



Impact Assessment of *Bidi* Tobacco in Gujarat

A. Srinivas^{1*}, D. Damodar Reddy², K. Vishwanath Reddy³, Hema Baliwada⁴ and S. Kasturi Krishna⁵

^{1,3,4}Scientist, Division of Crop Production, ICAR-CTRI, Rajahmundry, ²Director, ICAR-CTRI, Rajahmundry, ⁵HoD I/C and Principal Scientist, Division of Crop Production, ICAR-CTRI, Rajahmundry-533105, Andhra Pradesh, India

*Corresponding author email id: seenu.adhi@gmail.com, srinivas.ade@icar.gov.in

ARTICLE INFO

Keywords: *Bidi* tobacco, Constraints, Economic impact, Farmers, Jowar, Wheat

<http://doi.org/10.48165/IJEE.2022.58235>

ABSTRACT

Tobacco, the golden leaf is one of the important high value commercial crops grown in over 15 states in India. It is a highly remunerative crop fetching more economic benefits to the farmers. Among different types of tobacco, *bidi* tobacco is an important non-FCV tobacco grown largely in Gujarat. The present study was conducted in the year 2019 with an objective to assess the impact of tobacco crop on socio-economic transformation of tobacco farmers in Gujarat state. The total sample size of the study was 160. The average net returns from *bidi* tobacco were Rs. 65000/ha. in Gujarat compared to wheat (Rs. 25,000/ha) and jowar (Rs. 15000/ha). The socio-economic impact was high for tobacco growers in terms of land size, annual income, expenditure pattern, possession of assets, net returns, habitat & educational security and social empowerment than non-tobacco farmers. The major constraints identified from tobacco farmers were price fluctuation, non-availability of labour, suckers problem and storage facilities. The different factors for growing tobacco were high profit, availability of timely and sufficient credit, location suitability and timely availability of inputs. For non-tobacco crops, the major factors for cultivation were location suitability, adoption of improved technology, quick payment to the produce and government support.

INTRODUCTION

India has prominent place as second largest producer of tobacco (760 million kg) after China (FAOSTAT, 2020). Tobacco provides employment directly and indirectly to 45.7 million people and Rs. 5,969.59 crore in terms of foreign exchange to the National exchequer (Tobacco Board, 2020). Indian tobacco has great demand in the international market in view of its low production cost and offers the customers value for money because of the availability of varied tobacco leaf styles. In India, the major tobacco producing states are Gujarat, Andhra Pradesh, Karnataka, Uttar Pradesh, Tamil Nadu, Bihar and West Bengal. Andhra Pradesh, Gujarat, Karnataka and Uttar Pradesh together account for about 90 per cent of the total tobacco production in the country (Goyal et al., 2004). Among non-Flue Cured Virginia types, *bidi* tobacco is a highly remunerative crop providing immense benefits to farmers in the *bidi* tobacco

growing regions. Tobacco is cultivated in around 1.59 lakh ha in Gujarat, the major type being *bidi* tobacco. The other types of tobacco grown in Gujarat are chewing (Lal and Kala chopadia), Hookah (Gadaku) and rustica, which are grown in about 40,000 ha (AAU, 2022). The main beneficiaries include small, marginal, tenant farmers, tribal farmers and farm women. According to Tobacco Institute of India (2021) reports, the total number of registered *bidi* workers in the country is 49.82 lakhs, among them the total number of women employed is 36.25 lakhs.

Although tobacco is fetching high returns to farmers, but the present international policies, anti-tobacco campaigns, tobacco control measures by the government, intense measures to crop diversification in tobacco growing areas by Ministry of Agriculture and Farmers Welfare through Crop Diversification programme leaving the future of tobacco sector gloomy. The per cent budget share for tobacco growing areas to shift from tobacco to other crops

in the total 'Crop Diversification Programme' budget was increased from 2015-16 (16.67%) to 2019-20 (33.35%) which shows the success in implementation of the programme (Hema et al., 2020). In case of *bidi* tobacco in particular, the number of *bidi* workers engaged in *bidi* rolling industry was reduced from 55.86 lakhs in 2019 to 49.82 lakhs in 2021 (Tobacco Institute of India, 2021). Besides, in order to encourage tobacco workers to shift to alternative vocations, the Ministry of Labour and Employment, Government of India in collaboration with the Ministry of Skill Development and Entrepreneurship, Government of India, has initiated 'Skill Development' programme for *bidi* rollers, to facilitate them to shift to alternative vocations.

In this background, keeping in view of the significance of livelihood security of the farmers and employment of millions of stakeholders of tobacco sector, there is a need to study the impact of tobacco cultivation on farmers livelihood. Reports of last five years also showed that the total number of *bidi* workers was gradually increased from 48.12 lakhs in 2017 to 49.82 lakhs in 2021 (Tobacco Institute of India, 2021). To improve the tobacco cultivation scenario of major tobacco growing areas of Gujarat, assessment of the socio-economic impact, created by tobacco cultivation and constraints faced by farmers are very important. Therefore, the present research was undertaken with an objective to study the impact assessment of *bidi* tobacco cultivated in Gujarat.

METHODOLOGY

The study was both quantitative and descriptive in nature. The production of *bidi* tobacco in Gujarat is largely concentrated in Middle Gujarat Zone comprising Kheda, Anand, Mahisagar and Vadodara districts (90% of total production of Gujarat) besides a small area in Panchmahals district, hence Gujarat is purposively selected for the present study. From middle Gujarat Zone, Anand and Kheda districts were selected for the study since the production of tobacco is largely concentrated in these districts. Two talukas from each district were selected randomly from selected districts among which one is tobacco growing and the other is non-tobacco growing taluka. The non-tobacco crops selected for the study were wheat and jowar. Four villages were selected randomly for the study from each sampled taluka, making a total of 16 villages for the study. Ten respondents were selected randomly for the study from each village. Thus a total of 160 respondents were selected randomly for the study among which 80 tobacco farmers and 80 non-tobacco farmers.

