bhogmara and 34 km away from district headquarter Cooch Behar. Latapota is the gram panchayat of Lotapota village. Total geographical area of village is 755.14 ha. Lotapota has a total population of 6,587. There are around 1,559 houses in Lotapota. Mathabhanga is closest town to Lotapota which is roughly 29 km away (Census report, Govt. of India, 2011).

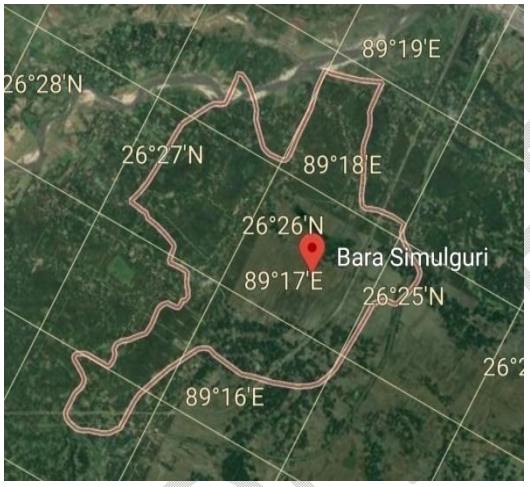
c.iii) Bara Simulguri: Bara Simulguri village is situated in Mathabhanga II block of Cooch Behar district (map 11). It is located 11 km away from sub-district headquarter Bhogmara and 24 km away from district headquarter Cooch Behar. Ghoksardanga is the gram panchayat of Bara Simulguri. Total geographical area of village is 1058.53 ha. Bara Simulguri has a total population of 11,466. There are around 2,599 houses in Bara Simulguri. Mathabhanga is closest town to Bara Simulguri which is around 25 km away (Census report, Govt. of India, 2011).

c.iv) Ramthenga: Ramthenga village is situated in Mathabhanga II block of Cooch Behar (map 12). It is arranged 28 km away from sub-area headquarter Bhogmara and 39 km away from locale headquarter Cooch Behar. Ruidanga is the gram panchayat of Ramthenga village. The all out geological region of village is 720.28 hectares. Ramthenga has a total population of 6,269. There are around 1,394 houses in

Ramthenga. Mathabhanga is closest town to Ramthenga which is around 30 km away (Census report, Govt. of India, 2011).

Map 9: UnishBisha village (Source: Google earth, 2018)

Map 10: Lotapota village (Source: Google earth, 2018)



Map 11: Bara Simulguri village (Source: Google earth, 2018)

Map 12: Ramthenga village (Source: Google earth, 2018)

3.e.)Statistical tools

The important statistical measures that were used to analyses the research data included mean, standard deviation, coefficient of variation, range, pair wise ranking, social networking analysis, correlation coefficient and stepwise multiple regression. Information network output of the farm women were analysis through SAS and SPSS 21.

3.f.) Data collection Methods

Data collected for this research were both quantitative and qualitative in nature. For this, both primary and secondary information sources were utilized. The primary information sources

were the farm women in the study area. Primary and secondary information had been gathered as per the objective of the investigation. Data had been gathered through structured interview schedule. Secondary data sources were published and unpublished reports, records of *panchayat* office, district agricultural department, farm science centre, published research paper, review paper, newspaper coverage and others official report. The sources of qualitative data were key informants, assistant director of agriculture, farm science centre, university, village leaders, NGO workers, farmers club and SHGs.

3.g.) Variable and their measurement

The dependant variable of the study is the Agricultural information Network output in terms of knowledge gained by the respondents. Knowledge may define as "those behaviors and test situations which emphasize remembering by recall of ideas, material or practices" (Bloom *et al*., 1956). The independent variables this study are age, educational level, type of family, marital status, annual income, association with different organization, social participation, cosmopoliteness, land holding, crop grown, cropping intensity, water resources, farming experience, irrigated area, material possession, livestock possession, scientific orientation, economic orientation, communication skill, mode of information preservation, mass media exposure, e resources exposure, farm science centre exposure, sources of farm information, information seeking behaviour, information exchange and actors, attitude of farm women towards FSC scientist and decision making ability. The suitable questions were framed to invoke responses from the farm women about the selected salient features.

4. Results and Discussion:

4.a.)Information networks development of the farm women

i) Social participation: The diagram 1 shows that the network diagram has one important node, other members of the network are connected with this node .The size of the node of the network represent their betweeness centrality within the network. According to diagram 1the social participation of farm women were more in case of member of SHG.

