



Research Article

Analysis of technological gaps and constraints of Bidi tobacco growers in cultivation

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SUMMARY : Study was conducted in Chikkodi and Hukkeri talukas of Belgaum district based on highest area under tobacco cultivation in the state. The ex-post-facto research design used for the study. Each of six villages were identified from two talukas, based on highest area under tobacco cultivation. Inturn ten respondents were selected randomly from each village. Thus the total sample size constituted 120 respondents. Data were personally collected by personal interview method using structured interview schedule. Totally eight independent variables were studied in addition to dependent variables. It could be observed that overall technological gap for the total respondents was quite high as 50.96 per cent. The gap was more than 40 per cent in the case of application of FYM/compost, application of phosphorus, application of potash following the irrigation schedule and plant protection measures. Technological gap in plant protection at 45.53 per cent also deserves attention. Economic variables like economic status, size of holding and area under Bidi tobacco were found to have negative significant relationship with technological gap. Psychological variables like innovativeness and risk orientation also showed a negative and significant relationship with technological gap. Majority of respondents perceived the susceptibility to adverse climatic conditions followed by pest, diseases, labour availability and high cost of inputs perceived by the tobacco farmers.

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KEY WORDS :

Technological gap,
Constraints, SES of
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relationship

BACKGROUND AND OBJECTIVES

Indian economy is vitally linked to agricultural development. About 75 per cent of the population is directly or indirectly dependent for its livelihood upon agricultural. It is often seen that while a good harvest leads to economic stability, its failure spells havoc. Tobacco is the only commercial non-food crop that enters the world trade as a leaf. It is priced for aroma taste and flavour. It is an important commercial crop in view of revenue generation. Export earning and employment potential. It is aptly called as the golden leaf of India. The Bidi tobacco occupies a pre-eminent position in India because it accounts for 30 per cent of the total tobacco production. There are two distinct zones of it. One is represented by Charotar zone in north Gujarat and other is Nippani in Karnataka. Generally the commercial crop (like tobacco) growers are

expected to be in possession of progressive values. Adoption of recommended practices would require many adjustments on the part of farming community. Such adjustments can be effective much more easily if there is proper understanding of what changes are and how they operate. Keeping this in view, the present study was conducted to the technological gap in important farm operation of Bidi tobacco cultivation and to know the problems or constraints and suggestions for overcoming the constraints as prevailed by them.

RESOURCES AND METHODS

Study was conducted in Chikkodi and Hukkeri talukas of Belgaum district. Based on highest area under tobacco cultivation. The ex-post-facto research design used for the study. Each of six villages were identified from two

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talukas, based on highest area under tobacco cultivation. Intern to respondents were selected randomly from each villages. Thus the total sample size constituted 120 respondents. Data were personally collected by personal interview method using structured interview schedule. Totally eight independent variables were studied in addition to dependent variables. The technological gap of particular practices was worked out in percentage as per the following method.

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

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

Mean technological gap in critical farm operations of Bidi tobacco cultivation was taken as the dependent variable.

OBSERVATIONS AND ANALYSIS

The observations of the present study as well as relevant analysis have been summarized under the following heads:

Socio-economic attributes of Bidi tobacco growers:

The results presented in Table 1 indicated that majority of the respondents were middle aged. Farmers of middle age proved to be more enthusiastic and have more work efficiency than the old and young farmers. Majority of the respondents were having secondary school education, only 26.00 per cent studied upto primary school followed by 10.67 per cent illiterate and only 8.00 per cent were educated upto college and degree. In general, the respondents were found to be educated. This could be as a result of a common social environment. In the present scenario, almost everybody wants to be literate because of awareness about the importance of the education by the various government literacy programmes. One fourth of the respondent families (35.83%) had annual income above Rs. 33000. The possible reason that could be attributed was their large size land holdings. Nearly 38.00 per cent of the respondent families had land holding upto 5 acres. The fragmentation of ancestral land from generation to generation might have led to smaller size of land holdings, Majority of the respondents (58.00%) had medium risk taking ability, while 24.00 per cent had high risk taking ability. The possible reason could be the dryland nature of farming in the study area. Farmers in such areas tend to possess medium risk based on profits assumed. Nearly half of the respondents (44.17%) were found in medium category of credit orientation. The probable reason for the above results might be that the farmers are not aware of the institutionalized credit agencies and they hesitate to go through the lengthy procedures. Majority of the respondents (78.00%) were found to have medium

Table 1 : Personal and socio-economic characteristics of the respondents (n=120)

Characteristics	Frequency	Percentage
Age		
Young - < 34 years	30	24.67
Middle - 34-40 years	55	46.00
Old - > 40 years	35	29.33
Education		
Illiterate	13	10.67
Primary school	31	26.00
Secondary education	66	55.33
Graduate and above	10	8.00
Annual income		
Upto Rs. 11,000	27	22.50
Rs. 11,001 to Rs. 22,000	27	22.50
Rs. 22,001 to Rs. 23,000	23	19.33
Above Rs. 33,000	43	35.83
Land holding		
Upto 2.5 acres	14	12.00
2.5 - 5.0 acres	30	25.33
5.1 - 10 acres	33	28.00
10.1 - 25 acres	36	30.00
> 25 acres	07	4.67
Area under Bidi tobacco		
Upto 2.5 acres	22	18.34
2.5 - 5.0 acres	35	29.16
5.1 - 10 acres	21	17.50
10.1 - 25 acres	40	33.33
> 25 acres	02	1.67
Innovativeness		
Low (Mean - SD)	11	9.33
Middle (Mean ± SD)	93	78.00
High (Mean ± SD)	16	12.67
Risk orientation		
Low (Mean - SD)	22	18.00
Middle (Mean ± SD)	69	58.00
High (Mean ± SD)	29	24.00
Credit orientation		
Low (Mean - SD)	29	24.17
Middle (Mean ± SD)	53	44.17
High (Mean ± SD)	38	31.66

innovativeness, while 12.67 and 9.33 per cent of them had high and low innovativeness, respectively. This could be attributed to the medium level of education of the respondents that helped them to acquire new technology on their fields. Further, because of dryland farming, they might be interested to adopt new innovation to increase their income level. Farmers associated with technological gaps in Bidi tobacco.

