

## Analysis of the Networking Structure of Farm Women in a Social System

Ganesh Das and Sarthak Chowdhury

*Department of Agricultural Extension, Palli Siksha Bhavana, Visva-Bharati, Sriniketan, Birbhum 731 236, West Bengal, India*

**KEYWORDS** Communication. Farm Women. Information. Networking System. Social Participation.

**ABSTRACT** Farm women need different types of farm information due to higher engagements in agriculture. It is observed from various studies that majority of the farm women were under low social participation and cosmopolitanism level. So, on the basis of the findings, a study was conducted to identify the farm women participation, association and cosmopolitanism with different organisations and to analysis their networking structure in a social system. The study was conducted in Cooch Behar district of West Bengal with the help of ex-post facto research design. It was found from the study that majority of the farm women were associated with one organisation and regularly involved in self-help groups. It was found from the study that the *panchayat* office, nearest town, *kisan mandi*, *Krishi Vigyan Kendra*, nearest city and the post office play important roles for networking the farm women.

### INTRODUCTION

A social network is a social structure comprising of different types of social actors, sets of dyadic ties and other social cooperation between actors. Chowdhury and Bose (2014) reported that social participation positively affects access to agricultural information by the farm women. Information is one of the most significant contributions for employment and communication networks assume a significant job in sharing this information in rural society. Productive progression of information identified with cultivating guarantees that social learning process in the network gets moving and brings about the adoption of innovations (Haldar et al. 2016). The social network works within and outside the social system and accepts a central activity in the resolution policy of the rural poor. Informal communities, in this sense, give a strategy of advantage willingness from those with whom one needs to position affiliation. It is based on the examination of instances of associations among people, associations, states, and such social components – both apparently and numerically (Jamali and Abolhassani 2006; Misra et al. 2014). With the developing volume of ap-

plied accurate works with Social Network Analysis (SNA), experts have found it reasonably successful in thinking about complex systems, be it characteristic or human-managed. The use of Social Network Analysis (SNA) is of explicit hugeness for structures depicted by a display of actors and better than average collection in their distribution of information (Scott and Carrington 2011; Misra et al. 2014). A social network gives a lot of strategies for dissecting the structure of entire social substances just as a collection of hypotheses clarifying the examples saw in these structures (Wasserman and Faust 1994). A communication network comprises of interconnected people who are connected by the deliberate series of information, and its investigation recognises the communication structure in the system (Rogers and Kincaid 1981). Rural women need different types of farm information due to higher engagements in agriculture. It was found from various studies that a larger part of the farmers and farm women had low and medium degree of social participation and cosmopolitanism (Nayak 1995; Deshmukh et al. 2003; Ajotikar 2006; Kikon 2010; Sunil and Manjula 2010; Waman 2010; Rudroju 2013; Haldar 2014; Nayak 2015; Rizal 2016; Dash 2017). Farm women network with large numbers of formal and informal organisations for training, information sharing, information seeking, information exchange, decision making, financial planning, extension programme, family planning, child care, educational

---

\*Address for correspondence:

Mr. Ganesh Das

Ph.D. Research Scholar

E-mail: ganesh.ext@gmail.com

development, health awareness, food processing, home management, nutritional development, social security and others purposes. But the mobility, involvement and contact of farm women may vary according to the type of organisation. So it is very important to know the strong social networking actor in a social system for diffusion agricultural information to the farm women in a short time. Hence a study was needed to analyse the networking structure of farm women in the social system for the diffusion of agricultural information.

The objective of the study was to identify the farm women participation, association and cosmopolitanism with different organisations and to analysis their networking structure in a social system.