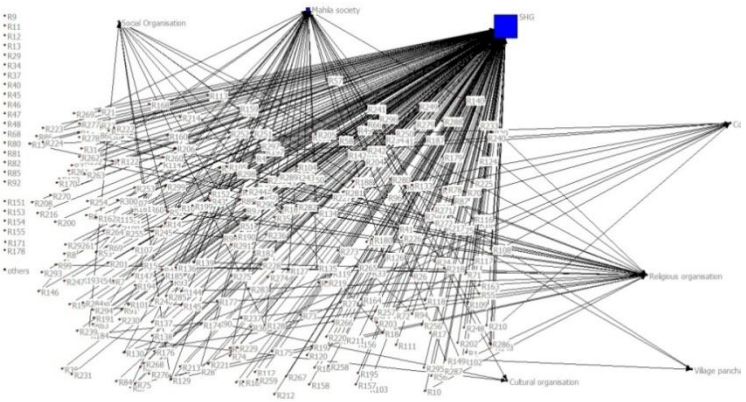


Diagram 1: social participation

ii) Cosmopoliteness: The diagram 2 shows that the network diagram has six important nodes, other members of the network are connected with this five nodes .The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 2 the mobility of the farm womenwere higher in case of panchayat office, nearest town, KVK, regulated market/kisanmandi, nearest city and post office.

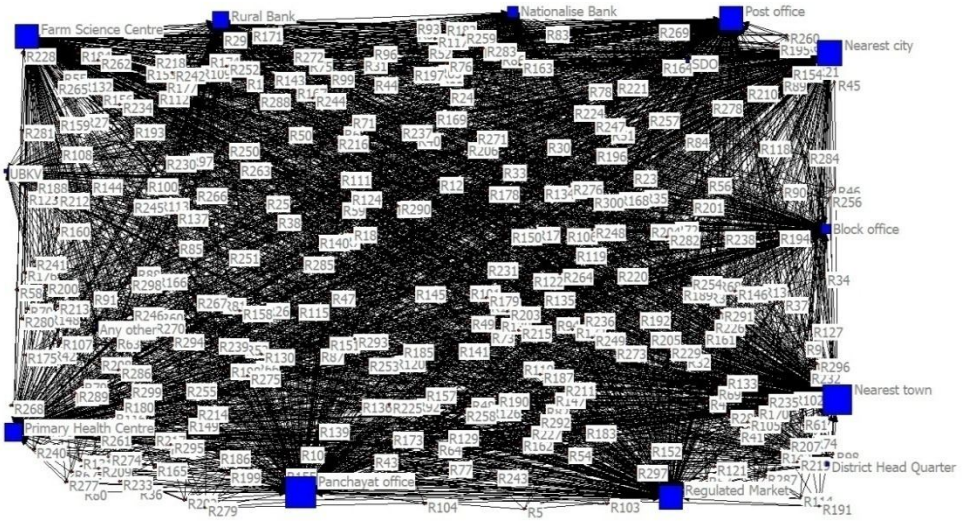


Diagram 2:Cosmopoliteness

iii) Source of Farm information (Professional): The diagram 3 shows that the network diagram has four important nodes, other members of the network are connected with this four nodes .The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 3 majority of the farm women received farm information from farmers club/FPO, SMS of KVK, ADA and SHG.

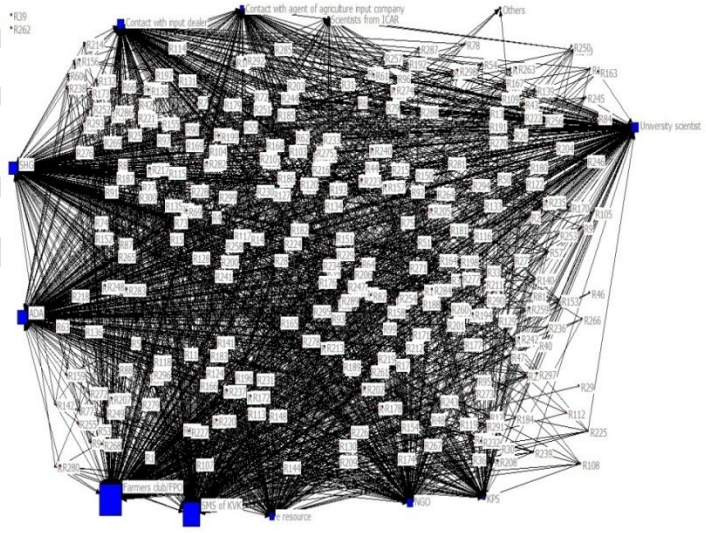


Diagram 3: Source of farm information (professional)

iv) Source of Farm information (informal): The diagram4 shows that the network diagram has three important nodes, other members of the network are connected with this three nodes .The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 4 sources of informal farm information were higher in case of discussion with fellow farmers, training programme and GD & meeting.

