Review of Literature
This chapter consists of research findings of studies conducted elsewhere. Research in the areas of information source credibility, consultancy pattern of sources for technical information and training needs of farmers in sericulture are very few. However, information on knowledge and adoption level of improved sericultural technologies is available. Here, an attempt has been made to put together some of the closely related research findings in the areas. The literature survey on different dimensions of the current topic under study is presented in the following subject heads.

2.1. Consultancy pattern of sources for technical information by the farmers.
2.2. Information source consultancy as related to selected personal characteristics of farmer.
2.3. Information source credibility pattern of farmers.
2.4. Concept and measurement of information source credibility.
2.5. Association of source credibility in relation to personal characteristics of farmers.
2.6. Knowledge and adoption level in relation to the personal characteristics of the farmer.
2.7. Constraints faced by the farmers in adoption of improved practices.
2.8. Training needs of the farmers.

2.1. Consultancy pattern of sources for technical information by the farmers.

Knowledge about farm practices can be acquired by a farmer through exposure to different sources of information. If one tries to contact various sources of information in order to gain knowledge, it is a process of his information seeking behaviour. Keeping this in view literature was collected on
the pattern of consulting information sources by farmers on various technical aspects.

Wilkening (1949) in his pioneering study found that formalized source such as agricultural agencies; farm magazines and bulletins from the agricultural colleges were more effective among those farmers who have high socio-economic status. The farmers with lower socio economic status could be reached more effectively through personal contact.

After a gap of six long years, Dubey (1955) conducted a study and concluded that the main source of information for the improved practices were village level workers, Agriculture Extension Officers, neighbours and relatives and villagers in the nearby village.

Later on, Lionberger (1955) in a similar study, calculated and found that 30 % of the farm operators obtained farm information from a country agent, 33 % obtained from the other institutional sources like farm bulletins, soil conservation services and 37 % made no use of such sources what so ever.

In continuation to Lionberger, Grey (1956) indicated that radio, farm magazines, newspapers, agricultural agencies, representatives, neighbours and relatives were the main sources of information. In a parallel study Young and Marsu (1956) recorded similar findings.

Further, Rogers (1960) reported that 48 % farmers secured new information from magazines, 10 % from other farmers, 13 % from country agents or extension meetings, 6 % from experimental station bulletins, 3 % from radio or television farm shows, 3 % from relatives, 2 % from veterinary and agricultural college teachers and 9 % from others.

Jha (1966) and Sinha and Prasad (1966) opined that the village level workers were the most important sources of information followed by
Agricultural college and Block Development Officer. The other sources of information were demonstrations and neighbours.

Sawhney (1967) indicated that farmers in India with bigger farms, higher income and agricultural participation used personal sources like extension agents, to a greater degree than the farmer with smaller farms, having less income and less active in formal organizations.

Sisodia (1968) found that the Government agencies, panchayat members and family members were the main sources of information about new ideas. The important sources in order of merit were family members, radio, neighbours, relatives, extension officers, literature and panchayat and block samiti members.

Williams (1969) found that majority of farmers made use of Agricultural Extension Officer (35 %). Over 25 % made use of radio, while 15 % relied on information given by neighbouring farmers.

Veerabhadraiah and Sethu Rao (1971) observed that farmers almost consulted formal and informal sources equally. Mass media sources were consulted to a very little extent. Gramsevak was the most consulted source of information among the formal sources.

In continuation, Sethu Rao et al., (1972) reported that the most popular sources of information for hybrid jowar adopters in progressive and non-progressive villages were village level workers followed by local leaders, demonstrators, friends, neighbours and Agricultural Extension Officers.

Again, Dwarakinath (1973) supported findings of Sethu Rao et al., (1972) by revealing that the informal localite sources like neighbours, friends and relatives were the common sources of information to high yielding variety growers in Bangalore districts. The village level worker who was another source of information was formal and cosmopolite. The other sources used
were agricultural farms, agricultural credit banks, farmer's organizations and specialists.

Mathur et al., (1974) concluded that farmers have shown greater dependence on relatives, friends, village level workers and to some extent Indian Agricultural Research Institute (IARI) personnel for technical information and consultation.

Awatigar (1974) reported that majority of the small farmers in selected villages of Bidar district preferred Gramsevak in the order of preference among formal sources followed by Agricultural Extension Officers and secretary of the Joint Farming Society. Among the informal sources, progressive farmers were consulted to a greater extent followed by local leaders and fertilizer dealers.

Around the same chronological time, Sathpathy and Ganeswara (1974), Gangappa (1975), Viswananthan et al., (1975) and Kittur (1976) reported similar findings.

Kalamegam and Menon (1977) found that the personnel cosmopolite sources followed by mass media were utilized more by small farmers in the progressive village than in the less progressive village. On the other hand personal localite sources were the most consulted ones for information on package of practices of paddy in the less progressive village.

In a contemporary study, Hiriyannaiah (1977) reported that mass media (radio and newspaper) sources and individual contact sources like, Gramsevak were important sources of information for the graduate and non-graduate farmers and demonstration was the popular source for illiterate farmers.

Further, Siddappa (1978) reported that Gramsevak was the most preferred source of information by potato farmers of Hassan district of
Karnataka. The other information sources consulted to a considerable extent were neighbours and friends followed by Assistant Horticultural Officer and input dealers. The information sources like village leader and newspaper were ranked very low in the information source consultancy pattern of farmers and demonstration was not at all preferred by any of the farmer.

In an attempt to classify the sources in the order of preference, Yerram Reddy (1979) succeeded by concluding that small farmers ranked neighbours first followed by Village Development Officer, progressive farmers, friends, Agricultural Extension Officer and lastly sales representative. Other farmers ranked Village Development Officer first followed by neighbours, Agricultural Extension Officer, friends, input dealers and lastly relatives.

In a similar and a contemporary study, Ramchandran, et al., (1979) pointed out that a greater proportion of big farmers utilized formal sources like Agricultural Extension Officer, Village Extension Officer, specialists, and mass media like radio, folders where as small and medium farmers used localized interpersonal sources consisting of progressive farmers, neighbours, relatives and friends and to much lesser degree the village extension personnel.

Again in Andhra Pradesh, Rattaiah (1979) observed that Village Development Officer was the most consulted source of information and occupied the first rank in the consultancy pattern of chilli growers of Guntur district of Andhra Pradesh. The other information sources consulted to a large extent were the informal sources like neighbours and progressive farmers, followed by formal sources like Assistant Agricultural Officer. Sources like friends, Block Development Officer, relatives, village merchant and village leader were ranked low by the farmers. Mass media information sources like newspaper and leaflets were ranked very low in the preferential order of consultancy.

Patil (1980) observed that the order of consultancy of information sources by the maize growers of Bijapur district was Gramsevak followed by radio, neighbouring farmers, village leader, newspaper, Agricultural
Extension Officer, demonstration and block development officer. Almost similar findings were also reported by Sheshachar (1980) and Kumbar (1983).

Karippai (1981) reported that small farmers utilized friends and relatives as the source of information to the maximum extent. The next source in the rank order was radio, followed by newspaper, Extension Personnel and Agricultural Scientists.

A similar study was conducted by Gokul Raj (1982) in the field of Horticulture and he reported that 85.7 % of small farmers assigned first rank to the neighbours and 82.1 % assigned second rank to friends. As regards the big farmers, 53.1 % attributed first rank to neighbours and 45.5 % indicated friends as second preferred source.

Meenakshi (1983) in her studies on market information system reported that market media were the most important sources of market information to the farmers. Mass media such as radio and newspaper were found to be the least important source of information.

As a supportive, Kullayi Reddy (1983) in his studies on consultancy pattern of groundnut growers reported that Gramsevak was the most consulted source followed by progressive farmers, neighbours, village leaders, friends, and relatives, institutional sources, input agency, radio, magazines, demonstration and other sources.