### METHODOLOGY

The study was conducted on the farm women of North Bengal in the northern part of West Bengal, India. The study was conducted from September 2017 to February 2020. The research design was followed in the study was ex-post facto research design. Ex-post research design was used since the variables selected for the study had already resulted in cause and effect relationship. Cooch Behar district was purposively selected for the study since it has significantly highest share of rural population and sex ratio was low (Economic Review 2011-2012) and the socio-economic patterns of the farmers were more or less proportionate with other districts of North Bengal. This study used a five stage sampling procedure in which both purposive (non-probabilistic sampling) and simple random sampling techniques (probabilistic sampling) 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 twelve numbers of village from three block and 25 numbers of respondents from each village. A total of 300 respondents (n) in the sample were selected for the study. The level of participation and cosmopolitanism were described in a quantitative terms and the extent of participation and cos-

mopolitanism was described in a qualitative terms. The important statistical measures that were used to analyse the research data included frequency, percentage, range, mean, standard deviation, coefficient of variation. Social networking of the farm women was analysed using the UCINET 6 software.

## RESULTS AND DISCUSSION

### Association with Different Organisations

It is observed from the study (Table 1) that majority of the farm women were associated with one organisation (48.66%) followed by being an office bearer in one organisation (32.33%) and associated with more than one organisation (9.00%), while the least percentage of respondents (0.66%) were office bearers in more than one organisation along with holding distinctive features (*panchayat* leader). It is also observed from the study that 8.66 percent of respondents did not hold any membership of an organisation. This finding is in line with the result found by Meena (2002) and Jadhav (2011) but not with the study reported by Sonkamble (2000) and Sawsakde (2001).

**Table 1: Distribution of respondents according to association or membership in different organisations (n=300)**

S. No.	Social participation	Number	Percentage
I	No membership	26	8.66
II	Member in one organisation	146	48.66
III	Member in more than one organisation	27	9.00
IV	Office bearer in one organisation	97	32.33
V	Office bearer in more than one organisation	2	0.66
VI	Distinctive features ( <i>Panchayat</i> leader, <i>MLA</i> and <i>MP</i> )	2	0.66

It is found from the study (Table 2) that the level of association of the farm women with the different organisations was low (57.33%) followed by medium (41.33%) and high (1.33%). It is observed from the study that the variable was highly varied within the distribution due to high CV value (63.00%).

**Table 2: Degree of association with different organisations (n=300)**

Category	Score	Frequency	Percentage	Statistics
Low	0-1.66	172	57.33	Range = 0 to 5 Mean = 1.70S D = 1.07 CV = 63 percent
Medium	1.67 to 3.33	124	41.33	
High	3.34 to 5.00	4	1.33	

**Social Participation**

It is revealed from the study (Table 3) that majority of the farm women regularly engaged in self-help groups (55.00%) followed by *mahila* societies (8.66%), religious organisations (3.33%), cooperative societies (2.33%), village *panchayat* (1.00%), social organisations (1.00%) and cultural organisations (0.66%). It is also exposed from the study that majority of farm women were partially involved in SHG (32.66%) followed by religious organisation (6.00%), *mahila* society (5.66%), social organisation (3.00%), cooperative society (1.33%) and cultural organisation (0.33%). It is also shown from the study that majority of the farm women did not participate in village *panchayat* (99.00%) and cultural organisation (99.00%) followed by cooperative society (96.33%), social organisation (96.00%), religious organisation (90.66%), *mahila* society (85.66%) and self-help groups (12.33%).

It is exposed from the investigation (Table 4) that greater part of the farm women were under low (81.00%) degree of social participation followed by the medium (17.00%) and high (2.00%) level of social participation. The level of consistency was low due to high variation of the variables within the distribution (CV 72.02%). This result is in line with the findings of Sonkamble (2000), Deshmukh et al. (2003), Ajotikar (2006), Vanetha (2006), Jain (2007), Kacharo (2007), Waman (2010) and Rizal (2016).