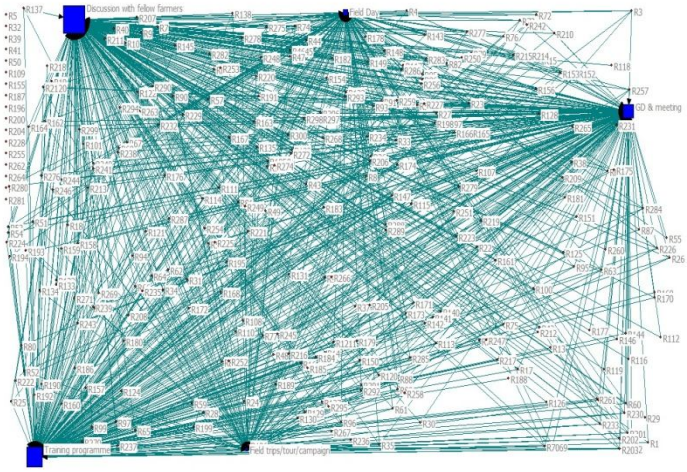


Diagram 4: Source of farm information (informal)

v) Mass media exposure: The diagram5 shows that the network diagram has three important nodes, other members of the network are connected with this three nodes .The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 5 the mass media exposures of the farm women were higher in case of mobile phone, TV and exhibition.

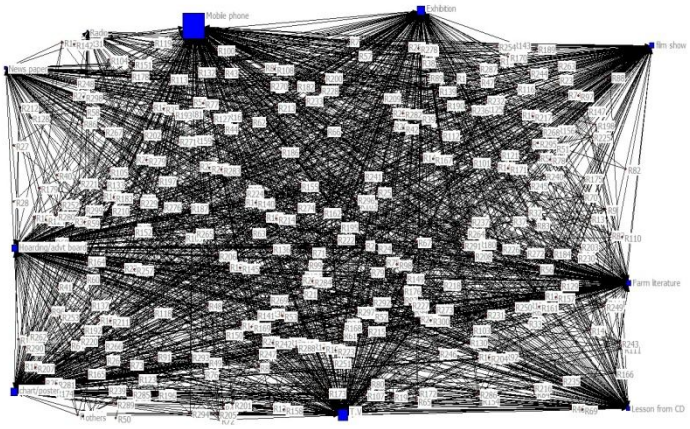


Diagram 5: Mass media exposure

vi) E resource exposure: The diagram 6 shows that the network diagram has one important node, other members of the network are connected with this node. The size of the node of the network represent their betweeness centrality within the network. According to diagram e resource exposure of the farmwomen was higher in case of mobile apps.

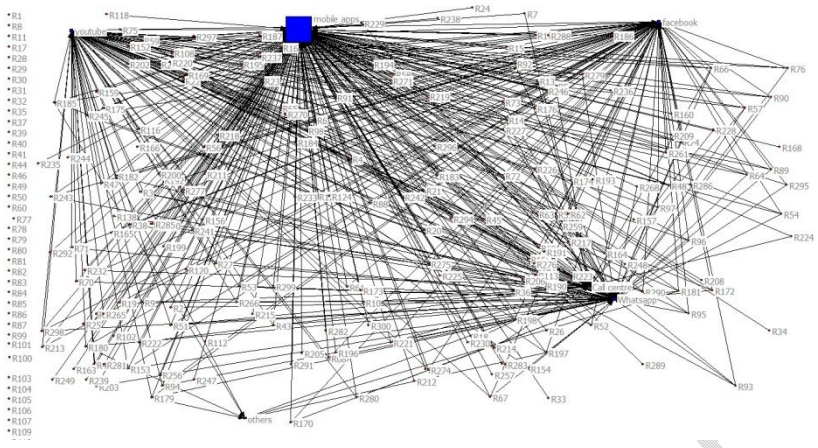


Diagram 6: e resource exposure

vii) Respondents visit the farm science centre: The diagram7 shows that the network diagram has one important node, other members of the network are connected with this node. The size of the node of the network represent their betweeness centrality within the network. According to diagram 7 majorities of the farmwomen visited the farm science centre whenever problems occur.

