

**ANALYSIS OF TECHNOLOGICAL GAP IN BANANA CULTIVATION
IN PARBHANI DISTRICT**

BY
SHIVRAM SHRIHARI NAIKNAWARE
B. Sc. [Agri.]

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Dissertation

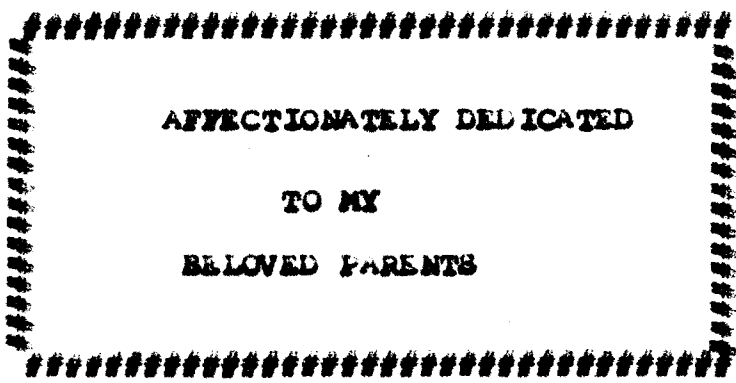
*Submitted To The Marathwada Agricultural University
In Partial Fulfilment Of The Requirement
For The Degree of*

MASTER OF SCIENCE
[Agriculture]

IN

AGRICULTURAL EXTENSION EDUCATION

**DEPARTMENT OF EXTENSION EDUCATION
MARATHWADA AGRICULTURAL UNIVERSITY
PARBHANI [Maharashtra] INDIA
1991**



AFFECTIONATELY DEDICATED
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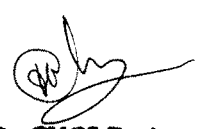
Dr. R. R. Chole
M.Sc. (Agri.), Ph.D.
Assistant Professor
Department of Extension Education
College of Agriculture
Marathwada Agricultural University
Parbhani 431 402 (Maharashtra).

CERTIFICATE - I

This is to certify that the dissertation entitled " ANALYSIS OF TECHNOLOGICAL GAP IN BANANA CULTIVATION IN PARBHANI DISTRICT" submitted to the Marathwada Agricultural University, Parbhani in partial fulfilment of the requirement for the degree of MASTER OF SCIENCE in the subject of AGRICULTURAL EXTENSION embodies the results of a bonafied research carried out by SHIVRAM SHRINHARI NAIKNAWARE under my guidance and supervision. No part of this dissertation has been submitted for any other degree or diploma.

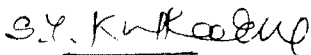
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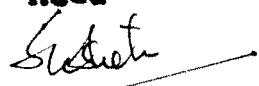
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PARBHANI DISTRICT" submitted by Shri SHIVRAM SHRIHARI
MAIKNAWARE to the Marathwada Agricultural University,
Parbhani in partial fulfilment of the requirements for
the degree of MASTER OF SCIENCE in the subject of
Agricultural Extension has been approved by the student's
Advisory Committee after Viva-voce examination in
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External Examiner

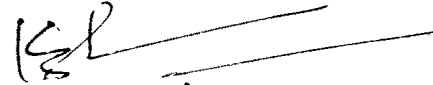

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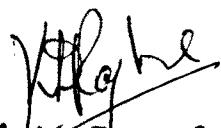
Advisors :


1. (G.G. Handapurkar)
Head


2. (S.G. Shetay)
Asstt. Professor


3. (K.M. Dakhore)
Asstt. Professor


4. (K.D. Phuke)
Asstt. Professor


Associate Dean & Principal
College of Agriculture
Parbhani

ACKNOWLEDGEMENT

Emotions can not be adequately expressed in words, because then emotions are transformed into mere formality. My acknowledgement are many times more than what I am expressin here.

I take this opportunity in expressing my deep sense of gratitude and prof^ound thanks to Dr.R.R. Chole, Assistant Professor, Department of Extension, M.A.U., Parbhani, Chairman of advisory committee, for inspiring guidance, encouragement, valuable suggestions and constructive criticisms right from the begning of the present investigation till the final shaping of the dissertation in the present form.

Thanks are also due to Dr.G.G.Nandapurkar, Head, Department of Extension, M.A.U., Parbhani and member of advisory committee for valuable counsel and intelligent suggestions he generously rendered for this dissertation.

I shall remain extremely grateful to Dr.K.M. Dakhore, Prof. S.G.Shetay and Dr.K.D.Phuke, members of advisory committee for their valuable suggestions and kind co-operation during the present research work.

I record my deep sense of gratitude to Dr.R.R. Kulkarni and all staff members of department of Agril. Extension, M.A.U., Parbhani.

I treat it to be the great privilege to record my heartiest thanks to Dr.V.K.Patil, Vice-Chancellor, M.A.U.,Parbhani and Dr.Krishna Rajmane, Associate Dean & Principal,College of Agriculture,Parbhani for extending all the required facilities for completion of the research work.

I am impressed by the ever-willing help extended by my friends S/Shri P.R.Zanwar, C.K.Ganore, D.P.Panchal, Sharma, N.M.Munje, D.B.Kale, D.R.Bramhapurkar(Typist), R.H.Patil, R.D.Bhosale, A.R.Jewale, A.A.Sathe and Kulkarni.

Words will be inadequate to express my sense of gratitude and indeptedness towards my parents Shri Shrihari Naiknaware and mother Sow. Subhadra Shrihari Naiknaware, Father-in-law Shri Venkatrao Yadav and Mother-in-law Sow Ratnamala Yadav, brothers Shri Baluram and Bharat and Sister-in-law Sow. Deekanya who with their evergreen affection, constant encouragement stood like a ladder for the success during my whole educational career.

I am highly appreciative of the personal sacrifice of my friend Shri Sham Gajare and I owe much for the love,

.3.

**emotional support and encouragement given by
my lifepartner Sow Jyoti Naiknaware to me throughout
my research study.**

**Last but not the least the inspiring words and
wishful ambition of my mother and father of them are
never ignored by me.**

PARBHANI.


(NAIKNAWARE S.S.)

Date: July 17, 1991.

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INTRODUCTION

Chapter 1

INTRODUCTION

The development of agriculture is primarily the application of the sciences and technology by making the best use of available resources. Indian agriculture by and large occupies strategic position in Indian economy. Indian agricultural technology is changing with an increasingly rapid rate. The new agricultural technology is the result of solid foundation and careful planning in agricultural research. It can be broadly classified into crop investment, crop production, crop protection and post harvest technology.

The transformation in Indian agriculture after mid of 1960's is primarily attributed to the improved farm technology developed by farm scientists and its use by farmers, with the modernization of Indian agriculture has made break through in agricultural production and productivity, it also created several problems which are always associated

in the progress of such technological change on the mass scale. The problem related to dissemination of agricultural technology is two fold on one hand there is the uneven distribution of benefits of modern technology, and on the other hand the process of transfer of modern technology has been slow and not uniform in various parts of the country. Hardly 20.00 per cent of the available modern technology is adopted so far.

The agricultural technology is not generally accepted by the farmers in all respect. As such there always appears to be the gap between the recommended technology by the scientists and it's use at farmers level. This technological gap is a major problem in the efforts of boosting up agricultural production in the country.

It is incredible to note that with all the technological advancement the technological gap was found to be the extent of 75.00 to 100.00 per cent in tribal areas. Kulkarni (1979) in his

study of " Analysis of technological gap in tribal farming system". Studied tribal setting and existing technological gap in the adoption of farm practices reported that, in general, technological gap was found more in the tribal farmers than other farmers from the same area. Even in irrigated areas like Chambal command (Rajasthan) and Jayakwadi command (Maharashtra) the technological gap for practices like plant protection and fertilizer applications ranged between 37.00 to 97.00 per cent. This necessitates a call for an effective extension strategy to reduce the technological gap.

Kothikhane (1986) in his study of " A study of the technological gap in irrigated farming system under Purna command area, Maharashtra State" studied that about 40.00 per cent big farmers had low technological gap (11.00 to 30.00 per cent) on the contrary 40.00 per cent of small farmers had high technological gap (61.00 per cent and above). When the over all technological gap considering five

farm practices of technology in combination was studied, it was observed that small farmers had highest technological gap having mean score (57.19) followed by medium (46.01) and big farmers (34.70) respectively.

In India the process of transformation of traditional agriculture with intensive application of scientific technologies has been already started, but it is observed that not all farmers are taking to the improved farm practices. Even those, who are more prospective are also adopting only some components in integrated production technology.

The predominant reason among many for non adoption or partial adoption of the technology by the farmers have been lack of awareness about new technology and non feasibility of the technology. Our recent experiences have clearly brought about that though overall agricultural production has

gone up but it's impact has not been uniform under different farming systems for different categories of the farmers.

The study on estimation of technological gap by Tripathy (1977) regarding adoption of new rice technology in the coastal Orissa indicated that 56.00 per cent of farmers were in the high gap category of technology adoption. The technological gap was high in the use of seed and seed treatment and nitrogenous fertilizers. The extent of adoption of Bajra technology and constraints there in reported by Madansingh (1977) revealed that the technological gap was high in case of method of sowing of the marginal farmers. While in the practices like irrigation and weed control, the gap was highest in case of small farmers. Lack of farm power, lack of knowledge of technology, unavailability of inputs and uncertainty of weather condition during sowing time were the major constraints in his study.

Sadamate (1973) in his study on technological gap in the adoption of agricultural technology by tribal farmers, revealed that average technological gap was found to be highest in case of plant protection { i.e. 87.13 per cent } followed by harvesting and post harvest technology (86.50 per cent). Technological gap in the adoption of water management, application of manures and fertilizers, adoption of recommended variety and method of sowing were also reported in sequence.

Thus, the technological gap is significant both in dry as well as irrigated farming system, which is a matter of concern to the extension scientists. Technological gap in irrigated farming should be given greater attention to utilize precious commodity like water more efficiently. Secondly, there is greater scope to boostup agricultural production in irrigated farming if such a gap is eliminated.

The study was therefore conducted in the Basmat block of Parbhani district which is under Purna command area in respect of technological gap in banana cultivation. The study intends to assess the existing technological gap in selected management practices of banana cultivation by the farmers and to identify the constraints causing technological gap the specific objectives of this study were:

1. To study the personal and socio psychological characteristics of the banana growers.
2. To explore the technological gap in selected management practices of banana cultivation among the respondents.
3. To delineate relationship between characteristics of the respondents and the technological gap.
4. To find out the constraints in banana cultivation resulting into technological gap.

Scope of the study:

The very approach and brief statement of objectives given earlier would indicate the practical utility of the research. This inturn would enable to identify technological gap in relation to recommended technology for banana cultivation for the area, which ultimately effects over all production.

Finally the study would probe into the constraints causing gap in adoption of improved agricultural technology in the banana cultivation. The results would help in taking appropriate measures to enhance the production of banana.

Limitations of the study:

The present investigation has major limitation of study area since investigation was conducted only in five villages in Basmath Taluka of Parbhani district under a particular social and

enviornmental setting. Therefore the general conclusions arrived at may be of value only in the similar situations.

Organization of the thesis:

The thesis is presented in seven chapters. The first chapter deals with a brief introduction, the problems, objectives, scope and limitations of the study. The second chapter is devoted to a review of literature related to the problem. Discription of the research methods and techniques, used in this study has been presented in the third chapter followed by findings in fourth chapter. Discussion in the light of literature reviewed is given in chapter fifth. The last two chapter deal with " Summary and Conclusion " and "Implications" on the study, respectively.

REVIEW OF LITERATURE

Chapter 2

REVIEW OF LITERATURE

A comprehensive review of literature is an essential part of any scientific investigation. It's main function is to determine the previous research work done and assessing in delineation of problem area provide a basis to theoretical frame work, provide an insight into methods and procedures, suggest operational definitions of major concepts and provide a basis interpretation of findings.

Studies conducted in India and abroad on technological gap in agricultural was recorded, As the direct literature having bearing on technological gap is rather limited, the reference having indirect bearing were also reviewed and presented under this chapter in three main heads.

2.1 Characteristics of farmers as related with technological gap.

2.2 Extent of technological gap.

2.3 Constraints causing technological gap.

2.1 Characteristics of farmers as related with technological gap.

2.1.1 Socio personal and economic variables

The reviews related to technological gap with socio personal characteristics viz. age, education, land holding, annual income, socio economic status, extension contact, socio participation is presented here under.

2.1.1.1 Age

Kulkarni (1979) reported the positive relationship between age and technological gap but it was not significant.

Mahajan (1980) in his study indicated that age did not maintain significant relationship with extent of adoption of agricultural technology.

Chitnis (1983) while studying technological gap in dry farming system reported that age was found positively related with the technological gap.

Kubde and Sinha (1983) pointed out that personal factors like age, education, social participation were not found to be influencing in deciding technological gap.

2.1.1.2 Education

Kulkarni (1979) in his study of technological gap in tribal farming reported that education of the respondents in respect of non-tribal farmers was negatively and significantly related to the technological gap while the relationship in tribal farmers was negative but not significant.

Mahajan (1980) reported positive and significant association between education of the farmers and their adoption of agricultural technology.

Chitnis (1983) observed that education has significant negative relationship with technological gap.

Kulkarni and Patil (1984) revealed that there is a statistically significant relationship between education and adoption. Further, it was observed that percentage of low adoption was high in case of farmers who have no formal education.

2.1.1.3 Annual income

Sadamate (1978) pointed out that the income level of farmers was found negatively correlated with the technological gap.