**Cosmopoliteness**

It is exposed from the study (Table 5) that majority of the farm women frequently visited the *kisan mandi* (37.66%) followed by nearest town (26.00%), primary health centre (17.33%), rural bank (14.66%), nearest city (10.66%), nationalised bank (9.00%), farm science centre (8.00%), *panchayat* office (7.66%), post office

**Table 3: Distribution of respondents according to their social participation (n=300)**

S. No	Group/Institution	Extent of participation					
		Fully		Partially		Not at all	
		f	Percent	f	Percent	f	Percent
1.	Cooperative society	7	2.33	4	1.33	289	96.33
2.	Village <i>panchayat</i>	3	1.00	0	0.00	297	99.00
3.	Cultural organisation	2	0.66	1	0.33	297	99.00
4.	Religious organisation	10	3.33	18	6.00	272	90.66
5.	Social organisation	3	1.00	9	3.00	288	96.00
6.	Self help group (SHG)	165	55.00	98	32.66	37	12.33
7.	<i>Mahila</i> Society	26	8.66	17	5.66	257	85.66
8.	Others	0	0.00	0	0.00	0	0.00

**Table 4: Level of social participation (n=300)**

Category	Score	Frequency	Percentage	Statistics
Low	0 to 3.33	243	81	Range= 0 to 10 Mean= 1.93 SD= 1.39 CV= 72.02 percent
Medium	3.34 to 6.67	51	17	
High	6.68 to 10.01	6	2	

**Table 5: Distribution of the respondents according to cosmopolitanism (n=300)**

S. No	Place/institution	Extent of Visit					
		Regular		Occasionally		Not at all	
		f	Percent	f	Percent	f	Percent
1.	Post office	16	5.33	242	80.66	42	14.00
2.	Primary health centre	52	17.33	166	55.33	82	27.33
3.	Rural Bank	44	14.66	161	53.66	95	31.66
4.	Nationalise Bank	27	9.00	136	45.33	137	45.66
5.	Block development office	15	5.00	153	51.00	132	44.00
6.	Sub divisional office	5	1.66	59	19.66	236	78.66
7.	<i>Panchayat</i> office	23	7.66	261	87.00	16	5.33
8.	District head quarter	1	0.33	70	23.33	229	76.33
9.	Agricultural University	8	2.66	69	23.00	223	74.33
10.	Farm Science Centre ( <i>Krishi Vigyan Kendra</i> )	24	8	234	78	42	14
11.	Nearest City	32	10.66	237	79.00	31	10.33
12.	Nearest Town	78	26.00	207	69.00	15	5.00
13.	Regulated Market/ <i>Kisan Mandi</i>	113	37.66	146	48.66	41	13.66
14.	Others	1	0.33	23	7.66	276	92.00

(5.33%), block development office (5.00%), agricultural university (2.66%), sub divisional office (1.66%), district headquarter (0.33%) and others (0.33%). It is shown from the study majority of the farm women regularly visited the *kisan mandhi* followed by nearest town and primary health centre (Dash 2017). It may be concluded from the study that *kisan mandhi*, nearest town and primary health centre is an important place of networking for farm women (Dash 2017).

It is observed from the study (Table 5) that a greater part of the farm women occasionally visited the *panchayat* office (87.00%) followed by post office (80.66%), nearest city (79.00%) farm science centre (78.00%), nearest town (69.00%), primary health centre (55.33%), rural bank (53.66%), block development office (51.00%), *kisan mandhi* (48.66%), nationalised bank (45.33%), district headquarter (23.33%), agricultural university (23.00%), sub divisional office (19.66%) and others (7.66%). So it may be concluded from the study that *panchayat* office, post office, nearest city, farm science centre, nearest town, primary health centre, rural bank, block development office, *kisan mandhi* and nationalised bank network large numbers of farm women.

It is shown from the Table 5 that majority of farm women did not visit the sub divisional office (78.66%) followed by district headquarter (76.33%), agricultural university (74.33%), na-

tionalised bank (45.66%), block development office (44.00%), rural bank (31.66%), primary health centre (27.33%), farm science centre (14.00%), post office (14.00%), *kisan mandhi* (13.66%), nearest city (10.33%), *panchayat* office (5.33%) and nearest town (5.00%). It is exposed from the study that majority of the farm women did not visit the sub divisional office followed by district headquarter, agricultural university and nationalised bank.