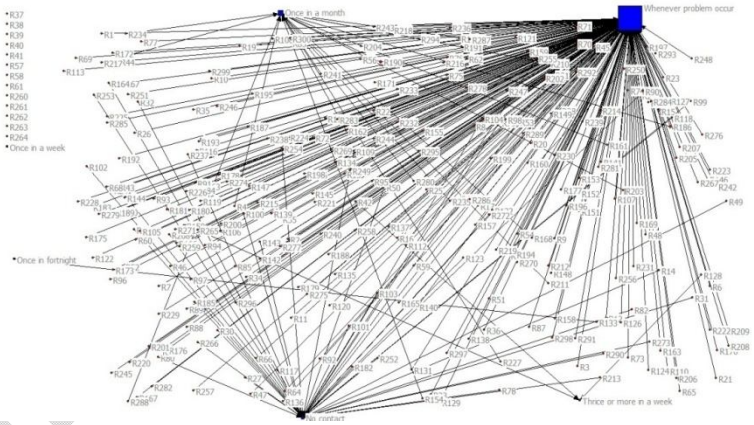


Diagram 7: Respondents visit the farm science centre

viii) Purpose of visit in the farm science centre: The diagram8 shows that the network diagram has two important nodes, other members of the network are connected with this two nodes. The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 8majority of the farm women visited the farm science centre for training and farm information purpose.

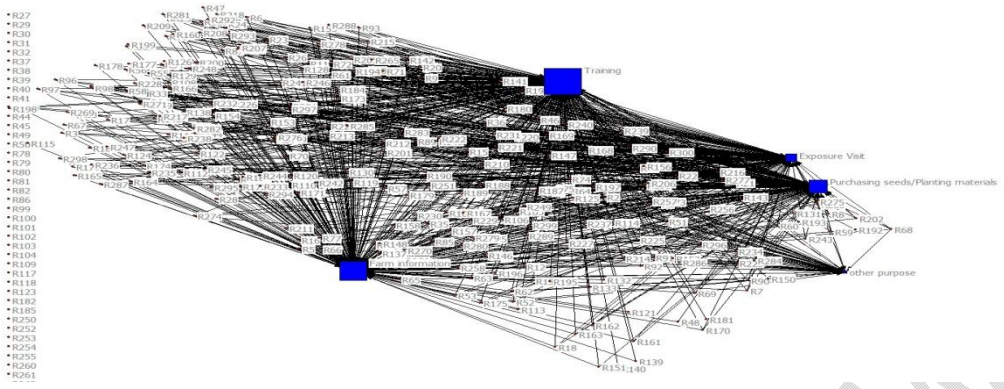


Diagram 8: Purpose of visit in the Farm Science Centre

ix) Types of service received from farm science centre (FSC): The diagram 9 shows that the network diagram has two important nodes, other members of the network are connected with two nodes. The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 9 majority of the farm women received training and technical support from FSC.

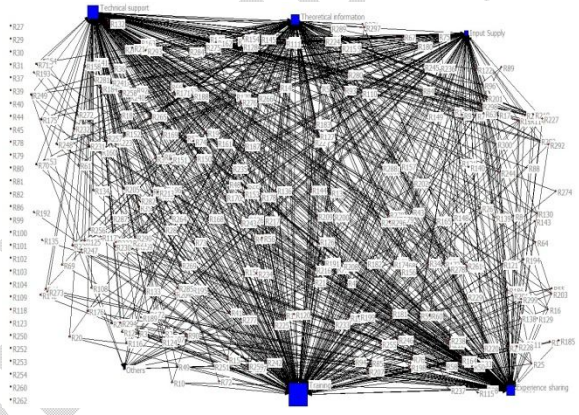


Diagram 9: Types of service received from FSC

x) Information exchange and actors: The diagram10 shows that the network diagram has five important nodes, other members of the network are connected with this five nodes .The size of the nodes of the network represent their betweeness centrality within the network. According to diagram 10 information exchange of the farm women were higher incase of knowledgeable person in village, knowledgeable person in family, nearest fertilizer and pesticide dealer, farmers club and nearest agriculture department.