Rai and Chubey (1985) reported that in the adoption of improved farm practices farmers used neighbours, friends, relatives and village leaders as communication sources in Jabalpur district of Madhya Pradesh.

Ajay Kumar (1989) reported that the most preferred sources of information by the grape growers of Rangareddy district of Andhra Pradesh for improved grape cultivation technology were in the order as private consultants, agricultural university, neighbours & friends, relatives and
scientists from grape research. The least preferred sources in the order were radio, horticultural officer, newspapers and farm magazines.

**Shivamurthy (1991)** observed that most consulted sources of information by arecanut growers were progressive farmers, Agricultural Assistants, friends and neighbours, while the institutional and mass media were the least consulted sources.

**Kumar (1992)** reported that all the small and big farmers of Mandya district consulted the sources like friends, neighbours and relatives as one of their sources to get the information about the improved practices of paddy cultivation. Small and big farmers to the extent of 44 % and 94 % respectively, used Agricultural Assistants as their non-localite sources. Farmers used Assistant Agricultural Officers and Agricultural Officers as their sources of information for improved practices. Only 10 % of big farmers used Assistant Directors of Agriculture as their source. Radio (51%), newspaper (48%), television (12%) and magazines (11%) were the other sources of information.

**Yogananda (1992)** observed that almost all the big and small coconut growers used friends, relatives and neighbours as their sources of information. Sources such as Assistant Agricultural Officers, Assistant Horticulture Officers were used by less than 40 % of small coconut growers, but 80 % of big farmers used Assistant Agricultural Officers and only 15 % used Assistant Horticultural Officers as their source.

According to **Rogers (1993)** sources of information differed between the adopters and non-adopters. Majority of adopters preferred formal source of information whereas non-adopters sought information source from informal source. Adopters recognize formal source because they consider the source as dependable, practicable and economical.
Sharma and Sharma (1994) found that under institutional sources, village extension worker was an important source of information at all the stages of adoption. Next sources of information was Agricultural College. Though this was a good source of information at all the stages, the utilization of the sources was by only few farmers. The other sources like Assistant Agricultural Officers, subject matter specialists, co-operative society and panchayat were utilized by a very few respondents that too at one or two stages of adoption. Neighbours among the non-institution category were the only source of information utilized by majority of the farmers at all the five stages of adoption. The sources like friends, progressive farmers and relatives were also utilized by a few farmers at some stages of adoption.

Raghavendra (1997) in his study on knowledge and adoption behaviour of arecanut farmers of South Canara district, Karnataka, reported that 50% of the arecanut growers consulted progressive farmers for cultivation practices of arecanut followed by mass media sources (25%) and institutional sources (20%).

Bhople et al., (1998) reported that 98.33% and 95.83% of the orange growers consulted friends/ neighbours and the progressive orange growers of Maharashtra respectively followed by listening to radio broadcast, visit to the office of village extension workers, contact with agro service centers and personal contact with agricultural extension officers. University scientists and participation in field days were the least consulted source/ channels.

Dilipkumar Pradhan et al., (1998) revealed that in sericultural traditional area cocoon market was the most consulted source of information followed by neighbours and friends, progressive farmers, demonstration, radio, relatives, village leaders and krishi magazines. In non traditional area, radio was placed in first position of consultancy pattern followed by cocoon market, progressive farmers, neighbours & friends, demonstrators, reshme krishi magazines, relatives and village leaders.
Kumar (1998) in his study on knowledge, adoption and economic performances of banana growers, revealed that a major proportion (50%) of the banana growers had consulted neighbours and friends to get information regarding banana cultivation.

Tharaneatharan et al., (1998) reported that among the personal localite sources 93.0% and 80.77% of the agro-forestry beneficiaries consulted regularly their friends and neighbours respectively. Among the personal – cosmopolite sources, Assistant Agriculture Officer and Agriculture Officers were found to be contacted and utilized by cent percent of the respondents. All India Radio and television were widely utilized sources for most of the respondents in respect of impersonal cosmopolite sources.

Charles Jeeava and Ravichandran (1998) in their studies reported that among personal cosmopolite sources, Assistant Agricultural Officer was observed to be often utilized by both marginal and small farmers. The Agricultural Officer being gross root level worker who live in the village itself might have been utilized mostly as information source by the respondents.

Krishna Murthy et al., (1999) in their study revealed that 36.66% of farmers received information from the officers of Department of Horticulture and 33.33% utilized services of agriculture department. Among the other sources, radio played a significant role in disseminating information to the farmers followed by farm magazines and leaflet.

Jyothi (2000) reported that input dealers were the most frequently consulted information sources followed by progressive farmers, television, extension personnel of private organizations, friends, radio and Assistant Agricultural Officers.

Meenambigai and Ravichandran (2000) reported that the print media utilization was found very less among farm women. Only a few of them were frequently exposed to the farm information in newspaper and magazines. In general, the media utilization was found less among farm women.
Raghuraja (2001) in his study found that friends and neighbours served as important sources of information (79%) followed by relatives, Agriculture Assistant and Assistant Conservator of Forest. Other sources consulted in the order were radio, forests, television and newspaper.

Babanna (2002) reported that use of localite sources of information like neighbours was more compared to non localite source like horticultural officer and mass media sources. Neighbouring farmers were the most credible source followed by friends and horticultural officers.

The studies reported from India and abroad have indicated that personnel sources of information have influenced the farmers to a greater extent than the other sources of information. Informal sources like neighbour and relatives also played a predominant role in the dissemination of farm information. The studies have indicated that the mass media sources and demonstration were also popular sources of information to the farmers. Hence, it would be of interest to know the pattern of information consulted by the sericulturists.

2.2 Information source consultancy as related to selected personal characteristics of farmer

Reviews of relevant research findings in relation to the associationship between independent variables and information source consultancy are presented here.

Singh et al., (1970) reported that there was non-significant relationship between land holding and information source consultancy pattern of farmers.

Dwarakinath et al., (1973) indicated that there was a positive and significant association between knowledge level and information source seeking behaviour of farmers.
Kantharaju (1980) revealed that there was a positive and significant relationship between farmer's land holding and their information source consultancy regarding improved methods of sunflower cultivation. Patel et al., (1995) also found similar results.

Geetha Kutty (1982) indicated that there was a highly significant relationship between the adoption level of recommended practices in paddy and information source consultancy of farmers. In addition, she reported that information source consultancy in case of potential clientele was found to be significant with innovativeness of farmers.

Hegde (1986) indicated that there was significant association between education and extent of source consultancy in adoption of recommended practices of cardamom cultivation.

Basavaraj (1987) indicated that there was a non-significant relationship between information source consultancy and market orientation of farmers.

Ramesh Babu (1987) reported that information source consultancy of grape growers with respect to adoption of recommended practices of grape cultivation was found to be significantly associated with their level of extension participation.

Yogananda (1992) revealed that knowledge level on coconut cultivation of farmers was significantly related to the information source consultancy of coconut growers.

Srinivasa (1993) reported that educational status significantly influenced the source credibility pattern of farmers of Bangalore Rural district of Karnataka. Personal characteristics of farmers like social participation, cosmopolitaness and socio-economic status were found to have no influence on their credibility pattern.
Mande et al., (1993) observed that age was not related with information source consultancy of mango growers. They also indicated that social participation and farming experiences have positive and significant relationship with information source consultancy of mango growers.

Javale and Nachane (1994) revealed that education was found to have significant and positive correlation with information source consultancy of mango and citrus growers.

Reddy (1995) reported a non-significant relationship between social participation and information source consultancy of mango growers. Further, he reported that the information source consultancy of mango growers had significant association with their level of extension participation.

Rusdi (1995) found that annual income, adoption, behaviour and source credibility have positive and significant relationship with information source consultancy, whereas other characteristics like age and social participation were found to have non-significant relation with information source consultancy of ornamental fish farmers.