Mean technological gap among the respondents:

It could be observed from Table 2 that overall technological gap for the total respondents was quite high as 50.96 per cent. The gap was more than 40 per cent in the case of application of FYM/compost, application of phosphorus, application of potash following the irrigation schedule and plant protection measures. Non availability of organic manure, its high cost, cost involved in its transportation adding up to the total cost of production etc., must have been the reasons for not applying the recommended levels of organic manure in field. Weed management is very important in bidi tobacco, it was found that a considerable number of farmers adopted only one weeding as against the recommended two hand weedings. Although a small proportion adopted weedicides, majority feared harm to the crop and hence never tried it. Fertilizer management calls for greater attention as the results showed greater technological gap especially in case of phosphorus and potassium/fertilizer application of these major nutrients showed a greater basis for nitrogen and hence lesser technological gap. Farmers tend to apply more nitrogenous fertilizers like urea which is relatively cheaper and whose effect is more pronounced than the other nutrients. This might be the reason why technological gap in respect of major fertilizer elements was the greatest for potassium. Technological gap in plant protection at 45.53 per cent also deserves attention. The results are in close agreement with the findings of Jaiswal and Duboliya (1994) and Ray *et al.* (1995), but lower than those reported by Jaiswal and Rathore (1985) and Mahawer *et al.* (1995). Farmers showed a tendency to use concentration levels more than the recommended levels. This was mainly due to lack of knowledge and guidance regarding the use of those chemicals. They do not adopt any chemical measure as they feared that the leaves for domestic consumption would be poisoned. It was observed that the sprays were not need based, but rather "routine sprays".

Table 2: Mean technological gap among the respondents (n = 120)

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

Relationship of SES attributes of Bidi tobacco growers with their technology gap in adoption of improved technologies:

It was observed from the results of Table 3 that out of the eight variables selected age and education showed non significant negative relationship with technological gap. The findings are in tune with that of Bhaskaran and Thampi (1986). Patil and Deshmukh (1995) and Naghabhushanam and Kartikeyan (1998). Economic variables like economic status, size of holding and area under Bidi tobacco were found to have negative significant relationship with technological gap. This may be expected as better economic status can lead to better technology adoption and their by lesser technological gap. The results find support in the findings of Nikhade *et al.* (1997). Nagabhushanam and Kartikeyan (1998) and Sulaiman and Prasad (1993). Psychological variables like innovativeness and risk orientation also showed a significant negative relationship with technological gap. It is self explanatory that an individual having more of these characteristics end to be more scientific and hence experimental adopt newer technologies. This would result in decreased technological gap. The findings are in conformity to those of Mercykutty (1997) and Venkatesh Prasad (1999) in case of innovativeness and risk orientation.

Table 3 : Factors associated with gaps in Bidi tobacco adoption among farmers

Sr. No.	Variables	Correlation coefficients (r)
1.	Age	-0.11 ^{NS}
2.	Education	-0.16 ^{NS}
3.	Annual income	-0.39**
4.	Land holding	-0.31**
5.	Area under tobacco	-0.42**
6.	Innovativeness	-0.41**
7.	Risk orientation	-0.60**
8.	Credit orientation	-0.22*

NS – Non-significant

* and ** indicate significance of values at P=0.05 and 0.01, respectively

Problems perceived by respondents in Bidi tobacco cultivation:

It was observed from the Table 4 majority of the respondents (70.83%) expressed that the main constraint was the susceptibility of Bidi tobacco to adverse climatic conditions. Bidi tobacco cannot tolerate even an hour of frost. The quality of tobacco depends on the leaf quality and these leaves are mainly affected by many pests and diseases. Thus 65.00 per cent of farmers expressed pests and diseases as major constrains in Bidi tobacco cultivation. Bidi tobacco cultivation involves many practices, which require skilled labour. The labour availability becomes scarce at peak periods, as almost all the farmers require the labour at the same time. The high cost of inputs due to lack of subsidies on fertilizers

Table 4 : Problems perceived by respondents in Bidi tobacco cultivation

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

Multiple responses possible

posed a constraint to Bidi tobacco cultivation. The other problems expressed were irregular power supply for irrigation and inadequate credit facilities. The proper functioning of Government institutions such as electricity department and banking system in the study area can overcome these problems.

Conclusion:

It was concluded that significant technological gap is being noticed among tobacco growers in adoption of improved technology (Table 2). Hence, taluka-wise, hobali-wise, and season-wise campaign should be organized in addition to other transfer of technology methods to address the above phenomena. The government has to design special provision to be made to combat the major constraints perceived by tobacco growers through various field based organization in addition to stake holders of public private partnership, who are involved on both forward and backward linkage of tobacco crop enterprise.

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