Mahajan (1980) reported that family income of farmers was positively and significantly associated with adoption of agricultural technology.

Chitnis (1983) found that education was negatively and significantly related to the technological gap in case of total sample farmers.

2.1.1.4 Land holding

Madansingh (1977) reported that the farm

size was comparatively more responsible for technological gap in bajra cultivation, specially in case of marginal and small farmers.

Kulkarni (1979) reported that farm size was negatively and significantly related to the technological gap in case of tribal farmers but the relationship was not significant though negative corelation was observed in non-tribals.

Chitnis (1983) while studing technological gap in dry farming system revealed that farm size was negatively related with technological gap.

Kulkarni and Patil (1984) reported that there was statistically significant association between size of the holding of the farmers and their adoption of improved paddy practices.

2.1.1.5 Socio-economic status

Kulkarni (1979) reported that the socio-economic status was found negatively and significantly related to the technological gap in case of tribals as well as non-tribals farmers.

Kulkarni and Patil (1984) revealed that there is statistically significant and positive relationship between socio-economic status of the farmers and their adoption.

2.1.1.6 Extension contact

Jayaram and Bhaskar (1972) revealed that farmers degree of contact was found to have positive and significant relationship with the adoption of bajra.

In a study of small farmers in relation to their needs and adoption of new agricultural technology, Prabhakar et.al. (1975) found significant relationship between number of extension contact and adoption of new agricultural technology.

Swamy and Mahadeva (1978) found significant association between educational level, contact with extension agency, participation in extension activity, mass media participation and social participation with adoption of recommended practices of Ragi cultivation in Bangalore district of Karnataka.

A study on extent of adoption of selected paddy cultivation practices by small farmers conducted in Nowgaon district of Assam reports significant association between extent of adoption and extension contact (Bordolai and Gill, 1979).

Sinha (1983) observed that education, size of holding, socio-economic status and extension contact were significantly associated with level of farm mechanization while studying the selected characteristics of farmers in relation to their adoption of farm mechanization.

2.1.1.7 Social Participation

past studies conducted by Singh (1966) Singh (1968), Supe (1969), Singh (1975) revealed positive association between the extent of farmers social participation and the level of adoption of innovation. In other words, it means that farmers social participation was found negatively associated with

their technological gaps. However, Singh et.al. (1972) expressed that the social participation did not have any impact on the adoption behaviour of farmers.

Tripathy (1979) and Sadmata (1978) established negative relationship between social participation and technological gap. Balsubramaniam (1980) reported positive and significant association between adoption and social participation.

Kulkarni (1979) in his study of tribal farming system inferred the negative and the significant association between social participation and technological gap in respect of tribal farmers but in case of non-tribal farmers though the relationship was negative it was not significant. While Mahajan (1980) established positive and significant relationship between social participation and adoption behaviour of the farmers.

Kulkarni and Patil (1984) reported that social participation of farmers was significantly associated with adoption of paddy technology.

2.1.2 Psychological variables

2.1.2.1 Achievement motivation

Parikh (1978) showed that pupils motivation towards schools is very low in Gujrat and Bombay as compare to U.S.A. schools. He found programmes positively and highly related to achievement motivation. The mean score general and anxiety 21.65, but if a person crosses the limit of anxiety perhaps it may lead to decreasing achievement motivation.

Jha (1981) found that, scholastic attainment is negatively correlated with achievement motivation. So also it is concluded that, the high achievement pupils are more prejudiced than the low achievement pupils which mean that prejudices affects the achievement and depress the scholastic attainment.

Kabra (1989) in a study of technological gap in sugarcane farming reported negative and significant relationship of achievement motivation with composite technological gap.

2.1.2.2. Risk preference

Risk preference concentration plays a very important role in adoption behaviour of farmers. Past studies of Singh (1971), Singh (1975), Bhilegaonker (1976), Sangle (1977) have indicated that risk preference and positive relationship with adoption behaviour of farmers.

Sethy (1978) in his study of the technological gap in adoption of fertilizers reported that risk orientation was found strongly and negatively associated with the technological gap in adoption of fertilizers.

Mahajan (1980) reported positive and significant association between adoption of agricultural technology and risk orientation.

Chitnis (1983) observed significant negative relationship between risk orientation and technological gap.

2.1.2.3 Scientific orientation

Kulkarni (1979) found that scientific orientation was negatively and significantly related to the technological gap in non-tribal farmers.

2.2 Extent of technological gap

2.2.1 Gap against seeds and sowing techniques

Pal (1974) in his study of high yielding varieties programme of rice in Cuttack district in Orissa reported that most of the farmers did not use the correct seed rate. In almost cases, he observed a higher seed rate than recommended seed rate.

Parthasarathi (1974) in the study of high yielding rice varieties in west Godavari district of Andhra Pradesh has reported that farmers used higher seed rate in Kharif, where as seed rate is more or less equal to recommended in Rabi.

Madansingh (1977) in his study reported that none of the eleven practices of bajra were completely adopted by any of the categories of the farmers. He further reported differentiation in the adoption of practices like seed rate, spacing, sowing time, sowing depth.

Patel (1982) reported that 41.00 per cent of potato growers had not treated potato seed. Only 3.00 per cent of potato growers had treated their seed as per recommendation where 52.00 per cent treated it below recommendation.

Chaitnis (1983) reported that small farmers has highest mean gap score (41.60) followed by

medium (36.54 per cent) and big farmers (27.97 per cent) respectively in respect of proper sowing techniques.

Kubde and Sinha (1983) reported that in case of sowing practice almost all the farmers of progressive village where in low technological gap category that in case of non progressive village, it is rather higher particularly in case of use of seed rate.

Supe et.al. (1983) reported that about 3/4 of the farmers followed recommended date of sowing, further it is reported that 4 kg seed per hectare was used less than 2 kg seed per hectare. As regards seed treatment it was observed that about half of the farmers did not adopted it as per recommendation.

Joshi and Shinde (1984) observed that most of the rabi jowar growing farmers (76.00 per cent)

used more seed rate, had closer spacing and more plant population than recommended one. Further, it was reported that seed treatment was not used by all most all farmers (98.00 per cent).

2.2.2 Gap against use of fertilizers

Desai and Sharma (1966) reported that average rate of application of nitrogenous fertilizers in wheat was only 16 Lbs. of nitrogen per acre under irrigated conditions as compared to the recommended use of 40 Lbs. of nitrogen.

Nair (1969) pointed out that 90.00 per cent of the farmers applied nitrogenous fertilizers but majority of them applied only less than half of the recommended dose.

Bhilegaonkar (1976) reported that extent average use of fertilizers in respect of total nutrients were 19.63, 12.89, and 23.90 kg per acre.

for big, medium and small farmers respectively. which was far below the recommended level which further declined (after 1974, 1975) to 16.56, 18.00 and 20.12 kg per acre.

Madan Singh (1977) reported that technological gap in adoption of nitrogenous fertilizers among marginal farmers was more. The extent of the technological gap against use of phosphoatic and pottashic fertilizers was observed 81.52 per cent and 81.98 per cent respectively among the marginal farmers.

Kulkarni (1979) indicated that the extent of gap mean score for chemical fertilizers was 76.85 per cent and 60.55 per cent in case of the tribal and non-tribal farmers respectively. About 91.00 per cent of tribal farmers and 61.00 per cent non-tribal farmer had maintained equal gap i.e. 98.00 per cent and 97.00 per cent respectively.

Deshpande (1980) concluded that the maximum number of recommended practices of H-4 Cotton cultivation were fully adopted by the respondents except fertilizers application and number of spraying and dusting (plant protection) were adopted partially.

Patel and Sangle (1982) observed in their study that out of 250 potato growing farmers, 19 had applied nitrogenous fertilizers below the recommended dose, 15.20 per cent applied phosphatic fertilizers below the recommendation. Where as, 36.00 per cent applied K below the recommended dose.

Kubde and Sinha (1984) reported regarding fertilizer application to H-4 cotton that 95.00 per cent farmers were observed in low technological gap category. As against in non-progressive village majority of the farmers were in medium and high level of technological gap. While Singh (1984) found that majority of farmers belong to marginal and small category and as such not offered full dose of balanced fertilizers.

2.2.3 Gap against plant protection measures

Kulkarni (1979) pointed out that the extent of gap in case of tribal farmers ranged between 58.00 to 99.00 per cent and in case of non-tribal farmers from 24.00 to 95.00 per cent in respect of plant protection measures.

Patel (1982) while studying adoption of potato technology in Khaira district of Gujrat state reported that technological gap in the plant protection measure was higher among the farmers. About 70.00 per cent of them had applied plant protection measures below the recommendation.

Chitnis (1983) in his study reported that extent of technological gap in plant protection measure was quite high in all categories of farmers (big, medium and small). The small farmers had highest mean gap score (95.73 per cent) followed by medium (81.06 per cent) and big farmers (67.74 per cent).

Kubde and Sinha (1983) in their study reported that there was considerable difference of technological gap in progressive and non-progressive village regarding use of plant protection measures in cotton crop. Majority of the farmers of non progressive villages were found to be not using this important aspect of cultivation.

Kothikhane (1986) reported that gap in using plant protection method was even upto 100.00 per cent, that to a particular for small farmers. It was also reported that the three categories of farmers did not differ from each other on component, it means that the technological gap in the use of plant protection measures was equally persisting in these categories.

2.2.4 Gap against utilization of irrigation

Gaurha and Jain (1984) reported that average number of irrigations applied on demonstration plot is 6.35 per cent, while that given by non-

demonstrating farmers in their plots. The less number of irrigations given by non-demonstrating farmers were attributed to limited irrigation facilities.

Kubde and Sinha (1983) observed that in case of majority of farmers, 62.50 per cent use of irrigation was not at satisfactory level.

Kothikhane (1986) reported that the data regarding gap against utilization of irrigation practices inferred that the big, medium and small farmers differed significantly from each other i.e. 27.92 per cent (big farmers), 27.55 per cent (medium farmers and 38.57 per cent (in small farmers) respectively.

2.2.5 Overall technological gap (Composite):

The review of technological gap (composite) have been presented here.

Rao (1968) studied the preferential adoption of package of practices of rice cultivation in Andhra Pradesh and found that only 28.00 per cent farmers preferred to adopt all the items of package of practices of rice, and rest of them preferred to adopt four items only, namely recommended seed rate, spacing, timely and adequate use of fertilizers.

Programme Evaluation Organization (1969) in their report for wheat and paddy have pointed out that only 17.00 per cent participating farmers adopted the four practices namely, seed treatment, chemical fertilizers, plant protection measures and inter-cultural operations.

Veerabhadriah and Dwarkinath (1970) studied the adoption of hybrid maize in Karnataka state. They found that only 15.00 per cent of the maize growing farmers had adopted all the recommended practices.

Jha and Shakawat (1972) inferred that HYV of bajra had been a partial success. As a testimony they reported that 88.00 per cent of bajra growers under study did not adopt full practices.

Rath (1978) reported that the new technology is largely irrigation based, it has not spread widely, due to unirrigated and unsufficient irrigated areas, there is a gap between adoption and farm income.

Kulkarni (1979) reported that in general the technological gap was found to be more in tribal farmers than other farmers from the same area.

Singh (1979) found that higher dose of nitrogen was given by adopters as a basal dose and at top dressing stage, but the low adopters did not apply N to the high yielding varieties crop.

As far as $P_2 O_5$ is concerned only high adpters applied on an average 7 kg per acre.

T 1955

He further reported that an average 66 kg per acre $P_2 O_5$ is applied to wheat crop and non potashic ($K_2 O$) fertilizer was placed to wheat crop.

Kubde and Sinha (1983) reported in their study that majority of the farmers 67.50 per cent from non-progressive village were seen in the high technological gap category. Where as, much as 25.00 per cent of the farmers in progressive village were found in the high technological gap.

Jaishwal and Rathore (1985) reported in their study that, gap between recommended technology and it's actual adoption is 57.00 per cent amongst irrigated farmers in cultivation of wheat. It was observed that gap of adoption is highest in respect of fertilizer application, seed treatment and plant protection.

Kothikhande (1986) reported in his study that overall technological gap in combination of a

five technologies was more in case of small farmers than medium and big farmers. He observed that small farmers had maximum mean gap score (57.19 per cent) followed by medium (46.01 per cent) and big farmers (34.76 per cent) respectively.

2.3 Constraints causing technological gap

Kulkarni (1979) reported that constraints like non compatability of technology, input and credit requirement service and supply and lack of knowledge about technology were responsible for increasing technological gap.

Sinha and Sinha (1980) also reported similar cause of non adoption of maize crop by the farmers of Sikkim.

Kendrakar (1981) reported in his study, constraints like inadequate availability of plant protection chemicals and appliances and high cost of fertilizer, inadequate supply of fertilizers etc.

Maisharurddin and Mandapurkar (1982) while studying the differential characteristics of banana growers under Purma command area reported that progressive farmers were also facing problems like lack of guidance, lack of labour, fluctuation in price and transport facilities.

Chitnis (1983) reported in his study the mainly technological constraints credit and economical service and supply and information, transfer. Among these constraints the technological constraints like water harvesting techniques and adoption of intercultural operations were mentioned first and second in the ranks. As regards the credit constraints unavailability of timely credit, high cost of input were mentioned as major. Further lack of availability of improved implements, lack of knowledge about technology were some of the constraints reported by the farmers.

Joshi and Shinde (1984) while studying constraints in the adoption of Sorghum technology reported that small farmers had not followed soil

and water management due to non availability of bullock and improved ploughs, further lack of inputs, near market, high cost of fertilizers were also some constraints reported.