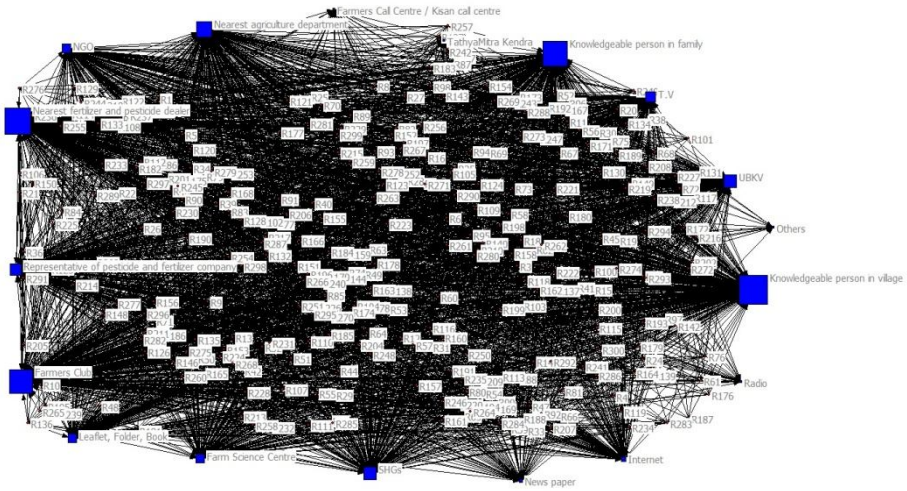


Diagram 10: Information exchange and actors

4.b) Role of farm science centre on knowledge development among the farm women

Farm science centre play an important role of knowledge and skill development of the farm women. It is observed from the table 1 that knowledge of the farm women were more in case of "cropping system" followed by "modern method of paddy cultivation", "custom hiring centre", "improved crop variety", "extension organization", "harmful pest", "off season vegetable crops" and "benefit of vermi compost". It is also observed from the table 1 that knowledge of the farm women was least in case of "edible mushroom" followed by "green manuring crops", "mobile phone based agricultural information" and "post harvest management".

Table 1: Agricultural information network pattern of the farm women.

n=300

Sl. No.	Knowledge of Agricultural practices	Extent of Knowledge			Mean score	Rank
		Very Good	Good	Poor		
		f	*f*	*f*		
1	Cropping system	244	55	01	2.81	I
2	Knowledge on improved crop variety	162	122	16	2.49	IV
3	Knowledge on harmful pest	160	92	48	2.37	VI
4	Treatment of seed and planting materials	63	182	55	2.03	XII
5	Knowledge on custom hiring centre	180	94	26	2.51	III
6	Pesticide knowledge	102	149	49	2.17	IX
7	Post harvest management	43	196	61	1.93	XVII
8	Benefit of vermi compost	104	154	42	2.21	VIII
9	Used of crop residue	89	159	52	2.12	X

10	Knowledge on off season vegetable crops	126	117	57	2.22	VII
11	Mobile phone based agricultural information	48	178	74	1.91	XVIII
12	Knowledge on extension organisation	160	107	33	2.42	V
13	Fodder crops	65	176	59	2.02	XIII.V
14	Plant propagation techniques	64	176	60	2.01	XV
15	Edible mushroom	35	147	118	1.72	XX
16	Green manuring crops	48	174	78	1.89	XIX
17	Modern method of paddy cultivation	186	86	28	2.53	II
18	Sustainable agriculture	52	189	59	1.98	XVI
19	stored grain pest	78	149	73	2.02	XIII.V
20	Food processing	65	190	45	2.06	XI

Minimum score: 1 , Maximum score: 3, (Score: Very Good=3, Good=2, Poor=1)

It is observed from the table 2 that agriculture information network output (knowledge) of the farm women were good (45.33%) followed by very good (38.67%). It is also observed that very less percentage of the farm women knowledge level were poor (16%). The coefficient of variation value within the distribution 17.20% implies that there exists a high consistency level of the distribution for the variable knowledge of farm women. It is exposed from the study that knowledge level of the farm women were good followed by very good. This finding is line with the results found by More (1997), Sharma *et al.* (1997), Deo*et al.* (2010) and Sharma *et al.* (2013).

Table 2: Distribution of respondent according to the level of agriculture information network output (knowledge)

n=300

Category	Score	Frequency	Percentage	Statistics
Poor	22 to 34.66	48	16	SD= 7.48
Good	34.67 to 47.33	136	45.33	CV= 17.20%
Very Good	47.34 to 60	116	38.67	

4.c.) Factors influencing the agricultural information networks output of the farm women:

It is revealed from the table 3thatthere exist a positive and significant association between the agricultural information networks output of the farm women and the variables educational level, type of family, annual income, water resources, farming experience, livestock possession, material possession, association with different organisation, social participation, cosmopoliteness, economic orientation, communication skill, mode of information preservation, mass media exposure, e resource exposure, farm

science centre exposure, source of farm information, information seeking behaviour, information exchange, participation of FSC programme, attitude of the farm women towards FSC scientist and decision making ability. The rest of the variables i.e age, occupation, landholding, crop grown, cropping intensity and scientific orientation had no significant association with the agriculture information network output of the farm women.

Table 3: Correlation between selected traits of the farm women with the agricultural information network output

n=300

Sl. No.	Variables	'r'
1.	Type of family	.160**
2.	Age	-.002
3.	Educational Level	.165**
4.	Annual Income	.179**
5.	Land holding	.070
6.	Water resources	.144*
7.	crop grown	.100
8.	cropping intensity	.022
9.	Irrigated area	.731**
10.	Farming experience	.132*
11.	Material possession	.623**
12.	Livestock possession	.659**
13.	Association with different organization	.253**
14.	Cosmopoliteness	.355**
15.	Economic orientation	.173**
16.	Scientific orientation	.008
17.	Social participation	.255**
18.	Communication skill	.550**
19.	E resources exposure	.148*
20.	Mass media exposure	.608**
21.	Mode of information preservation	.197**
22.	Sources of Information	.517**
23.	Information seeking behaviour	.255**
24.	Participation of FSC programme	.602**
25.	Farm Science Centre exposure	.476**
26.	Attitude of the farm women towards FSC scientist	.515**
27.	Information exchange	.550**
28.	Decision making ability	.390**

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Determining the predictors of agricultural information network of farm women.