Ravishankar (1995) reported that the level of adoption of technologies was non-significantly associated with information source consultancy of potato growers. And also reported that the knowledge level of potato growers were significantly associated with information source consultancy, whereas other characters like social participation, land holding and innovativeness were found to have non significant relation with information source consultancy of farmers.

Kumar (1997) indicated in his study that age, education and adoption behaviour were significantly associated with information source consultancy, whereas other characteristics like farming experience and innovativeness were found to have a non-significant relation with information source consultancy of rose growers in Bangalore Urban district.
Raghavendra (1997) revealed that age was found to have negative and significant association with consultancy of information sources with arecanut growers in South Canara district. Further, he reported that there was a significant association between extension participation and information source consultancy of arecanut growers.

Kumar (1998) revealed that there was non-significant relationship between extension participation and adoption level of farmers with information source consultancy of banana growers. He also reported that the knowledge level of banana growers was significantly associated with information source consultancy of farmers.

Shankararao and Sudarshanreddy (1999) reported that farm size, annual income, cosmopolitaness, risk preference, economic motivation, marketing behaviour, innovativeness and awareness had positive and significant relationship with information preference on mango production technology. Age, cropping intensity, farming experience and decision making pattern had negative and significant relationship with their information preference on mango production technology.

Jyothi (2000) reported that education status, knowledge level, source credibility and innovativeness were found to have significant relationship with information source consultancy pattern of tomato growers.

Raghuraja (2001) in his study revealed that education, family size, mass media and extension participation and scientific orientation were found to be significantly related to marketing behaviour and information source consultancy pattern.

2.3 Information source credibility pattern of farmers

In a pioneering research by Herzog (1967) on “Mass media credibility exposures and modernization in rural Brazil”, by studying 1397 farmers, high
credibility was attributed to the extension agent followed by the teacher of school, radio, neighbors, salesman and newspaper in that order.

Roy et al., (1968) found that demonstration had the highest credibility followed by neighbors, village level workers and radio with respect to agricultural information.

In a contemporary work, Reddy and Kivlin (1968) placed the highest credibility upon demonstration as perceived by farmers. Radio broadcasts were found to be the least credible source, with neighbors and village level workers occupying intermediate positions.

In his comparative study, Reddy (1968) reported that in the progressive village scientist had the highest credibility followed by radio, progressive farmer, block agency, demonstration, bulletins and newspapers. Whereas in the non-progressive village demonstration had the highest credibility followed by progressive farmers, scientists, block agency, radio, bulletins and newspapers.

Again, Singh and Shankaraiah (1968) noticed that farmers rated formal personal sources, informal personal sources and mass media sources in descending order on the credibility scale. Agricultural Extension Officers and village level workers were rated next to scientist among formal sources. Mass media sources such as radio, folders and newspapers were rated as low credible sources.

Roger and Svenning (1969) while investigating the source credibility pattern among Colombian peasants, found that the peasants attributed high credibility to the extension agent followed by the school teacher, radio, neighbors, commercial sales man and newspaper.

In a similar study to that of Reddy (1968), Joon et al., (1970) reported that village level worker was the most credible source of information in both the progressive and non-progressive villages. Radio occupied the second
position in the progressive village as against village leader in the non-progressive village. Similarly demonstration was ranked third in the non-progressive village as against fifth in the progressive village.

Further, Singh and Sahay (1970) observed in their study that in the progressive village, the most credible source was village level worker followed by radio, neighbour, village leader, demonstrations, relatives, Agricultural Extension Officers, self experience and co-operative society. In the non-progressive village, the village level workers ranked first followed by village leaders, demonstrations, radio, neighbours, relatives, Agricultural Extension Officer and co-operative society.

In a much interesting study in Karnataka, Sethu Rao et al., (1971) opined that farmers rated demonstration as most credible source. Extension agency, local leader and institutional sources like Agricultural college, Gramsevak and training center were rated higher to radio and Newspaper in terms of credibility.

Supe (1971) in his study, observed that the most credible source of information was personal experience of respondent followed by other farmers, farmers organizations, farmers training camps, extension staff, radio, written materials, and salesman.

Subramanyan and Menon (1973) found that farmers had given the maximum credibility to the neighbors as a basis for adopting the new practices. Village level worker and Agricultural Extension Officer occupied second and third position respectively.

In Ludhiana, it was reported by Sandhu (1973) that progressive farmers were ranked highest by the farmers. The other sources of farm information in order of decreasing credibility as perceived by farmers were block agency, radio, demonstrations, specialists of the Punjab Agricultural University, publications and newspapers.
Singh and Singh (1974) in their comparative study observed that scientists were the most credible sources of information followed by demonstration, progressive farmers, relatives, block extension agency, radio, tours or visits and bulletins in progressive village. While in the non-progressive village, the most credible source was progressive farmers followed by relatives, scientists, block extension agency, demonstration, tours or visits, radio and bulletins.

In a similar study, Singh and Prasad (1974) found that village level worker was the most credible source of information followed by friends and neighbours, demonstrations, leaflets, posters, radio, Agriculture Extension Officers, co-operative, magazines and newspaper and self-experience respectively in the progressive village. In the non-progressive village demonstration was ranked as the most credible source followed by village level worker, friends and neighbours. Agricultural Extension Officers, co-operative society, radio, leaflets, posters, magazines and newspapers respectively.

In his research study on small farmers, Gangappa (1975) reported that Gramsevak was the most credible source followed by other farmers, demonstration, radio and Agricultural Extension Officers and the least credible source was newspaper.

Singh and Singh (1976) reported that the credible and accessible media for small farmers were the localite sources such as progressive farmers followed by neighbours, relatives and friends.

In his elaborative study, Giriyandhar (1977) reported that farmers in high and medium communication villages judged Gramsevak as the most credible source followed by neighbours and friends, radio, demonstrations, progressive farmer, agricultural extension officer, newspapers and leaflets. Farmers in low communication village judged neighbours and friends as the most credible sources followed by progressive farmers, Gramsevak, radio,
demonstrations, Agricultural Extension Officer, newspaper and leaflets respectively.

According to the study conducted by Siddaramaiah et al., (1977) Gramsevak was the most credible source to the farmers followed by neighbour, local leader, university scientists, commercial farms and commercial bank.

Ramachandran et al., (1979) reported that big farmers rated specialists as their most credible source of information followed by Junior Agriculture Officer and farms. Medium farmers, in contrast, perceived Agricultural Demonstrator as the most credible source. The second, third and fourth credible sources for medium farmers were junior Agriculture Officer, Village Extension Officer and neighbours respectively. The most credible source for small farmers turned out to be progressive farmers followed by Agriculture Extension Officer and Junior Agriculture Officer.

Karippai (1981) observed that small farmers attached maximum credibility to extension personnel followed by friends, relatives, radio, agricultural scientists and newspaper in that order.

Vijayaraghavan and Subramaniam (1981) found that for the farmers owning garden land, the most credible source of information was Deputy Agriculture Officer followed by Gramsevak, radio, friends and neighbours, literature and commercial agencies, respectively. For the dry land farmers, the most credible source of information was Gramsevak followed by friends and neighbours, Deputy Agriculture Officer, radio, commercial agency and literature.

Prabhakar (1983) reported that group discussion was the most credible source among sericulture farmers followed by progressive farmers, chawki rearing center, silk farm, radio, reshme krishi journal and film show in that order.
Varadaraju (1983) found that contact farmers perceived Agricultural Assistants as the most credible source followed by the other contact farmers. Assistant Agriculture Officer, radio, co-operative society secretary and newspaper were accorded as the least credible sources.

Deshpande and Trifle (1984) observed that Village level worker was ranked first as the most credible source followed by the village leader, farmers training center, neighbour and demonstration. Other four sources i.e. family members, other farmers, meetings and exhibitions were not perceived as credible sources even though they were utilized for obtaining the information.

Thombre et al., (1985) observed that radio ranked first as the most credible source followed by farm literature, agricultural exhibition and film show by the farmers as mass media communication.