It is exposed from the study (Table 6) that majority of the farm women were under medium degree of cosmopolitanism (64.33%) followed by low (19.67%) and high (16.00%) degree of cosmopolitanism. It is observed that the consistency level of the distribution was medium (CV 32.15%). This finding is in agreement with the study found by Nayak (1995), Sunil and Manjula (2010) and Nayak (2015). But the findings of the result do not agree with the studies by Kikon (2010), Rudroju (2013), Haldar (2014) and Rizal (2016).

### Social Networking Analysis of Farm Women

It was observed from Figure 1 that the network diagram has one key node and majority of the farm women were connected with this node. It is revealed from the study that SHG play an important role for social networking of large number of farm women. It may be due to the fact



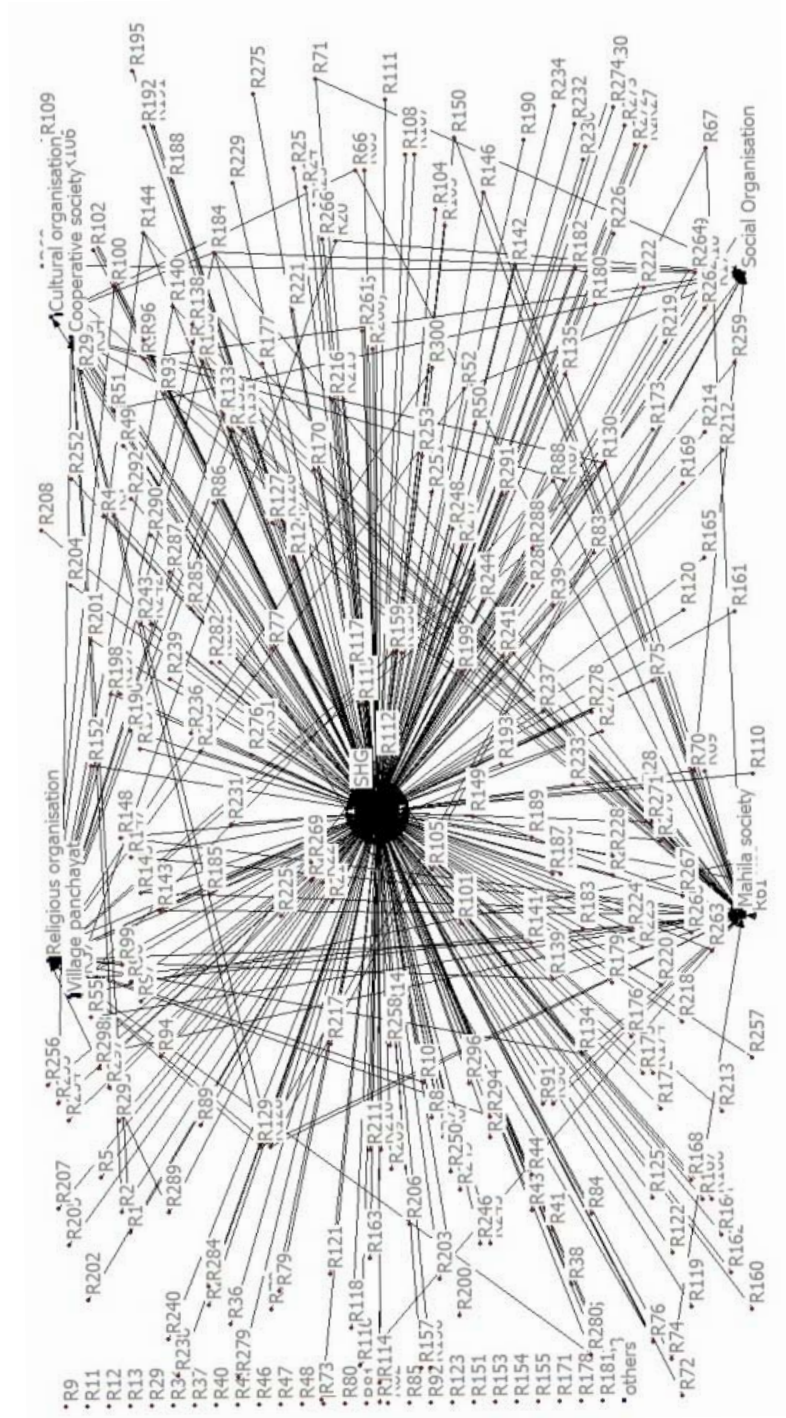


Fig. 1. Social network: social participation betweenness centrality according to size