It is indicated from the table 4 that the multiple correlation coefficient (R=0.840) (Model summary: Model 10) relationship between agricultural information network output of the farm women in terms of knowledge and continuous independent variable is quite strong and positive. The regression output of the study indicates that 70.51% variability of the dependent variable i.e. agricultural information network output of the farm women in terms of knowledge was significantly influenced by livestock possession (x17), material possession (x18), participation of FSC programme (x33), communication skill (x24), attitude of the farm women towards FSC scientist (x34), mass media exposure (x26), e resources exposure (x27), decision making ability (x35), type of family (X5) and occupation (x10). It is found from the summery of stepwise selection (Table 5) that the out of 12 factors considered in the model, only up to 10 factors found to be significantly influencing on farm women agricultural information network output in terms of knowledge at 0.05 levels of significance. These variable includes livestock possession (x17), material possession (x18), participation of FSC programme (x33), communication skill (x24), attitude of the farm women towards FSC scientist (x34), mass media exposure (x26), e resources exposure (x27), decision making ability (x35), type of family (X5) and occupation (x10).It is observe from the table 6 that VIF is less than 5 in case of all the selected variables. So it is revealed that there is no any multicollinearity among the variables selected for stepwise regression analysis.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.659[a]	.434	.432	5.76917
2	.752[b]	.566	.563	5.06109
3	.785[c]	.617	.613	4.76500
4	.803[d]	.646	.641	4.58996
5	.818[e]	.669	.663	4.44623
6	.825[f]	.680	.673	4.37562
7	.830[g]	.689	.682	4.31886
8	.833[h]	.695	.686	4.28913
9	.837[i]	.701	.692	4.25312
10	**.840[j]**	.705	.695	4.23004

a. Predictors: (Constant), X17

b. Predictors: (Constant), X17, X18

c. Predictors: (Constant), X17, X18, X33

d. Predictors: (Constant), X17, X18, X33, X24

e. Predictors: (Constant), X17, X18, X33, X24, X34

f. Predictors: (Constant), X17, X18, X33, X24, X34, X26

g. Predictors: (Constant), X17, X18, X33, X24, X34, X26, X27

h. Predictors: (Constant), X17, X18, X33, X24, X34, X26, X27, X35

i. Predictors: (Constant), X17, X18, X33, X24, X34, X26, X27, X35, X5

j. Predictors: (Constant), X17, X18, X33, X24, X34, X26, X27, X35, X5, X10

Dependent variable: Y (agricultural information network output)

Independents variables:x17 (livestock possession), x18 (material possession), x33 (Participation of FSC programme), x24 (Communication skill), x34 (attitude of the farm women towards FSC scientist), x26 (Mass media Exposure), x27 (E resources exposure), x35 (decision making ability), x5 (type of family), x10 (occupation).

Number of observations read 300**, Number of observations used** 300

Table 5. Summary of Stepwise Selection

Step	Variable Entered	Variable Removed	Number Vars In	Partial R-Square	Model R-Square	C(p)	F Value	Pr > F
1	x17		1	0.4343	0.4343	255.708	228.77	<.0001
2	x18		2	0.1318	0.5661	129.166	90.22	<.0001
3	x33		3	0.0506	0.6167	81.8375	39.06	<.0001
4	x24		4	0.0288	0.6455	55.7047	24.01	<.0001
5	x34		5	0.0230	0.6685	35.2931	20.38	<.0001
6	x26		6	0.0115	0.6800	26.0420	10.56	0.0013
7	x27		7	0.0093	0.6894	18.9614	8.75	0.0033
8	X35		8	0.0053	0.6947	15.7817	5.06	0.0252
9	x5		9	0.0061	0.7008	11.7957	5.95	0.0153
10	x10		10	0.0043	**0.7051**	9.6430	4.17	0.0420
11	x23		11	0.0030	0.7080	8.7599	2.92	0.0888
12	x32		12	0.0060	0.7140	4.9428	5.99	0.0150

Table 6: Multicollinearity test among the variables considered in model 12 stepwise regression analysis

Parameter Estimates						
Variable	**DF**	**Parameter**	**Standard**	**t Value**	**Pr > |t|**	**Variance**

