

**STUDY ON TECHNOLOGICAL GAP AND CONSTRAINTS
OF BIDI TOBACCO CULTIVATION IN BELGAUM
DISTRICT, KARNATAKA STATE**

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I. INTRODUCTION

Agriculture in India continues to be a game of natural hazards. Over 65 per cent of the cultivated area in India depends on the vagaries of monsoon. The monsoon is highly erratic and the rainfall is concentrated for two or three months of the year. The remaining part of the year remains almost dry. The failure of monsoon or un-timely rains causes widespread distress. It is no exaggeration to say that Indian economy revolves round the pivot of south-west monsoon. In spite of these natural handicaps, interested and progressive farmers encouraged by the agricultural scientists have managed to increase the agricultural production in several folds. The production of food grains during the post-independence period has more than doubled. The country which was largely deficit in food grains has now become self reliant. The demand for food grains and other agricultural commodities is, increasing at a rapid pace due to rapid increase in population, hence Continuous efforts are necessary to increase agricultural production at a rate as possible to maintain comfortable supply of food grains in the country.

Indian economy is vitally linked with agricultural development, about 75 percent of the population is directly or indirectly dependant upon agriculture. It is often seen that a good harvest leads to economic stability, its failure spells havoc. India is by tradition an agricultural country bestowed with abundant natural resources. Development of agricultural to its fullest potential is, therefore, the king-pin of the Indian economy and a prosperous farm economy can usher in an area of lasting peace and economic stability. It thus leads to the conclusion that traditional methods should be changed by modern scientific system of farming. Educating farmers about scientific farming, for increasing production to replace traditional methods followed earlier, in order to increase agricultural production and to bring awareness for adoption of scientific methods, the agricultural extension education plays an important role to educate farmers to equip them with knowledge to adopt scientific technologies.

In the past two decades, agricultural technology has changed from conventional method and techniques to new method and technique. Technological changes however, have opened up a new era for Indian farming community. The new agricultural technologies have established their superiority over the old ones. It is, therefore, believed that the adoption of such technologies will lead to enhance socio-economic development of the country. At present, adoption of agricultural technologies confined only to certain sections of farming community and this way create socio-economic disparities. As a result, new technologies will have to be developed which smaller farmer with different socio-economic conditions would eventually take up.

Certain sections of farming community, who were supposed to be conservative and fatalistic are now gradually moving from their status quo positions. Such type of changes may be occurring or will occur on different dimensions as the rapid advancement of technological knowledge will become part of the farming community. A time has come, to shift concern from immediate opportunities for agricultural growth to efforts to create a modern agriculture within a given period of time. This pre-supposes not only a managerial view of development but also efforts to carry the new agricultural strategy, depending upon the potentiality for growth, based upon the characteristics of each region, to sectors of rural society and to areas hitherto not understood.

In general, more emphasis has been given to food and fibre crops in various agricultural development programmes particularly in high yielding varieties programme. Relatively lesser attention has been given to the development of commercial crops like tobacco.

Although the official history of the development of tobacco on commercial scale in this country dates back to the advent of the Portuguese in the early seventeenth century, large number of references to tobacco in 'Puranic tales' and the 'Ayurveda' show that tobacco was known to India from time immemorial.

Tobacco is the only commercial non-food crop that enters the world trade as a leaf. It is prized for aroma taste and flavour. It is an important commercial crop in view of revenue generation, export earning and employment potential. It is aptly called as the golden leaf of India. India is one of the leading exporters of FCV tobacco, having 5% (by vol) and 0.7% (by value) share in the world's total imports and exports. Tobacco exports accounts for 3.5% (by vol) of India's Agricultural exports contributing Rs. 1050.22 crore to the exchequers. Tobacco provides Rs. 8182 crore as excise revenue. With cigarette contributing to 80 per cent of this amount. It provides employment for about 6.5 million people including growers and curers. In addition, cigarette industry provides employment for 5 million people and bidi industry for about 30 million people (Anon., 1998).

The bidi tobacco occupies a pre-eminent position in India because it accounts for 36% of the total tobacco production. There are two distinct zones of it. One is represented by Charotar zone in north Gujarat and other is Nippani in Karnataka.

India is a major grower and exporter of tobacco in the world. Tobacco contributes a lot to the government exchequer in terms of revenue generated through central excise on cigarettes. The cultivation, processing, manufacture and marketing of tobacco and tobacco products also provide gainful employment to millions of people in the organized and unorganized sector.

In India different varieties of tobaccos are being grown which are suitable for manufacturing cigars and cigarettes, beedies, hookah, cheroots, snuffs and also for chewing. The share of these tobaccos is 37 per cent for beedies, 20 per cent for cigarettes (flue-cured Virginia), 14 per cent for hookah, 12 per cent for chewing, 5 per cent for snuff and cigars and 1 per cent other products (natu, burley, etc.) Of the total tobacco produced, 48 per cent is used in making beedies, 28 per cent for chewing and other uses and 14.00 per cent in cigarettes. The consumption of tobacco in India is growing at the rate of about 1.20 per cent per annum. The cultivation of tobacco is the lifeline of 30 million people in the country. There are an estimated 6 million farmers engaged in the cultivation of tobacco, 4 million people engaged in rolling of beedies and one million people engaged in plucking of tender leaf. There are more than a million people engaged in selling of cigarettes, beedies, betals, gutka and other tobacco products. The fate of even betal industry hangs on tobacco. Betals contain several other ingredients like arecanuts, kaththa, lime, cardamom, cloves, fennel, gulkand, etc. These all industries are inter-dependent and a ban on gutka or betal chewing can affect all these industries badly.

Tobacco is a drought resistant crop mainly grown in unirrigated lands in the country. Its normal cropping season is from June to december. Andhra Pradesh, Gujarat, Karnataka and Uttar Pradesh are major tobacco cultivating states in the country accounting for over 90.00 per cent of the area and output of tobacco in the country. The cultivation of tobacco has now extended to Bihar, Maharashtra, Orissa, Tamil Nadu and West Bengal respectively.

The area under tobacco in India fell from 5.08 lakh hectares in 1998-99 to 2.85 lakh hectares in 2000-01 and the production of tobacco from 7.36 lakh tones to 4.88 lakh hectares. Despite being the second largest producer of tobacco in the world. At present, its share in world tobacco exports is just 5.60 per cent against 17.00 per cent of Brazil, 10.00 per cent of the US, 9.00 per cent of Zimbabwe and 6.00 per cent of China (Anon., 2003).

Two species of genus *Nicotiana* are commercially cultivated for the production of tobacco in most of the countries (species viz., *N. rustica* and *N. tabaccum*), whereas, the cultivation of *N. rustica* is restricted to India, USSR and some other Asiatic countries.

India ranks forth in the world in tobacco exports, after the Brazil, Zimbabwe and USA. The exports of leaf tobacco from India in 2000-01 was 1,00,537 tonnes of leaf tobacco valued at Rs. 677 crores. Indian Virginia flue cured tobacco is exported to over 30 countries; of these U.K., U.S.S.R. and Bangladesh are the largest buyers (twenty per cent of the total production has been exported and remaining is used locally). During 2001- 2002, 1.42 million Kg of cigarette with a value of Rs.37.22 crores have been exported; whereas, 2.90 million Kgs of

bidi worth of Rs. 79.05 crores has been exported. It is estimated that over 85 billion numbers cigarettes and over 900 million numbers of bidis are manufactured annually in India (Anon., 2003).

In tobacco production, India ranks second after the China with an annual production of 5,99,400 million tonnes from an area of about 2.85 lakh hectares. Almost all States in India grow tobacco but the important ones are Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, Bihar, West Bengal and Uttar Pradesh in that order and account for about 90 per cent of the annual production.

Among the various commercial types of tobacco cultivated in country, most of cigarette tobacco (Flue Cured Virginia.) is concentrated in Andhra Pradesh, while in Tamil Nadu, cheroot and chewing tobacco are extensively grown. Bihar and West Bengal grow varieties of both the hookah and chewing. Bidi tobacco is almost entirely localized in Gujarat, Karnataka and part of Maharashtra. While Uttar Pradesh and Punjab grow extensively hookah and snuff making varieties.

The annual area under bidi tobacco is estimated at about 2,50,000 acres representing nearly a fourth of the total acreage under tobacco in the country. Kaira and Baroda districts of Gujarat and Nippani area of Karnataka are the two main tracts of bidi tobacco cultivation.

In Karnataka, Bidi tobacco occupies an area of 75,000 acres spread over in the districts of Belgaum, Bellary, Mysore, Chitradurga, Hassan and Shimoga. In the State, Belgaum district ranks first with an area of 29,218 ha and production of about 18,176 tonnes, wherein Nippani area dominates both in production and area coverage. The average yield of bidi tobacco in Belgaum district has been in the range of 200 to 350 kg per acre; whereas, it is mainly grown as a rainfed crop during kharif cum *rabi* season. However the, research findings have shown that the yields of tobacco could be maximized by entire adoption of practices like recommended variety, application of recommended dose of nitrogenous, phosphatic and potassic fertilizers and taking plant protection measures as per recommendations.

Adoption of recommended practices would require many adjustments on the part of farming community. Such adjustments can be effective much more easily if there is proper understanding of what changes are and how they operate.

On ascertaining the fact, the attention of rural sociologists and extension researchers have been directed in studying adoption behaviour in general and cultivators in specific area of work in particular. Adoption of an improved practice by a farmer necessarily based on his capacity to acquire and absorb information about new technology and on his capacity to convert this knowledge in to practice. As such, it is necessary that the extension worker must know a good deal about the social environment in which that person lives and operates. The concept of adoption provides a valuable frame of reference to extension workers to organize communication efforts to more individuals along adoption continuum.

The Indian farmers are passing through a period of greater challenges and responsibility. They have to move forward to meet the challenges relating to increasing the production of agricultural commodities by adopting the recommended agricultural technologies on their farms. The adoption of technology requires a series of decisions that they have to take in appropriate time and in rational manner.

Generally the commercial crop (like tobacco) growers are expected to be in possession of progressive values and has got managerial capacity as compared to the other farmers. These values make them to enable in collecting all possible information about the innovations, relate them to their specific situation and making rational selection of means in order to attain maximum net returns.

This research study intends to focus on the deviation in technological use at farmers fields from the recommended levels and constrains of Bidi tobacco cultivation with the following objectives:

1. To study the profile of Bidi tobacco farmers.
2. To know the technological gap in important farm operations of Bidi tobacco cultivation.
3. To find out the relationship between different personal psychological and socio-economic characteristics of farmers and their technological gap.
4. To know the problems and suggestions of bidi tobacco constraints as perceived by the respondents.

LIMITATIONS OF THE STUDY

The present investigation has major constraints of time and other resources usually faced by a single student investigator. These limitations determined the restricted selection of only one district as the locale of the study and also the sample size. Therefore, the findings of the study have to be viewed in the specific context of the conditions prevailing in the area and cannot perhaps be generalized for a wider geographical area. However, these findings will be applicable wherever similar conditions prevail.

SCOPE OF THE STUDY

The approach and brief statement and objectives given above would indicate the practical utility of research. This inturn will help to know where farmers are in the adoption of recommended practices of Bidi tobacco Technology. It would help the concerned extension agencies, researchers and policy makers to take up appropriate measure to reduce the technological gap in cultivation of Bidi Tobacco and it leads to maximum production.

II. REVIEW OF LITERATURE

The main aim of this chapter is to report the theoretical views and empirical findings of the past and present theoreticians, investigations and proponents concerning the present research problem. It helps the researcher in formulating the conceptual framework of the study and in understanding the methods of conducting the research. It also provides comparable data on the interpretation of the results. The available literature on technological gap and related concepts and which are in tune with the other objectives of the study were reviewed and are presented under the following heads. In addition, the conceptual framework and research hypothesis are also furnished.

- 2.1 Profile of the respondents.
- 2.2 Technological gap and adoption.
- 2.3 Relationship between different personal psychological, Socio-economic characteristics of farmers and their Technological gap
- 2.4 Problems of Bidi tobacco cultivation.

2.1 PROFILE OF THE RESPONDENTS

Reddy (1991) revealed that 59.00 per cent of the farmers were middle aged followed by young 34.00 per cent and only 7.00 per cent of the farmers were old. He also reported that 8.00 per cent had received primary education, 35.00 per cent had received high school education, while 21.00 per cent and 15.00 per cent received pre-university and graduation, respectively.

Belligeri (1996) revealed that 53.00 and 47.00 per cent had regular and occasional contacts with Agricultural Assistant. About 54.00 per cent of the respondents had occasional contact with Assistant Agriculture Officer, followed by regular contact (41.00%) and 5.00 per cent never contacted.

Belligeri (1996) revealed that 56.00 per cent of the farmers had received primary education while 14.00, 4.00 and 5.00 per cent of them had undergone high school education, studied upto PUC and graduation, respectively and also revealed that 46.00 per cent of the farmers were medium level farmers while 28.00 and 16.00 per cent of them were big and small farmers respectively. Only 10.00 per cent of them were marginal farmers.

Belligeri (1996) revealed that radio sets were possessed by majority of the respondents (76.66%). Among them 18.00 per cent of them were regular listeners of Krishranga programme. Television, owned by 14.00 per cent viewed Krishidarshan. Newspaper was subscribed by 10.00 per cent and none of them subscribed farm magazines.

Elangovan and Vasantha Kumar (1997) revealed that from the extension officials point of view most of the referent eco-friendly technologies were found to be useful. Since, the training programme undergone on eco-friendly technologies had positive and significant correlation with the precipitation of extension officials on eco-friendly technologies. He also reported that a new training strategy may be drawn which suited to the emerging environmental issues in agriculture.

Lakshminarayan (1997) revealed that 37.00 per cent of sustainable sugarcane farmers were middle aged, 33.00 per cent were young and 30.00 per cent were old aged. He also reported that 35.00 per cent respondents had low extension agency contact while 34.00 per cent had medium and 31.00 per cent had high extension contact.

Lakshminarayan (1997) revealed that 54.50 per cent of the respondents had small farm size while 45.50 per cent of the respondents had large farm size. He also reported that about 34.00 per cent of the farmers had low farming experience while 32.50 per cent and 33.50 per cent farmers had medium and more experience, respectively.

Shereif (1997) reported that the farm magazine, Kerala Karshakan had higher coverage in the topic "Low cost farming technologies (14.80%) while in Kalpadhenu higher coverage was for environmental issues (16.90%). He also reported that Kerala Karshakan also covered use of biofertilizers (13.40%) use of biopesticides (11.70%), soil management practices (10.30%), environmental issues (8.90%), optimum use of organic materials (7.40%), IPM (5.80%), Agro-forestry (4.40%), natural resource management (2.90%) and organic farming (2.90%).

Elangovan and Vasantha Kumar (1998) revealed that group approach was used to a larger extent of disseminate eco-friendly technologies than the individual and mass contact approaches. Regarding the extension methods, method demonstrations were widely used to disseminate these technologies followed by general meetings.

Sriram and Palaniswamy (2000) reported that the farmers had favourable attitude towards eco-friendly agricultural practices in cotton. The reasons were on farm trials, campaign, film shows, video shows, publishing articles in newspapers broadcasting and telecasting articles on EAP in All India Radio and Doordarshan acted as a catalyst informing favourable attitude towards EAP.

Natikar (2001) in his study found that majority of the respondents belonged to medium farming experience (48%) followed by high (45%) and low (7%) farming experience respectively.

Shahidhar (2003) in his study revealed that 42.44 per cent of respondents belonged to medium level of income (Rs. 1-2 lakhs) and in low income category, 30 per cent of respondents were noticed, whereas 27.70 per cent of the farmers belonged to high income group.

Venkataramulu (2003) reported that majority of the chilli growers had medium level of risk bearing capacity (73.33%) in Guntur district of Andhra Pradesh.

Shashidhar (2003) revealed that majority of the respondents fall under middle age (48.33%) category followed by young age (31.66%) and old age (20.00%) groups.