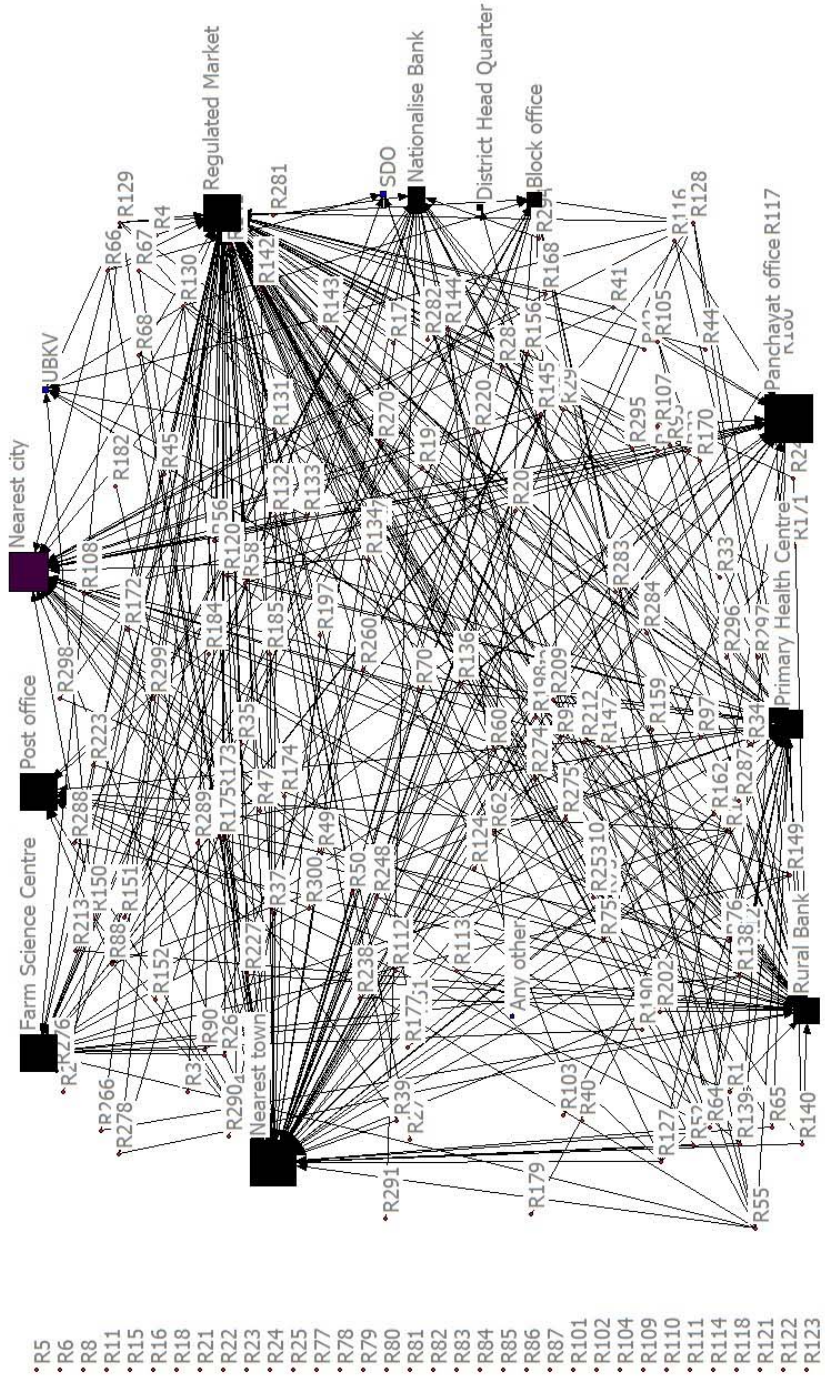


Fig. 2. Cosmopolitanness betweenness centrality according to size

**Table 6: Level of cosmopolitaness (n=300)**

Category	Score	Frequency	Percentage	Statistics
Low	2.00 to 7.67	59	19.67	Range: 2 to 19
Medium	7.68 to 13.35	193	64.33	Mean: 10.14
High	13.36 to 19.00	48	16.00	SD: 3.26 CV: 32.15

that SHGs build with minimum membership, and are less complex and rigid, are profitable. The same category of the farm women may engaged in the group, and decision-making power of the farm women was high along with others factor.

It is observed from Figure 2 that the network diagram has six key nodes, and farm women of the network are connected with this node. It is exposed from the study that *panchayat* office, nearest town, farm science centre, regulated market, nearest city and post office networking a great majority of the farm women.

### CONCLUSION

It may be concluded from the study that social participation level of the farm women was low followed by medium and majority of the farm women were members in one organisation. It was also found from the study that self-help groups play an important role for social networking of farm women. It may be due to the fact that SHGs can be built with minimum membership, they are less complex and closer than other organisations. It may be concluded from the study that *panchayat* office, nearest town, regulated market/*kisan mandi*, *Krishi Vigyan Kendra*/Farm Science Centre, nearest city and post office play an important role in networking of a large number of farm women. So a huge opportunity is present to strengthen the large numbers of farm women through *panchayat* office, regulated market/*kisan mandi*, farm science centre, post office and self help groups.

### RECOMMENDATIONS

The study may help the extension workers, policy makers, scientists and private organisations with the diffusion of agricultural information to a large number of farm women within a short period of time. This study was conducted