Jaiswal (1985) reported the major reasons for non adoption of recommended technology were ignorance of the farmers about the technology, non-availability of inputs in proper time and high cost of recommended technology. Similar findings were also reported by Jaiswal and Rathore (1985).

MATERIALS AND METHODS

Chapter 3

MATERIALS & METHODS

The present chapter deals with the materials and methods. The procedures used for testing the hypothesis under study is outlined in this chapter.

The present investigation was carried out in the Basmath Taluka of Parbhani district of Maharashtra state with a view to analyse technological gap in banana cultivation.

The research methods and materials used in conducting this study have been presented under the following heads.

- 3.1 Locale of study.
- 3.2 Method of sampling.
- 3.3 Research design.
- 3.4 Variables and their measurements.
- 3.5 Tools and techniques of data collection.
- 3.6 Statistical and analytical procedures.

3.1 Locale of study

The present study was confined to the Basmath block of Parbhani district of Maharashtra state.

Basmath block was purposively selected for the study as it has major area under banana cultivation in the Parbhani district.

The Parbhani district is situated at 457.60 meters above the mean sea level with east south 104-48 kilometers (65 miles) stretches between 19.70 north longitude demarketing the boundries of Latur, Beed, Jalna, Yeotmal, Akola and Nanded. The total area of the district is 11,031 sq. km. and administratively it is divided into two sub-divisions viz. Sailu and Hingoli. The sub-division of sailu consist of Parbhani, Pathri and Gangakhed blocks while Hingoli, Kalamnuri, Jintur and Basmath form the Hingoli sub-division. The district Head quarter is Parbhani city which is situated on Mannad Kachiguda railway line. According to 1991 Census population of Parbhani district was 21,13,168 of

which 8,03,795 were literate (i.e. 38.13 per cent). The total working force of 7,18,464 represents roughly 40.00 per cent of the total population of the district, majority of the people are depend on agriculture.

Basmath block is situated in the lower ridge of Purna river. Basmath is an important market place and a centre for exporting of local agricultural products ranging from Jowar, Wheat, Pulses to Cotton, Oilseeds and Bananas. According to 1981 Census population of the block was 2.23 lakh spread over 206 villages.

The command area of Purna irrigation project is 29,812 ha. in the block. The minor irrigation schemes of Sendursana and Purjal irrigate approximately 1000 ha in the block. Basmath area is known for banana cultivation.

3.2 Method of sampling

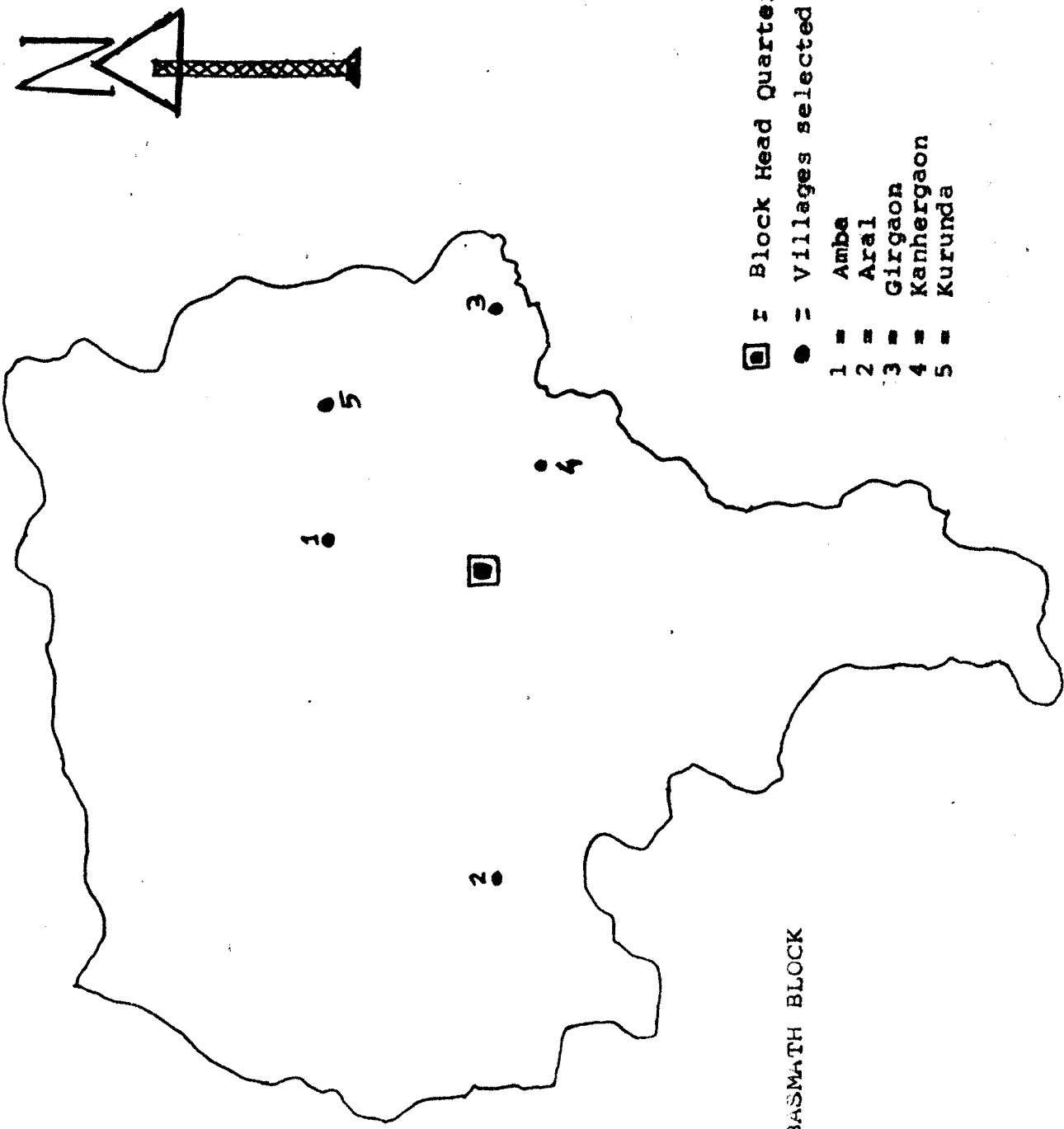
3.2.1 Selection of the villages:

The study was conducted during the period of February to May 1991 in Basmath block of Parbhani district. Out of 206 villages in the block 5 villages which were having maximum acreage under banana were selected randomly from Basmath block.

3.2.2 Selection of the respondents:

The respondents were selected randomly from the above five villages from banana growers. A list of banana growers was obtained from concern authority and from each village 30 farmers were selected randomly. Thus, a total of 150 respondents from five villages constituted the sample for the study.

The details of villages and respondents selected are given in the following table.



- = Block Head Quarter
- = Villages selected
- 1 = Amba
- 2 = Aral
- 3 = Girgaon
- 4 = Kanhergaon
- 5 = Kurunda

MAP OF BASMATH BLOCK

Table 1 List of selected villages and number of respondents.

Sr.No	Name of the villages	Number of respondents
1.	Amba	30
2.	Aral	30
3.	Girgaon	30
4.	Kanhergaon	30
5.	Kurunda	30
Total		150

3.3 Research design

Ex-post-facto research design was followed in the study as independent variables have already acted on dependent variables.

In the light of objectives a special schedule was designed for data collection. It included all the related aspects of technology of banana cultivation and the socio-personal, economic and psychological characteristics of respondents. The schedule was pretested and suitably modified in the light of pretesting 30 number of non-sample respondents were interviewed for pretesting. Thus, specially designed schedule was used for data collection. The selected respondents were personally interviewed by the researcher.

3.4 Variables and their measurements:

The variables included in the study were selected on the basis of review of literature, discussions with experts and experience gained through a pilot study conducted in the area of investigation. Only those variables which were predicted relevant to the study were selected.

3.4.1 Measurement of independent variables:

One of the aspects of this investigation was to study the characteristics of the respondents. Operationalization and various measurements adopted for measurement of these characteristics are reported here as under:

3.4.1.1 Age

As was defined as the number of chronological years completed at the time of interview from the date of birth of respondents and was determined by asking them through an opened question. It was categorised as below:

Sr.No	Category	Scores
1.	Young	Upto 30 years.
2.	Middle	31 to 45 years.
3.	Old	Above 45 years.

3.4.1.2 Education

Education was defined as the formal educational level obtained by the farmers. The variable was measured and categorised as follows:

Sr.No	Category	Standard	Score
1.	Literate	Can read & write	1
2.	Primary	First to 4th Standard	2
3.	Secondary	5th to 10th standard	3
4.	Higher-secondary	11th to 12 standard	4
5.	College level	Above 12th standard	5

3.4.1.3 Annual income

Annual earning of family from all sources was taken as an annual income of the farm family. The respondents were then classified into following category.

Sr.No	Category	Annual income(Rs.)
1.	Low	Upto Rs. 20000/-
2.	Medium	Rs. 20001 to Rs. 40000/-
3.	High	Rs. 40001 and above

3.4.1.4 Land holding

In the present study the land holding was defined as the number of hectares of land possessed by the respondents. Respondents were divided into four categories on the basis of land holding as follows:

Sr.No	Category	Size of land holding
1.	Marginal farmers	Upto 1 hectares.
2.	Small farmer	1.1 ha.to 2 hectares

Categories on the basis of size of land holding cont.

1.	2.	3.
3.	Medium farmers	2.1 ha to 6 hectares
4.	Big farmers	Above 6 hectares.

3.4.1.5 Socio-economic status

Socio-economic status was defined as the position of individual (or a family) occupied with reference to average standard of cultural possession, effective income, material possession and participation in the group activity of the community.

The socio-economic status of the respondents was measured by using the scale developed by Cherge (1985). The criteria for categorisation of socio-economic status as suggested by the author was as follows:

Sr.No	Category	Score
1.	Upper class	128 and above
2.	Upper middle class	97 to 127
3.	Middle class	65 to 96
4.	Lower middle class	32 to 64
5.	Lower class	31 and below

3.4.1.6 Extension contact

Extension contact was conceptualised as the contact made by the respondents with the extension agency or workers in the villages or outside the village.

In the present study, the extension contact was measured with the help of raw scale and the responses were categorised as once in a week, once in a fortnight and once in a month with the scoring 3, 2 and 1 respectively. The categories were as below:

Sr.No	Category	Score
1.	High	6.5 and above
2.	Medium	3.2 to 6.4
3.	Low	3.1 and below

3.4.1.7 Social participation

Social participation was defined as individuals involvement in the activities of formal or informal organization as a member or office bearer.

Each of the respondents was assigned one score if he were a member of one institution and was assigned two scores if he were office bearer. Thus, above scores was multiplied by the year for which he was the member or office bearer in the institution. Total on such scores was taken as the individuals social participation score. The respondents were classified on the basis of the social participation by using mean + 1 S.D. formula as follows:

Sr.No	Category	Score
1.	High participation	8.92 and above
2.	Medium participation	2.93 to 8.91
3.	Low participation	2.92 and below
4.	No participation	0

3.4.1.8 Achievement motivation

McClelland (1961) defined achievement motivation as a social value that emphasis a desire for excellence in order for an individual to attain a sence of personal accomplishment.

In the present study achievement motivation was measured with the help of an achievement motivation scale developed by Singh (1967). Scoring pattern was based on the mean + 1 S.D. formula.

Sr.No	Category	Score
1.	High	24.31 and above
2.	Medium	20.10 to 24.31
3.	Low	20.09 and below

3.4.1.9 Risk preference:

Risk preference was theoretically defined as the degree to which farmers are oriented towards risk and uncertainty and have a courage to face the problem in farming.

In the present study, risk preference was measured with scale developed by Supe (1989). In this measurement technique six statements were included and responses were collected on five point scale as strongly agree, agree, undecided, disagree and strongly disagree. The scoring pattern was follows:

Sr.No	Category	Score
1.	High	25.40 and above
2.	Medium	19.33 to 25.39
3.	Low	Below 19.32

3.4.1.10 Scientific orientation

Scientific orientation is a belief that human situations are the results of natural and social forces which can be understood and changed by valuation of human efforts. Scientific orientation was measured with a help of a scientific orientation scale developed by Supe (1969). In this measurement techniques six statements were included and responses were sought on five point scale as strongly agree, agree, undecided, disagree and strongly disagree. Scoring pattern followed as below:

Sr.No	Category	Score
1.	High	24.47 and above
2.	Medium	19.71 to 24.46
3.	Low	Below 19.70

3.4.2 Measurement of dependent variables:

It was already reported that the technological gap was the gap between what is advocated and what is practiced by the farmers. This was measured by using gap index in case of banana cultivation. The procedure followed by Kothikhane (1986) with slight modification was adopted for the measurement of the technological gap. Following are some of the important agricultural practices considered for calculating the technological gap. were tillage practices, varietal use, plantation, use of chemical fertilizer, use of

plant protection measures, and utilization of irrigation water. Irrigated crop, selected to gauge the technological gap was banana.

3.4.2.1 Gap against tillage practices:

Sr.No	Components	Correct use above 75%	Use between 51 to 75%	Use between 26 to 50%	Use upto 25%
1.	Preparatory tillage	4	3	2	1
2.	Inter culture	4	3	2	1
3.	Mulching	4	1	1	1
4.	Provision of wind breakers.	4	1	1	1

The gap index was calculated against four major components and each component was assigned a score as mentioned above.