Rai and Choubey (1985) observed that the subject matter specialist (SMS) of Agricultural University were ranked first followed by the village leader, neighbour, friend and relative, printed material, village level worker and others for credibility of communication sources and channels. The channels particularly mass media were considered to be less credible.

Basavaraja (1993) found that radio was the most commonly used mass media which commands credibility and farmers have favourable attitude towards farm broadcast.

Patel et al., (1995) found that radio was the most credible source of information followed by television, rural Agricultural Extension Officer, progressive farmers, newspapers, magazines and local leaders in progressive villages of Maharashtra state. In less progressive villages, the most credible source was rural Agricultural Extension Officer followed by progressive farmers, local leaders, television, radio, newspapers and magazines.

Rusdi (1995) informed that out of the several sources of information used by the ornamental fish farmers, fisheries extension workers were found
to be more credible, followed by friend and neighbour, fisheries, publication, agricultural assistance, progressive farmers and television.

Waghdhare et al., (1998) reported that village extension workers (of the Training & Visit system) were the most top most credible source of information as perceived by small farmers of Maharashtra followed by neighbours, friends, relatives, progressive farmers, local leaders, radio, television/ cinema and newspaper/ agricultural magazines (in order).

2.4. Concept and measurement of information source credibility

Credibility is the degree to which a communicator is considered trustworthy and competent by the receivers. The expertise or knowledge level about the subject matter and trustworthiness with which a communicator is viewed by the recipient influences his success as communicator.

Marple (1933) opined that credibility is based on some factors of general trustworthiness, which will remain relatively constant over a number of subjects.

In continuation to Marple’s work, Lorge and Curtiss (1936) reported that credibility will vary from topic to topic and the influence of the source will vary according to the situation.

Based on the previous studies, Hovland and Weiss (1951) measured the credibility of various sources of information in relation to attitudinal change. It was interesting to note in their study, that highly credible sources were perceived to be more fair and justified.

In continuation to his past study Hovland et al., (1953) reported that the increase in credibility of the source results in increase in the attitude. They conceptualized the credibility of a source in two components viz. “Trustworthiness and Expertness”. Trustworthiness was suggested to be in terms of appearance, attitude, manner and perceived intention of the
communication. Subject matter expert was considered to be a source of valid information.

As a break through, Rokeach (1960) found that ideological similarity is more important than demographic similarity. Further he noticed that there is a tendency for people to like others to the extent they perceive others to share their beliefs.

Aronson and Golden (1962) worked on expertness of the source and found that, if the source is perceived as expert, the message has greater impact on audience, whether this expertise is specific to the issues of a general nature, such as desires for better education or higher social status or professional occupation.

Powell (1965) in his fact-finding study on “Source credibility and behavioral compliance as determinants of attitude change” observed that highly credible sources were more effective in inducing attitude change, in the absence of behavioral compliance.

Thimothy et al., (1965) in a contemporary work found that the communicator’s credibility was one of the factors, which predicts the effectiveness of propaganda.

Mc. Ginnies (1968) supported the fact that highly credible sources were more effective in influencing attitudes than less credible sources.

Berlo et al., (1969) in a methodological study tested the conceptualization of credibility as given by Hovland et al., (1953) and suggested a three factor model for source credibility. These factors were

1. Safety – Trustworthiness
2. Qualification – Expertness and
3. Dynamism – Availability of sources.
Mc. Garry et al., (1974) observed that perceived vested interest of a communicator, the position he advocated and his social similarity with the audience would influence attributes of credibility and his persuasiveness.

2.5 Association of source credibility in relation to personal characteristics of farmers

Very few studies have been reported in the area of information source credibility in relation to personal characteristics of farmers. Reviews of relevant research findings in relation to the associateship between independent variables and the information source credibility are presented below.

As a forerunner, Klapper (1949) showed that individual with less education may be more influenced by oral presentation than the printed media.

Bruce and Severin (1964) reported that newspaper was perceived to be more credible than radio and television by those who had college and high school education. But others expressed television as a more credible source.

Dudhani and Sethu Rao (1975) found that illiterate farmers rated demonstration, local leaders and village level workers highest on the credibility scale followed by radio, Agriculture Extension Officer, Agriculture college, Gramsevak, training center and newspaper. They further reported that the farmers with little formal education rated demonstration, village level worker and local leader higher on credibility scale and other sources like radio, Agriculture college, Agriculture Extension Officer, Gramsevak, training center and newspaper received low ratings. Farmers with higher education rated demonstration, agriculture college, and village level worker higher on the credibility scale followed by Agricultural Extension Officer, Gramsevak training center, local leaders, radio and newspapers. The study further
indicated that there was much difference in the credibility ratings by small and large farmers.

Shivaramakrishnan (1977) found that characteristics like education, annual income, material possession, status and adoption behaviour were found to influence source credibility to a certain extent. Size of the land holding was found to have no influence on the source credibility pattern of the farmers.

Karippai (1981) revealed that educational status of the small farmers was found to have significant influence on their credibility perception of various sources of farm information. But the other selected characteristics such as occupational status, extent of social participation, material possession, extent of cosmopoliteness, mass media participation and level of adoption of the small farmers did not have any significant association with their perception of credibility of various source of farm information.

Prabhakar (1983) found that personnel characteristics like age, education, farm size, organizational membership, mass media participation, extension contact, extension participation, scientific orientation, cosmopoliteness and experience in sericulture farming had no influence on the credibility pattern.

Varadaraju (1983) reported that personnel characteristics of contact farmers like education, mass media participation, extension orientation, cropping intensity and economic performance index were found to influence information source credibility to a certain extent. Change proneness and irrigation indexes were found to have not much influence on the information source credibility. The study pointed out that educational status had some influence on the credibility-rating pattern of the farmers. There was no influence of characteristics, like social participation, extension orientation, mass media participation, cosmopoliteness and socio-economic status of farmers on the credibility towards different sources of information. An attempt
has been made in this investigation to study the above-cited characteristics in relation to the information source credibility of sericulture.

Srinivasan (1987) reported that educational status significantly influenced the credibility pattern of farmers of Bangalore (Rural) district of Karnataka. Personal characteristics of farmers like social participation, extension orientation, mass media participation, cosmopolitanness and socio-economic status were found to have no influence on their credibility pattern.

Srinivasa (1993) reported that educational status significantly influenced the source credibility pattern of farmers of Bangalore Rural district of Karnataka. Personal characteristics of farmers like social participation, cosmopolitanness and socio-economic status were found to have no influence on their credibility pattern.

2.6 Knowledge and adoption level of farmers in relation to the personal characteristics

An attempt has been made to know the knowledge and adoption level of the different technologies and its association with several factors such as age, education, experience and other extension related characters.

Generally, farmers look for a simple, less expensive, less labour and time saving technologies in order to increase their return and efficiency in sericulture. Unless, the research findings are converted into simple and more practical technology, they cannot be practiced in the field with ease. No technology is of any consequence unless it is carried to the ultimate user and gets adopted. At present, a large number of new technologies and practices were not translated in the field and often technologies carried to the farmers got considerably distorted or looped off by the time they got adopted at the field level (Sarda and Khurana, 1993). Lakshmanan (1995) pointed out that introduction of many new technologies in mulberry leaf production and rearing of silkworm have met with only partial success.
Adoption is a process by which an individual comes to a decision either to fully adopt or partially or reject an innovation. In this process, individuals become aware of a new idea or technology, get interested, critically examine, try and then make the adoption decision (Dwarakinath et al., 1994). The adoption of any technology depends on the individual farmer as it is associated with several factors such as age, education, knowledge and socio economic condition.

Kaw (1979) in his article "Whole village development" and "Training for full employment in rural areas" reports that the main idea of village adoption was to deal with the village problems in their totality through a package of practices so that all the segments of developmental activities can be woven into one integrated whole.