		Estimate	Error			Inflation
Intercept	**1**	12.93866	3.20207	4.04	<.0001	0
x5	**1**	1.31042	0.59269	2.21	0.0278	1.47141
x10	**1**	0.36546	0.18866	1.94	0.0537	1.11708
x17	**1**	1.83995	0.32898	5.59	<.0001	2.07761
x18	**1**	1.05606	0.16607	6.36	<.0001	1.56363
x23	**1**	-0.39504	0.15881	-2.49	0.0134	1.68576
x24	**1**	0.29533	0.07264	4.07	<.0001	1.96547
x26	**1**	0.30725	0.11925	2.58	0.0105	2.53019
x27	**1**	-0.34724	0.10255	-3.39	0.0008	1.75777
x32	**1**	0.04905	0.02008	2.44	0.0152	2.94720
x33	**1**	0.68638	0.19966	3.44	0.0007	1.89955
x34	**1**	0.09740	0.05224	1.86	0.0633	1.83876
X35	**1**	0.24539	0.10351	2.37	0.0184	1.41622

*If VIF is > 5 multicollinearity exists

It is shown from the figure 1 of Residuals vs Predicted diagram that residuals were equally spread around the horizontal line without distinct patterns. So, it's is revealed that there is no any non-linear relationships in the regression model. It is shown from the Residual-Quantile diagram (figure 1) that residuals are normally distributed and the residuals follow a straight line well. From the R student versus Predicted value or Spread-Location plot observed that the residuals are spread equally along the ranges of predictors and a horizontal line with equally (randomly) spread points shown in the diagram (figure 1). From Residuals vs Leverage and cook's distance versus observation diagram (figure 1) shown that there are no influential cases and all cases are well inside of the Cook's distance lines. From fitted value (y) versus predicted value scatter (figure 1) it can be seen that majority of the data points fall exactly on the estimated regression line. So, it is revealed that residual errors are less in the regression model. Percent versus Residual diagram (figure 1) presents a histogram of standardized residuals from the multiple regression analysis. It can see that the residuals are approximately normal indicating the satisfaction of the normality assumption. In the R-F spread plot (Fit-Mean versus residual proportion diagram) for the model (figure 1), the left-hand plot is taller than the right-hand plot which indicates that the residual values have a smaller spread but the right tail of the residual distribution is skewed. This shows that there was some of variation that is not explained by the model.