The gap index was calculated by the following formula and expressed in terms of percentage.

$$\frac{R - A}{R} \times 100$$

Where,

R = Use as per the recommendations
(Maximum possible score)

A = Actual use (Acquired score)

3.4.2.2 Gap against varietal recommendation:

Sr.No	Component	Percentage area under recommended variety			
		76-100%	51-75%	26-50%	Upto 25%
1.	Recommended variety	4	3	2	1

The gap index expressed in terms of percentage was calculated with the following formula.

$$\frac{R - A}{R} \times 100$$

Where,

R = Use as per recommendation
(Maximum possible score)

A = Actual use (Acquired score)

3.4.2.3 Gap against plantation.

Sr.No	Component	Correct use above 75%	Use between 51-75%	Use between 26-50%	Use upto 25%
1.	Dose/seedrate	4	3	2	1
2.	Spacing	4	3	2	1
3.	Time of planting	4	1	1	1
4.	Method of planting	4	1	1	1

The gap index expressed in terms of percentage was calculated with the help of following formula.

$$\frac{R - A}{R} \times 100$$

Where,

R = Use as per recommendation
(Maximum possible score)

A = Actual use (Acquired score)

3.4.2.4 Gap in use of fertilizers

Sr.No	Components	Correct use above 76%	Use between 51-75%	Use between 26-50%	Use upto 25%
1.	Area	4	3	2	1
2.	Dose	4	3	2	1
3.	Method of application	4	1	1	1
4.	Time application	4	1	1	1

The gap index expressed in terms of percentage was calculated with the help of following formula

$$\frac{R - A}{R} \times 100$$

Where,

R = Use as per recommendation
(Maximum possible score)

A = Actual use (Acquired score)

3.4.2.5 Gap against plant protection

Sr.No	Component	Correct use above 76%	Use between 51 to 75%	Use between 26-50%	Use upto 25%
1.	Area	4	3	2	1
2.	Appropriate insecticides	4	1	1	1
3.	Correct quantity applied.	4	1	1	1
4.	Method of application	4	1	1	1

For calculating gap index, the following formula used.

$$\frac{R - A}{R} \times 100$$

Where,

R = Use as per recommendation
(maximum possible score)

A = Actual use (Acquired score)

3.4.2.6 Gap against the irrigation

Sr.No	Component	Correct use above 76%	Use between 51-76%	Use between 26-50%	Use upto 25%
1.	Irrigation at proper stage of crop.	4	1	1	1
2.	Method of application	4	1	1	1

1.	2.	3.	4.	5.	6.
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Gap against the irrigation continued

3.	Gap between two irrigations in summer.	4	1	1	1
4.	Gap between two irrigations in in winter.	4	1	1	1

For calculating gap index the following formula was used.

$$\frac{R - A}{R} \times 100$$

Where,

R = Use as per recommendation
(Maximum possible score.)

A = Actual use.
(Acquired score)

3.6 Statistical tests and analytical procedures

The statistical methods and tests used for the analysis in the present study were as follows:

1) Mean and standard deviation

Mean of sample was calculated by the following formula

$$\text{Mean} = \frac{N}{n}$$

where, N = Sum of total number.

n = Total number.

2) Standard deviation was calculated by following formula

$$Sd = \sqrt{\frac{1}{(n-1)} \left(n^2 - \frac{(\sum x^2)}{n} \right)}$$

where, $\sum x^2$ = Sum of the squares of difference of total number.

$\sum n^2$ = Sum of total number of difference.

n = Total number of respondents.

3) Person's coefficient of correlation

This techniques was used to find out the relationship between two variables. Following formula was used for consumption 'r' values.

$$r = \frac{N \sum XY - \sum x \sum Y}{\sqrt{N \sum x^2 - (\sum x)^2 \quad (\sum Y)^2 - (\sum Y)^2}}$$

where,

N = Number of observations.

$\sum$ = Sum of

$\sum XY$ = Sum of products of independent variables.

$\sum x$ = Sum of independent variables.

$\sum Y$ = Sum of dependent variables.

$\sum x^2$ = Sum of square of independent variables.

$\sum y^2$ = Sum of square of dependent variables.

$(\sum x)^2$ = Square of sum of independent variables.

$(\sum y)^2$ = Square sum of dependent variables.

r = Coefficient of correlation.

4) Multiple regression

The technique was used to know the partial and complete influence of independent variables on the dependent variables. For the present study, linear model of regression equation was used as follows:

$$Y_1 = a + b_1x_1 + b_2x_2 \dots\dots\dots b_nx_n$$

where,

Y_1 = Dependent variable.

$x_1 - x_n$ = Independent.

a = Constant value

$b_1 - b_n$ = The regression weights for the respective variables.

5) Path analysis

The multivariate path model was adopted to explain direct and indirect effects of independent variables on dependent variables.

The postulated model was

$$Z_{12} = P_{12} Z_1 + P_1^2$$

$$Z_{22} + \dots + P_{12} Z_1^2 = Z_{2n} + P_1^2 Z_1^2 = Z_a$$

where,

Z_{12} = Dependent variable.

Z_1 to Z_n = Independent variable.

Z_a = Residual variables.

RESULTS

Chapter-4

RESULTS

The present investigation entitled "A study on the analysis of technological gap in banana cultivation in Parbhani distirct" was conducted in the Basmath block of Parbhani district. The data collected during the investigation have been analysed and the results are presented under the following major heads.

- 4.1 To study the personal and socio-psychological characteristics of the banana growers.
- 4.2 To explore the technological gap in selected management practices of banana cultivated among the respondents.
- 4.3 To delineate relationship, between characteristics of the respondents and the technological gap.
- 4.4 To find out the constraints in banana cultivation resulting into technological gap.

4.4 To study the personal and socio-psychological characteristics of the banana growers.

4.1.1 Age

Table 2 Distribution of the respondents according to their age.

Sr.No	Category	Frequency	Percentage
1.	Young (Upto 30 years)	44	29.33
2.	Middle aged (Upto 31 to 45 years)	92	61.34
3.	Old aged (46 and above)	14	9.33
Total		150	100.00

From the data given in Table 2 it is seen that majority of the respondents i.e. 61.34 per cent were from middle age group whereas 29.33 per cent of the respondents were young aged. It was observed further that only 9.33 per cent respondents were from old age category. Thus, in general banana growers were middle aged.

4.1.2 Education

Table 3 Distribution of the respondents according to their education.

Sr.No	Category	Frequency	Percentage
1.	Literate (Can read & write)	24	16.00
2.	Primary (1st to 4th standard)	58	38.67
3.	Secondary (5th to 10th standard)	47	31.33

Table 3 continued-

1.	2.	3.	4.
4.	Higher secondary (11th to 12th standard)	10	6.67
5.	College level (Above 12th standard)	11	7.33
Total		150	100.00

Scrutiny of data presented in Table 3 indicates that 16.00 per cent of the respondents were simply able to read and write where as 38.67 per cent and 31.33 per cent of the respondents were educated upto primary and secondary level respectively. A very low per cent of the respondents i.e. 6.67 per cent and 7.33 per cent were educated upto higher secondary and college level respectively. Thus, in general majority of the banana growers were educated upto primary and secondary level of education.

4.1.3 Annual income

Table 4 Distribution of the respondents according to their annual income

Sr.No	Category	Frequency	Percentage
1.	Low (Upto Rs. 20000)	13	8.67
2.	Medium (Rs. 20001 to 40000)	132	88.00
3.	High (Rs. 40001 and above)	5	3.33
Total		150	100.00

A perusal of data in Table 4 reveal that 88.00 per cent of the respondents were belonging to the medium category of annual income, where as 8.67 per cent of the respondents belonged to low

category of annual income. The respondents whose annual income is more than Rs. 40000/- were very low and found to be only 3.33 per cent. Thus, a great majority of banana growers were having annual income ranging between Rs. 20001 to 40000/-.

4.1.4 Land holding

Table 5 Distribution of respondents according to their land holding.

Sr.No	Category	Frequency	Percentage
1.	Marginal farmers (Upto 1 hectare)	3	2.00
2.	Small farmers (1.1 to 2 hectares)	15	10.00
3.	Medium farmers (2.1 to 6 hectares)	84	56.00
4.	Big farmers (Above 6 hectares)	48	32.00
Total		150	100.00

It is clear from Table 5 that majority of the respondents (i.e. 56.00 per cent) were medium farmers followed by big farmers (32.00 per cent). It was also observed that small farmers were found to be 10.00 per cent whereas only 2.00 per cent of the respondents were marginal farmers.

4.1.5 Socio-economic status

Table 6 Distribution of the respondents according to their socio-economic status.

Sr.No	Category	Frequency	Percentage
1.	Upper class (128 and above)	-	-
2.	Upper middle class (97 to 127)	4	2.66
3.	Middle class (65 to 96)	37	24.67

Table 6 continued-

Sr.No	Category	Frequency	Percentage
4.	Lower middle class (32 to 64)	109	72.67
5.	Lower class (31 and below)	-	-
Total		150	100.00

From the data given in Table 6 it is evident 72.67 per cent of the respondents had the lower middle socio-economic status, followed by 24.67 per cent of the respondents in the middle class. The data in table, further signify that only 2.66 per cent of the respondents were in upper middle class, while none of the respondents were found in both upper class as well as lower class. Thus, in general the respondents belonged to lower middle class.

4.1.6 Extension contact

Table 7 Distribution of the respondents according to their extension contact.

Sr.No	Category	Frequency	Percentage
1.	High (6.5 and above)	10	6.66
2.	Medium (3.2 to 6.4)	103	68.67
3.	Low (3.1 and below)	37	24.67
Total		150	100.00

As is apparent from Table 7 that only 6.66 per cent of the respondents had higher extension contact. Further it can be concluded that majority of the respondents had medium extension contact (68.67 per cent) followed by lower extension contact (24.67 per cent). The respondents had moderate level of extension contact.

4.1.7 Social participation

Table 8 Distribution of the respondents according to their social participation.

Sr.No	Category	Frequency	Percentage
1.	High (8.92 and above)	15	10.00
2.	Medium (2.93 to 8.91)	32	21.33
3.	Low (2.92 and below)	7	4.67
4.	No participation	96	64.00
Total		150	100.00

Table 8 presented the social participation of the respondents under investigation. It is clear from the table that 21.33 per cent of the respondents

were in the medium category of social participation while higher social participation was found in 10.00 per cent of the respondents and 4.67 per cent of the respondents were found to be in the lower social participation. The data further revealed that out of 150 about 96 respondents (64.00 per cent) did not have any social participation.

4.1.8 Achievement motivation

Table 9 Distributionn of respondents according to their achievement motivation.

Sr.No	Category	Ferequency	Percentage
1.	High (24.32 and above)	33	22.00
2.	Medium (20.10 to 24.31)	98	65.33
3.	Low (20.09 and above)	19	12.67
Total		150	100.00

From a perusal of the data in Table 9, it is seen that majority of the respondents had medium achievement motivation (65.33 per cent) followed by high (22.00 per cent) and low (12.56 per cent achievement motivation.

4.1.4 Risk preference

Table 10 Distribution of the respondents according to their risk preference.

Sr.No	Category	Frequency	Percentage
1.	High (25.40 and above)	50	33.33
2.	Medium (19.33 to 25.20)	68	45.34
3.	Low (19.23 and below)	32	21.33
Total		150	100.00

It would be seen from the above data that 33.33 per cent of the respondents were having high risk preference, where as 45.34 per cent and 21.33 per cent of the respondents were in the category of medium and low risk preference respectively.

4.1.10 Scientific orientation

Table 11 Distribution of respondents according to their scientific orientation.

Sr.No	Category	Frequency	Percentage
1.	High (24.47 and above)	50	33.33
2.	Medium (19.71 to 24.46)	95	63.34
3.	Low (19.70 and below)	5	3.33
Total		150	100.00

A look at the data presented in Table 11 would indicate that majority of the respondents (63.34 per cent) were having medium scientific orientation while 33.33 per cent of the respondents were having high scientific orientation. Respondents having low scientific orientation were found to be negligible and accounted for 3.33 per cent only.

4.2 Technological gap in banana cultivation:

For the appraisal of technological gap in banana cultivation among the respondents, six management practices of banana cultivation were selected and from each management practice technological gap was calculated. The information regarding the management practices and corresponding technological gap is presented in Table 12.

**Table 12 Technological gap with respect to
selected management practices.**

Sr.No	Name of selected practice	Technological gap among respondents.
1.	Gap in tillage practice.	24.83
2.	Gap in use of improved variety.	00.00
3.	Gap in plantation	11.94
4.	Gap in fertilizer use	17.33
5.	Gap in plant protection	58.33
6.	Gap in irrigation	17.77
7.	Composite technological gap	21.70

4.2.1 Gap in tillage practices:

Data presented in Table 12 indicates that the technological gap in respect of tillage practices was found to be 24.83 per cent. It means that a considerable majority of the respondents were

applying recommended tillage practices like, preparatory tillage, interculture, mulching etc. to the extent of above 75.00 per cent.

4.2.2 Gap in use of improved variety.

A glance at table 12 would reveal nil technological gap in respect of use of improved variety. The meant that almost all of the respondents selected were using recommended varieties only. It was observed that almost all respondents used Basarai variety of banana in the study area.

4.2.3 Gap in Plantation.

It is seen from the Table 12 that the mean technological gap in respect of plantation is very low i.e. 11.94 per cent. This means that the respondents used the nearly correct and recommended planting material and spacing and also follow the almost correct and appropriate time and method of planting.