Channegowda (1980) reported that the majority of small and big farmers followed medium level of adoption and had no knowledge of all the recommended practices of sericulture. Only 30 % of big farmers and 11.7 % of small farmers adopted the package of practices in sericulture. For example in case of types of leaves to be fed, adoption was 100 %, but the knowledge was only 25 %. In case of number of feeds, 49.2 % knew about the practice and only 25 % followed it.

Gokulraj (1981) indicated that education, size of the family and organizational participation did not have any significant association with the adoption level of farmers.

Raghavendra et al., (1982) reported that there was a significant association between education, mass media participation and adoption of recommended dairy management practices.

Khan (1985) reported that all the respondents of multivoltine cocoon production (100%) expressed the incidence of uzifly as a major problem. Infection of muscardine and flacherie was reported to be 64 % and 46 % respectively. On the other hand, 22 % and 26 % of the farmers expressed the
problem of shortage of irrigation water, silkworm eggs and human labour. 68% of the respondents had no separate rearing house. Regarding marketing, 50% of the respondents expressed the lack of transportation facilities. Under weighment and poor prices for cocoons were the other major problems as opined by 34% and 6% of the sericulturists.

Pallavan (1985) reported that extent of adoption of dairy management practices by farmers was significantly associated with their land holding, mass media participation, extension contact, cosmopoliteness, extension participation and awareness about dairying.

Kherde et al., (1986) reported that characteristics such as age, education and family size exerted no influence in gaining knowledge about dairying but extension participation governed the knowledge level of cattle owners.

Shivaraj (1987) reported that in Anekal taluk of Bangalore district, majority of big farmers were having high adoption and high net-income levels, while it was quite reverse in case of small and marginal farmers. The adoption behaviour of big, small and marginal farmers with respect to recommended practices of bivoltine silkworm rearing was found to have positive and significant relationship with their knowledge level. Knowledge, extension guidance, irrigation potential contributed significantly for the variation in the adoption behaviour. Market orientation and knowledge contributed significantly for variation in the adoption behaviour. Knowledge contributed significantly for the variation in adoption behaviour of marginal farmers.

Dayananda Patel (1988) revealed that extension contact, mass media use and urban contact were found to be significantly related with knowledge level of farmers.

Aswathanarayan (1989) revealed that knowledge level of sericultural practices of farmers was significantly associated with education, social participation, mass media participation, extension contact and
cosmopoliteness whereas land holding did not reveal such significant association. Adoption of sericultural practices by farmers was positive and significantly associated with their education, land holding, mass media participation, extension participation and cosmopoliteness.

**Sreenivasa (1989)** in his study observed that majority of the sericulturists of central zone of Karnataka possessed correct knowledge about application of farm yard manure and spacing, cent percent farmers had correct knowledge about mulberry varieties, system of planting and irrigation. Knowledge about plant protection measures, pruning and use of chemical fertilizer was medium.

**Satheesh (1990)** concluded that education, land holding, mass media participation and extension participation had positive and significant relationship with knowledge and adoption level of chawki rearing practices, whereas it was found to have non-significant relationship with age and social participation.

**Kaur and Singh (1991)** revealed that extension contact and mass media exposure had positive and significant relationship with extent of adoption.

**Yogananda (1992)** reported that education, extension participation, mass media participation and cosmopoliteness were significantly associated with their knowledge and adoption level.

**Singhvi et al., (1994)** studied the knowledge level of the sericulturists about the recommended practices and their extent of adoption and also the characteristics of the sericulturist's associated with the adoption behaviour in Hunsur taluk of Mysore district. The results showed that majority of the respondents were aware and adopted most of the mulberry cultivation and silkworm rearing practices except some of the crucial practices like fertilizer application, plant protection measures, bed cleaning by net and pebrine disease control measures where knowledge and adoption level were very
much low. The rate of adoption was significantly associated with sericulturist's education, land holding, mass media participation, extension contact and cosmopoliteness.

Chikkanna *et al.*, (1995) showed that the level of adoption was higher for the practices of farmyard manure application, spacing in late age silkworm rearing and disinfection, whereas the adoption was low for the practices like application of fertilizers, spacing in chawki rearing and incubation care.

Siddaramaiah and Prakash Kumar (1994) in their study on the adoption of improved sericultural practices by big and small farmers in Ramanagaram taluk of Bangalore district, observed that 60% of the respondents applied the recommended quantity of farmyard manure, while 25% applied the recommended dose of fertilizers and 43.75% adopted the recommended plant protection measures. Further, the extent of adoption was significantly associated with education, land holding, extension participation and economic motivation.

Govindaiah *et al.*, (1996) witnessed that plant protection measures were mostly adopted by sericulture farmers in irrigated mulberry gardens while in rainfed areas, adoption rate was totally nil. Though there was 65% garden under rainfed farming, none of the farmers adopted plant protection measures.

Lakshmanan *et al.*, (1997) studied the level of adoption and constraints for non adoption of recommended practices of mulberry cultivation and silkworm rearing in Tamil Nadu and found that most of the sample respondents neither applied the crucial inputs like farmyard manure and chemical fertilizer nor adopted any disease control measures during silkworm rearing as per the recommended level.

Shreedhara (1997) in his study reported that both small and big farmers had correct knowledge about recommended practices of sericulture like number of buds in cutting, planting season, planting type, land
preparation, farmyard manure application, irrigation, weeding and number of
dfls per acre of mulberry. With regard to variety of mulberry, cent percent big
farmers and 94% of small farmers had correct knowledge in Pavagada taluk
of Tumkur district.

Manju (1997) reported that 90 % of sericulturists had knowledge with
respect to practices like mulberry variety, suitable soil and pruning operation
and 70 % sericulturists possessed knowledge on farmyard manure
application, irrigation (87.50%), spacing (75.85%) and 40% sericulturists
possessed knowledge about chemical fertilizers. He further reported that in
general spread of knowledge relating to some practices was easy and quick
while diffusion of practices relating to plant protection measures, application of
chemical fertilizers, pruning, mulching and other complex ideas took more
time.

Krishnamurthy et al., (1998) in their findings revealed that type of
family, size of land holding, social participation and mass media participation
were found to be highly significant with the adopters and non-adopters of
weedicides in paddy, whereas age and education were found to be non-
significant. Mass media participation was relatively higher (83%) in case of
adopters as compared to the non-adopters. Adopters naturally have a
tendency to know information which are new and relevant to their farm
conditions (Rogers, 1993). This makes the farmers to be in touch with the
latest innovations in agriculture that are being published or broadcasted.

Waghdare et al., (1998) reported that age, education, family type,
land holding and income were not associated with adoption of practices.

Phillip et al., (1999) in their studies reported that respondents of age
group of upto 35 years with higher education were forced to have more
knowledge gain, knowledge retention, skill acquisition and symbolic adoption.
This shows that age group of 35 years, with higher education may be
concentrated while using video for dissemination of technologies in
agriculture.
Ranganathan and Sundaramari (1999) revealed that majority of the big growers were at high level and majority of the small growers were at low level of adoption of groundnut seed production technologies. Hence, it is recommended for the extension agencies to organize method demonstrations and intensive training programme for all the small growers to impart and improve their knowledge and skill in all these technologies.

Jeyakumar and Manoharan (1999) in their study reported that video education has helped the farm women to gain 69% of knowledge score and about 68% of the total respondents had symbolically accepted to adopt sericulture enterprise.

Ganapathy et al., (1999) who conducted a study in Mysore taluk observed that lack of knowledge about disease control measures as the most important reason by sericulturists for non adoption of recommended practices followed by lack of capital, high cost of fertilizers, non availability of farm yard manure in time, lack of knowledge about disinfection measures, non availability of M₅ variety and non availability of labour in time.

Mohandas et al., (1999) concluded that though there was considerable overall improvement in the adoption of new sericultural technologies, the impact of it was not fully felt on cocoon production. Practices related to young age rearing mainly contributed to segregate high and low adopters. Low awareness still remained as a major constraint for adoption of technologies.