Shashidhar (2004) revealed that majority of the farmers (70.83%) had medium level of risk bearing ability and low (15%) level of risk orientation.

Sunil Kumar (2004) conducted a study in Belgaum district and indicated that majority of respondents belonged to middle age group.

Sunil Kumar (2004) reported that majority of the respondents belonged to the medium income category (48.33%).

2.2 TECHNOLOGICAL GAP AND ADOPTION

Gap in the adoption of recommended practices has been studied all over the country in various fields of agricultural technology. Studies reviewed to know the extent of technological gap are presented below:

The All India Co-ordinated Research Programme in Extension Education, Indian Agricultural Research Institute (1979) gave a formula to assess the technological gap,

according to which the technological gap is the deviation from the recommended levels technology expressed in percentage.

Chitniz and Bhilegaonkar (1985) in their study about the technological gap in dry farming system reported that mean technological gap was highest for small farmers followed by medium and large farmers in respect of dry land technologies, namely, varietal recommendation, sowing technique, use of fertilizers, plant protection measures, horticultural operations and inter-cropping technologies. The study indicated that small, medium and big farmers differed significantly with respect to their of technological gap. The study was conducted in Aurangabad district of Maharashtra.

Jaiswal and Rathore (1985) observed that the technological gap in wheat cultivation practices was 57.1 and 72.4 per cent respectively amongst the categories of irrigated and unirrigated category of farmers in Damoh, Madhya Pradesh. It was revealed that the technological gap was highest in respect of fertilizer application, seed treatment and plant protection for both categories of farmers.

Pillai and Subramonian (1986) in their study about technological gap in integrated soil conservation practices has revealed that technological gap was high in agrostologic practices like planting of grass species such as Congo signal all along the top and sides of contour bunds. The composite technological gap in integrated soil conservation practices was found to be 48.37 per cent.

Jaiswal *et al.* (1987) revealed that there existed 24 per cent adoption gap in respect of wheat cultivation technologies in Bundelkhand region of Madhya Pradesh.

Srivastava and Singh (1990) reported that technological gap was highest in respect of fertilizer application in all categories of farmers. It was 56 per cent and 76 per cent in case of marginal farmers with regard to nitrogen and phosphorus fertilizer respectively. While the same was 78 and 75 per cent in case of small farmers, it was 46 per cent and 90 per cent in case of medium farmers. The gap in Nitrogen fertilizer application was 64 per cent in case of large farmers while the same in respect of phosphorus fertilizer was 78 per cent.

Rao and Veerbhadraiah (1993) reported that out of the fourteen low cost technologies identified in paddy only three were found to be adopted by more than 70 per cent of the farmers. These practices were correct method of irrigation to nursery. Practices like seed treatment, deep application of green manure to main field, correct method of fertilizer application to main field, like planting, chemical, weed control and correct method of top dressing were adopted by only two to five per cent of the farmers.

With regard to the adoption of non-cost technologies, out of the fifteen practices identified, five practices viz., correct use of application of farm yard manure to nursery use of appropriately aged seedlings, correct time of transplanting, correct time of weeding and proper time of harvesting were adopted by more than 90 per cent of farmers. Percentage of adopters in respect of appropriately aged seedlings, use of correct rate, correct time of application of farm yard manure to the main field, correct time of green manure application to the main field and correct time of fertilizer application to the main field was low.

Jaiswal and Duboliya (1994) observed that majority of farmers were in medium to high level of adoption gap with respect to soil treatment, time of sowing, seed treatment, method of sowing, fertilizer application, irrigation, weed control and plant protection in Surguja district of Madhya Pradesh.

Nataraju *et al.* (1995) reported that the adoption rate was low with respect to paddy cultivation practices under NARP in Karnataka. It was 33 per cent for seed rate, 0 per cent for seed treatment, 24 per cent in nitrogen application, 22 per cent in potassium application and 12 per cent in case of plant protection.

Mahawer *et al.* (1995) in their study about the technological gap between beneficiaries and non-beneficiaries of scheduled caste research project in Rajasthan revealed that there was a wide gap (68%) in the knowledge possessed by the beneficiary farmers in respect of plant protection measures, where as it was 89.34 per cent in case of non-beneficiary farmers. The study showed that there was significant difference in the knowledge level of beneficiaries and non-beneficiaries in other areas of wheat production technology viz, use of high yielding varieties, seed rate and seed treatment, fertilizer application, improved agricultural implement and overall knowledge.

Patil and Deshmukh (1995) reported that there was an overall technological gap of 39.57 per cent in case of contact farmers and 57.73 per cent in case of potential farmers in respect of selected practices of paddy cultivation. The gap was highest in case of use of chemical fertilizers for main field (81.83%), use of chemical fertilizer nursery (50%) and seedbed preparation (40%) for contact farmers. But the technological gap in case of potential farmers was highest for plant protection (93.75%) followed by use of chemical fertilizer in main field (89.52%).

Patil (1995) reported that mean technological gap in different cultivation practices of paddy was highest in respect of application of fertilizers to nursery (88%) followed by seed treatment (81.75%) application of FYM/Compost to nursery before sowing (79%), application of FYM/compost to main field (71.15%) use of chemical fertilizers (57.58%) and preparation of raised beds for nursery (37%).

Ray *et al.* (1995) reported that the mean technological gap in Aus, Aman and *Boro* paddy in west Bengal were respectively 37.40, 40.70 and 25.20 per cent, respectively. Technological gap in individual practices of paddy cultivation in case of aman paddy were high in case of seed treatment 60.00 per cent, farm yard manure application 55.00 per cent, nitrogen application 44.00 per cent, Phosphorous application 57.00 per cent, potassium application 63.00 per cent and use of plant protection measures 41.00 per cent.

Ray *et al.* (1995) defined technological gap as the proportion of gap in the adoption of practices, to the practices recommended, and expressed in percentage.

Singh and Chuhan (1996) in their study about the technological gap in mustard concluded that there was 54.50 per cent technological gap in the use of recommended mustard production technologies. The technological gap was highest in case of seed treatment (90%) followed by plant protection measure (68%) and fertilizer application (54%).

Nikhade *et al.* (1997) in their study about technological gap in red gram, green gram and Bengal gram in Gulbarga district of Karnataka observed that a wide gap (43%) was observed in the use of plant protection measures, followed by application of nitrogenous (31%), phosphatic (25%) fertilizer and seed rate (29%) in cultivation of red gram

Das and Chakraborty (1997) defined technological gap as the gap between the technology or inputs being recommended by the agronomists or by research stations and the inputs being used in the farmers field.

Singh and Sharma (1998) revealed that more than half of the respondents (54.45%) did not adopt seed treatment in paddy. Lack of knowledge and lack of availability of chemicals were the major reasons for non-adoption. Majority of the respondents (37.7%) reported that they used more seed rate because of damage caused by birds and animals and also due to poor germination. The study revealed that none of the farmers adopted line sowing. It was found that 32.5 per cent of the respondents applied more than the recommended dose of fertilizers, while 70 per cent of the respondents applied less than the recommended dose. The study revealed that 93 per cent of the farmers were in the non-adopter group regarding weedicid application.

Nagaraj (1999) reported that none of the big and small groundnut farmers adopted practices like seed treatment with chemicals, weedicid application, plant protection

measures, opening dead furrows, use of grass outlets and farm ponds in groundnut cultivation.

2.3 RELATIONSHIP BETWEEN DIFFERENT PERSONAL PSYCHOLOGICAL AND SOCIO-ECONOMIC CHARACTERISTICS OF FARMERS AND THEIR TECHNOLOGICAL GAP

SI no.	Independent variables	Year	Respondent	Nature of Relationship
1.	Age			
	Bhaskaran and Thampi Patil	1986 1995	Paddy grower Paddy grower	Non-significant Non-significant
2	Education			
	Patil Naghabhushanam and Kartikeyan	1995 1998	Paddy Paddy	Significant Significant
3	Economic Status			
	Sulaiman and Prasad Nikhade <i>et al.</i> Naghabhushanam and Kartikeyan	1993 1997 1998	Paddy Paddy Paddy	-vely significant -vely significant -vely significant
4	Farm size			
	Patil	1995	Paddy	Non-significant
5	Innovativeness			
	Sulaiman and Prasad Nikhade <i>et al.</i> Naghabhushanam and Kartikeyan	1993 1997 1998	Paddy Paddy Paddy	-vely-significant -vely-significant -vely-significant
6	Social participation			
	Patil Rathod	1995 2005	Paddy growers Sugarcane growers	Significant +vely significant
7	Risk orientation			
	Sulaiman and Prasad Nikhade <i>et al.</i> Naghabhushanam and Kartikeyan Gupta	1993 1997 1998 1999	Paddy growers Paddy growers Paddy growers Paddy growers	-vely-significant -vely-significant -vely-significant -vely-significant
8	Extension contact			
	Kubde <i>et al.</i>	2000	Cotton growers	-vely-significant
9	Extension participation			
	Chandre gouda Resmy	1996 1998	Paddy grower Paddy grower	+vely-significant +vely-significant
10	Mass media participation			
	Hanumrangaiah Sujatha Annamalai Venkatesh Prasad	1996 1998 1998	Paddy growers Paddy growers Paddy growers	+vely-significant +vely-significant +vely-significant
11	Credit orientation			
	Tyagi and Tyagi	1988	Sugarcane growers	Significant

2.4 PROBLEMS OF BIDI TOBACCO CULTIVATION

A number of technologies have been generated in the research stations during the past years. But inspite of concerted extension efforts many of these technologies remains unadopted by the farmers. This has resulted in realization much below the potential levels. What are the constraints that limit the adoption of these technologies? Literature reviewed to know about the problems of Bidi tobacco cultivation is given below.

Nagaraj and Srinivasmurthy (1987) in their study about constrains and fertilizers use revealed that the most expressed constrain was the lack of method to cover the risk of investment in fertilizer in case of crop failure. Non availability of crop loan at reasonable rate of interest, inadequate understanding about the increased net income from fertilizer were the other major constraints.

Singh *et al.* (1987) reported the major perceived constraints of fertilizer use as high cost of fertilizer (100%), lack of money (87.5%), lack of assured irrigation (62.5%), lack of adequate knowledge about fertilizers (28.84%) and non availability of fertilizers in the village (23.07%).

Jaiswal and Sharma (1990) revealed the constraints in technology adoption in rice as non availability of seed at proper hour, high cost of seeds, fertilizers and chemicals, lack of knowledge about seed rate, seed treatment and use of plant protection chemicals and lack of adequate irrigation.

Srivastava and Singh (1990) reported that the three major constraints of paddy production under rainfed condition expressed by all categories of farmers were high prices of fertilizers, lack of irrigation facilities and erratic rainfall. Other constraints faced by majority of the farmers were non availability of improved seed, lack of technical knowledge, low price of farm produce, lack of capital and non availability of credit.

Mundhava and Patel (1991) in their study about the constraints of ranged wheat technology revealed that farmers expressed lack of market value as reason for non-adoption of improved varieties. The reason for not adhering to the recommended seed and seed rate was found as non-availability of quality seeds and the fear of farmer about decreased yield, high cost of fertilizers and chemicals was the major factor hindering their use at the recommended level.

According to the NARP Status report (1992), Kerala Agricultural University, the production constraints of rice in the central zone were non availability of quality seed, use of excess seed rate by farmers, lack of varieties suitable for dry sowing and second crop seasons, also for drought and flood prone areas, non adoption of recommended dose of fertilizer for dry zone rice, lack of proper weed control, low plant population due to wider spacing, use of over aged seedlings, inadequacy in the availability of organic manures, imbalance and untimely use of fertilizers, non adoption of liming, non adoption of scientific water management practices, regular occurrence of stem borer, gall midge, leaf roller and rice bug and incidence of blast, sheath blight, brown spot, stack burn and bacterial leaf blight, scarcity of labour at peak periods of agricultural operation and ever increasing labour wages. (Anonymous, 1992).

Abdul Rehman *et al.* (1992) in their study about the constraints of evolving, spreading and adopting improved rice varieties in Kerala found that, out of the nine constraints identified, lack of facilities for evolving specific varieties suited to certain rice pockets of Kerala ranked first as perceived by the research system. Non filling up of post of scientists, lack of facilities to multiply seeds of improved varieties and for on farm teaching of farmers was other important constraints in the descending order. Susceptibility to pests and diseases, requirement of heavy dose of fertilizers, poor cooking quality and low straw yield were the most important constraints in spreading and adopting improved rice varieties as perceived by extension, client and input subsystems.

Santha *et al.* (1992) observed that technological constraints was the major reason for non adoption of high varieties of paddy in Trivendrum district of Kerala.

Singh *et al.* (1992) in their study about the constraints analysis of low and non adoption of HYV rice technologies in Bihar revealed that lack of seeds suitable for top sequence of land, susceptibility to pests and diseases, lack of availability on time and lack of irrigation, facilities were the major constraints hindering the adoption of HYV seed of paddy.

Ray *et al.* (1995) studied about the perceived constraints of technology adoption by the client system. Further analysis of sixty seven client system constraints revealed that 68 per cent for the variance was explained by eleven factors viz., contingency management, custom service, input availability, bio-energy, soil productivity, land tenure, hired labour, credit and traditional norms.

Geethakutty and Menon (1995) found that the major constraints posed by the farmers in split application of fertilizers was the lack of conviction about the relative advantage of the practice. The major constraints pointed out by the farmers in not adopting the correct method of application of nitrogenous fertilizers were lack of knowledge about the specific methods of application, non-availability of the material and their perceived impracticability.

Wasnik (1995) reported that 86.00 per cent of farmers expressed lack of technical know how in different stages of crop production as the major constraints in the adoption of improved sugarcane production technologies. It was found that poor economic condition coupled with high cost of fertilizers and pesticides did not permit 72.00 per cent of farmers to use fertilizers and pesticides.

Elsamma *et al.* in their report of basic socio-economic survey and constraints analysis in Agriculture (1997). NARP (Southern zone), Kerala Agricultural University identified that high cost of labour was the major constraint of paddy cultivation as expressed by 85.00 per cent of the farmers. The other important constraints were high cost of fertilizer and manure (61%) and high cost of plant protection chemicals (48%).

Desai *et al.* (1997) in their study about the constraint faced by contact farmers in adoption of new technologies found that non availability of improved implements, inadequate capital for the purchase of seeds and fertilizers and non availability of improved seeds in time were the main constraints pertaining to the availability of resources. The reason for non application of appropriate doses of fertilizer was the lack of facility for soil analysis. With regard to the adoption of crop production technology management, the main constraints were lack of knowledge about profitable crop rotation and labour shortage for performing timely operations. In adoption of plant protection measures, non availability of plant protection appliances and lack of finance for the purchase of chemicals were cited as the major reasons for non adoption.

Sharma *et al.* (1997) revealed that the technological constraints perceived by the farmers in adoption of improved maize technologies were, lack of knowledge about improved varieties, lack of latest technological know-how, timely non-availability of technology at village level, lack of training facilities for acquiring new technology, inadequate knowledge about fertilizer and lack of knowledge about insects pests and disease control. Timely non-availability of improved seeds, and non availability of farm implements was the major supply constraints. High costs of inputs, lack of finance, non availability of money in time and high labour charges were the economic constraints faced by farmers.

Sujatha and Annamalai (1998) reported that lack of adequate guidance, lack of awareness, high cost of inputs in time and inadequate quality of inputs were the major constraints are expressed by majority of the marginal, small and big farmers for better utilization of inputs.

III. METHODOLOGY

The present study was conducted in Belgaum district of Karnataka State during the year 2006. The methodology followed in this study is presented under the following headings.

- 3.1 Research design
- 3.2 Locale of the study
- 3.3 Selection of respondents
- 3.4 Selection of variables
- 3.5 Operationalisation and measurement of dependent variables
- 3.6 Operationalisation and measurement of independent variables
- 3.7 Method of data collection
- 3.8 Statistical tools used

3.1 RESEARCH DESIGN

The present investigation deals with a phenomenon, which has already occurred. The variables were either already occurred or could not be manipulated. In view of the prevailing situation, sample size and the phenomenon studied, the "Ex-post facto" design was selected as an appropriate research design. This design can be used to device studies, to deduce theories, identify behaviour phenomenon and explore conditions under which phenomenon occurs (Robinson, 1976).