4.2.4 Gap in fertilizer use:

The data presented in Table 12 further show that the extent of gap in use of fertilizer in banana cultivation was found to be 17.33 per cent. It indicates that respondents were using the recommended doses, method of application and time of application of fertilizers to the extent of about 83.00 per cent.

4.2.5 Gap in use of plant protection measures.

It is seen from the Table 12 that the gap in use of plant protection measures is comparatively higher (i.e. 58.33 per cent) than that of the other selected management practices of banana cultivation. Therefore, it can be concluded that the respondents did not use the recommended plant protection measures, time of application, method of application of plant protection chemicals etc.

4.2.6 Gap in use of irrigation.

It is discernible from Table 12 that the gap in use of irrigation is found to be 17.77 per cent. It indicates that the respondents were giving appropriate irrigation to their banana plantation following the irrigation technology to the extent of about 82.00 per cent.

4.2.7 Composite technological gap:

The composite technological gap was worked out by considering together all the six management practices selected for the study. It was observed from the Table 12 that the composite technological gap found was 21.70 per cent. It means that composite mean gap in use of six selected practices was 21.70 per cent. It is encouraging findings that recommended banana cultivation practices were followed to the extent of about 80.00 per cent. The appraisal of data makes it sufficiently clear that

the highest mean gap was found in case of use of plant protection measures (58.33 percent) followed by gap in use of tillage practices (24.83 per cent), gap in use of fertilizers and irrigation was found nearly about 17.00 per cent followed by gap in plantation which accounts for 12.00 per cent. It was also observed that gap in use of improved variety was nil.

4.3 Relationship between characteristics of the respondents and the technological gap.

4.3.1 Relationship between independent variable and technological gap.

Person's coefficient of correlation was computed to find out the relationship between characteristics of the banana growers and composite technological gap.

**Table 13 Relationship between independent variables
and composite technological gap.**

Sr.No	Independent variables	Coefficient of correlation (r)
1.	Age	0.157
2.	Education	-0.580**
3.	Annual income	-0.468**
4.	Land holding	-0.132**
5.	Socio economic status	-0.548**
6.	Extension contact	-0.389**
7.	Social participation	-0.145
8.	Achievement motivation	-0.652**
9.	Risk preference	-0.564**
10.	Scientific orientation	-0.634**

* Significant at 0.05 level of probability.

** Significant at 0.01 level of probability.

A close look at the data presented in the Table 13 reveal that out of ten independent variables only age and social participation of the respondents were not significantly related with composite technological gap on the other hand remaining all variables showed significant relationship with composite technological gap. It is proved from above table that education, annual income, land holding, socio-economic status, extension contact, achievement motivation, risk preference, and scientific orientation were found to have negative significant relationship with composite technological gap.

4.3.2 Interconsistency in the personal socio psychological variables.

The intercorelation among the personal socio-psychological characteristics was worked out and depicted in Table 14.

Table 14 Interconsistency in the personal socio-psychological variable

	Age	Education	Annual income	Land Holding	Socio-Economic status	Extension Contact	Social Participation	Achievement motivation	Risk preference	Scientific orientation
Age	1	-0.223**	-0.168*	-0.117	-0.047	0.018	0.176*	-0.278**	-0.252**	-0.189*
Education		1	0.376**	0.301**	0.593**	0.347**	0.089	0.648**	0.653**	0.685**
Annual income			1	0.798**	0.763**	0.347**	0.155	0.381**	0.450**	0.397**
Land holding				1	0.732**	0.334**	0.384**	0.231**	0.399**	0.282**
Socio-economic status					1	0.414**	0.273**	0.494**	0.586**	0.531**
Extension contact						1	0.173*	0.209**	0.415**	0.362**
Social participation							1	0.134	0.143	0.106
Achievement motivation								1	0.617**	0.705**
Risk preference									1	0.802**
Scientific orientation										1

* Significant at 0.05 per cent level

** Significant at 0.01 per cent level

It was concomitantly revealed from Table 14 that age was found to be significantly and negatively related with education, achievement motivation and risk preference at 1 per cent level of significance while with annual income and scientific orientation it was found negatively significant at 5 per cent. It was also revealed that age was found positively and significantly related with social participation, the remaining variables do not exhibit any significant relationship with age.

From the same table it was observed that education was positively and significantly related with annual income, land holding, socio-economic status, extension contact, achievement motivation, risk preference and scientific orientation at 1 per cent level of significance while remaining variables do not exhibit any significant relationship with education.

Table 14 further indicate that annual income

was positively and significantly related with land holding, socio-economic status, extension contact, achievement motivation and scientific orientation at 1 per cent level of significance.

It was also concluded from the same table that land holding was positively and significantly related with socio economic status, extension contact, social participation, achievement motivation, risk preference and scientific orientation at 1 per cent level of significance.

It was also found that socio-economic status was positively and significantly related with extension contact, social participation, achievement motivation, risk preference and scientific orientation at 1 per cent level.

Further Table 14 showed that extension contact was positively and significantly related with achievement motivation, risk preference and scientific

orientation at 1 per cent level of significance while with social participation it was positively significant at 5 per cent level of significance.

It was also found that achievement motivation was related with risk preference and scientific orientation at 1 per cent level of significance and risk preference was found positively significant with scientific orientation at 1 per cent level of significance. It therefore, seems that the set of selected personal characteristics were having interrelationship with each other, in general. They have thus shown internal consistency among themselves.

4.3.3 Multiple regression analysis of composite technological gap.

The regression analysis was done to appraise the contribution of selected independent variables to the dependent one i.e. composite technological gap in banana cultivation.

Table 15 Multiple regression analysis.

Sr.No	Independent variable	Regression co-efficient (b)	S.E. (b) (1)	't' value
1.	2.	3.	4.	5.
1.	Age	0.0030	0.0345	0.0861
2.	Education	-0.3967	0.4113	-0.9643
3.	Annual income	0.0000	0.0000	-2.0954*
4.	Land holding	0.1916	0.1192	1.6073
5.	Socio economic status	-0.0449	0.0410	-2.0975
6.	Extension contact	-0.4313	0.1873	-2.3026*
7.	Social participation	-0.0426	0.0545	-0.7816
8.	Achievement motivation	-0.6071	0.1687	-3.5985**
9.	Risk preference	0.0534	0.1669	0.3197
10.	Scientific orientation.	-0.3447	0.1843	-1.8646

$$R^2 = 0.5603 \quad R = 0.7485 \quad (F = 17.7115)$$

* Significant at 0.05 level of probability.

** Significant at 0.01 level of probability.

It may be seen from Table 15 that the value of R^2 was 0.5603 which indicates that the selected ten independent variables explained to the extent of 56.03 per cent variation in the composite technological gap. The multiple correlation was 0.7485 which clearly indicates that correlation between actual technological gap and the technological gap calculated on the basis of independent variables was significant.

The calculated 't' values for each of the 'b' values are presented in column 3 of the table. The annual income and extension contact were found to be significantly and negatively contributing to the prediction of composite technological gap at 5.00 per cent level of significance whereas achievement motivation had negative and significant contribution to the prediction of composite technological gap at 1 per cent level of significance given in the unique set of ten independent variables. Thus out of 10 selected independent variables the annual income, extension contact and achievement motivation emerged as crucial variables which negatively contribute to technological gap.

The remaining variables do not exhibit any significant influences on composite technology gap.

4.3.4 Path analysis

Singh and Choudhary (1977) stated that, if the cause and effect relationship is well defined it is possible to represent the whole system of variables in the form of a diagram known as path diagram. Path coefficient can be defined as the ratio of the standard deviation of the effect due to a given cause to the total standard deviation of the total effect i.e. if 'y' is the effect and X_1 is the the cause, the path co-efficient for the path from the cause ' X_1 ' to the effect 'Y' is $X_1/\int Y$. The advantage of the path diagram is that a set of simultaneous equations can be written directly from the diagrams and a solution of these equations provides information on the direct and indirect contribution of these causal factors to the effect.

The correlation analysis of the data reported earlier indicated relationship between dependent and independent variables in the presence of other variables which are normally operative in a live situation. The relationship revealed by correlation studies may under change in different situations where some of the independent variables may not exist in the environment or they may be latent.

It is therefore of interest to study the influence of the independent variables exercise on the dependent variables between directly as well as through other variables present in the environment. The data therefore, were reset and computed for path analysis. The path co-efficient have been presented in Table 16.

Table 16 Path analysis.

Sr.No	Dependent variable	Direct effect	Indirect effect	Substantial indirect effect
1.	Age	0.006	0.146	-0.002(8)
2.	Education	-0.087	-0.667	-0.060(10)
3.	Annual income	-0.236	-0.704	-0.188(4)
4.	Land holding	0.185	-0.127	0.147(3)
5.	Socio economic status	-0.127	-0.675	-0.097(3)
6.	Extension contact	-0.150	-0.539	-0.062(5, 9)
7.	Social participation	-0.052	-0.197	-0.020(4)
8.	Achievement motivation	-0.322	-0.974	-0.227(10)
9.	Risk preference	-0.033	-0.597	-0.027(10)
10.	Scientific orientation	-0.204	-0.838	-0.163(9)

4.3.4.1 Direct effect:

Out of 10 independent variables tried, 8 independent variables have exerted a negative direct effect and remaining two independent variables exerted positive direct effect. Achievement motivation, annual income and scientific orientation exerted highest direct negative effect on technological gap in this sequential order while land holding had exerted direct positive effect on technological gap. The direct effect of other variables was negligible.

4.3.4.2 Total indirect effects:

So for total indirect effect was concerned it was observed that except age remaining all variables have exerted negative total indirect effect on technological gap. Achievement motivation, scientific orientation, annual income and education had exerted maximum negative total indirect effect. Effect of other independent variables was negligible.

4.3.4.3 Substantial indirect effect

The first substantial negative indirect effect on technological gap was exerted by achievement motivation through scientific orientation followed by annual income through land holding and scientific orientation through risk preference.

4.4 Constraints in banana cultivation resulting into technological gap.

During the course of investigation, farmers expressed many reasons due to which they could not use recommended selected technologies their on their farms in respect of banana cultivation. These factors or constraints as perceived by respondents are reported here below.

4.4.1 Constraints in use of improved tillage practices:

Table 17 Constraints in use of improved tillage practices as perceived by respondents.

Sr.No	Constraints	Frequency	Percentage
1.	More labour is required	53	35.33
2.	Non availability of FYM in required quantity	42	28.00
3.	Lack of knowledge about banana cultivation.	62	41.33

Table 17 depicts the data regarding constraints in the use of improved tillage practices as perceived by the respondents. It can be concluded that the lack of knowledge about banana cultivation (41.33 per cent) and nonavailability of FYM in required quantity (28.00 per cent) were major constraints in use of improved tillage practices.

4.4.2 Constraints in use of chemical fertilizers.

**Table 18 Constraints in use of chemical fertilizers
perceived by respondents.**

Sr.No	Constraints	Frequency	Percentage
1.	High cost of chemical fertilizer.	74	49.33
2.	Non-availability of chemical fertilizers at proper time.	38	25.33
3.	Lack of transport facilities.	41	27.33
4.	Lack of knowledge	25	16.67

It is evident from Table 18 that high cost of chemical fertilizers and lack of transport facilities (49.33 per cent) and (27.33 per cent) are

the major constraints faced by banana growers in use of chemical fertilizers. Further, it can be concluded that, non-availability of chemical fertilizer at proper time (25.33 per cent) and lack of knowledge (16.67 per cent) were the other important constraints as expressed by the respondents.

4.4.3 Constraints in use of plant protection measures.

Table 19 Constraints in use of plant protection measures perceived by respondents.

Sr.No	Constraints	Frequency	Percentage
1.	High cost of chemicals	88	58.67
2.	Complexity in use of plant protection measure.	35	23.33
3.	Non availability of sprayers and dusters.	50	33.33

Table 19 continued-

1.	2.	3.	4.
4.	Non availability of sprayers and dusters.	50	33.33
5.	Insecticides and pesticides are dangerous in handling and use.	21	14.00

Scrutiny of the data presented in Table 19 indicates that the high cost of the chemicals and unavailability of sprayers and dusters were the important constraints expressed by 58.87 per cent and 33.33 per cent of the respondents respectively. Lack of scientific knowledge (29.33 per cent), difficulty in use of chemicals (23.33 per cent) and danger in handling and use of insecticides and pesticides (14.00 per cent) were the other constraints faced by the banana growers.

4.4.4 Constraints in improved irrigation methods

Table 20 Constraints in improved irrigation methods as perceived by respondents.

Sr.No	Constraints	Frequency	Percentage
1.	Scarcity of water	27	18.67
2.	More labour requirement for preparing beds.	20	13.33
3.	Discontinuty in electric supply.	46	30.67
4.	Canol irrigation not available at proper time.	65	43.33
5.	Lack of knowledge	97	24.66

A close look at the data presented in Table 20 would indicate that unavailability of canol irrigation

at right time and discontinuity in electric supply were the major constraints as perceived by 43.33 per cent and 30.67 per cent of the respondents respectively. Further, it was observed that, lack of knowledge (24.66 per cent), Scarcity of water (18.67 per cent) and comparatively more labour requirement for preparing beds (13.33 per cent) were the other constraints.

DISCUSSIONS

Chapter 5

DISCUSSION

The present study was undertaken to assess the existing technological gap in banana cultivation. This study also attempted to identify various factors contributing to influence technological gap. The findings of the study are discussed in this chapter under following headings:

- 5.1 Characteristics of the respondents.
- 5.2 Extent of technological gap.
- 5.3 Relationship of independent variables with the technological gap.
- 5.4 Constraints in banana cultivation resulting into technological gap.