Krishnamurthy et al., (1999) observed that 70% of the sericulturists had medium to high knowledge level on recommended sericulture technologies in the traditional area of Gowribidanur and Sidlaghatta taluks of Kolar district in Karnataka. Education, mass media exposure and extension participation had a significant relationship with the knowledge level of sericulturists.
Srinivasa et al., (1999) in their study in Sidlaghatta and Chintamani taluks of Kolar district on the effect of education and extension contact on cocoon production indicated that educated farmers got 20% higher cocoon output than the uneducated farmers and found extension had a positive and non significant effect.

Ismath Afshan et al., (1999) while studying the efficacy of extension methods in sericulture in Kolar district found that field visit followed by progressive farmers, own experience, field tours, to some extent demonstrations and trainings were the most effective source of knowledge.

Venkatesh Kumar et al., (1999) inferred that the adoption of improved practices in silkworm rearing among multivoltine seed cocoon rearers is higher in irrigated farmers (72.50%) than rainfed farmers (65.00%). Lack of economic resources, indifference on the part of the rearers, lack of effective extension activities and lack of co-ordination between farmers and extension workers were identified as the main reasons for non-adoption of improved technologies.

Narayanaswamy et al., (1999) reported that regarding the adoption of improved sericulture practices most of the farmers preferred government grainages for procuring eggs and own chawki. The other recommended practices like maintenance of temperature and humidity, mulberry leaf storage methods and use of round bamboo trays for silkworm rearing were practiced by most of the farmers. As regards to dark treatment to eggs 19.71 % of the farmers adopted it irrespective of their land size. The new technology of platform rearing with whole shoots was followed by only one farmer. Most of the farmers used the recommended chemicals for control of diseases.

Chapke Rajendra (2000) in a study on knowledge and adoption level of farmers about bio control measures in Akola district of Maharashtra reported that, 75.91% of respondents had moderate knowledge about bio control measures whereas 16.05% of respondents had low and 8.04% of respondents had high level of knowledge about bio-control practices. The
overall main and sub-practice wise distribution of respondents revealed that most of the respondents had full knowledge about relatively less number of bio control measures.

A non-significant relationship between level of adoption and independent variables like age, education, land holding, annual income, mass media and extension participation were reported by Vijaya Kumar and Kanvi (2000).

Nagoor Meeran (2000) in his study reported that the attributes viz., education, experience, farm size, material possession, extension agency contact, consultancy services, mass media exposure, scientific orientation influenced adoption of the shrimp farming practices.

Sunildutta et al., (2001) studied on adoption of sericultural practices by the sericulturists in Parbhani and Hingoli districts of Maharashtra and found that 46.25% respondents’ adoption level was high where as that of 37.5% and 16.25% respondents’ was medium and low respectively. The factors such as education, income, social contact, mass media use, cosmopolitaness and risk orientation were found to have positive relationship with adoption while age showed negative relation.

Geetha et al., (2001) in their study conducted, reported that socio-economic variables like family form, family size, occupational status, experience in sericulture, extension support, cocoon yield for 100 dfis and income had a positive significant correlation with the level of adoption.

Munikrishnappa et al., (2002) studied about the association of the socio economic characters with knowledge and adoption of improved sericulture practices by sericulturist and found that a wide range of difference in the level of knowledge and adoption among the different categories of farmers. This was due to the difference in socio-economic characters in addition to the various constraints that hinder the rate of adoption. It was noticed that extension participation along with the habit of visiting
neighbouring places were found to have positive influence on the knowledge and adoption level of sericulture.

According to Govinda Gowda et al., (2002) education, social participation mass media use and economic motivation of big farmers and mass media use and extension participation of small farmers were found to have significant relationship with adoption level of groundnut growers. In addition to this, social participation, mass media use, economic motivation and scientific orientation had significant relationship with knowledge level.

Biradar (2002) in his study reported that there was a positive and significant relationship between knowledge level and socio-psychological characteristics such as education, extension contact, mass media use and scientific orientation.

Thiagarajan (2002) in his studies on adoption of improved technologies reported that majority of the farmers have not adopted the recommended mulberry variety, fertilizer dose and scientific method of bottom pruning. None of the improved silkworm rearing technologies were followed by the farmers. Majority of the farmers have adopted the plant spacing, recommended dose of farm yard manure and leaf harvest practice. His findings revealed that farmers have adopted practices which are easy and no cost technology. He also further reported that age, education, land holding, extension participation, extension contact and mass media contact had no correlation with the adoption of technologies in drought prone areas.

Venkatesh Gandhi (2002) in his findings indicated that only 36.67% of farmers had high level of knowledge about integrated pest management practice of tomato crop and only 23.33% of farmers adopted the practice. Non-availability of IPM inputs was the problems faced by majority of the farmers.
2.7. Constraints faced by the farmers in adoption of improved practices

The following were the constraints observed and reported by different authors with respect to adoption of the recommended sericulture technologies by the farmers.

Puttaswamy et al., (1978) found lack of finance (54%) and space (24%) as the reasons, for not providing separate rearing rooms as per the recommendation. Other reasons were lack of knowledge and interest among the farmers.

Sridhar and Murthy (1978) found that lack of knowledge about new technology of silkworm rearing was the reason for non-adoption. They also observed that irregular market conditions of seed cocoons were the major factor, which inhibit the rapid expansion of sericulture programmes in Bangalore districts.

Rajashekharaiah (1979) identified the most important disincentives perceived by farmers in the adoption of various recommended practices of silkworm rearing were non-availability of credit in government grainage, unhealthy layings from licensed seed preparers, lack of trays and mountages to adopt the recommended space, delayed ripening of worms for the adoption of number of feeds, increased bed thickness for the adoption of recommended number of cleaning and lack of knowledge in the adoption of recommended control measures for pebrine, grasserie and flacherie diseases among small and big farmers of Bangalore district.

Dandin (1987) reported that the causes for low yield in sericulture were uncertainty and low rainfall, lack of availability of drought resistance mulberry varieties, non adoption of soil moisture conservation practices, inadequate application of green manures, fertilizers, lack of adequate training and extension network for improved techniques for rearing.
Ramakrishna (1987) observed that the uzifly incidence was the major problem in cocoon production as indicated by all the respondents. 97% of the respondents expressed their inability to have separate rearing house. Incidence of muscardine and grasserie were reported by 85% and 81% of the farmers respectively.

Sarkar (1988) reported that low yield of mulberry in West Bengal was attributed to lack of use of high yielding varieties, lack of knowledge of using improved agronomical practices especially in the use of fertilizers and lack of adequate training on improved technique of rearing.

Shivamurthy (1988) identified the important reasons as perceived by the sericulturists for their non adoption and partial adoption of recommended sericultural practices were lack of knowledge, lack of finance, scarcity of irrigation, lack of labour, non availability of fertilizers and chemicals in time.

Sreenivasa (1989) reported that the constraints in adopting the recommended practices by the sericulture farmers are lack of water in wells during summer (74%), lack of availability of high yielding varieties (68%). uzifly infestation (85%), lack of availability of silkworm protection measures (82%) and lack of separate rearing house, free from hazards of smoke, ants, hot air, etc., (80%).

The study conducted in Kolar district of Karnataka by Gopala and Krishna (1993) observed that lack of knowledge about disease control was perceived as the most important reason by sericulture farmers of both developed and less developed areas. Non availability of M5 improved mulberry variety was the second most important problem in less developed area.

Dolli et al., (1993) observed that reason for non adoption or partial adoption of the improved sericultural practices were low intake of layings in the study area of Mysore and H.D.Kote taluks.
Singhvi et al., (1994) reported lack of knowledge about disease control, optimum temperature and humidity required during rearing, lack of capital, high cost of fertilizers, shortage of trays and non-availability of quality chemicals were main reasons for non-adoption.

Chikkanna et al., (1995) in their study observed that lack of separate rearing house, non-availability of quality layings, non-remunerative price of cocoon, non-availability of finance and lack of awareness of technology as their main constraints for non-adoption.