only with three factors (social participation, membership and *cosmopolitaness*). There is scope for the researchers to study the networking of farm women beyond this work. The study may help the scientists with further research work on networking of farm women with different mass media resources, e-resources, communication channels and extension institutes, which may help to find out the information networking system, information sharing, information exchange and knowledge of farm women.

### REFERENCES

- Ajotikar MV 2006. *Impact of the Adarsh Gaon Yojana Implemented by Vanrai, an NGO on the Socio-economic Status of Beneficiaries of Pune District*. PhD Thesis, Unpublished. Rahuri, Dist. Ahmednagar, Maharashtra, India: M. P. K. V.
- Chowdhury S, Bose S 2014. Farm women's access to farm information: A study in Bolpur sub-division of Birbhum District. In: PK Chattopadhyay (Ed.): *Some Empirical Aspects of Economic Growth and Diversification in India's Emerging Economy*. New Delhi, India: New Delhi Publishers, pp. 351-358.
- Dash SR 2017. *Impact of Watershed Development Programme on Socio-economic Upliftment of Tribal People in Western Undulating Zone, Odisha*. PhD (Ag) Thesis. India: Visva Bharati University.
- Deshmukh V, Shinde PS, Bhople S 2003. Impact of training imparted by Krishi Vigyan Kendra on cotton growers. *Maharashtra Journal of Extension Education*, 22(1): 106-109.
- Economic Review 2011-12. *West Bengal Statistics*, West Bengal, P. 12. From <<https://bengalchamber.com/economics/west-bengal-statistics-2011-2012.pdf>> (Retrieved on 20 December 2017).
- Haldar S 2014. *Understanding Communication Network of Rural People in a Selected Village of Bankura District*. MSc (Ag) Thesis. West Bengal, India: Bidhan Chandra Krishi Viswavidyalaya.
- Haldar S, Misra S, Pal S, Basu D, Goswami R 2016. Understanding agricultural information networks in West Bengal, India. *Indian Research Journal of Extension Education*, 16(1): 25-34.
- Jadhav KP 2011. *Image and impact of Krishi Vigyan Kendra Vyara and Ambeti of South Gujarat*. MSc (Ag) Thesis. Navsari: Navsari Agricultural University.