5.1 Characteristics of the respondents:

With regards to profile of the respondents, it was observed that majority of the respondents were middle aged level (38.67 per cent) with an annual income between Rs. 20001 to 40000/- (88.00 per cent) possessing

land holding of medium size (56.00 per cent). Further it can be concluded that majority of the respondents were from lower middle class as far as their socio-economic status was concerned (72.67 per cent) It was observed that majority of the respondents had medium extension contact (68.67 per cent). Further it was observed that majority of the respondents (64.00 per cent) were not participating in any legal or voluntary organization.

Majority of the banana growers possessed medium level of achievement motivation, risk preference and scientific orientation (i.e. 65.33 per cent, 45.34 per cent and 63.34 per cent respectively). Critical appraisal of these personal characteristics of respondents leads to the conclusion that the banana growers were similar to others in the village except probably income. The majority of banana growers annual income was high ranging between Rs. 20001 to 40000. Though the study did not compare the sample of banana growers and others, the findings have shown that characteristics of banana growers are similar to

those reported by a number of studies in case of common farmers. Thus, the banana growing does not demand special ability different from common mass of farmers in the village.

5.2 Technological gap

To appraise the technological gap, six cultivation ^{act} prices of banana crucial to modern agricultural technology, were considered for the study namely, tillage practice, use of improved variety, plantation, use of fertilizers, use of plant protection measures and irrigation method.

5.2.1 Technological gap in tillage practice:

It can be concluded from Table 12 that average technological gap in case of tillage practices was about 25.00 per cent. It means that a considerable majority of the respondents were applying recommended tillage practices to the extent of 75.00 per cent.

Lowest technological gap was expected in tillage practices compared to any other practice. The probable reason is that these practices are simple in nature and require less cost. However, much gap i.e. 25.00 per cent gap might be due to timely unavailability of required tools and implements and the bullock power.

5.2.2 Technological gap in use of improved variety.

It was observed from the ~~gs~~ results presented in earlier chapter that, in respect of use of improved and recommended variety, the technological gap was nil. It meant that almost all of the respondents selected were using recommended varieties only. This might be due to the ready availability of suckers of improved variety in the area. All respondents were found to be cultivating Basara1 variety in the area of the study.

5.2.3 Technological gap in plantation.

It can be concluded from the findings presented earlier that technological gap in respect of plantation

was very low i.e. 11.94 per cent. This means that the respondents used the correct and recommended planting material and spacing and also follow the almost correct and appropriate time and method of planting to the extent of over 90.00 per cent. These findings are in conformity with that of Kabra (1989), while these are in contradictory with Pal (1974), Parthsarthi (1974), Madansingh (1977), Patel (1982), Chitnis (1983) and Supe et.al. (1983). The area selected for the study was traditionally banana growing area. Hence, the farmers, know that type of material of to be used for planting, it's spacing and time of planting.

5.2.4 Technological gap in use of fertilizers:

The technological gap in use of chemical fertilizers was found some what lesser than the earlier studies reported. In this study, the gap was observed to the extent of 17.33 per cent. These findings are in with Kubde and Sinha (1983) and Patel and Sangle(1982).

Low technological gap i.e. 17.00 per cent in use of chemical fertilizer might be due to the reason that the farmers intention to use the chemical fertilizers on large scale is increasing day by day and fertilizers are now also available in the local market at proper time and in required quantity. It's supply is also done through multipurpose cooperative societies.

5.2.5 Technological gap in use of plant protection measures.

The mean technological gap in use of plant protection measures was comparatively higher in case of the banana composed growers as compared to the other practices. The mean technological gap was found to be 58.33 per cent with regard to use of plant protection measures. These findings are in confirmity with those of Kulkarni (1979), Patel (1982), Chitnis (1983), and Kothikane (1986).

The hike in the prices of plant protection measures, complexity in the use, non-availability of

the sprayers and dusters in time might be some of the attributes for higher technological gap in this component.

5.2.6 Technological gap in irrigation practices :

The data regarding the gap against utilization of irrigation practices inferred that, the mean technological gap was quite low for this practice. The farmers were in a better position with respect to use of irrigation water. This may be due to the fact that the farmers take more advantage of irrigation water as they have realised it's worth for growing banana cultivation to get better dividend. The study area was area under Purna command and ample water was available.

The findings are in conformity with those of Kabra (1989) while they are contradictory with the findings of Gaurha and Jain (1983) Kubde and Sinha (1983) and Kothikhane (1986).

5.2.7 Composite technological gap.

Composite technological gap was also computed to know the overall picture of technological gap. It was observed that the farmers had mean technological gap score of 21.70 per cent for all six selected technologies. It is but natural that when the technological gap for each selected technology of banana cultivation was lesser, (except in case of use of plant protection) it is going to reflect in lower composite technological gap of 21.70 per cent.

These findings are in conformity with those of Jaiwal and Rathore (1985) and Kabra (1989). These findings are not in line with those of Rao (1968), Programme evaluation organisation (1969), Veerbhadraiah and Dwarkhanath (1970), Jha and Shekawat (1972), Rath (1978), Kulkarni (1979), Singh (1979), and Kothikhine (1986).

5.3 Relationship of independent variables with the technological gap.

5.3.1 Correlation analysis

The existence of relationship between independent and dependent variables when tested for all the respondent farmers, it was observed that out of 10 independent variables tried, 8 variables were found to have significant negative relationship with composite technological gap. These findings are in conformity with the findings of Kulkarni (1979), Mahajan (1980), Chitnis (1983), Kubde and Sinha (1984) and Kabra (1989).

It was also observed that education was negatively and significantly related with technological gap. This can notes that as the educational level of the respondents increased there was decrease in the technological gap. These findings are in conformity with Kulkarni (1979), Chitnis, (1983), Kulkarni and Patil (1984) and Kabra (1989).

Income of the respondents also indicated neegative significant relationship. This was supported by Sadamate (1978), Chitnis (1983), and

Kabra (1989). It is logical that as the respondents having better income can afford the expenditure also have capacity bear risk and loss incurred if any, they might be doing better in this context. Same is the case with land holding as it also shows negative significant relationship with technological gap. These findings support the findings of Madansingh (1977), Kulkarni (1979), Chitnis (1983) Kulkarni and Patil (1984).

Socio economic status of the respondents also brought in light the negative relationship with technological gap. This was supported by the findings of Kulkarni (1979) and Kulkarni and Patil (1984).

It was observed that extension contact was found to be negatively related with technological gap. These findings are in conformity with that of Jayaram and Bhaskar (1972), Prabhakar et.al. (1975), Swamy and Mahadwa (1978), Bordolai and Gill (1979) and Sinha (1983), Beside this Tripathy (1977) and

Sadmate (1978) also found negative relationship between social participation and technological gap.

The three psychological variables viz. achievement motivation, risk preference and scientific orientation, all were found to negative significant relationship with technological gap. It is justifiable as the farmer is having more achievement motivation he performs better in adoption of improved practices. This findings is in conformity with Kabra (1989). Risk preference plays a very important role in adoption behaviour of farmers. Farmers who possess high level of risk preference, jump on for technologies hence assist in lowering technological gap. Previous researches by Singh (1971), Singh 1975), Bhilegaonkar (1976), Sangle (1977) and Mahajan (1980). Support the findings of this study. Scientific orientation was also found negatively related. As is known scientific orientation of the farmers and adoption of new agricultural technology go hand in hand. Therefore their active participation lowers the technological gap. This was supported by the findings of previous researches conducted by Kulkarni (1979) and Kabra (1989).

5.3.2 Multiple regression analysis of composite technological gap.

It can be concluded from the results of the multiple regression analysis that the multiple correlation was found to be significant which indicates that, the actual technological gap and the technological gap computed on the basis of 10 independent variables was found to be significant.

Out of 10 independent variables annual income, extension contact and achievement motivation were found to be significantly and negatively contributing to the prediction of composite technological gap. Thus, these three variables emerged as crucial variables in reducing the technological gap. These results are in conformity with that of Sadamate (1978), Mahajan (1980), Chitnis (1983), Jayaram and Bhaskar (1972), Prabhakar et.al. (1975), Swamy and Mahadewa (1978), Bordolia and Gill (1979) and Kabra (1989). Achievement motivation is a crucial variable determining success of farmers in the agricultural enterprise. However, simply motivation can not do unless it is

supported by the adequate finance and technological knowledge. These three factors together in this study seem to have tremendously reduced the technological gap.

5.3.3 Path analysis of composite technological gap.

It was observed from the findings of the path analysis that achievement motivation and annual income exerted highest direct negative effect while achievement motivation and scientific orientation have exerted maximum negative total indirect effect. As regards to the substantial indirect effect, firstly it was exerted by achievement motivation through scientific orientation followed by annual income through land holding.

From the results of relational analysis, it has brought in notice that, achievement motivation is a very crucial factor in prediction composite technological gap. It can be justifiable that, there always exists a gap between what is and

what ought to be as perceived by an individual. This state of imbalance denotes a motivational dimension or unfulfilled desires of an individual organism which helps in the prediction of future human behaviour. Thus, achievement motivation would mean a desire to reduce the discrepancy between what an individual has or already achieved and what is still possible to achieve.

5.4 Constraints in banana cultivation resulting into technological gap.

Study of technological gap in banana cultivation would have been incomplete if constraints in its use were not studied. There are a variety of constraints as indicated by earlier researchers (Kulkarni 1979, Chitnis 1983), that hinder the adoption of improved agricultural technology. But these constraints are responsible for reducing technological adoption in general. However, in this study attempt was made to take into account the specific constraints for different technological practices

separately. The analysis of constraints mentioned by respondents , leads to focus mainly on resources constraints and to some extent the extension constraints as discussed in following paragraphs.

As evidently highlighted by the preceding findings that comparatively technological gap for different selected technologies in banana cultivation was at lower level and hence, did not appear a grave problem in the present investigation by virtue of the concrete role of various socio-personal and psychological characteristics. Hence the percentage of the respondents reporting of different constraints in use of selected technologies was naturally low.

It was observed from results presented in Table 17 regarding the use of improved tillage practices, that lack of knowledge about banana cultivation and comparatively more labour requirement were the main constraints as expressed by about 40.00 per cent of the respondents.

As regards to the use of chemical fertilizers and plant protection measures, it was observed that high cost of chemical fertilizers, plant protection appliances were the major constraints followed by non availability of materials like sprayers and dusters, and lack of transport facilities. It was also observed that unavailability of canal irrigation water at proper time and failure in electric supply were the major constraints faced by the banana growers under the study area. The constraints are directly or indirectly responsible for the technological gap that exists in banana cultivation.

SUMMARY AND CONCLUSIONS

Chapter 6

SUMMARY AND CONCLUSIONS

The agricultural technology is not generally accepted by the farmers complete in all respects. As such there always appears gap between the recommended technology and it's use at farmers level. Some times gap may be wide some times narrow. Zero technological gap, therefore, is myth rather than reality. It is therefore always of a concern of extension agency. Wider technological gap posses a challange before extension agency. The present study was undertaken with main objective to assess the existing technological gap in adoption of recommended banana cultivation technology in irrigated area by the farmers and to identify the factors influencing technological gap. Therefore, the study entitled " Analysis of technological gap in Banana cultivation in Parbhani district" was undertaken with following specific objectives:

1. To study the personal and socio-psychological characteristics of banana growers.

2. To explore the technological gap in selected management practices of banana cultivation among the respondents.
3. To delineate relationship between personal characteristics of the respondents and the technological gap.
4. To find out the constraints in banana cultivation resulting into technological gap.

Keeping the above objectives in the mind, the study was conducted in the jurisdiction of major banana block of Farbhani district namely Basmat. Out of 206 villages in the block, 5 villages were selected randomly and from each village, 30 banana growers were selected. Thus, a total of 150 respondents from five villages constituted the sample for the study. The respondents were personally interviewed with a specially designed interview schedule. Data were suitably classified, tabulated and analysed by using statistical techniques like frequency, percentage, mean, correlation coefficient, multiple regression analysis and path analysis techniques. The salient findings of the study are epitomized below.

6.1 Profile of the sample respondents:

It was felt necessary to study the profile of respondents so that a general picture of the research can be drawn. It was observed from the findings that majority of the respondents were middle aged, educated upto primary level, having annual income between Rs. 20001 to 40000/- and possessing land holding between 2.1 to 6 hectares. It was also observed that majority of the respondents were possessing lower middle class of socio-economic status, having medium extension contact. It was also observed that majority of the respondents do not have any social participation. Majority of the respondents had medium level of achievement motivation, risk preference, and scientific orientation.

6.2 Extent of technological gap:

The appraisal of results regarding extent of technological gap make it sufficiently clear that the highest mean gap among six selected practices was observed in case of use of plant protection measures

(58.33 per cent) followed by tillage practice (24.83 per cent). Encouraging findings was observed in case of use of improved variety as there was a nil technological gap was observed while about 12.00 per cent gap was found in case of plantation. Technological gap in case of fertilizers and utilization of irrigation was found same and account for about 18.00 per cent. And 21.70 per cent composite technological gap was observed.

6.3 Relational analysis of composite technological gap.

On the basis of correlation, it was observed that out of 10 independent variables except age and social participation remaining all viz. education, annual income, land holding, socio economic status, extension contact, achievement motivation, risk preference and scientific orientation had negative significant relationship with composite technological gap.