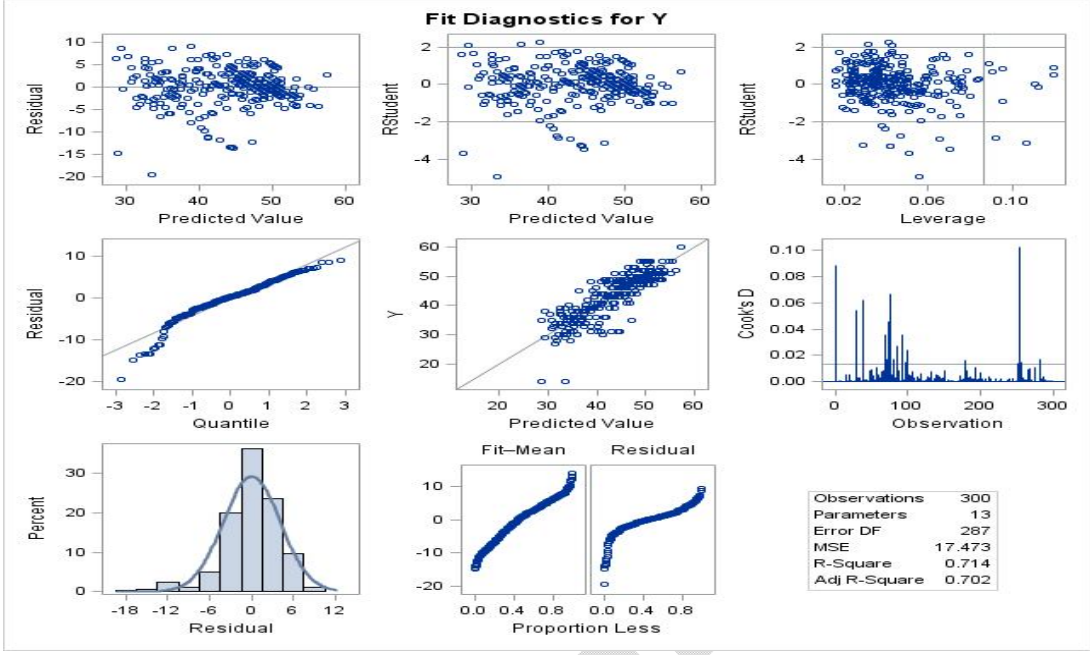


Figure 1: Diagnostic Plots for Linear Regression Analysis

5. Conclusion:

It is concluded from the study that social participation of farm women was highest in case of member of SHGs (Self Help Groups), Mobility of the farm women were higher in case of *panchayat* office, nearest town, KVK, regulated market/*kisanmandi*, nearest city and post office. Majority of the farm women received farm information from farmers club/FPO, subject matter specialist of KVK, Assistant Director of Agriculture and SHG. Sources of informal farm information of the female farmers were higher in case of discussion with fellow farmers, training programme and group discussionand meeting. Mass media exposure of the farm women was higher in case of mobile phone, TV and exhibition. E-resource exposure of the farm women was higher in case of mobile apps. Farm women visit the farm science centre whenever problems occur. It is revealed from the study that majority of the farm women visited the farm science centre for training and farm information purpose. Majority of the farm women received training and technical support from the FSC. Information exchange of the farm women were higher in case of knowledgeable person in village, knowledgeable person in family, nearest fertilizer and pesticide dealer, farmers club and nearest agriculture department. So far as agriculture information network output is concerned majority of the respondents knowledge were more in case of cropping system followed by modern method of paddy cultivation, custom hiring centre, improved variety, extension organization, harmful pest, off season vegetable crops, benefit of vermi compost, pesticide knowledge, used of crop residue, food processing, treatment of seed and planting materials, stored grain pest, fodder crops, plant propagation techniques, sustainable agriculture, post harvest management, mobile phone based agricultural information, green manuring crops and edible mushroom. Agriculture information network output (knowledge) level of the farm women was good followed by very good.It is revealed from the study that

there was a exist a positive and significant association between the agricultural information networks output of the farm women and the variables educational level, type of family, annual income, water resources, farming experience, livestock possession, material possession, association with different organisation, social participation, cosmopoliteness, economic orientation, communication skill, mode of information preservation, mass media exposure, e resource exposure, farm science centre exposure, source of farm information, information seeking behaviour, information exchange, participation of FSC programme, attitude of the farm women towards FSC scientist and decision making ability. The rest of the variables i.e age, occupation, landholding, crop grown, cropping intensity and scientific orientation had no significant association with the agriculture information network output of the farm women. It is also concluded from the study a group of independents variables livestock possession, material possession, participation of FSC programme, communication skill, attitude of the farm women towards FSC scientist, mass media exposure, e resources exposure, decision making ability, type of family andoccupationinfluence more than 70% of the variability of the dependent variable agricultural information network output in terms of knowledge of the farm women. So, it is very essential for taking consideration above mentioned variable before implementation of any farm women orientated programme. It is revealed from the study that the residual errors were less in the regression model and there was some of variation that is not explained by the model.

6. Policy recommendation and future scope of the study:

Agricultural systems in developing countries are becoming knowledge intensive and the value of information is increasing considerably (Babu*et al.*, 2010). In the last decade, there was a general shift in agricultural extension approach from linear technology transfer model to pluralistic innovation system involving multiple agencies (Garforth, 2011). Agricultural innovation system perspective widely promoted in the works of Hall and Clark (1995), Hall *et al.*, (2003) defines innovation as a process where farmers and other actors come together for developing technology and institutional arrangements. This gives way to the network of actors for agricultural information dissemination. These networks are formed by connection of different stakeholders and different agents with different roles in these networks. The members of the network are creators or intermediaries who facilitate the flow of information and sometimes they also utilize the information themselves creating a knowledge network.Information and knowledge networks are least explored in the agricultural dissemination process. It is an established fact that networks are heterogeneous and complex across the districts of North Bengal. This should be accounted for while designing extension strategies. Farmers as well as extension personnel may have ideas on how farm information flows in a network. Extension personnel may get sensitized regarding the key roles of farm women as well as resource poor farmers in the dissemination process. This can be used as an important strategy to speed up the adoption process and targeting the most important actors in the network. This also have relevance in prioritizing the investment on developing certain nodes of the network or strengthening the weaker needs to improve efficiency.

Understanding these networks provides a platform for introducing the improved farm technologies and getting connected to wider group of farming communities. The understanding of the structure of the networks could be am entry point for technological interventions or government programmes and policies that aim towards reaching the farmers in most efficient and effective manner. This research work would

be of immense help in increasing the efficiency of communication networks among farm women. The research work would play an important guidelines in how to expand the information network in the field of agriculture through Farm Science Centre. This study would be useful for the practice in the field of agriculture in the coming days and would be act as a reference for the extension of agricultural technology on a large scale in shorter time. This study will serve as an important reference for policy-makers, agriculture scientists, researchers and extension personnel.

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