3.2 LOCALE OF THE STUDY

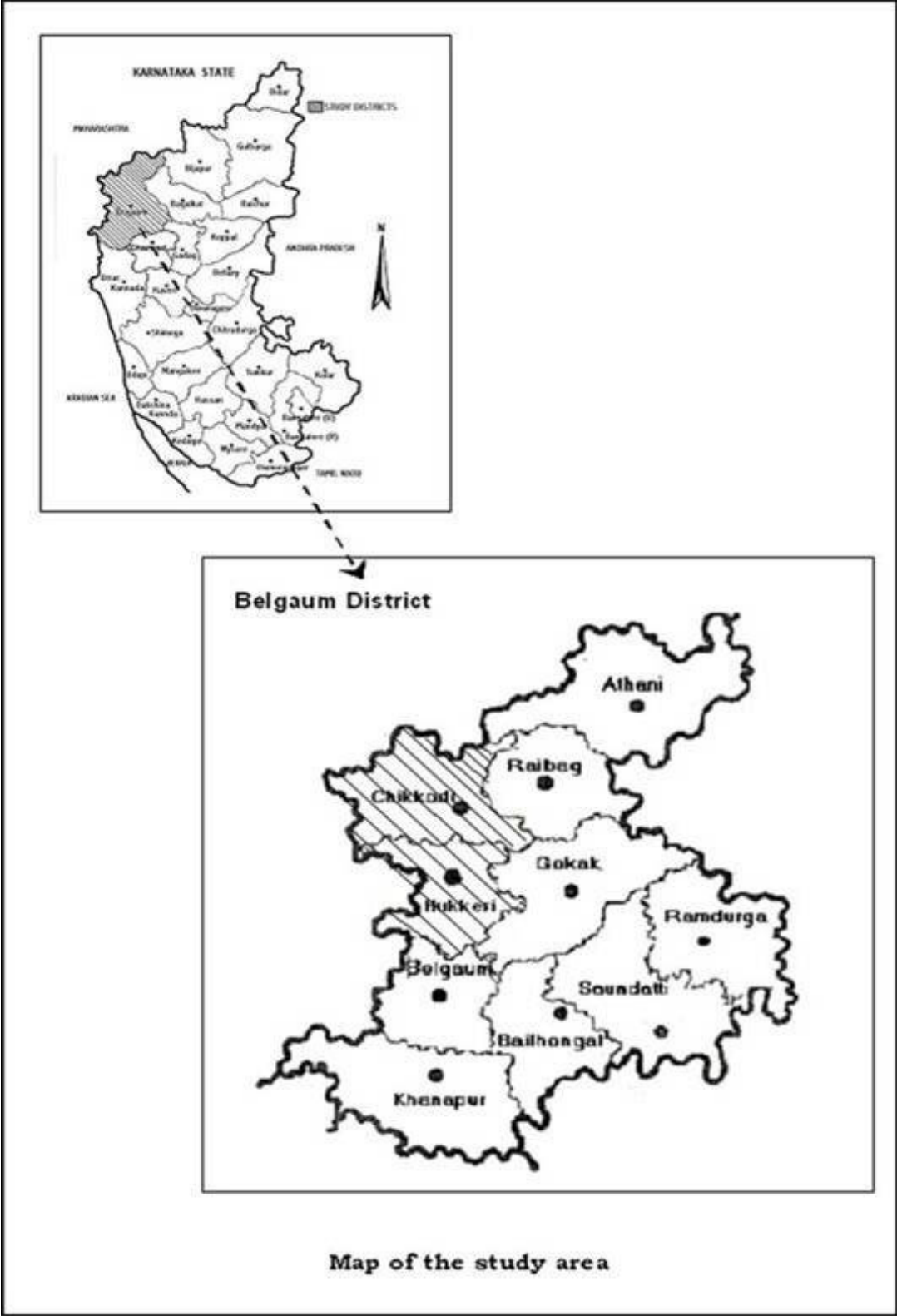
3.2.1 Selection of district

Belgaum district was purposively selected as it had the largest cultivable area and production of Bidi tobacco in Karnataka.

3.2.2 Brief description of the study area

Belgaum district is located at Northwest of Karnataka State between 15^o 23' to to 16^o 58' N latitude and 74^o 05' to 75^o 28' longitude. It is surrounded by Bijapur, Bagalkot, Dharwad and Karwar district of Karnataka State and Sangli, Kolhapur, Ratnagiri district of Maharashtra State. The total geographical area of the district is 13.415 Sq.Km. which stands in second place in the state and consists of ten taluks. The district receives an average rainfall of 808 millimeters.

The major soils of this region are medium to deep clay with light black, reddish sandy and red sandy loam. The cropping pattern of the district shows that food grains occupied a major portion of cultivated area (5,66,698 ha) of the food grains, cereals millets constitute 84.45 per cent and pulses constitute about 15.5 per cent. The total food crops grown including food grains, fruits, vegetables and sugarcane etc. occupied 73.00 per cent of the gross cropped area. The non-food crops occupied about 26.00 per cent (2,72,958 ha) Bidi tobacco occupies nearly 29000 ha of the gross cropped area and the net irrigated area is 3,45,817 ha.



Map of the study area

3.2.3 Selection of Taluks

These are 10 taluks in Belgaum district. Out of these ten taluks Chikkodi and Hukkeri were the major area covered under Bidi tobacco cultivation.

Chikkodi taluk :	1] Nippani	4] Jathrat
	2] Pattankudi	5] Akkol
	3] Khadaklat	6] Nagnur
Hukkeri taluk:	1] Ammanagi	4] Karajaga
	2] Nidsosi	5] Honnolli
	3] Kanagala	6] Kesti

3.3 SELECTION OF RESPONDENTS

The Hukkeri and Chikkodi taluks from the Belgaum district were selected purposively for the study. From each taluk six villages were selected. From each village, 10 Bidi tobacco growers were selected. Thus, the total sample size of respondents is 120.

3.4 SELECTION OF VARIABLES

Dependent variables

Considering the objectives of the study technological gap in critical farm operations of Bidi tobacco was considered as the dependent variable. Critical farm operations were identified based on discussion with Scientists and Extension Workers. The package of practices/ recommendations as given by University of Agricultural Sciences (UAS) Dharwad was used as the reference to assess the technological gap. The practices selected based on discussion with subject matter specialists and their recommendations are as listed below.

Sl. No.	Name of the practice	Recommendations
1	Variety used for planting	A 119, PL5, NPN 22
2	Preparatory cultivation	Deep ploughing
3	Planting Method	Flat planting
4	Time of transplanting	10 th – 25 th August
5	Spacing	100 cm × 75 cm
6	Application of FYM / compost	5 tons/ha
7	Application of fertilizers / Acre	
	Nitrogen (N)	50 kg
	Phosphorus (P ₂ O ₅)	20 kg
	Potash (K ₂ O)	16 kg
8	Irrigations	3-4 times
9	Inter cultivation	2-3 times
10	Level of topping	16-20 leaves
11	Sucker control	Khudaband 4% or Stomp 1.5%
12	Harvesting	When maximum number of leaves develops spangles
13	Plant protection measures	
	A) Pests: I) Cutworms	2ml/lit Endosulfan/

Contd....

Quantity of chemicals II) Leaf eating caterpillars Quantity of chemicals III) Aphids Quantity of chemicals	chlorpyrifos 2ml/lit Endosulfan/ chlorpyrifos 2ml/dimethoate/0.3ml imidachlpirde/1g acephate
B) Diseases: 1. Damping off 2. Black shank and leaf blight 3. Root knot nematode 4. Frog eye spot 5. Alternaria leaf spot	Fytolan/Blitox 2gm/lit Redomyl mz.72 wp 2gm/lit Fytolan/Blitox 2gm/lit Redomyl mz.72 wp 2gm/lit Furdon 3G/10G rugby Carbendyzim 1gm/lit Mancozeb 2gm/lit

3.5 OPERATIONALISATION AND MEASUREMENT OF DEPENDENT VARIABLES

3.5.1 Technological gap

Technological gap has been defined as the proportion of gap in the adoption of practices recommended and it is expressed in percentage (Ray *et. al.*, 1995). In the present study technological gap was operationalised on the division in adoption of 13 recommended Bidi Tobacco cultivation practices by the farmers and expressed in percentage.

The technological gap of a particular practice expressed in percentage was:

$$\text{Gap in use of a practice} = \frac{(\text{kg ha}^{-1} \text{ recommended}) - (\text{kg ha}^{-1} \text{ applied})}{(\text{kg ha}^{-1} \text{ recommended})} \times 100$$

$$\text{Mean technological Gap of the farmer} = \frac{\text{Total gap for all practices considered}}{\text{No of practices considered}} \times 100$$

Mean technological gap in critical farm operations of Bidi Tobacco cultivation was taken as the dependent variable. Package of practices recommended by the Dharwad Agricultural University was considered as standard for calculating gaps. The respondents were then divided into three categories viz. low, medium and high based on their overall mean technological gap.

3.6 OPERATIONALISATION AND MEASUREMENT OF INDEPENDENT VARIABLES

3.6.1 Age

Age refers to the number of years the respondents lived since birth at the time of interview. Farmers younger in age are likely to be progressive and may have less technological gap due to more adoption of recommended package of practices. The number of years was recorded upto the nearest whole number was taken as the age.

3.6.2. Education

Education is the process of producing desirable changes in the behaviour of the people. It is the process of developing capabilities of the individual so that they can adequately respond to their situations. Education produces changes in their knowledge, skill, attitude and action. It widens the mental horizon by helping them to develop favourable outlook, correct perception and objective assessment. It also imparts an ability to substitute on obsolete practice with an improved one. Education given a favourable disposition to adopt new ideas. Education in this study was operationalised as the number of years of formal schooling the respondent has undergone.

To quantify the educational status of the respondents, the number of years of formal schooling was taken as a measure.

3.6.3 Annual income

It was measured by considering the total income of the family from all the sources. The classification as suggested by Ministry of Rural Development, Government of India (Anonymous 1998) as followed by Hiremath (2000) was followed.

Category (income Rs./annum)

Upto Rs. 11,000

Rs. 11,001 to Rs. 22,000

Rs. 22,001 to Rs. 33,000

Rs. 33,000 and above

The frequencies and percentages were calculated under each category of annual income.

3.6.4 Economic status

It refers to respondents, agricultural implements and material possessed by the families of farmer. Frequencies and percentages were calculated for each of the sources.

A. Agricultural implements and machinery

Items	Scores
Wooden plough	1
Iron plough	2
Seed drill	2
Seed-cum-fertilizer drill	2
Sprayer/duster	2
Tractor	3

B. Material possession

Items	Score
Bicycle	1
Scooter	2
Radio	1
Television	1
Gobar gas plant	2

The producer followed by Hiremath (2000) was used in this study.

3.6.5 Farm size

Farm was operationalised as a tract of land possessed by an individual for the purpose obtaining agricultural production. Studies on adoption and diffusion have indicated that farm size, in most cases is positively and significantly related to the adoption of improved farm practices. Farm size is also an indicator of economic status in rural India. The actual area owned by the farmer in hectare was taken as a measure of farm size.

3.6.6 Area under Bidi Tobacco

The area in hectares was taken as the measure for area under Bidi tobacco. It was presumed that a farmer having larger area under Bidi tobacco would have lesser technological gap.

3.6.7 Extension participation

It referred to the awareness of respondents about various extension activities and their extent of participation in them. Quantification of this variable was done as per the procedure followed by Biradar (1997) with slight modifications.

Item/response	Score
Extent of participation	
Regular	2
Occasional	1
Never	0

The frequencies and percentages were calculated for each extension activity.

3.6.8 Mass Media Participation

Mass media play a significant role in disseminating the improved farm technology is to bring awareness and to motivate the farmer to adopt improved package of practices and thereby to reduce technological gap.

The mass media sources of information considered are given in the schedule.

To measure the degree of utilization of the mass media sources, each respondent was asked to indicate on a 3 point continuum as to how often he used these sources to get information about rice cultivation practices. The scoring procedure for the response was as:

Regularly	2
Occasionally	1
Never	0

The range of score was calculated from 0 to 16.

3.6.9 Social participation

Social participation refers to the voluntary sharing in person to person and group to group relationship beyond the immediate household. It shows the degree to which the farmers are involved in village social organization as member or office-bearer and regularity in their attendance to meetings. The organizations considered for the study are as given in schedule.

The scoring procedure followed for each of the village social institutions is as follows:

ITEMS	SCORES
Not a member of organization	0
Member of the organization	1
Office bearer of the organization	2
Attendance	
Never (not attended any meetings)	0
Occasionally (attended some meetings, but not all)	1
Regular (attended all the meetings conducted)	2

3.6.10 Extension contact

Extension contact has been operationally defined as the frequency of contacts of respondent with the different extension personnel and extension agencies for seeking information about cultivation practices. It was measured on three point continuum i.e., regular, occasional and never with score of 2, 1 and 0 respectively. Then the frequencies and percentage were calculated for each extension contact. The procedure followed by Hiremath (2000) was used.

3.6.11 Innovativeness

It was operationalised as the socio-psychological orientation of an individual to get or closely associated with change, adopting ideas and practices of paddy cultivation.

This variable was quantified using the scale of Feaster (1968) and as modified by Prasad (1983) as given in schedule, Appendix-I. The responses were obtained on a three point continuum viz., "yes", "undecided" and "no", with a scoring pattern of 2,1 and 0 respectively for positive statements and 0,1,2 for negative statements. Thus summated scores indicated the innovativeness of the farmer. The maximum and minimum score possible were 16 and 0 respectively.

3.6.12 Risk Orientation

It was operationalised as the degree to which a farmer is oriented towards risk and uncertainty and has courage to face the problems in cultivation of paddy.

The risk orientation was measured with the help of risk preference scale developed by Supe (1969). The scale consisted of six items and these were scored on a two point continuum as "agree" and "disagree". These were four positive statements and two negative statements. The scoring followed for positive statements were as 2 for agree and 1 for disagree. For the negative statements, the reverse order of scoring was followed. Thus the minimum score possible was 6 and maximum was 12.

3.6.13 Credit orientation

This was operationalisation as the favourable and positive attitude of an individual farmer towards obtaining credit from institutional sources for agricultural purposes. The measurement and scoring procedure of Beal and Sibley (1967) was used in this study as given below:

Sl.No.	Items	Response	Score
1	Do you think a farmer like you should borrow money for agricultural purposes.	Yes No	1 0
2	In your opinion how difficult it is to secure credit for agricultural purposes.	Very easy Easy Difficult Very difficult	3 2 1 0
3	How a farmer is treated when he goes to secure credit.	Very fairly Fairly Badly Very badly	3 2 1 0
4	There is nothing wrong in taking credit from institutional sources for increasing farm production.	Strongly agree Agree Disagree Strongly disagree	3 2 1 0
5	Did you use credit in the past two years for cultivation.	Yes No	1 0

3.7 METHOD OF DATA COLLECTION

The information was elicited from the respondents with the help of structured interview schedule. The tentatively prepared schedule was presented in a non-sample area to test the relevancy and practicability. Based on the experience gained the schedule was modified wherever needed and finalized. The final schedule was used to elicit the information from the respondents by personal interview method.

3.8 STATISTICAL TOOLS

The statistical tools such as mean, standard deviation, frequency, percentage, correlation and t-test were employed wherever found appropriate and data were analyzed to draw valid inferences.

IV. RESULTS

The results are presented in this chapter under the following heads.

- 4.1 Technological gap among the respondents.
- 4.2 Profile of the respondents.
- 4.3 Relationship between the characteristics of farmers and their technological gap.
- 4.4 Problems in Bidi tobacco cultivation as perceived by respondents.
- 4.5 Suggestions obtained from respondents to improve Bidi tobacco cultivation.