It was also found that the multiple correlation was found to be significant which indicates that the actual technological gap and the technological gap

computed on the basis of 10 independent variables was found to be significant. Out of 10 independent variables, annual income, extension contact and achievement motivation were found to be negatively and significantly contributing most to the prediction of composite technological gap.

It can be concluded from the findings of the path analysis that, achievement motivation and annual income exerted highest negative direct effect whereas achievement motivation and scientific orientation had exerted maximum negative indirect effect while achievement motivation through scientific orientation had exerted substantial indirect effect on composite technological gap.

6.4 Constraints in banana cultivation resulting into technological gap.

It was observed from results presented earlier that lack of knowledge and more labour requirement were the most important constraints in use of improved tillage practices. As regards to the use of chemicals

fertilizer and plant protection measures, it was observed that high cost of chemical fertilizers, plant protection appliances were major problem followed by non availability of materials like sprayers and dusters and lack of transport facilities.

It was also observed that, unavailability of canal irrigation water at proper time and discontinuity in electric supply were the major constraints faced by the banana growers under study area.

IMPLICATION

Chapter 7

IMPLICATIONS

The fate of enhancing the yield in agriculture is ultimately depends upon the extent the farmers adopt innovations in agriculture. Irrevocably it can be stated that extension effort to popularise the novel^{ble} techniques in agriculture have really been intensified and organised and outcome of which how we witness it in terms of technological gap at minimised level. It goes without saying that lesser is the technological gap, more will be the adoption of innovative agricultural technologies as per the recommendations and enhanced will be the yield of different crops. The place of banana cultivation in life of farmers need not be over emphasized. Hence, the present investigations was taken to identify the technological gap in the crop. The implications which can be emerged from the present investigation are as follows.

1. General picture with respect to technological gap in selected practices of banana cultivation highlighted that comparatively the gap was lesser with

regard to plantation, use of fertilizers, utilization of irrigation water and in tillage practices, while it was observed nil in case of use of improved varieties. But in respect of technological gap for plant protection it was very high (i.e. 58.33 per cent). This finding suggests that special extension efforts in terms of organizations of demonstrations, meetings, discussion, film shows etc. should be made to aware and motivate the farmers to adopt plant protection measures more and more.

2. In the light of findings that variables like education, annual income, land holding, socio economic status, extension contact, achievement motivation, risk preference and scientific orientation showed negative relationship with the technological gap. It is therefore suggested that for further harrowing the technological gap in banana cultivation, the banana growers with more

education, higher annual income, land holding, socio economic status, extension contact, higher achievement motivation, risk preference and scientific orientation should be contacted "time and again" by the extension agencies to introduce new banana cultivation techniques in a village. They may act as forerunning of change in a village so far as banana cultivation is concerned.

3. In view of certain constraints put forth by respondents especially with regard to the problem of application of more plant protection measures, it is advisable that specific extension modalities may be developed to inculcate in the minds of the farmers, the paramount importance of use of plant protection.

The area in which the study was conducted was traditionally banana growing area. The picture may be little different in non traditional areas. Therefore, the comparative studies may be conducted that would help in understanding the comparative problems of banana growers in traditional and non-traditional areas.

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LITERATURE CITED

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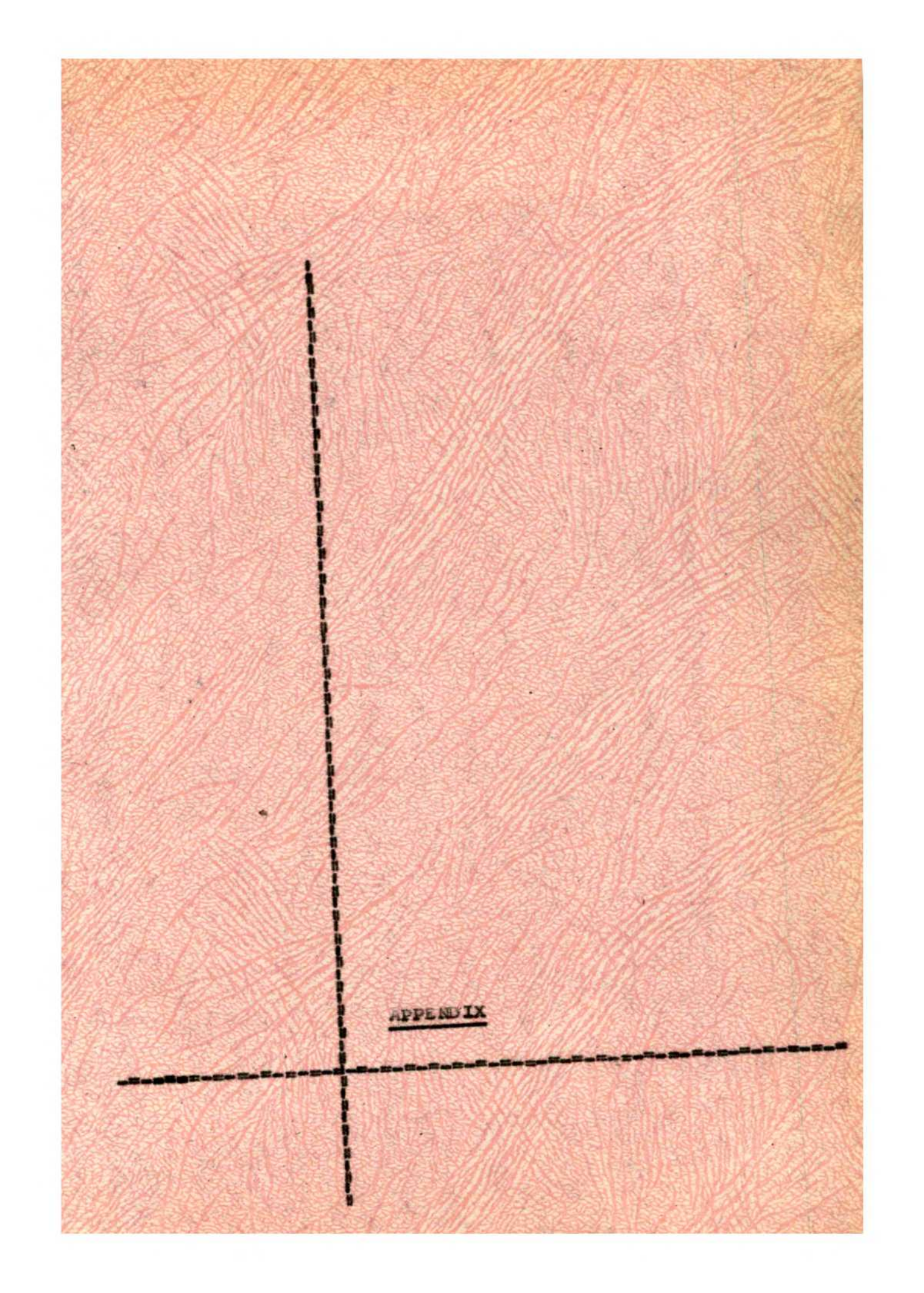
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*** Original not seen.**

The image features a red, fibrous, textured background. A black dashed crosshair is centered on the page, consisting of a vertical line and a horizontal line intersecting at the center. The word "APPENDIX" is printed in a bold, sans-serif font, underlined, and positioned to the right of the vertical dashed line, slightly below the horizontal dashed line.

APPENDIX

કૃષિ વિસ્તાર વિભાગ
મરાઠવાડા કૃષિ વિદ્યાપીઠ, પંચગી.

[૧]

પ્રશ્નાવલી

"શેતક-ચાંચા કેરી નામવડ પલ્લતીયા અવંબનાતીલ તાંશ્રિક તકાવતીયા અમ્વાત"

વિભાગ "અ"
વ્યક્તિક માહિતી

૧. શેતક-ચાંચે નાંવ : -----
૨. નાંવ ----- તાલુકા ----- જિલ્લો -----
૩. વય ----- વર્ષ
૪. શિક્ષણ ૧) વક્ત લિહિતા વાવતા દેતે.
૨) પ્રાથમિક
૩) માધ્યમિક
૪) ઉચ્ચ માધ્યમિક
૫) મહાવિદ્યાલયીન
૫. જમિન ધારણા
અ) કોરડવાદુ ----- હે.
બ) માગાયતી ----- હે.
ક) પટ્ટીક ----- હે.
ડ) રકુળા ----- હે.
૬. પાણ્યાયે સાધન/સ્ત્રોત : વિહિર/કેનૉન
૭. પાણી દેખ્યાવી સાધન: મોટ/ડિહાલ હં./હ. મોટાર.
૮. વાર્ષિક ઉત્પન્ન
અ) શેતીપાણુન ----- રૂ.
બ) દુધ્યક પેંદા પાણુન ----- રૂ.
ક) રકુળા ----- રૂ.

१. तामाजिक व आर्थिक दर्जा

अ] व्यवसाय

१. मजदुरी
२. पारंपारिक धंदा
३. नौकरी [तृतीय श्रेणी]
४. नौकरी [प्रथम व द्वितीय श्रेणी]
५. शेती
६. धंदा स्वतःचा
७. नौकरी/शेती
८. धंदा, स्वतःचा धंदा, शेती.

ब] कुटुंबातील नौकरी करणा-या व्यक्तींची संख्या .

१. एक
२. दोन
३. तीन किंवा त्या पेक्षा जास्त

२. कुटुंबाचे उत्पन्न

१. रुपये १५००/- पर्यंत
२. रुपये १५००/- ते ३,०००/- पर्यंत
३. रुपये ३,०००/- ते ६,०००/- पर्यंत
४. रुपये ६,०००/- ते १२,०००/- पर्यंत
५. रुपये १२,०००/- ते १८,०००/- पर्यंत
६. रुपये १८,०००/- ते २४,०००/- पर्यंत
७. रुपये २४,०००/- ते ३६,०००/- पर्यंत
८. रुपये ३६,०००/- ते ४८,०००/- पर्यंत
९. रुपये ४८,०००/- ते ६०,०००/- पर्यंत
१०. रुपये ६०,०००/- व त्या पेक्षा जास्त.

३. जमिन धारणा

अ] ओलित

१. जमिन नाही
२. ०.५ हे. पर्यंत
३. ०.५ ते १ हे. पर्यंत
४. १.१ ते २.०० प्र हे. पर्यंत
५. २.१ ते ४.०० हे. पर्यंत
६. ४.१ ते ६.०० हे. पर्यंत
७. ६.१ व त्या पेक्षा जास्त

ब] कोरडवाहू

१. जमिन नाही
२. १.५ पर्यंत
३. १.५ ते ३.०० पर्यंत
४. ३.१ ते ६.०० हे. पर्यंत
५. ६.१ ते १२.०० हे. पर्यंत
६. १२.१ ते १८.०० हे. पर्यंत
७. १८.१ व त्या पेक्षा जास्त

४. शिक्षण

अ] मोठ्या व्यक्तींचे शिक्षण

१. अज्ञात
२. प्रोट शिक्षण
३. प्राथमिक
४. माध्यमिक
५. पदविकाधारक
६. पदविधर अथवा त्यापेक्षा जास्त

ब] मुलांचे शिक्षण

१. अज्ञात
२. प्रोट शिक्षण
३. प्राथमिक
४. माध्यमिक
५. पदविकाधारक
६. पदविधारक अथवा त्या पेक्षा

क] पदवि किंवा त्या पेक्षा जास्त शिक्षण घेतलेल्या मुलींची संख्या.

१. एक
२. दोन
३. तीन किंवा त्या पेक्षा जास्त

૫. ગોતીતાઠી ઉપલબ્ધા અક્ષરે તાહિત્ય આણિ અક્ષરે.