Nikhade et al., (1995) indicated that lack of knowledge about fertilizer doses for mulberry and control of silkworm pests and diseases, low prices and low weighing cocoons and delay in payments were the major constraints for non adoption of technologies by the sericulturists of Risod panchayet samiti of Akola district of Maharastra state.

Govindaiah et al., (1996) in their studies reported that lack of knowledge about mulberry disease control measures, fear of toxicity to silkworms, lack of finance and poor extension were the major constraints for non adoption.

Lakshmanan et al., (1997) reported that lack of awareness and adoption of traditional practices were the main reasons for non-adoption of recommended sericulture technologies.

Srinivasa et al., (1998) studied about the constraints for adoption of new sericulture technology in non-traditional area of Karnataka and indicated that lack of knowledge (81.30%), low prices for cocoon (70.50%) and high cost (63.60%) of inputs were the main constraints for technology adoption.

Raghu et al., (1999), observed that the adoption of recommended sericulture practices was very poor in low category (15%) farmers than medium (49%) and high category farmers (36%). Lack of guidance at correct time was found to be the reason for non adoption of sericulture technologies.
Ganapathy et al., (1999), revealed that a large number of sericulturists (37.5 %) were low adopters of recommended practices. The major reasons were lack of knowledge about fertilizer dose, disease control measures, lack of capital, and high cost of fertilizers. No good price, exploitation by middlemen and distant market place were the other major constraints faced by sericulturists in marketing of cocoons.

Sumanthi and Alagesan (2000) reported that more than half of the respondents were low in the adoption of recommended integrated pest management practices. Big farmers were better adopters than small and marginal farmers. The reason for low adoption was non-availability of bio-control agents at farmer's places. Such inputs may be arranged through input agencies for better adoption by the farmers.

Mallikarjuna et al., (2001) reported that the non-availability of credit to the sericultural enterprise in Mysore district of Karnataka was one of the factor for non-adoption of technologies to the full scale.

Muniraju et al., (2001) reported that acceptance of new techniques by the sericulturists were comparatively slow mainly due to socio-economic situations.

Jayaswal and Goel (2001) opined that most of the technologies were not adopted due to lack of basic education in Dehradun and Nainital farmers. But in Uddham Singh Nagar, farmers were aware of the recommended sericulture practices and adopted the same. The reason for adopting the same was attributed to their highest basic education.

2.8. Training needs of farmers

Sericulture involves agriculture, art and industry. Mulberry cultivation involves farming practices and silkworm rearing is an art in the hands of rural people. Scientific sericulture is the meeting place for agriculture, art and industry. The production of mulberry leaves on scientific lines is essential for
organizing sericulture on sound economic lines. The existing knowledge and skills of farmers have to be improved through training for which the assessment of training need is most essential.

2.8.1. Concept of Training

**Planty and Macord (1948)** defined training as a “Specified and very practical form of education”. Basically it prepares people to do their job well. To accomplish this, it develops skills that makes intelligent actions and attitudes that bring willing co-operation with fellow employees and with management.

**Fippo (1961)** described training as “the act of increasing the knowledge and skill of an employee for doing a particular job”.

**Tylor (1961)** elaborated the meaning of training as “Training is the means to bring about a continuous improvement in the quality of work performed by the staff and individual. It should equip the leader with necessary knowledge, skills or abilities and attitude to perform the job”.

**Sethu Rao (1969)** defined farmer's training as “an intensive learning activity for a group of selected farmers, assisted by competent trainers to understand and practice the skills required in adoption of a new technology, at a place where appropriate facilities exist, at a time and duration considered suitable by the farmers.

**Coombs and Ahmed (1974)** envisaged that training emphasizes a more systematic and deeper learning of specific skills and related knowledge.

**Dwarakinath and Padmasini (1977)** indicated that training would act as a means of transferring the new knowledge and skills in scientific agriculture of an external origin to a local farming system.
Dhama and Bhatnagar (1980) stated that training is meant to educate a person so as to be qualified and proficient in doing some job. For an extension worker, training includes education and it is aimed at bringing a desirable change in behaviour of trainee or learner.

Singh (1990) defined training as a process by which an individual's efficiency and effectiveness in the given context of a job can be maximized. It equips the individual with needed knowledge, attitude and skills and enables him to reach a desired level of performance.

2.8.1 Importance of training

Dandin (1987) reported that one of the causes for low yield in sericulture was due to lack of adequate training and extension network for teaching improved techniques for rearing.

Sarkar (1988) reported that low yield of mulberry in West Bengal can be attributed to lack of adequate training on the improved techniques of rearing.

Gowda et al., (1992) observed that transfer of improved sericulture technology to the Indian farming community is a basic requirement for rural development. It was found in general that recommended silkworm rearing practices were adopted more by large farmers than small and tenant farmers. This shows that there was a need for intensification of educational extension work. Imparting sericulture knowledge to farmers was the pre-requisite to change their attitudes, skills and adoption level, which were essential components of rural development.

Das and Sharma (1998) in their study revealed that the training programme had contributed significantly in improvement of respondent's knowledge about different aspects of scientific bee keeping. It was concluded that a well organized training programme on scientific bee keeping with
adequate learning facilities and active participation of trainees could help them to acquire necessary knowledge, skill and attitude for undertaking bee keeping as a profitable enterprise.

Ashaletha et al., (1999) in their study informed that frequent transfers, too much work load, lack of promotion chance, lack of conveyance facilities, poor facility for storage of agricultural inputs, area of operation too large, lack of training to improve technical know-how, lack of proper guidance and supervision are the major constraints which affect the effective performance of Agriculture Assistants.

Vijayalakshmi and Nirmala Rao (1999) revealed that technology initiated by WYTEP (training programme) has increased average crop production and cocoon yield in beneficiary group which in turn has fetched high income and improved socio-economic status of farm house holds. The project also helped the beneficiaries to gain leadership qualities and decision markers in farming activities.

2.8.3. Impact of training on knowledge and adoption level of farmers

Patel and Patel (1968) found that with few exceptions, most of the trained farmers gained significantly higher adoption scores than those of the matched untrained farmers on the adoption of improved farm practices.

Rao and Dudhani (1969) studied the impact of training on the knowledge level of farmers and they observed appreciable increase in the knowledge level of the trainees as a result of exposure to training situation.

Ganesh (1975) revealed that impact of training on knowledge was highly significant in both the technologies of soil and water management and hybrid maize cultivation.
Dwarakinath and Padmasini (1977) in their study conducted in Bangalore district indicated that knowledge and adoption of trained women was encouraging regarding the groundnut cultivation practices. Further, they felt that there was a need for organizing as many training programmes as possible for the benefit of large number of farm women in increasing production.

Muthaiah et al., (1978) reported that training has influenced the adoption level of farmers to a significant extent in adopting the recommended cultivation practices of paddy.

Gangadharappa (1979) in his study on farmers of Malaprabha command area of Karnataka reported that trained farmers had higher knowledge score in contrast to untrained farmers regarding cultivation practices.

Bhat (1980) in a study on the impact of training on knowledge and adoption behaviour of farmers of Malaprabha command area revealed that training was positively and significantly associated with overall adoption of recommended cultivation practices of irrigated wheat.

Renukaradhya (1983) in a study conducted on farmers training programme in selected command areas of Karnataka revealed that trained farmers were superior in adoption pattern than the untrained farmers.

Gour and Shrivastava (1983) in their study revealed that there was significant impact of training on the knowledge level of farmers on improved farm practices. They reported that knowledge level about storage of food grain increased from 28 % to 56 % in case of females and from 40 % to 68 % in case of males.

Verma et al., (1984) reported that the trainees having lower level of knowledge at pre-training stage gained higher knowledge after training.
Sohal and Fulzele (1986) found that both on campus and off campus training programmes were very effective in influencing the adoption of recommended practices.