4.1 TECHNOLOGICAL GAP AMONG THE RESPONDENTS

Table 1 and Fig. 1 shows the mean technological gap among the farmers, in respect of the selected practices of Bidi tobacco cultivation. The overall technological gap for the total respondents was quite high with 50.96 per cent. For some practices like application of potash and followed by irrigation schedule, the gap was as high as 64.94 per cent and 60.06 per cent respectively. The gap in respect of planting method, topping and application of nitrogen were comparatively low with 15.26 per cent, 15.02 per cent and 24.47 per cent respectively. The technological gap in the case of application of FYM/compost, Inter cultivation and plant protection measures were, 52.72 per cent, 38.39 per cent and 45.53 per cent respectively.

4.1.1 Distribution of the respondents based on technological gap

Table 2 and Fig. 3 shows that majority of the respondents (48.34%) belonged to medium category of technology gap followed by similar number of respondents 25.85 in both low and high technology gap categories respectively.

4.2 PROFILE OF THE RESPONDENTS

The data in Table 3 depicts the personal and socio-economic characteristics of farmers. The results are presented under the following paragraphs.

4.2.1 Age

The table 3 indicated that 46.00 per cent of the respondents were middle aged, 24.67 per cent were young and 29.33 per cent were old farmers.

4.2.2 Education

It was found that 55.33per cent of the respondents were having secondary school education,26.00 per cent were having primary school education followed by 8.00 per cent had college education and degree. The per centage of literate farmers observed was only 10.67.

4.2.3 Annual income

The results indicated that majority (35.83%) of the respondents belonged to income group of above Rs 33,000 per annum, whereas only few (14.67%) of the respondents belonged to income group of upto Rs 11,000.

Table. 1 Mean Technological Gap among the respondents**n=120**

Sl. No.	Recommended practices	Mean technological gap
1.	Planting method	15.26
2.	Spacing	30.22
3.	Application of FYM	52.72
4.	Application of fertilizers (per acre)	
	a) Nitrogen	24.47
	b) Phosphorous	42.28
	C) Potash	64.94
5.	Irrigations	60.06
6.	Intercultivation	38.39
7.	Level of topping	15.02
8.	Plant protection measures	45.53
	Overall technological gap	50.96

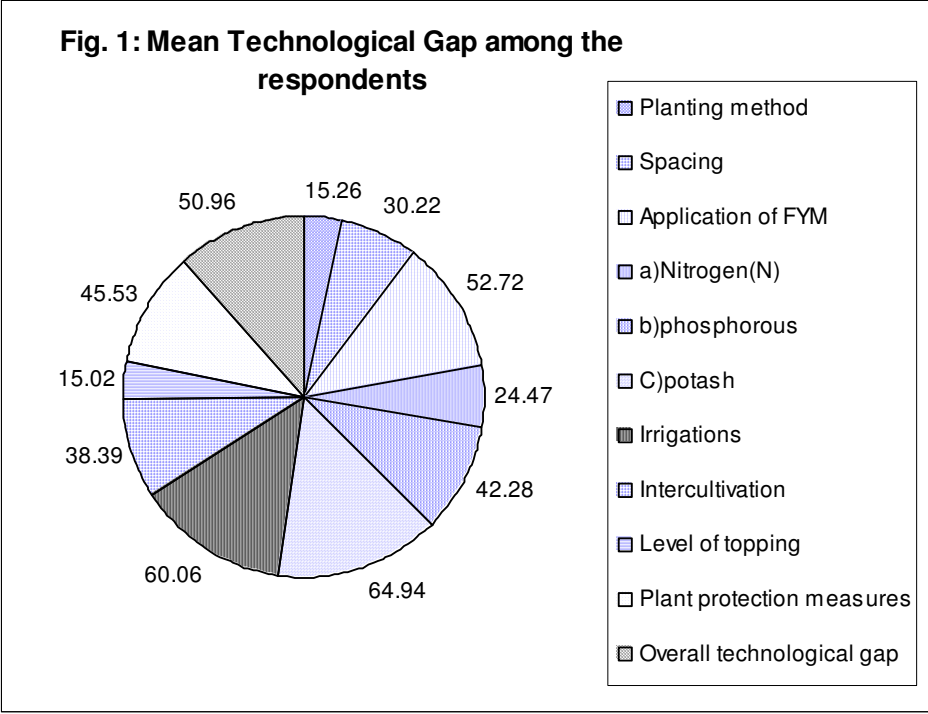


Fig. 1 Mean Technological Gap among the respondents

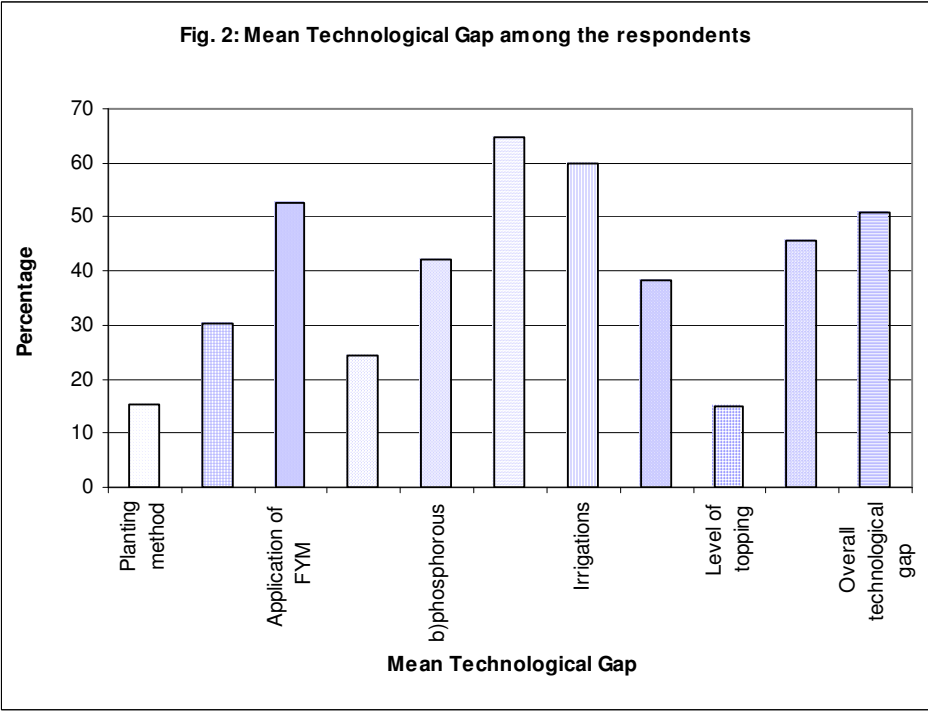


Fig. 2 Mean Technological Gap among the respondents

Table 2: Distribution of respondents based on mean technological gap

n=120

Sl. No.	Categories	Frequency	Percentage
1.	Low (Mean – SD)	31	25.83
2.	Medium (Mean \pm SD)	58	48.34
3.	High (Mean + SD)	31	25.83

Mean = 50.06 SD = 3.2

3

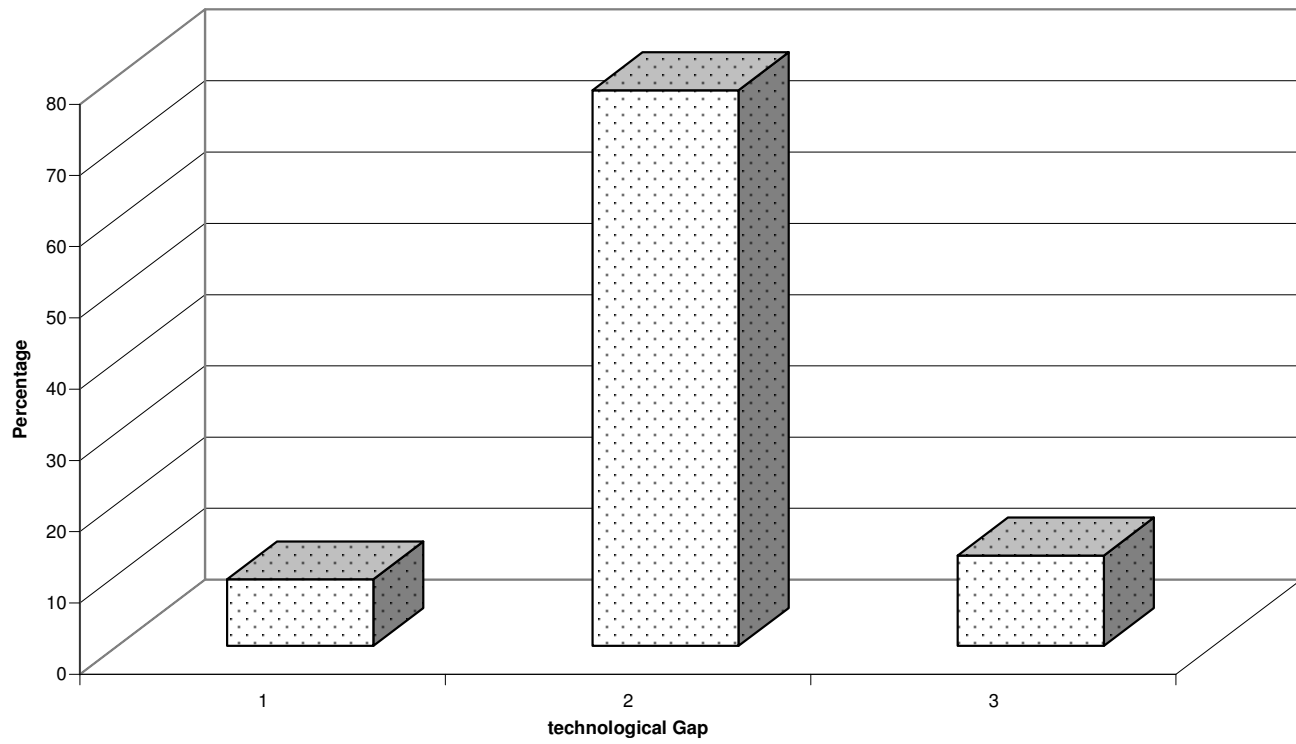


Fig.

Fig. 3: Distribution of respondents based on mean technological gap

Distribution of respondents based on mean technological gap

Table 3 : Personal and socio-economic characteristics of the respondents

n=120

Sl. No.	Characteristics	Frequency	Percentage
	Age		
1.	Young - <34 years	30	24.67
2.	Middle - 34-40 years	55	46.00
3.	Old - >40 years	35	29.33
II	Education		
1.	Illiterate	13	10.67
2.	Primary school	31	26.00
3.	Secondary education	66	55.33
4.	Graduate and above	10	8.00
III	Annual income		
1.	Upto Rs. 11,000	17	14.67
2.	Rs. 11,001 to Rs. 22,000	27	22.50
3.	Rs. 22,000 to 33,000	23	19.33
4.	Above Rs. 33,000	43	35.83
IV	Farm size		
1.	Upto 2.5 acres	14	12.00
2.	2.6 – 5.0 acres	30	25.33
3.	5.1 – 10 acres	33	28.00
4.	10.1 – 25 acres	36	30.00
5.	> 25 acres	7	4.67

Contd..

VII	Farm machinery possession		
1.	Wooden plough	81	68.00
2.	Iron plough	43	36.00
3.	Seed drill	116	96.67
4.	Tiller	14	12.0
5.	Sprayer/duster	33	27.33
6.	Tractor	7	5.33
VIII	Material possession		
1.	Bicycle	45	38.00
2.	Scooter	17	14.00
3.	Radio	76	64.00
4.	Television	58	48.66
IX	Area under Bidi Tobacco		
1.	Upto 2.5 acres	22	18.34
2.	2.6 – 5.0 acres	35	29.16
3.	5.1 – 10 acres	21	17.50
4.	10.1 – 25 acres	40	33.33
5.	> 25 acres	02	1.67

4.2.4 Farm Size

The results indicated that majority (30.00%) of the respondents land holding (10.1 – 25.0 acres). Whereas, least number of respondents (4.67%) were found to be having big size land holding (>25 acres).

4.2.5 Economic Status

4.2.5.1 Farm power possession

The data presented in table 3 revealed that 96.67 per cent of the respondents were having a seed drill followed by 68.00 per cent having wooden plough, 27.33 per cent having sprayer or duster and 36.00 per cent were possessed iron plough. Only 5.53 per cent of the respondents were in possession of tractor.

4.2.5.2 Material possession

The data revealed that majority (64%) of the respondents possessed radio followed by 48.66 per cent having television, 38.00 per cent having bicycle and 14.00 per cent respondents were possessing scooters.

4.2.6 Area under Bidi Tobacco

The results indicated that most of the respondents (33.33%) had 10.1 to 25 acres of their lands under Bidi Tobacco cultivation followed by 29.16 per cent of them had 2.6 to 5.0 acres of their lands under Bidi Tobacco cultivation.

4.2.7 Extension participation

The results presented in Table 4 and Fig. 4 indicate that majority (69.16%) of the farmers regularly attended demonstrations, 37.5 per cent of beneficiaries attended farmer trainings regularly followed by 31.66 and 30.83 per cent of them attending occasionally and never respectively. Only 30 per cent of beneficiaries attended field days regularly, while a majority (56.66%) of beneficiaries attended exposure visits regularly, almost equal per cent of beneficiaries were found in regularly (28.33%), occasionally (35.83%) and never (35.83%) attending categories of field trips.

4.2.8 Mass media utilization by the respondents

It could be seen from Table-5 and Fig. 5, Radio sets were possessed by 64.00 per cent of the farmers. While 20.67 and 39.34 per cent of the farmers regularly listened the general and agricultural programmes, respectively. Further, 28.66 and 45.33 per cent of the farmers occasionally listened the general and agricultural programmes. On the other hand 50.67 and 15.33 per cent of the farmers never listened to these programmes.

Television was possessed by 48.66 per cent of the farmers. While 60.67 and 32.00 per cent regularly viewed general and agricultural programmes, further 72.00 and 26.00 per cent of the farmers occasionally viewed general and agricultural programmes. Only 32.00 per cent of the farmers never viewed telecasted agricultural programmes.

Newspaper was subscribed by 12.00 per cent of the farmers. While 18.66 per cent regularly read the newspaper. Further 35.34 per cent of the farmers occasionally read newspaper.

Farm magazine was subscribed by 4.00 per cent of the farmers, among the subscribers of farm magazines 9.00 per cent regularly read farm magazines, 14.00 and 80.00 per cent of the farmers occasionally and never read farm magazines, respectively.