અ) કાર્ય ધાવર તાહિત્ય

૧. ફકટી કામાધે બનાવર નાહી
૨. ફક ઢેલ
૩. ફક ઢેલ જોહી
૪. દોન િ ઢેલ જોહયા
૫. દોન પેહા જાસ્ત ઢેલ જોહયા
૬. હંચિન કિંવા ફ. મોટાર
૭. ફક્ટર

ક) તાહિત્ય

૧. સ્પ્રેઅર
૨. ઢેલજોહી
૩. ફક્ટર

બ) ગોતી અક્ષરે

૧. ધારંપારીક અક્ષરે
- અ) પૂર્વ મશાગતીવી અક્ષરે
- ક) અંતર મશાગતીવી અક્ષરે
૨. સુધારીત મશાગતીવી અક્ષરે
- અ) પૂર્વ મશાગતીવી અક્ષરે
- ક) અંતર મશાગતીવી અક્ષરે
- ક) કાપળી આણિ મળળી યંત્ર

૬. મીતિક સંસ્કૃતી

અ) મુદ્રણ કાર્મિયર

૧. મુદ્રણ
૨. ટી પોઈ
૩. ટેબલ
૪. પલંગ
૫. ફાયરિંગ ટેબલ
૬. સોફા મેટ
૭. કમ્પર્ટ
૮. લાકડી પલંગ

ક) વાહન

૧. સાયક્લ
૨. મોટાર સાયક્લ
૩. બીપ/મોટાર

ક) કરમળુકીવી તાહિત્ય

૧. રેફિઝી
૨. દૂરદર્શન સંચ
૩. ટેપ રેકૉર્ડર
- ક) માટે
૧. સ્ટીલ/માતીધે માટે
૨. કુકર
૩. મિક્સર
૪. મેલ
૫. પ્રીજ

ક) કતર તાહિત્ય

૧. પંજા
૨. બેડ બેકેટ

७. आवश्यक गरजा

अ] अन्न

१. कडधान्ये/दाजी/भाजी

२. कडधान्ये/दाजी/भाजी/दूध

३. कडधान्ये/दाजी/भाजी/दूध/खडे

४. कडधान्ये/दाजी/भाजी/मटन[अंडी/मासोडी]

ब] खपडा

१. दोन जोड्या

२. तीन जोड्या

३. तीन पेक्षा जास्त

क] प्रकार

१. छादी

टेरिलिन

८. घर

अ] प्रकार

१. झोपडी

२. कच्चे घर

३. पक्के घर

४. वाडा

५. बंगला

ब] छत्राची जागा

१. २०० चौ. फुट

२. २०० ते ५०० चौ. फुट

३. ५०० ते १००० चौ. फुट

४. १००० ते चौ. फुट व त्यापेक्षा जास्त

२. विस्तार प्रतिनिधी/कार्यालयाशी संपर्क :

अ. क्र.	विस्तार कार्यालय/प्रतिनिधी	- संपर्क -		
		आठवड्यात एकदा	पंधरवाड्यात एकदा	महिण्यात एकदा
१.	जिल्हा परिषदेचे विस्तार/कृषि अधिकारी			
२.	प्रशिक्षणा व भेट योजना अधिकारी			
३.	ग्राम सेवक			
४.	कृषि सहायक			
५.	ग्राम विस्तार कार्यकर्ता			
६.	कृषि महाविद्यालय			
७.	कृषि विद्यालय			
८.	शेती तंत्राभेदन केंद्र			
९.	इतर [नमुद करा]			

३. सामाजिक सहभाग

अ. क्र.	संस्था	सदस्य/पदाधिकारी कालावधी [वर्ष]
१.	ग्राम पंचायत	
२.	पंचायत समिती	
३.	जिल्हा परिषद	
४.	छोटी विही संघ	
५.	वि. का. म. स. सोसायटी	
६.	राजकीय पक्षा	
७.	शेतकरी संघ	
८.	युवक संघटना	
९.	भजनी मंडळ	
१०.	इतर [नमुद करा]	

विभाग "क"

मानस शास्त्रीय घटक

१. यश अनुकूलिकरण
प्रत्येक विधानावुटे दिलेल्या पाच प्रतिसादांपैकी आपणास जो प्रतिसाद योग्य वाटतो त्या ठिकाणी [✓] आनी छुन करा.

अ. क्र.	विधाने	प्रतिसाद				
१.	यश मिळाल्याने केवळ आनंदी माजना निर्माण न होता आधार व पुढील गोष्टी करता येतात	एकदम मान्य	माध्य नाही	तांगता नाही	येत अमान्य	एकदम अमान्य
२.	तुमचे प्रयत्न यश मिळविण्याचे दृष्टीने कित्यत करे आहेत.	अगदी नितर्गळ:	फार बरोबर	कांही नाही	नसकी अन्य नाही तस्य	बरो बर
३.	आलेल्या संधीचा तुम्ही किती वेळा फायदा घेता.	व्यक्ति तरी	केंव्हा वेळा	निम्या त्याने	सात- त्याने	नेहमीच
४.	रुखादी गोष्ट केव्हा तुम्हास संकोच वाटतो काय	व्यक्ति तरी	केंव्हा वेळा	निम्या त्याने	सात- त्याने	नेहमीच
५.	असे किती क्षेत्र आहेत की त्या मुळे तुम्हास अपयश येईल	पुढकळ अनेक	कांही	थोडेसे फार	थोडे	थोडे
६.	असे किती प्रसंग आहेत की ज्यात तुम्ही कार्य केले असता यश येईल.	पुढकळ अनेक	कांही	थोडेसे फार	थोडे	थोडे

૨. જોડીમ પત્કરણ્યાવી હામતા

૩.૬ વિધાને

- પ્રતિતાદ -

૧. જાણના શેતક-વાને રક કિંવા દોન પિકે ઘ્યાવિત મ્હામે ધોકા ટેલ.	રકદમ માન્ય	માન્ય	તાંગતા યેત નાહી.	અમાન્ય	રકદમ અમાન્ય
૨. જોતક-વાને કમી કાયણાપ્પા પણ કમી જોડીમીપ્પા ગોઠટી ના ધરમ રાજ્યયાપેલા જાસ્ત કાયણાપ્પા સંધીયા કાયદા ઘ્યાવા.	રકદમ માન્ય	માન્ય	તાંગતા યેત નાહી.	અમાન્ય	રકદમ અમાન્ય
૩. તર્કસાધારણ જોતક-વાપેહા જે જોતકરી જાસ્ત જોડીમ પત્કરતાત તે તાધારણાત: આર્થિક દુહટયા ઉત્તમ અતતાત.	રકદમમાન્ય	માન્ય	તાંગતા યેત નાહી.	અમાન્ય	રકદમ અમાન્ય
૪. જાણના શેતક-વાના યજાત્વી હોજ્યાતાઠી જાસ્તતા જાસ્ત વાટો તેંજા જોડીમ પત્કરણો વાંગમે અસો.	રકદમ માન્ય	માન્ય	તાંગતા યેત નાહી.	અમાન્ય	રકદમ અમાન્ય
૫. જોપર્યત ક્ષતર જોતક-વાંધી નવિન તંત્ર પદ્ધતી યજાત્વી રિતયા અક્ષંબીત્યા શિવાય આપજા ત્યાતાઠી પ્રયત્ન ન કરણો વાંગમે.	રકદમ માન્ય	માન્ય	તાંગતા યેત નાહી.	અમાન્ય	રકદમ અમાન્ય
૬. જોતી મધ્યે નવિન પદ્ધતીયા અક્ષંબ કરણ્યાત જોડીમ અસો પરંતુ અગી જોડીમ તુદા મોતિક અસો.	રકદમ માન્ય	માન્ય	તાંગતા યેત નાહી.	અમાન્ય	રકદમ અમાન્ય

૨] શાસ્ત્રીય ઉગમસ્ત વિલાપને

ક્ર.સ.	વિલાપને	- પ્રતિતાદ -			
૧.	કુખ્યા રોતી વધતી પેશા નવિન રોતી વધતી રોતક-ચાસ ચાસ કાયદા દેતાત.	અકદમ માન્ય	માન્ય	તાંગતા ચેત નાહી.	અમાન્ય અમાન્ય
૨.	રોતક-ચાંચી પરંપરાગત રોતી વધતી હી આજ તુલ્લા અમાત આગળ્યા તાઠી ચાંગલી આહે.	અકદમ માન્ય	માન્ય	તાંગતા ચેત નાહી.	અમાન્ય અમાન્ય
૩.	ચકાલા અનુમવી રોતક-ચામે તુલ્લા નવિન રોતી તંત્ર વાપરાહે.	અકદમ માન્ય	માન્ય	તાંગતા ચેત નાહી.	અમાન્ય અમાન્ય
૪.	ઝરી રોતક-ચાંસ નવિન રોતી તંત્ર શિક્ષણાત લેઠ ભાગત એલ તરો તે યોગ્ય આહે.	અકદમ માન્ય	માન્ય	તાંગતા ચેત નાહી.	અમાન્ય અમાન્ય
૫.	ચાંગલા રોતકરી નવિન તંત્રાવા વાપર કરતો.	અકદમ માન્ય	માન્ય	તાંગતા ચેત નાહી.	અમાન્ય અમાન્ય
૬.	રોતક-ચાંચે જિલ્લામાન તુલ્લાચાસાઠી પરંપરાગત રોતી વધતી ચકાલી વાદિયે.	અકદમ માન્ય	માન્ય	તાંગતા ચેત નાહી.	અમાન્ય અમાન્ય

विभाग "क"

- निर्मर घटके -

१] केळीच्या लागवडीतील सुधाररीत पध्दतीच्या मशागतीतील उणिवा

- पूर्व मशागत -

१. केलेल्या लागवडीचा प्रकार -----
२. कुठवाच्या दिलेल्या पाण्या -----
३. प्रति हेक्टरी वापरलेले शेण/कंपोस्ट कित -----
४. शेण/कंपोस्ट कात वापरण्याची वेळ -----
५. -----

- अंतर मशागत -

१. लागवडी नंतर पहिल्या ३ ते ४
२. मळिगात दिलेल्या कुठवाच्या पाण्या -----
३. झाडांच्या बुंध्यांना आधार मिळण्यासाठी
केलेले उपाय -----
४. दोन क्रमांकाः टिपण्यांच्या वेळेतील अंतर -----
५. केळीच्या झाडांचे वा-या पासून
संरक्षण करण्यासाठी केलेले उपाय -----
६. उन्हाळ्यात पाणी टेंपाई पासून
पिकाचे संरक्षण करण्यासाठी केलेले
उपाय -----

२] केळीच्या सुधाररीत वाणांच्या वापरातील तांत्रिक उणिवा

१. केळी काढलीत एकंदरीत दोष ----- हे.
२. सुधाररीत वाणांकातील केळीचे दोष ----- हे.

૩] કેવીવ્યા રોષણ પદ્ધતીતીલ તાંત્રિક ઉષિલ

૧. પ્રતિ હેક્ટરી લાપરલેલે મુનલે -----
૨. મુનલ્યાંલ આકાર લ વલન -----
૩. મુનલ્યાતીલ અંતર -----

અ] લીન ઓલીતીલ અંતર -----

લ] લીન મુનલ્યાતીલ અંતર -----

૪. લાગલહીલી લેલ -----

૫. લાગલહીલી પદ્ધત -----

૪] કેલી લાગલહીતીલ રાસાલનીલ હત લાપરાતીલ ઉષિલ

૧. રાસાલનિક હતાલે નાલ -----
૨. કેલી હાલીલ સંલદરીત હોત્રા ----- હે.
૩. હાત લિલેલ્યા કેલીલે હોત્રા ----- હે.
૪. લિલેલેલ્યા હતાંલી માત્રા -----
૫. ધ. કિતી લેલ -----
૬. હાલે લેલ્યાલી પદ્ધત -----

૫] કેલી લાગલહીતીલ લિલે સંરહાણાતીલ ઉષિલ .

૧. લાપરલેલ્યા ઓહાલિ નાલ -----
૨. કાપાસાઠી
અ] રાંગ
લ] કિલ
૩. પ્રદૂર્ભાલ હાલેલે હોત્રા ----- હે.
૪. પ્રતિ હેક્ટરી કિતી લાપરલે .
૫. લાપરણ્યાલી પદ્ધત
૬. કિતી લેલ લાપરલે.

६] केडीलागवळीच्या सिंगमातील तांत्रिक उणिवा

१. संपूर्ण केडी लागवळी मध्ये दिलेल्या रकूमा सिंगमाच्या पाव्या -----
२. सिंगमासाठी वापरलेली पद्धत -----
३. दोन पाव्यातील अंतर
अ] उन्हाळ्यात दोन पाव्यातील अंतर -----
ब] हिवाळ्यात दोन पाव्यातकितल अंतर -----
४. बाळपाच्छादन व बाळपरोटाक
१. बाळपाच्छादनासाठी वापरलेले साहित्य -----
२. प्रमाणा -----
३. बाळप रोटाकासाठी वापरलेले साहित्य -----
४. प्रमाणा -----

- समस्या -

१. तुम्हाला केडी लागवळी मध्ये आधुनिक तंत्रा अवगत करण्यात कांही अडथळी आहेत काय ? होय/नाही.
 २. जर होय असेल तर, कुठल्या कारणात पैकी कोणत्या अडथळी येतात ते नमूद करा.
- ३.५ कृषि तंत्रा वापरातील अडथळे
- | | |
|--|--|
| १. सुधारित पद्धतीच्या मशागतीचा अभाव | १. मजूर जास्त लागतात. |
| | २. रोगाळत/कंपोस्ट ळत मरपूर प्रमाणात उपलब्ध होत नाही. |
| | ३. केडी लागवळ तंत्राचे अगुरे हान |
| | ४. इतर |
| २. जास्त उत्पादन देणा-या जातीच्या बियाण्यांचा वापर | १. बियाणो महागडे आहेत. |
| | २. बियोणो उपलब्ध होत नाही. |
| | ३. कुठाल कामगार उपलब्ध नसल्यामुळे |
| | ४. महागडे पिक सुरक्षा लागते. |
| | ५. इतर |

૩. રાસાયનિક કાતે

૧. રાસાયનિક કાતે મહાગડી અસતાત.
૨. રાસાયનિક કાતે ઢેઢેવર ઉપલબ્ધ હોત નાહીત.
૩. વહાતુકીયો તાધમે ઢેઢેવર ઉપલબ્ધ હોત નાહીત.
૪. અપુરે જ્ઞાન
૫. કતર.

૪. પિક સંરક્ષણ તાધમે

૧. પિક સંરક્ષણ તાધમે મહાગડી અસતાત.
૨. પિક સંરક્ષણ તાધમે કટકટીયો અસતાત.
૩. જાતસ્રીય જ્ઞાનાધ્યા ષુટીમુઢે
૪. ફવારણી વ ધુરજી તાહિય ઉપલબ્ધ નસ્યામુઢે.
૫. કિટકનાજાકે વ રોગ નાજાકે વાપરણી ધીકાદાયક અસતે.
૬. કતર.

૫. તુધારીત સિંધન
પદ્ધતીયા અવનંબ

૧. પાજ્યાયી કમતરતા અસતે.
૨. વાકે કરણ્યાત મજૂર જાસત નાગતાત.
૩. કંકિત વિચ પૂરવઠા
૪. પાટાધે પાજી ઢેઢેવર મુટત નાહી.
૫. અપુરે જ્ઞાન
૬. કતર.