Joshi and Thorat (1992) revealed that the institutional training had significant association with knowledge and adoption level of the respondents.

Mande et al., (1993) based on the results of their study indicated that 48% of trained rural youth possessed high knowledge of soil and water management practices whereas 12 % of untrained rural youth possessed low knowledge.

Manjula and Siddaramaiah (1994) indicated that training was one of the important factors in changing the adoption behaviour of farm women and adoption was significantly correlated with age, land holding, extension participation and achievement motivation.

Naresh (1996) reported that higher knowledge level of trained farm women over that of untrained farm women with respect to improved sericulture farming implied that the increase in knowledge may be attributed to the training imparted. The adoption share of the trained farm workers was significantly higher than that of the untrained farm women. Their findings further strengthens the necessity of organizing training for the farm women as training leads to higher adoption of the technology.

Naresh and Narayanagowda (2000) in their study revealed that adoption level of trained farm women was significantly higher than that of untrained farm women. This finding strengthens the necessity of organizing training for the farm women as training leads to better adoption of technology and it was also found that trained farm women could be considered as useful source of information for the promotion of improved sericulture practices among the fellow farm women in villages.
Majority of the research studies cited above have pointed out the positive relationship between education, extension contact, extension participation, mass media participation, size of holding and adoption of recommended practices by farmers. Only few studies have shown a non significant relationship. This finding is put to test in this study for confirmation or rejection.

2.8.4 Organizational aspects of training

2.8.4.1. Training needs of the farmers

Sailaja and Narasimha Reddy (1999) reported that training needs of the farm women with regard to knowledge and skill in various areas of mulberry cultivation and silkworm rearing practices help in curriculum development. Characteristics of mulberry varieties, location specific varieties, soil type, fertilizer management were preferred areas of training. The least preferred areas were land preparation, manuring and inter cultivation. Incubation, methods of chawki rearing, lateage rearing, pest and disease control were the preferred areas of training in silkworm rearing.

Babanna (2002) in his studies has reported that the practices like pest and disease management, recommended doses of farmyard manure, chemical fertilizer and improved varieties were the major training need of arecanut growers.

2.8.4.2 Type and place of training

Type and place of training play a very important role in increasing efficiency of training. Some of the studies revealing importance of type and place of the training are as follows.

Kumar and Snehalata Mago (1974) conducted a study on training needs of farm women in Haryana and reported that most of the women preferred village as a place of training followed by institutional training.
Singh (1976) based on a study conducted on training needs of farmers reported that training programme to be organized at village level was more popular among the paddy growing farmers and the optimum size of such training group should be of 25 farmers.

Jhondhale and Chole (1989) revealed that 60 % of the respondents suggested to organize training at their resident village.

Murthy (1989) in his study on training needs of blackgram growers found that peripatetic training was preferred over institutional training by majority of farmers.

Shreeshailaja (1993) revealed that a majority of farm women preferred peripatetic training and the least preferred type of training was institutional training.

Sumanthi and Alagesan (2001) reported in their study that majority of the respondents (85%) preferred training in their village. This may be due to the fact that farm women do not want to move out of their village due to their pre-occupied commitments in their farm and home. More over they might have felt that the training offered in their own situation would be more realistic and applicable to their own background and resources.

To summarize, most of the farmers and farm women preferred peripatetic training rather than institutional training.

2.8.4.3 Season of training

Season of training refers to the month in which farmers like to undergo training. Some of the findings of studies revealing the importance of the season of training are detailed below
Sidhu and Patel (1968) reported that cent per cent of farmers and trainers favoured to organise kharif camps in the months of April-May and rabi camps in the months of September-October.

Patil and Kale (1972) reported that 94 % of farmers were in need of vocational training and opined that December to May was suitable for them to attend.

Prasad (1972) in his study found that suitable months for training as perceived by farmers were April and May or September to February.

Kumar and Snehalata Mago (1974) reported that with respect to season of training most of the women (89 out 102 respondents) considered February - March as convenient month followed by June-July.

Dayananda Patel (1985) revealed that April-May were the most suited months for training.

Murthy (1989) reported that with regard to the season of training, more than two fifth of the respondents opined that training programmes should be conducted in rabi season followed by 35 % both in rabi and kharif and 22 % in kharif season only.

Shreeshailaja (1993) reported that 89 % of farm women preferred April-May as the most suitable month to attend training. The least preferred month were October - November.

It can be concluded that majority of the farmers opined April-May as the most suitable season to attend training.

2.8.4.4 Duration of Training

Duration of training refers to number of days the training was conducted and it determines the participation of farmers in the training
programme. Some of the studies revealing the farmers preference on the duration of training are as follows.

**Sidhu and Patel (1968)** suggested 2 to 3 days duration of training as the farmers could not spare more time continuously.

**Sharma and Murthy (1971)** reported that trained progressive farmers wanted upto 30 days, whereas small and medium sized farm owners preferred training of ten days duration.

**Patil and Kale (1972)** revealed that 67% of the farmers were in need of vocational type training and opined average period of each course as nine days. Aged and poor farmers were of the opinion to have average period of peripatetic training camp as three days

**Kumar and Snehalata Mago (1974)** reported that with respect to duration of training about half of the respondents preferred two weeks and others one week training.

**Anatharaman (1977)** reported that nearly half of the marginal and small farmers preferred 4 days duration while one fifth of them requested for five days duration and nearly one sixth preferred seven days duration of training programme with respect to institutional training.

**Vashistha et al., (1978)** had found that 78.33 % of farmers were willing and ready to come for Haryana Agricultural University campus for a week’s training. The respondents expressed that they required training on citrus, grapes, guava, peach, mango and other fruit crops and the training content should be on inter-cropping, control of fruit drop, time interval and doses of manures and fertilizer application, prevention and control of insect pests and diseases.
Singh et al., (1979) in their study reported that 74.3% of the dairy farmers wanted to have short duration training course for a week rather than fifteen days or one month.

Saverimuthu (1981) found that farm women preferred training programme of three days duration.

Dayananda Patel (1985) revealed that majority of the respondents preferred 5 days training.

Shreeshailaja (1993) reported that about 32% of farm women preferred three days duration of training followed by five days duration by 29% of farm women.

It can be concluded that majority of farmers felt that the duration of training should be five days to one week, which varies according to the type of training. Usually institutional type of training will have lengthy period compared to peripatetic type of training.

2.8.4.5 Method of training

Method of training refers to the teaching methods used by the trainers to train the trainees. Training methods form the key for effective communication with the participants. Some of the studies reviewed in this area are given below.

Sidhu and Patel (1968) concluded that more emphasis should be given on practicals instead of lectures and opportunity to practice should be provided to farmers.

Sharma and Murthy (1971) reported that more emphasis was laid on field trips, visit to result demonstration plots and method demonstration. Practical rather than theoretical presentations were preferred by the participants.
Kumar and Snehalata mago (1974) revealed that with respect to methods of training imparting training by engaging the participants in practical exercises was liked by all and considered as the best method.

Sinha and Verma (1977) reported that field trials were shown to the trainees and the training was made skill oriented rather than knowledge oriented.

Shete (1978) reported that out of the four methods of training, demonstration emerged as the important method followed by film shows, group discussion and lectures by specialists.

Dayananda Patel (1985) indicated that lecture plus group discussion plus method demonstration was found to be the most useful method of training.

Jesuraja et al., (1987) concluded that the practicals on the whole helped the trainee either to learn the new skill or to sharpen the existing skill.

Shreeshailaja (1993) revealed that majority of farm women preferred combination of lecture plus group discussion plus method demonstration. The least preferred method was the study tour.

Ansari and Chandargi (2000) in their study conducted revealed that 93.75% of the respondents suggested to include more practical and 56.25% suggested field visits in the training schedule as the trainees lacked practical exposure.

It can be concluded that the trainees in general preferred the method of imparting training by involving participants in practical exercises followed by demonstration. Some farmers also preferred demonstration and group discussion as the method of training.