Table 4: Distribution of respondents based on extension participation

n=120

Sl. No.	Activity	Regular		Occasional		Never	
		F	%	F	%	F	%
1.	Demonstrations	83	69.16	25	20.83	12	10
2.	Farmers training	45	37.5	38	31.66	37	30.83
3.	Krishi mela	81	67.5	22	18.33	17	14.16
4.	Field days	36	30	23	19.16	61	50.83
5.	Exposure visit	68	56.66	35	29.16	17	14.16
6.	Field trips	34	28.33	43	35.83	43	35.83

F=Frequency %=Percentage

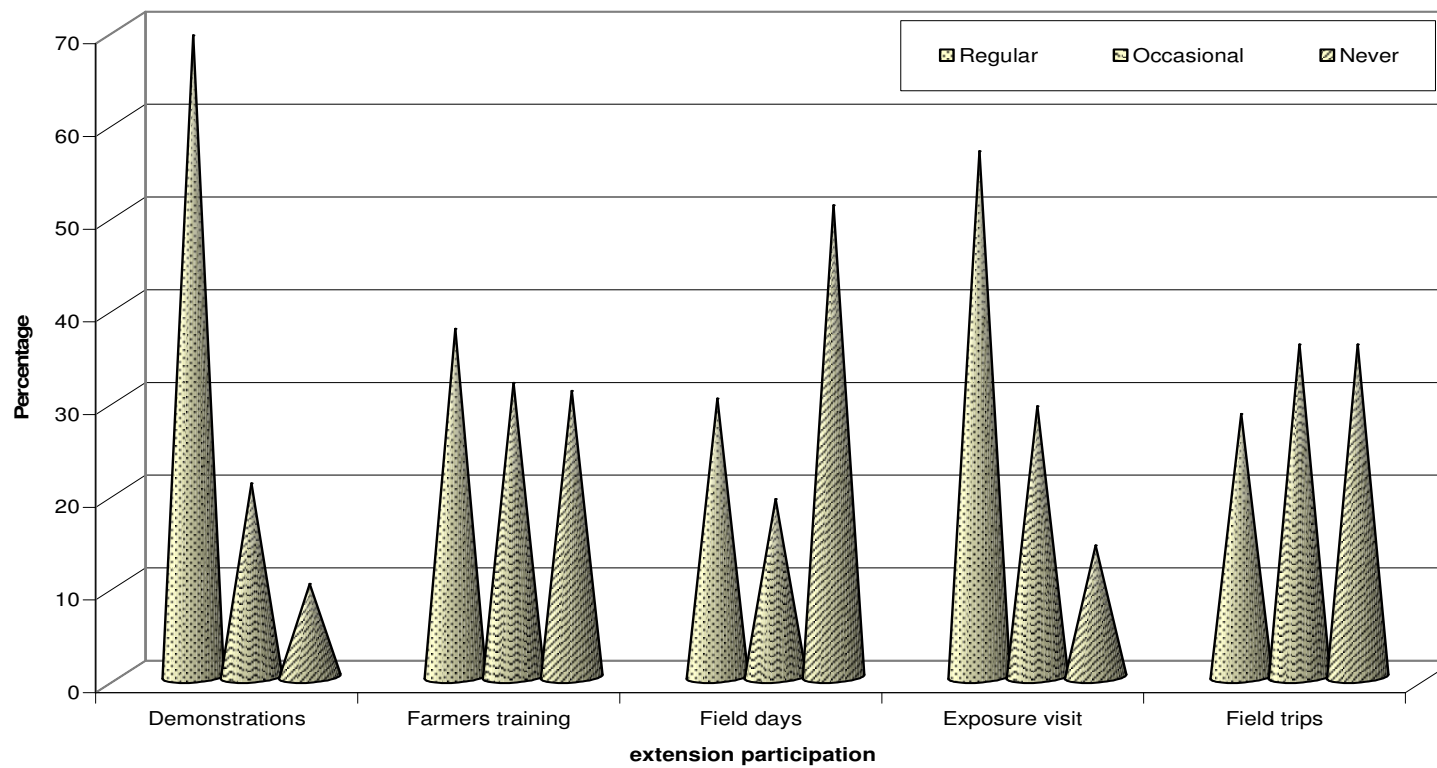


Fig. 4: Distribution of respondents based on extension participation

Fig. 4 Distribution of respondents based on extension participation

Table 5: Mass media utilization by the respondents

n=120

Sl. No.	Mass media	Possession/ subscriber	Listening/viewing/reading						
			Regularly		Occasionally		Never		
			No.	%	No.	%	No.	%	
1.	Radio	77(64.00)							
	i) General programmes		47	39.34	54	45.33	19	15.33	
	ii) Agricultural porgrammes		25	20.67	34	28.66	61	50.67	
2.	Television	58(48.66)							
	i) General programmes		86	72.00	33	28.00	00	0.00	
	ii) Agricultural programmes		31	26.00	50	42.00	39	32.00	
3.	Newspaper	14(12.00)	22	18.66	42	35.34	56	46.00	
4.	Farm magazines	4(2.66)	7	6.00	17	14.00	96	80.00	

Figures in parentheses indicate percentage

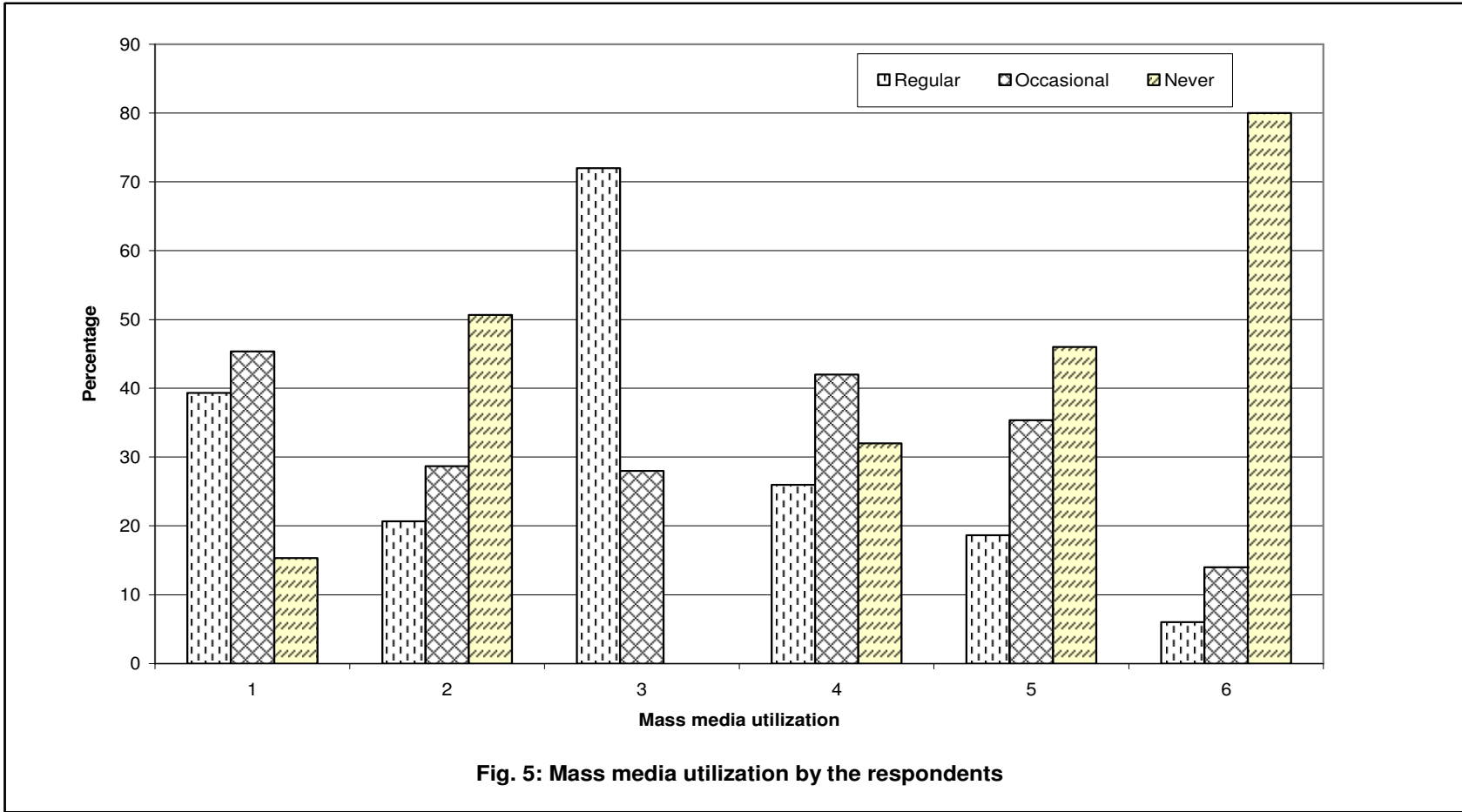


Fig. 5 Mass media utilization by the respondents

Table 6 : Social participation of the respondents

n =120

Sl. No.	Institution/ organization	Membership				Participation					
		Member		Office bearer		Regularly		Occasionally		Never	
		No.	%	No.	%	No.	%	No.	%	No.	%
1.	Gram Panchayat	6	4.66	2	2.00	36	30.00	52	43.33	32	26.66
2.	Co-operative society	13	10.66	3	2.66	29	24.66	36	30.00	55	45.33
3.	Youth club	7	6.00	5	4.00	43	34.00	52	43.33	25	12.66
4.	Gram sabha	8	6.67	3	2.66	62	52.00	36	30.66	22	17.34

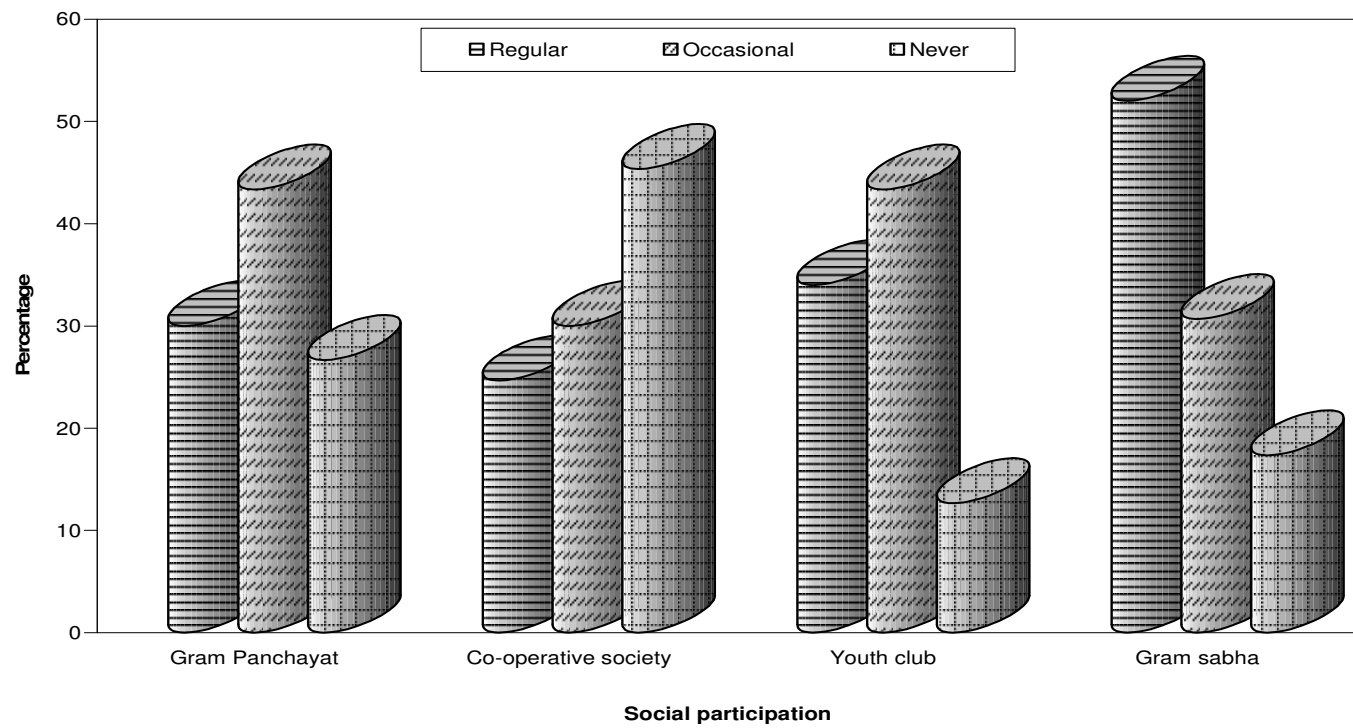


Fig. 6: Social participation of the respondents

Fig. 6 Social participation of the respondents

Table 7: Distribution of respondents based on Extension contact

n=120

Sl. No.	Extension worker	Frequency of contact					
		Regularly		Occasionally		Never	
		No.	%	No.	%	No.	%
1.	AA's	37	30.67	46	38.66	37	30.67
2.	AAO's	21	18.00	71	58.00	28	24.00
3.	Private company staff	33	28.00	49	40.67	38	31.33
4.	University extension staff	28	24.00	53	45.33	37	30.67

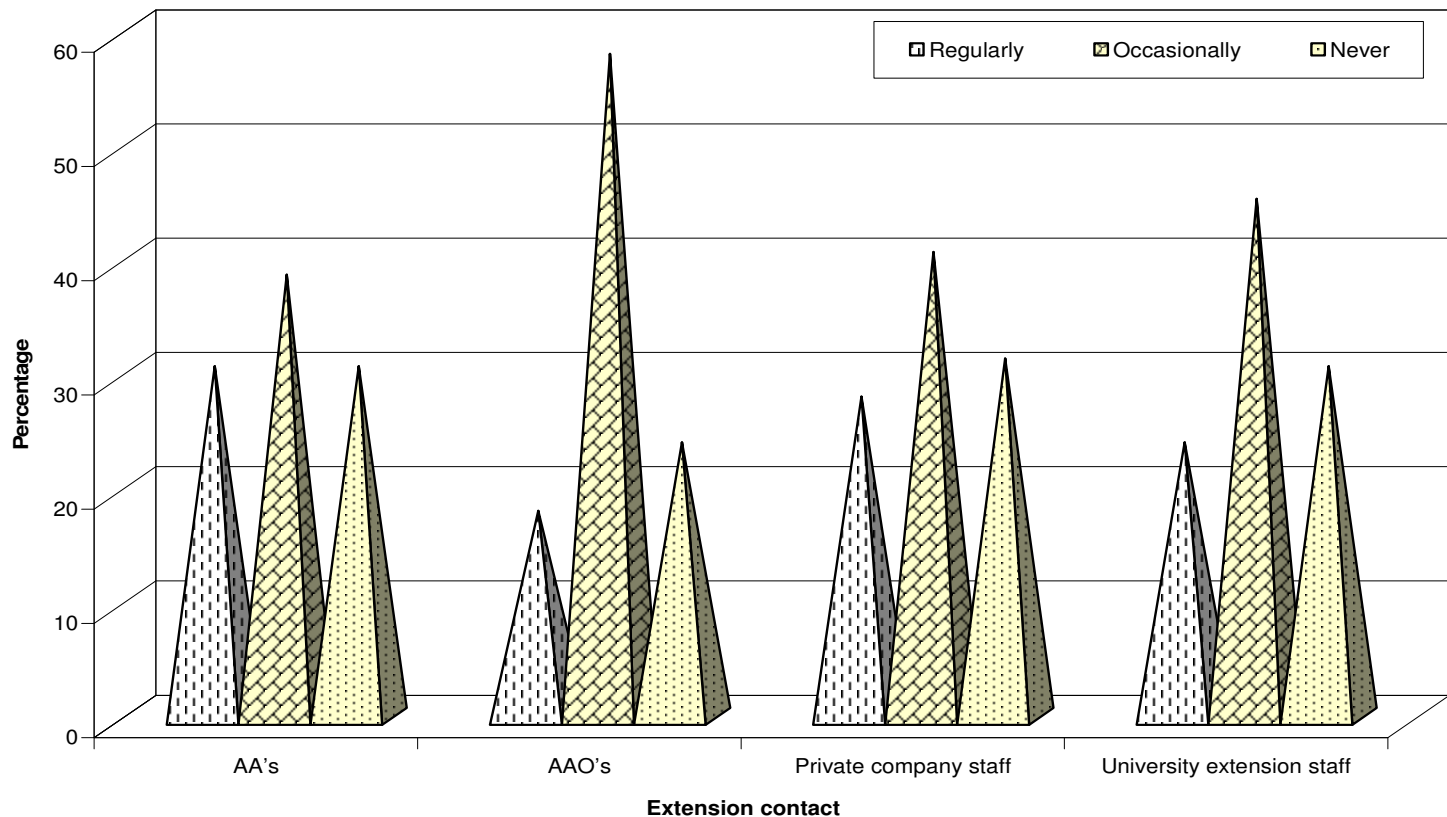


Fig. 7: Distribution of respondents based on Extension contact

Fig. 7 Distribution of respondents based on Extension contact

4.2.9 Social participation

The data in Table-6 and Fig. 6 revealed that only 4.00 and 2.66 per cent of the farmers were members and office bearers, respectively of Gram Panchayat. Whereas, 30.00 and 43.33 per cent of respondent farmers attended the meetings regularly and occasionally, respectively.