- Jain S 2007. *A Study on Participation of Tribal Farm Women in Agriculture and Decision Making in Jhabua District of M.P.* MSc (Ag) Thesis, Unpublished. Jabalpur: JNKVV.
- Jamali M, Abolhassani H 2006. Different Aspects of Social Network Analysis. In: *International Conference on Web Intelligence*, 18-22 December, 2006, Hong Kong, Peoples R China, pp. 66-72.
- Kacharo DK 2007. *Agricultural Information Networks of Farm Women and Role of Agricultural Extension: The Case of Dale Woreda, Southern Nations, Nationalities & Peoples' Region.* MSc Thesis. Ethiopia: Haramaya University.
- Kikon W 2010. *Adoption Gap in Groundnut Production in Northern Transition Zone of Karnataka.* MSc (Agri) Thesis. Dharwad, Karnataka, India: University of Agriculture Science.
- Meena HR 2002. *Decision Making Pattern and Adoption of Improved Dairy Farming Practices (IDFPs) among Tribals in Rajasthan.* PhD Thesis, Unpublished. Karnal, India: National Dairy Research Institute.
- Misra S, Goswami R, Basu D, Jana R 2014. Application of Social Network Analysis in Livelihood System Study. *Space and Culture*, 2(3): 24-46.
- Nayak MP 2015. *Management of Institutional Reforms and Its' Impact under Innovation in Technology Dissemination (ITD) Component of National Agricultural Technology Project (NATP) - A Study in the State of Orissa.* PhD (Ag) Thesis. India: Visva Bharati University.
- Nayak NK 1995. *Opinion of Farmers Forwards Agro Forestry Programme. A Study in Khurda District of Orissa.* MSc (Ag) Thesis, Unpublished. Bhubaneswar: OUAT.
- Rizal SK 2016. *Impact Assessment on Research and Extension Activities of Government Agencies for Plantation Crops - A Study in Jalpaiguri District of West Bengal.* PhD (Ag) Thesis. India: Visva Bharati University.
- Rogers EM, Kincaid DL 1981. *Communication Net-works: Toward a New Paradigm for Research.* New York: The Free Press.
- Rudroju V 2013. *Awareness, Accessibility and Utilisation Pattern of Information and Communication Technology (ICT) Projects by Farmers of Belgaum District.* MSc (Ag) Thesis. Dharwad, India: University of Agricultural Sciences.
- Sawsakde DS 2001. *Benefits Received by Tribal Farmers from Selected Agril. Development Schemes.* MSc (Ag) Thesis, Unpublished. Akola, Maharashtra: Dr. P.D.K.V.
- Scott J, Carrington PJ 2011. *The SAGE Handbook of Social Network Analysis.* London: SAGE.
- Sonkamble BJ 2000. *A Study of Beneficiaries under IRDP from Maval Taluka of Pune District.* MSc (Ag) Thesis, Rahuri, Maharashtra: M.P.K.V.
- Sunil NK, Manjula N 2010. Socio-economic, psychological and extension attributes of trained and untrained farmers of KVK, Bijapur. *Agriculture Update*, 5(1&2): 38-42.
- Vanetha KP 2006. The characteristics of farm women participating in development programmes, Theni District. Tamil Nadu. *Rural India*, 70-71.
- Waman GK 2010. *Impact of Krishi Vigyan Kendras Activities on the Beneficiaries in Western Maharashtra.* PhD Thesis . Rahuri, Maharashtra: M.P.K.V.
- Wasserman S, Faust K 1994. *Social Network Analysis.* Cambridge University Press.

---

**Paper received for publication in June, 2020**  
**Paper accepted for publication in July, 2020**