It was also observed that 10.66 and 2.67 per cent of the farmers were members and office bearers of co-operative society, respectively. The respondent farmers attended meetings regularly and occasionally ranges from 24.66 and 30.00 per cent, respectively while 45.33 per cent never attended the meetings.

It is also revealed that 6.00 and 4.00 per cent of the farmers were members and office bearers of youth club. Whereas, 34.00 and 43.33 per cent regularly and occasionally attend the meeting. While, 22.66 per cent never attended the meetings.

Further, it is also revealed that 11.33 per cent of the farmers were members of Grama sabha. Out of which, 52.00 and 30.66 per cent regularly and occasionally attended the meetings.

4.2.10 Extension contact of the respondents

The data in Table-7 and Fig. 7 revealed that 30.64 per cent of the farmers regularly contacted AAs, while 38.66 and 30.67 per cent of the farmers occasionally and never contacted AAs, respectively.

It was also seen that 18.00 per cent of the farmers regularly contacted AAOs, while 58.00 per cent of the farmers occasionally contacted AAOs. Majority (24.00%) were never contacted AAOs.

The Table 7 also revealed that 28.00 and 40.67 per cent of the farmers regularly and occasionally contacted private company staff, while majority (31.33%) never contacted private company staff.

The table also revealed that 24 per cent of the farmers regularly contacted university extension staff, while 45.33 and 30.67 per cent of the farmers occasionally and never contacted, respectively university extension staff.

4.2.11 Innovativeness

The data in Table 8 indicates that majority of the respondents (78.00%) belonged to medium innovativeness category, whereas 12.67 and 9.33 per cent of them belonged to high and low level of innovativeness category, respectively.

Table 8: Distribution of respondents based on Innovativeness

n=120

Sl. No.	Categories	Frequency	Percentage
1.	Low (Mean – SD)	11	9.33
2.	Medium (Mean \pm SD)	93	78.00
3.	High (Mean + SD)	16	12.67

Mean = 18.35 SD = 2.18

Table 9 : Distribution of respondents based on Risk orientation

n=120

Sl. No.	Categories	Frequency	Percentage
1.	Low (Mean – SD)	22	18.00
2.	Medium (Mean \pm SD)	69	58.00
3.	High (Mean + SD)	29	24.00

Mean = 8.30 SD = 0.97

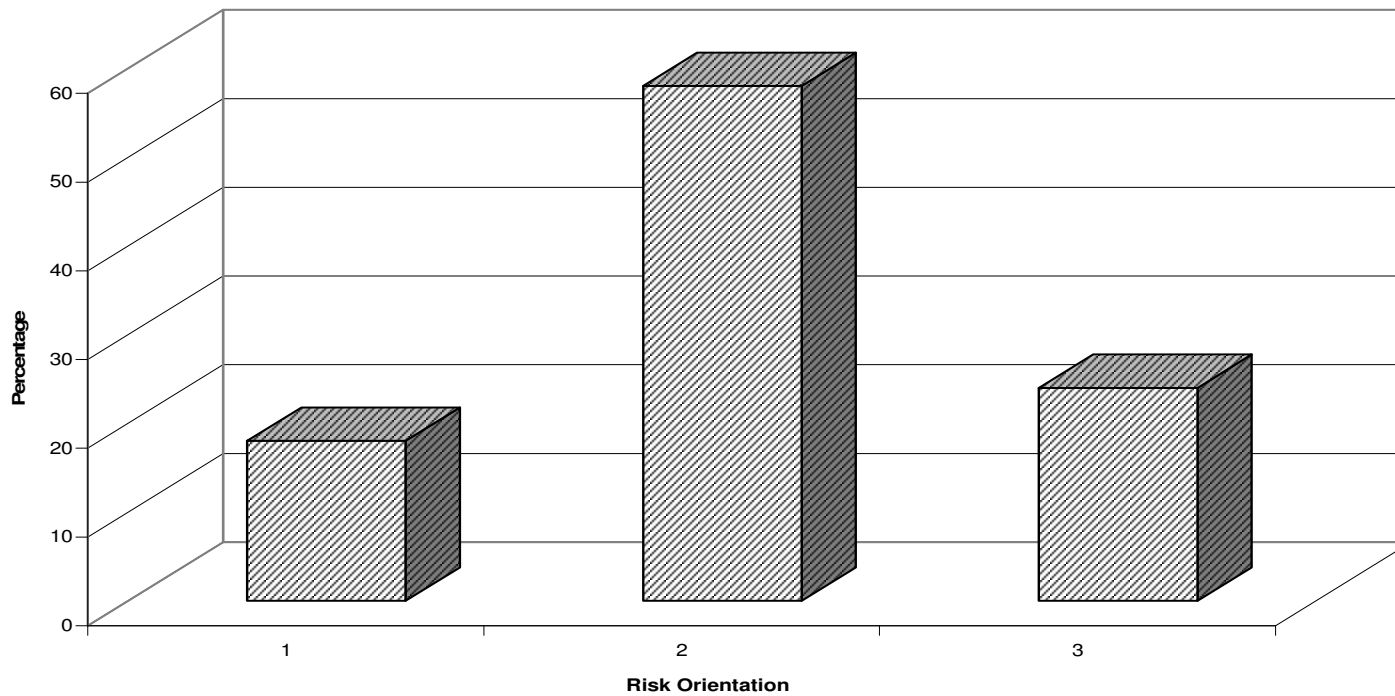


Fig : 8 Distribution of respondents based on Risk orientation

Fig. 8 Distribution of respondents based on Risk orientation

Table 10 : Distribution of respondents based on credit orientation

n=120

Sl. No.	Credit orientation	Frequ ency	Percentage
1.	Low (mean - SD)	29	24.17
2.	Medium (mean \pm SD)	53	44.17
3.	High (mean + SD)	38	31.66

Mean = 8.09

SD = 0.87

4.2.12 Risk orientation

The data in Table 9 and Fig. 8 revealed that most of the respondents (58.00%) belonged to medium risk orientation category, followed by high (24.00%) and low (18.00%) levels of risk orientation category, respectively.

4.2.13 Credit orientation

The data in the table-10 revealed that majority of the respondents (44.17%) had medium credit orientation followed by high (31.66%) and low (24.17%) credit orientation respectively.

4.3 RELATIONSHIP BETWEEN THE CHARACTERISTICS OF FARMERS AND THEIR TECHNOLOGICAL GAP

In order to know whether there exists any relationship between the selected socio-economic and psychological variables and their level of technological gap. Spearman's rank correlation was calculated and the results are presented in Table-11. All the variables showed a negative relationship with the technological gap. Two variables, namely age and education, had a non-significant negative relationship. Credit orientation was negatively and significantly related at 5 per cent level of significance. whereas the remaining 8 variables had negatively significant correlation at 1 per cent level of significance.

Table 11: Correlation between independent variables and Technological gap among respondents

n=120

Sl. No.	Variables	Correlation coefficients (r)
1.	Age	-0.11NS
2	Education	-0.16NS
3.	Economic status	-0.39**
4.	Land holding	-0.31**
5.	Area under tobacco	-0.42**
6.	Innovativeness	-0.41**
7.	Risk orientation	-0.60**
8.	Credit orientation	-0.22*
9.	Social participation	-0.49**
10.	Extension contact	-0.49**
11.	Mass media participation	-0.56**

NS= Non-significant

***=significant at 5% level**

**** = Significant at 1% level**

Table 12: Problems perceived by respondents in Bidi Tobacco cultivation

n=120

Sl. No.	Constraints	Frequency	Percentage
1.	Bidi Tobacco is very susceptible to adverse climatic conditions	85	70.83
2.	Bidi Tobacco is severely infested by pests and diseases	78	65.00
3.	Inadequate access to market information	72	60.00
4.	Non-availability of skilled labour	53	44.16
5.	High cost of inputs	37	30.83
6.	Irregular supply of electricity for irrigation	23	19.16
7.	Inadequate credit facilities	15	12.50

Multiple responses possible

F= Frequency %= Percentage

Table 13: Suggestions obtained from respondents to improve Bidi Tobacco cultivation

n=120

Sl. No.	suggestions	Frequency	Percentage
1.	Bidi Tobacco should be included under crop insurance scheme of Government of India	86	71.66
2.	Support price should be announced for bidi tobacco	63	52.50
3.	There is an urgent need for regulated market for bidi tobacco	54	45.00
4.	To develop comprehensive package for management of pests and diseases of bidi tobacco	41	34.16
5.	Should increase subsidies for purchase of fertilizers and other production inputs.	33	27.50
6.	To develop locale-specific pest and disease resistant varieties	25	20.83
7.	Take up research over medicinal value of tobacco	22	18.33

Multiple responses possible

F= Frequency %= Percentage

4.4 PROBLEMS IN BIDI TOBACCO CULTIVATION AS PERCEIVED BY RESPONDENTS

Majority of the respondents (70.83%) expressed that susceptibility of Bidi tobacco to adverse climatic conditions as their major constraint. 65.00 per cent of the respondents expressed that problem of pest and disease incidence is more in bidi tobacco cultivation. Non-availability of skilled labour, high cost of inputs, irregular supply of electricity for irrigation and inadequate credit facilities were the other problems expressed by 44.16%, 30.83%, 19.16% and 12.50% of respondents respectively.

4.5 SUGGESTIONS OBTAINED FROM RESPONDENTS TO IMPROVE BIDI TOBACCO CULTIVATION

Majority of the respondents (71.66%) has suggested that Bidi tobacco should be included in crop insurance scheme of government of India, followed by 52.50 per cent of respondent suggested that support price should be given to Bidi tobacco. Whereas, 45.00%, 34.16%, 27.50% and 20.83% of the respondents suggested that there is an urgent need of regulated market for bidi tobacco, a comprehensive package for management of pests and diseases in bidi tobacco has to be developed, to provide subsidies for fertilizer micronutrients and growth regulators and to develop pest and disease resistant varieties, in order to achieve higher yields.

V. DISCUSSION

The results of the study are interpreted and discussed in this chapter in the same order and sequence followed for the presentation of the results in the previous chapter.

5.1 Technological gap among the respondents.

5.2 Profile of the respondents.

5.3 Relationship between the characteristics of farmers and their technological gap.

5.4 Problems in Bidi tobacco cultivation as perceived by respondents.

5.5 Suggestions obtained from respondents to improve Bidi tobacco cultivation.

5.1 TECHNOLOGICAL GAP AMONG THE RESPONDENTS

It is clear from the table-1 that the overall technological gap for the total sample was 50.96 percent. This clearly showed that there was immense scope for an intensified extension effort to increase the production, potentiality and productivity. The findings were close to those of Srivastava and Singh (1990) in case of nitrogen application by marginal farmers.

5.1.1 Mean technological gap for each practice

In the case of individual practices, the gap was more than 40 percent in the case of, application of FYM/compost, application of phosphorus, application of potash, following the irrigation schedule and plant protection measures. Non availability of organic manure, its high cost, cost involved in its transportation adding up to the total cost of production, etc., must have been the reason for not applying the recommended levels of organic manure in field. Although farmers used to maintain lot of cattle in earlier times, it no longer exists because of the high cost involved in their maintenance. Also an improved breed of cattle could substitute four or five indigenous breeds in terms of milk yield. But this had a detrimental effect on the farmyard manure availability. The increased pressure on land for housing, agriculture and other non agricultural purposes has reduced the availability of green leaf manure, which was a prominent practice earlier.

It was observed that some farmers adopt sheep penning to add enough organic manure in the farm of sheep manure and urine. This can be an adaptable practice.

Weed management is very important in Bidi tobacco. It was found that a considerable number of farmers adopted only one weeding as against the recommended two hand weedings. Although a small proportion adopted weedicides, majority feared harm to the crop and hence never tried it. Also it was found that the first weeding was done as late as 40 days after planting, while the recommendation is 25 days after planting. This might have been caused mainly due to non availability of skilled labour. High labour charges hinder farmers from going for two weedings. Women workers find other works such as in construction sector and small time town jobs more attractive and remunerative.

Fertilizer management calls for greater attention as the results showed greater technological gap especially in case of phosphorus and potassium. Application of these major nutrients showed a greater bias for nitrogen and hence lesser technological gap. Farmers tend to apply more nitrogenous fertilizers like urea which is relatively cheaper and whose effect is more pronounced than the other nutrients. This might be the reason why technological gap in respect of major fertilizer elements was the greatest for potassium.

Technological gap in plant protection at 45.53 per cent also deserves attention. The results are in close agreement with the findings of Jaiswal and Duboliya (1994), and Ray *et al.* (1995), but lower than those reported by Jaiswal and Rathore (1985), Mahawer *et al.* (1995), Patil and Deshmukh (1995) and Singh and Chauhan (1996). Farmers showed a tendency to use concentration levels more than the recommended levels. This was mainly due to lack of knowledge and guidance regarding the use of those chemicals. This is a potential danger as it can cause pest resurgence. Some farmers did not adopt any chemical measure as they feared that the leaves for domestic consumption would be poisoned. It was observed that the

spraying were not need based, but rather “routine sprays” were given. Many did not know the distinction between insecticides and fungicides. A large majority did not know about integrated pest management. The results and observations of the study point to the need for better education of farmers in this regard.

5.1.2 Distribution of the respondents based on technological gap

It can be observed from table-2 that, majority of respondents (48.34%) belonged to medium level of technology gap. The probable reasons for this might be that, the respondents were of mostly (62.67%) having low annual income and of only Secondary School Education (55.33%) with medium levels of innovativeness (82%), risk orientation (58%), credit orientation. Thus, the respondents, lack of interest in obtaining the recommended practices. They tend to follow their own traditional practices thus leading to greater technology gap.

5.2 PROFILE OF THE RESPONDENTS

5.2.1 Age

The results presented in Table-3 indicated that majority of the respondents were middle aged, usually farmers of middle aged are more enthusiastic and have more work efficiency than the old and young farmers. Further, individuals of 34 to 40 years of age group have more physical vigour and feel more family responsibility than the younger farmers. These might be the important reason to find majority of the respondents in the age group of 34 to 40 years.

5.2.2 Education

The results revealed that 55.33 per cent of the respondents were having secondary school education, only 26.00 per cent upto primary school, 10.67 per cent of respondents were illiterate, , and only 8.00 per cent were educated upto college and degree.

In general, the respondents are educated. This could be as a result of a common social environment. In the present scenario, almost everybody wants to be literate because of awareness about the importance of the education by the various government literacy programmes.

5.2.3 Annual income

The results regarding the annual income indicated that 35.83 per cent of the respondent families had annual income above Rs. 33,000. The possible reason that could be attributed was their large size land holdings. The existence of families of size of 5 to 8 members, where number of earning members were found engaged in different occupations other than agriculture might also be considered as another reason.

The respondent families having 22.50 per cent annual income ranges between Rs. 11,001 to Rs. 22,000 may be due to their lower socio-economic status, thus the results in this regard indicate 37.33 per cent of them had land holding upto 5 acres owned by them, as a result income earning would be naturally lower and they did not have any additional source of income to meet out the other expenditures incurred on the farm activities.

5.2.4 Farm size

Majority 37.33 per cent of the respondent families had land holding upto 5 acres. The fragmentation of ancestral land from generation to generation might have led to smaller size of land holdings, because 58.00 per cent of the respondents belonged to nuclear family. The other reason being that those who had other occupation might have less acres of land.

However, 34.67 per cent of the respondent families had land holding above 10 acres. The possible reasons that could be attributed to this were those who had agriculture as the main occupation of the family almost depended on their land for their livelihood.

5.2.5 Economic Status

5.2.5.1 Farm machinery possession

It was found that majority 96.67 per cent of the respondent families were possessing seed drill and 68.00 per cent had wooden plough. This might be due to smaller size of land holding of respondent families.

About 27.33 per cent of the respondent families were possessing sprayer, iron plough (36.00%) and tractor (5.33%). Because of the fact that only 65.00 per cent of the respondents' families had land holding less than 10 acres and only 36.17 per cent had annual income less than Rs. 22,000.

5.2.5.2 Material possession

It was found that majority (48.66%) of the respondents possessed television followed by Radio (64.00%), bicycle (38.00%) and scooter (14.00%). This might be due to over 50.00 per cent of the respondents having considerably moderate income.

5.2.6 Area under Bidi Tobacco

Most of the respondents(33.33%) had 10.1 to 25 acres of their lands under Bidi Tobacco cultivation followed by 29.16 per cent of them had 2.6 to 5.0 acres of their lands under Bidi Tobacco cultivation. The probable reason which can be attributed for lower areas under Bidi Tobacco might be the fragmentation of the land holdings in rural areas .

5.2.7 Extension Participation

The results presented in Table-4 indicated that, majority of respondents (67.50%) participated in Krishi mela regularly followed by Exposure visits and demonstrations conducted by Extension functionaries with 56.66 per cent and 69.16 per cent of respondents attending regularly. This may be due to the reason that the exposure visits and demonstrations are interesting to the farmers as they are capable of knowing new things practiced by their fellow farmers.

5.2.8 Mass media participation

Among the different mass media Table-5 indicated that radio was possessed by 64.00 per cent of the farmers. While, 20.67 and 39.34 per cent of respondents regularly listened the general and agricultural programmes, respectively. This might be due to the reason that a common man could easily afford to possess radio as one of the medium of communication.

In recent years, television being one of the most popular media was possessed by 48.66 per cent of the respondents. This might be due to the availability of single entertainment media for farmers. When the television behaviour was analysed it could be easily noted that the habit of viewing to television mainly depended on individual interest and the results revealed that 72.00 and 26.00 per cent of respondents were regularly viewing the general and agricultural programmes, respectively.

The results also revealed that only 12.00 and 2.66 per cent subscribed to newspaper and farm magazines respectively by the respondents. Never reading was found in most of the subscribers. Reasons for this might be that majority of the farmers were functional literates but might not have realized the importance of newspaper and farm magazine. The other reason might be that they may feel television may meet their needs of getting required information and entertainment.

5.2.9 Social participation

The data in Table-6 revealed that about 10.66 and 6.67 per cent of the respondents were members of co-operative society and Grama sabha, respectively and only 2.67 per cent of them were office bearer of the co-operative society organization and nearly 30.00 per cent and 24.66 per cent of the respondents participated occasionally and regularly.

About 6.00 and 4.66 per cent of the respondents were members in youth club and village panchayat. Nearly 43.33 and 34.00 per cent of the respondents occasionally and regularly participated, respectively. This might be mainly because co-operative works on the "Principle of democracy" and "Service is the main motto".

5.2.10 Extension contact of the respondents

The results presented in Table-7 indicated that 30.67 per cent of the respondents contacted Agricultural Assistants regularly, Assistant Agricultural Officers (58.00%) and private company staff (40.67%) were occasionally contacted by the farmers. This might be due to the fact that the Agriculture Assistants Headquarters is in village and Assistant Agriculture Officer's Headquarters is in panchayat level. Hence, AA's were easily available for contact and for interaction to acquire more information on agricultural aspects.

5.2.11 Innovativeness

The data presented in Table-8 indicated that majority of the respondents (78.00%) were found to have medium innovativeness, while 12.67 and 9.33 per cent of them had high and low innovativeness, respectively.

This could be attributed to the medium level of education of the respondents which helped them to acquire new technology on their fields. Further, because of dryland farming, they might be interested to adopt new innovation to increase their income level.

5.2.12 Risk orientation

The data presented in Table-9 indicated that 58.00 per cent of the respondents had medium risk taking ability, while 24.00 per cent had high risk taking ability. The possible reason could be the dryland nature of farming in the study area. Farmers in such areas tend to possess medium risk based on profits assumed.

5.2.13 Credit Orientation

Majority of the respondents(44.17%) were found in medium category of credit orientation . The probable reason for the above results might be that the farmers are not aware of the institutionalized credit agencies and they hesitate to go through the lengthy procedures of institutionalized credit.

5.3 RELATIONSHIP BETWEEN THE CHARACTERISTICS OF FARMERS AND THEIR TECHNOLOGICAL GAP

It was observed from the results of Table-11 that out of the eleven variables selected, age and education showed non significant negative relationship with technological gap. The findings are in tune with that of Bhaskaran and Thampi (1986), in case of age, Patil (1995) and Naghabhushanam and Kartikeyan (1998) in case of age and education. Economic variables like economic status, size of holding and area under Bidi tobacco were found to have negative significant relationship with technological gap. This may be expected as better economic status can lead to better technology adoption and there by lesser technological gap. The results find support in the findings of Nikhade *et al.* (1997), Nagabhushanam and Kartikeyan (1998) and Sulaiman and Prasad (1993). Psychological variables like innovativeness and risk orientation also showed a significant negative relationship with technological gap. It is self explanatory that an individual having more of these characteristics tend to be more scientific and hence experimental adopt newer technologies. This would result in decreased technological gap.

The findings are in conformity to those of Mercy Kutty (1997) and Venkatesh Prasad *et al.* (1999) in case of innovativeness and risk orientation.

Similar results were also obtained for social and extension variables like social participation, extension orientation and mass media utilisation. Better social contacts with other progressive farmers, extension workers and various sources of information including mass media makes the farmers aware of new innovations and play a major role in the ultimate adoption by the farmers. The findings find support in Mercy Kutty (1997) and

Venkatesh Prasad *et al.* (1997) in the case of social participation, Chandre Gowda (1996) and Resmy (1998) in case of extension system link and Hanumarangaiah (1996), Sujatha and Annamalai (1998) and Venkatesh Prasad *et al.* (1999) in case of mass media utilization.

5.4 PROBLEMS IN BIDI TOBACCO CULTIVATION AS PERCEIVED BY RESPONDENTS

Majority of the respondents (70.83%) expressed that the main constraint was the susceptibility of Bidi tobacco to adverse climatic conditions. Bidi tobacco cannot tolerate even an hour of frost. The quality of tobacco depend on the leaf quality and these leaves are mainly affected by many pests and diseases. Thus 65.00 percent of farmers expressed pests and diseases are major constraint in Bidi tobacco cultivation.

Bidi tobacco cultivation involves many practices, which require skilled labour and the labour availability become scarce at peak periods as almost all the farmers require the labour at the same time. The high cost of inputs due to lack of subsidies on fertilizers pose a constraint to bidi tobacco cultivation. The other problems expressed are, irregular power supply for irrigation and inadequate credit facilities. These problems can be overcome by the proper functioning of Government institutions such as Electricity department and Banking system in the study area.

5.5 SUGGESTIONS OBTAINED FROM RESPONDENTS TO IMPROVE BIDI TOBACCO CULTIVATION

Majority of the respondents (71.66%) expressed that Bidi tobacco should be included in crop insurance scheme, as they can be protected from the natural disasters or any casualties during the cultivation. The similar reason can be quoted for the suggestion, expressed by 52.50 per cent of respondents that support price is to be given to bidi tobacco. 45.00 per cent of respondents expressed that there is urgent need of regulated market. This might be probably to save the bidi tobacco cultivators from the middlemen. The other suggestions such as developing a package for management of pests and diseases, providing subsidies for purchase of fertilizers and developing pest and disease resistant varieties, all the farmers to improve the production, potentiality and productivity of bidi tobacco thus helping in the sustainable development of bidi tobacco cultivators.

MAJOR FINDINGS OF THE STUDY

- Overall technological gap for the total respondents was quite high with 50.96 per cent. For some practices like application of potash and following irrigation schedule, the gap was as high as 64.94 percent and 60.06 percent respectively. The gap in respect of seed rate, topping and application of nitrogen were comparatively low with 15.26 percent, 15.02 percent and 24.47 percent respectively.
- Majority respondents 48.34% belonged to medium category of technology gap followed by equal no. of respondents 25.85 in both low and high T. G. categories.
- Majority 46.00 per cent of the respondents were middle aged.
- About 28.00 per cent of the respondents were educated upto high school followed by middle school and primary school.
- Majority 55.33 per cent of the respondents belonged to nuclear family.
- Regarding land holding, nearly 37.33 per cent of the farmers had upto 5.0 acres of land.
- Among mass media, radio [64.00%] and television (48.66%) were widely possessed by the respondents.
- Regarding social participation, 10.66 and 6.67 per cent of the respondents were members of co-operative society and gram sabha, respectively.
- Regarding extension contact, majority (58.00%) of the respondents occasionally contacted AAOs and 33.00 per cent regularly contacted AAs.
- Majority of the respondents (78.00%) were found to have medium level of innovativeness, while 58.00 per cent of them belonged to medium level of risk orientation.
- Most of the respondents(33.33%) had 10.1 to 25 acres of their lands under Bidi Tobacco cultivation followed by 29.16 per cent of them had 2.6 to 5.0 acres of their lands under Bidi Tobacco cultivation.
- Majority (69.16%) of the farmers regularly attended demonstrations, 37.5 percent of respondents attended farmer trainings regularly followed by 31.66 and 30.83 percent of them attending occasionally and never respectively.
- Majority of the respondents (44.17%) had medium credit orientation followed by high (31.66%) and low(24.17%) credit orientation respectively.
- All the variables showed a negative relationship with the technological gap. Two variables, namely age and education, had a non-significant negative relationship. Credit orientation was negatively and significantly related at 5 percent level of significance whereas the remaining 8 variables had negative and significant correlation at 1 percent level of significance.
- Majority of the respondents 70.83% expressed that susceptibility of Bidi tobacco to adverse climatic conditions as their major constraint.
- Majority of the respondents (71.66%) suggested that Bidi tobacco should be included in crop insurance scheme of government of India, followed by 52.50 percent of respondent suggested that support price should be given to Bidi tobacco

IMPLICATIONS OF THE STUDY

1. The relatively higher overall technological gap of 50.96 percent has indicated the vast potential for improving the technology adoption by farmers even after so many years of concerted extension work.

2. The higher technological gap in case of low cost and no cost technologies like seed rate, spacing, application of FYM, etc is a pointer towards possibility of better yield realization without additional investment towards cost of cultivation.
3. Nutrient management, especially potassium and phosphorus need greater attention as the technological gap in these was relatively higher. Planting more green leaf trees, ensuring timely supply of fertilizer, by bulk purchase of fertilizers by co-operative societies, can go a long way in solving the problem.

SUGGESTIONS FOR FUTURE RESEARCH

- ❖ This study was conducted within the time and resource limitations of a student researcher. But there is further scope for survey and action research in this field. Some of them are given below:
- ❖ This study was conducted in only a single district. The study may be extended to the entire major bidi tobacco growing districts of the state to ascertain the findings and identify specific problems if there are any.
- ❖ Research aimed at obtaining specific feed backs for development of suitable mechanized implements may be thought of, especially those which can reduce the drudgery of women.
- ❖ Action research to demonstrate the technologies at farmer's field on a large scale may be done to convince farmers about the potential yield realizations with the existing technology itself.
- ❖ A study relating to cost of cultivation, marketing, support and procurement price, public distribution system, *etc.*, can throw light on the economic issues of bidi tobacco cultivation.

VII. REFERENCES

- ABDUL REHMAN KUNJU, O., THAMPI, A.M. AND BHASKARAN, C., 1992, Constraints in evolving, spreading and adopting improved rice varieties in Kerala. *Agri.Res.J.Kerala.*,**20** (1) : 28-41.
- ANONYMOUS, 1992, *NARP Status report*, Central Zone, Kerala Agricultural University, Thrissur.
- ANONYMOUS, 2003, *Indian Agriculture*, Indian Economic Data Research Centre, New Delhi, pp. 527-538.
- BEAL, G. M. AND SIBLEY, D. N., 1967, Adoption of agricultural technology by the Indian of Gautemala. *Rural Sociology Report 62*, Department of Sociology and Anthropology, Iowa State University, Iowa, America.
- BELLIGERI, S. B., 1996, A study on knowledge, adoption and perception of usefulness of agro-forestry practices by farmers of Hangal Taluk, Dharwad district. *M.Sc. (Agri) Thesis*, University of Agricultural Sciences, Dharwad.
- BHASKARAN, S AND THAMPI, A.M., 1986, Progressiveness of farmers and their socio-economic characteristics in adopting high yielding variety of paddy. *Agricultural Research Journal .Kerala.*, **24**(1): 47- 51.
- BIRADAR, N. B., 1997, Effectiveness of teaching methods in communicating nutritional knowledge to rural women- An experimental study. *Ph. D. Thesis*, University of Agricultural Sciences, Dharwad.
- CHANDREGOUDA, M. J., 1996, Sustainability of rice farming in different ecosystems. *Ph. D. Thesis*, University of Agricultural Sciences, Bangalore.
- CHITNIS D. H., AND BHILEGAONKAR, M.G., 1985, Technological gap in dry farming system, and analysis, *Maharashtra Journal of Extension Education*, **4** : 73-76.
- DAS, TAPAN KUMAR AND CHAKRABORTY, SIBAJI, 1997, Technological gap of *Boro Rice* at Farmers Field – A case study of Birhum district of West Bengal. In Das Gupta, D. and Siddartha D. Mukhipadhyay (Eds.), 1997, *Social Science Perspective in Agriculture*, Institute of Agriculture, Visva Bharati, Sriniketan.
- DESAI, B. R., GIRASE, K.A. AND PATIL R. P., 1997, Constraints faced by contact farmers in adoption of new technology. *Agricultural extension Review*, **9** (2) : 14-16.
- ELANGOVA, R. AND VASANTHAKUMAR, J., 1997, Participation of extension officers towards eco-friendly technologies. *Journal of extension education*, **8**(3) : 1755-1758.
- ELASAMMA JOB, BALAKRISHNAN ASAN, R. AND RAMASUBRAMANJAN, P.R., 1997, *Basic information and constraint analysis in agriculture (Report on basic socio-economic survey)*, NARP Southern zone, Kerala Agricultural university. College of Agriculture. Vellayani.
- GEETAKUTTY, P.S. AND MENON, A.G.G., 1995, Fertilizer use behaviour of rice farmers. *Journal of. Tropical Agriculture.*, **33** (2) : 147-49.
- GUPTA, V., 1999, A study on the knowledge and adoption behaviour of rice growers in Jammu district of Jammu and Kashmir state. *M. Sc. (Agri.) Thesis*, University of Agricultural Sciences, Dharwad,
- GURURAJ HUNASAGI AND KRISHNA, K. R., 1998, Science of field crop production 1998, Oxford and IBH Publication, New Delhi, pp. 404-411.
- HANUMARANGAIAH, 1996. Factors influencing the productivity of paddy and sugarcane under irrigation. *Ph.D. Thesis* in Agricultural. Extension. (Unpub.), University of Agricultural Science, Bangalore.

- HIREMATH, N.S., 2000, Participation of rural youth in farm and non-farm activities. *M. Sc. (Agri.) Thesis*, University of Agricultural Sciences, Dharwad.
- JAISWAL, D.K. AND RATHORE, A.K., 1985, Technological gap in adoption of recommended technology in wheat among farmers growing irrigated and unirrigated wheat. *Maharashtra Journal of Extension Education*, **4** : 147-49.
- JAISWAL, D.K., MISHRA P. K. AND MISHRA ANUPAM. 1987, Adoption gap of recommended wheat technology among the farmers of Bundelkhand Region, *Maharashtra Journal of Extension Education*, **6**:205-06.
- JAISWAL, P. K. AND DUBOLIYA, S. R., 1994, Adoption gap in wheat technology. *Maharashtra Journal of Extension Education*, **13** : 63-68.
- JAISWAL, P. K. AND SHARMA, P.N., 1990, Constraints in adoption of improved technology of rice, *Maharashtra Journal of Extension Education*, **9**: 341-43.
- LAKSHMINARAYAN, M. T., 1997, Adoption of sustainable sugarcane farming practices – An analysis. *Ph.D. Thesis*, University of Agricultural sciences, Bangalore.
- MAHAWER, S. K., PUNJABI, N.K. AND DASHARA, P. K., 1995, Technological gap between beneficiaries and non-beneficiaries of schedule caste area research project. *Maharashtra Journal of Extension Education*, **14** : 51-64.
- MARCY KUTTY, H. T., 1997, Adoption of bio-fertilizer technology. *Journal of Extension Education*, **11**(2) : 2807-2809.
- MOHANTY, B.K., AND SAHU, P.N., 1997, Adoption of improved agricultural practices by tribal farmers of Keonjhar. *Journal of Extension Review.*, **9** (4) : 18-19.
- MUNDHAVA, A. B. AND PATEL, H.L., 1991, Constraints in adoption of rainfed wheat technology in Bhal area of Gujarat State. *Maharashtra Journal of Extension Education*, **10** (1) : 23-29.
- NAGABHUSHANAM, K. AND KARTHIKEYAN, C., 1998, The differential yield levels and its influential factors, an analysis on paddy farmers. *Journal of Extension Education*, **9** (2) : 2027-30.
- NAGARAJ, K. H., 1999, An analysis of yield gap, technological gap and constraints in Groundnut production, *Ph.D. Thesis* in Agricultural Extension (Unpub). University of Agricultural Sciences, Bangalore.
- NAGARAJ, N. AND SRINIVASAMURTHY, J., 1987, A study of constraints analysis of fertilizer use in selected area of Karnataka. *Current. Research.*, **16** (8) : 114-17.
- NATARAJU, M.S., VENKATARANGANAİK, K. AND KRISHANMURTHY, B., 1995, Technology utilization pattern under NARP in Karnataka. *Journal of Extension Education*, **6 & 7** (4 & 1) :1318-21.
- NATIKAR, K.V., 2001, Attitude and use of Farm Journal by the subscriber farmer and their profile. A critical-analysis. *Ph.D. Thesis*, University of Agricultural Sciences, Dharwad.
- NIKHADE, D.M., BHOPLE, R.S. AND KALE, N.M. 1997, Technological gap in cultivation of redgram, greengram, and Bengal gram in Gulbarga district of Karnataka. *Indian Journal of Extension Education*, **33** (1-2) : 72-75.
- PATIL, H.N. AND DESHMUKH, M.K., 1995, Impact of Training and Visit System on Rice Economy. *Indian Journal of Extension Education*, **31** (1-4) : 98-101.
- PATIL, V.G., 1995, Technological gap in rice cultivation. *Maharashtra Journal of Extension Education*, **14** : 185-87.
- PILLAI, BALAKRISHNA, G. AND SUBRAMONIAN, V. S., 1986, Technological gap in integrated soil conservation practices of Kerala. *Agricultural Research.Journal Kerala.*, **24** (1) : 52-55.

- RAO, V.K.J. AND VEERABHADRAIAH, V., 1993, Adoption of low cost and no cost technologies by farmers. *Current Research.*, **22** (3,4&5) : 75-77.
- RATHOD, D. N., 2005, A study on knowledge and adoption pattern of improved sugarcane practices in Bidar district, Karnataka state, *M. Sc. (Agri.) Thesis*, University of Agricultural Sciences, Dharwad.
- RAY, G.L., CHATTERJEE, P. AND BANERJEE, S.N., 1995, *Technological Gap and Constraints in Agricultural technology Transfer*, Naya Prakash, Calcutta, p. 27.
- REDDY, V., 1991, A study on knowledge and adoption level of registered cotton growers in Chitradurga district of Karnataka. *M. Sc. (Agri.) Thesis*, University of Agricultural Sciences, Bangalore.
- SANTHA, A. M., SHYALAJA, S. AND BALAKRISHNAN ASAN,R., 1992, Adoption barriers of high yielding varieties. *Maharashtra Journal of Extension Education*, **11** :339-40.
- SHARMA, F.L., CHAUDHARY, M.C. AND KALLA, P.N., 1997, Adoption constraints of scientific maize production technology. *Maharashtra Journal of Extension Education*, **16** : 192-96.
- SHASHIDHAR, D.N., 2004, A study on influencing factors and constraints in drip irrigation by horticulture farmers of Bijapur district of Karnataka. *M.Sc. (Agri) Thesis*, University of Agricultural Sciences, Dharwad.
- SHASHIDHAR, K.K., 2003, A study socio-economic profile of drip irrigation farmers in Shimoga and Davangere district of Karnataka. *M.Sc. (Agri) Thesis*, University of Agricultural Sciences, Dharwad.
- SHEREIF, A.K. AND VASANTHKUMAR, J., 1997, Sustainable agricultural practices disseminated through farm magazines in Kerala. *Journal of Extension Education*, **8** (2) : 1689.
- SINGH, BHAGAVAN AND CHAUHAN, K.N.K., 1996, Technological gap recommended mustard production technology. *Agricultural Extension Review.*, **8** (3) : 29-30.
- SINGH, P.R. AND SHARMA P.N., 1998, Adoption of improved paddy technology in Madhya Pradesh *Agricultural Extension Review*, **10** (2) : 25-27.
- SINGH, S. R., RATOLIA, R.K. AND TRIPATHI S.N., 1987, Constraints in adoption of recommended doses of fertilizers. *Maharashtra Journal of Extension Education.*, **6**: 219-21.
- SINGH, S., JHA, J. N. AND ROY N. K. 1992, A micro level constraint analysis for low and non-adoption of HYV rice technology. *Maharashtra Journal of Extension Education*, **11** : 143-47.
- SRIRAM N. PALANISWAMY, A., 2000, Cotton growers extent of awareness about the eco-friendly agricultural practices in cotton. *Journal of Extension Education*, **11** (2) : 27-90.
- SRIVASTAVA, S.N. AND SINGH, R. P., 1990, Identification of constraints of paddy production under rainfed conditions, *Indian Journal of Extension Education.*, **26** (3&4) : 77-79.
- SRIVASTAVA, S.N. AND SINGH, R. P., 1990, Identification of constraints of paddy production under rainfed conditions, *Indian Journal of Extension Education.*, **26** (3&4) : 77-79.
- SUJATHA, P. AND ANNAMALAI, R., 1998, Constraints faced by farmer in the utilization of inputs. *Journal of Extension Education*, **9** (3) : 2080-83.
- SUJATHA, P. AND ANNAMALAI, R., 1998, Differential adoption behaviour by different categories of farmers and their characteristics associated with adoption behaviour. *Journal of Extension Education.*, **9** (1) : 1905-08.

- SULAIMAN, V. R. AND PRASAD, R.M., 1993, Fertilizer use behaviour of rice farmers of Palakkad and Kannur districts. *Journal. of Tropical Agriculture.*, **31** (1) : 96-100.
- SUNILKUMAR, G.M., 2004, A study on farmers knowledge and adoption of production and post-harvest technology in tomato crop of Belgaum district in Karnataka. *M.Sc. (Agri) Thesis*, University of Agricultural Sciences, Dharwad.
- TYAGI, B.D. AND TYAGI, A. K., 1998, Variables influencing technological gap in sugarcane cultivation, *Indian Journal of Extension Education* **24** (3&4) : 82-84.
- VENKATESH PRASAD, G., 1998, Adoption of plant Protection measures in Paddy by the farmers, *Journal of Extension Education* **10** (1) : 2305-12.
- VENKATESH PRASAD, G., SIDDA RAMAIAH, B. S., SHIVARAMU, K. AND JAMUNA, K.V., 1999, Adoption of plant Protection measures in Paddy by the farmers, *Journal of Extension Education* **10** (1) : 2305-12.
- VENKATRAMULU, 2003, The knowledge level, Adoption and marketing behaviour of chilli growers in Guntur district of Andhra Pradesh. *Msc. (Agri) Thesis*. University of Agricultural Sciences, Dharwad.
- WASNIK, S.M., 1995, Farmers knowledge and Extent of adoption of sugarcane production technology. *Maharashtra Journal of Extension Education.*, **14** : 101-104.
- YADAV, R. N. AND GANGAWAR, A.C., 1986, Rice production and Constraints in Bihar State, *Agricultural studies in India*, **41** (1) : 7-11.

A STUDY ON THE TECHNOLOGICAL GAP AND CONSTRAINS OF BIDI TOBACCO CULTIVATION IN BELGAUM DISTRICT, KARNATAKA

INTERVIEW SCHEDULE

Respondent No

General Information

Name of the Farmer :

b. Village :

c. Taluk :

d. District

1. Age :

2. Education : Illiterate/ Primary/ Secondary/ PUC/ DIPLOMA/ Graduate/ PG

3. Economic status :

a) Land holding :

i) Irrigated :

ii) Rainfed :

Total size of the holding :

b) Farm power :

Wooden plough

Iron plough

Seed drill

Tiller

Sprayer/duster

Tractor

c) Material possession : Radio, TV, Two wheeler, Four wheeler, Pump set, Other improved Agril. Implements

4. Area under Bidi Tobacco Cultivation ----- ha

5. Annual income Rs. -----

6. INNOVATIVENESS

Please indicate your responses to the following statements

Sl. No.	Statement	Y	UD	NO
1	Do you want new ways of farm development			
2	If the Agril. Extn. Worker gives a talk on improved cultivation aspects would you attend			
3	If the government would help you to establish a farm elsewhere would you move?			
4	Do you want to change in your way of life?			
5	A farmer should try to farm the way his parents did?			
6	Do you want your sons to be a farmer?			
7	A man's fortune is in the hands of God?			
8	It is better to enjoy today let tomorrow take care of itself			

7. SOCIAL PARTICIPATION :

Please indicate whether you are a member or office bearer in the following organizations and so how frequently you attend the meeting during the last one year

Sl. No.	Organization	Member	Office Bearer	R	O	N
1	Gram Panchayat					
2	Gram Sabha					
3	Co-operative Society					
4	Milk Co-operative Society					
5	Farmers Co-operative Society					
6	Youth Club					
7	Recreation club					
8	Radio listeners club					
9	Any other specify					

8. RISK ORIENTATION:

There are six statements given below, indicate whether you agree or disagree with the statement

SI No.	Statement	A	DA
1	A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops		
2	A farmer should rather take more of a chance making a big profit than to be content with a smaller but less profit		
3	A farmer who is willing to take greater risks than the average farmer usually does better		
4	It is good for a farmer to take risks when he knows his chance of success is fairly high		
5	It is better for a farmer not to try new farming methods, unless most other farmers have used them with success		
6	Trying an entirely new method in farming by a farmer involving risks but it is worth		

9. CREDIT ORIENTATION :

SI No.	Statement			Y	N
1	Do you think that a farmer like you should borrow money for Agril. purpose			Y	N
2	In your opinion how difficult is it to obtain credit for Agril. purpose	Very easy	Easy	Diffi-cult	V. difficult
3	How a farmer is treated when he goes to secure credit	Very fairly	Fairly	DA	Very badly
4	There is nothing wrong in taking credit from institutional sources for increasing farm production	SA	A	Y	D
5	Did you use credit in the past two years for crop production				N

10. EXTENSION CONTACT :

How often you contact the extension personnel in your area

SI No.	Extension personnel	Acquaintance				
		Frequency of contact				
		Once in week	Once in fortnight	Once in month	When needed	Never
1	AAO					
2	AO					
3	University Extension Staff					
4	Private company Field Staff					
5	Others, spcify					

11. EXTENSION PARTICIPATION

How often you participated in the following extension activities?

SI No.	Activities	Regularly	Occasionally	Never
1	Group Meetings			
2	Seminars/Talks			
3	Demonstrations			
4	Krishimela/Exhibition			
5	Tours/Field Trips			
6	Field day			
7	Exposure Visit			
8	Training			

13. MASS MEDIA PARTICIPATION :

Please tell me which of the following sources you have used for getting information about crop production technology and how often?

SI No.	Mass media	Owner/ subscriber			Regularly	Occasionally	Never
		Yes	No				
1	Radio			Agriculture			
				General			
2	TV			Agriculture			
				General			
3	News Papers						
4	Farm Magazines						
5	Krishimela/Exhibition						

Adoption of recommended practices of bidi tobacco cultivation by the farmers:

- a) Please indicate which of the following recommended practices you have followed for cultivation of bidi tobacco. Indicate reasons in case of non-adoption or partial adoption.

Sr. No.	Practices followed	Recommended practices	Adoption
1	Variety used for planting	A 119, PL5, NPN 22	
2	Preparatory cultivation	Deep ploughing	
3	Planting Method	Flat planting	
4	Time of transplanting	10-25 August	
5	Spacing	100cm x 75cm	
6	Application of FYM/compost	5 tons/ha	
7	Application of fertilizers/Acre		
	Nitrogen (N)	50	
	Phosphorus (P ₂ O ₅)	20	
	Potash (K ₂ O)	16	
8	Irrigations	3-4 times	
9	Inter cultivation	2-3 times	
10	Level of topping	16-20 leaves	
11	Sucker control	Khudaband 4% or Stomp 1.5%	
12	Harvesting	When maximum number of leaves develops spangles	

13	Plant protection measures		
	A) Pests: I) Cutworms Quantity of chemicals II) Leaf eating catter pillers Quantity of chemicals III) Aphids Quantity of chemicals B) Diseases: 1. Damping off 2. Black shank and leaf blight 3. Root knot nematode 4. Frog eye spot 5. Alterneria leaf spot	2 ml/lit Endosulfan/ chlorpyriphos 2 ml/lit Endosulfan/ chlorpyriphos 2ml/dimethoate/ 0.3ml imadichlopirde/1g acephate Fytolan/ Blitox 2gm/lit Redomyl mz.72 wp 2gm/lit Fytolan/ Blitox 2gm/lit Redomyl mz.72 wp 2gm/lit Furadon 3G/10G rugby Carbendyzim 1gm/lit Mancozeb 2gm/lit	
14	Yield obtained/acre (in kg)		
15	Cost of cultivation/acre (in Rs)		

16. PROBLEMS :

Please indicate problems you have faced in cultivation and during post harvest stage of Bidi Tobacco

PROBLEMS

- A)
- B)
- C)
- D)
- E)

17. SUGGESTIONS :

Please indicate your suggestions for Bidi Tobacco cultivation and its improvement

SUGGESTIONS

- A)
- B)
- C)
- D)
- E)

A STUDY ON TECHNOLOGICAL GAP AND CONSTRAINTS OF BIDI TOBACCO CULTIVATION IN BELGAUM DISTRICT, KARNATAKA STATE

SANTOSH SWAMI

2006

Prof. F. R. NIDAGUNDI
Major Advisor

ABSTRACT

The study on technological gap and constraints of Bidi Tobacco cultivation was conducted during 2005-06 involving 120 growers from villages of Chikkodi and Hukkeri taluks in Belgaum districts.

The findings of the study were overall technological gap for the total respondents was 50.96 per cent. For application of potash, irrigation schedule 64.94 and 60.06 per cent, topping 15.02 per cent, application of nitrogen 24.47 per cent. Majority of respondents 48.34 per cent belonged to medium category and equal number of respondents 25.85 in both low and high technological gap categories, 46 per cent middle aged, about 28 per cent educated upto high school, 55.33 per cent belonged to nuclear family nearly 37.33 per cent had upto 5 acres of land. Among mass media, radio (64%) and television (48.66%) were widely possessed by the respondents, 10.66 and 6.67 per cent were member of co-operative society and gram sabha, 78 per cent of the respondents were found medium level of innovation, while 58.00 per cent by medium level of risk orientation, 44.17 per cent had medium credit orientation followed by high 31.66 and low 24.17 per cent, respectively.

All the variables showed negative relationship with the technological gap, two variables viz., age and education had negative non-significant relationship. Majority of the respondents 70.83 per cent expressed that susceptibility of Bidi Tobacco to adverse climatic conditions as major constraint.

Majority of the respondents 70.66 per cent suggested that Bidi Tobacco should be included in crop insurance scheme while 52.50 per cent suggested that support price should be announced for bidi tobacco.