The ex-post facto research design was used for the study. The study was conducted by using the primary data. A semi structured questionnaire measuring the socio-economic impact along with farmers profiles was developed and data was collected by personnel interview method. The indicators for the study were selected based on review of literature and consultation with various experts. In total, 11 indicators were used to assess the socio-economic impact of *bidi* tobacco. The economic indicators selected based on pilot study viz., land size, assets possession, net returns, source of credit, annual income, expenditure pattern and social impact variables viz., social security, habitat security, health security and social empowerment. The statistical tools for data analysis used were descriptive statistics and non-parametric tests.

RESULTS AND DISCUSSION

Economic impact

Five major economic impact indicators were studied and were compared by using independent sample 't' test and the results were presented in Table 1.

It was observed from Table 1 that the average land size of tobacco growers was 3.31 ha and for non-tobacco growers was 2.61 ha. Statistics showed that there was significant difference in the extent of average land size between tobacco and non-tobacco growers ($t = 2.50, p < 0.05$). The possible reasons that could be attributed to this finding were those who had agriculture as the main occupation almost depend on their land for their livelihood. So they always try to possess large area. It could be their ancestral property or high income from particular crop. The similar findings were reported by Duppal et al., (2020) & Vivek et al., (2021) reported that farmers land holding size was the most important influencing factor for empowerment. Credit borrowing is an important factor that affect the agricultural productivity of the farmers. It was observed that tobacco is a crop financed adequately by the traders to an average extent of up to Rs. 40,000/ha, whereas, non-tobacco farmers borrow money from money lenders. In the study area, it was found that wheat, and jowar crops were financed to the maximum limit of 20,000/ha. Traders were found to be major sources of finance in case of tobacco farmers while majority of non-tobacco growers preferred credit from informal sources like money lenders. The data also showed that there was significant difference between the two groups with respect to source of credit. The annual income of *bidi* tobacco farmers and non-tobacco farmers was Rs. 1.7 lakhs and Rs. 1.05 lakhs per ha respectively. The findings were in line with the results of Pal and Kaur (2020) showed that there was significant difference in annual income between two comparison groups. It can be concluded that the higher income generating capacity of the tobacco farmers was due to high economic benefits from tobacco crop. It was also noted that there was no significant difference in the income from livestock and non-farm sources for both the groups. Adoption behavior of the farmers is affected by the attitude they possess for a particular crop. *Bidi* tobacco farmers had more favourable attitude towards tobacco cultivation as a result of their association with the crop since many years due to comparatively stable returns.

Absolute income level of household or its income trends is more significant in determining its consumption and investment expenditure in basic needs. The different sub-variables taken under expenditure pattern were food, clothing & wearing, children education i.e. size of school growing children, health and recreation expenses. The monthly expenditure of tobacco farmers towards food, clothing, children education and recreation was relatively higher than the other crops farmers. Although food expenditure is considered to be basic for the daily life of the farmers, but the quality of the expenditure varied. The same is the case with clothing and recreation, The reasons behind these results may be majority of the respondents were having sufficient income which help them to spend expenditure on some items. Results concluded that the expenditure towards basic standard of living was high for tobacco farmers than non-tobacco farmers due to stable income from the

Table 1. Comparison of economic impact indicators using independent samples 't' test (N=160)

Variables	Particulars		Mean (Rs.)	t-test for Equality of Means (Eq. variances) t, DF(Prob. t)	
	Category	Respondents			
Land size	Farmers	Tobacco	3.31(ha)	2.50*158 (0.012)	
		Non-tobacco	2.61(ha)		
Source of credit	Traders	Tobacco	34500	11.86*158 (0.00)	
		Non-tobacco	12000		
	Money lenders	Tobacco	14500	-2.182*158 (0.001)	
		Non-tobacco	17400		
Bank	Tobacco	17400	0.456158 (0.650)		
	Non-tobacco	17100			
Annual Income(Gross)	Farming(per ha)	Tobacco	170000	21.6*158 (0.000)	
		Non-tobacco	105000		
	Livestock	Tobacco	6394	1.45 ^{ns} 158 (0.028)	
		Non-tobacco	5470		
	Non-farm sources	Tobacco	18000	1.5 ^{ns} 158 (0.12)	
		Non-tobacco	16500		
Total income	Tobacco	189000	19.45*158 (0.000)		
	Non-tobacco	136000			
Expenditure pattern	Food	Tobacco	5843	7.2*158 (0.000)	
		Non-tobacco	4968		
	Clothing	Tobacco	2753	31.47*158 (0.000)	
		Non-tobacco	1503		
	Children education	Tobacco	4887	12.46*158 (0.000)	
		Non-tobacco	3636		
	Health	Tobacco	1393	1.98158 (0.049)	
		Non-tobacco	1288		
	Recreation	Tobacco	3367	32.38*158 (0.000)	
		Non-tobacco	1708		
	Assets owned	Household assets	Tobacco	84444	12.100*158 (0.001)
			Non-tobacco	65854	
Farm assets		Tobacco	64224	1.986*158 (0.00)	
		Non-tobacco	36334		
Livestock possession		Tobacco	46764	1.372*158 (0.001)	
		Non-tobacco	32654		
Vehicles possession	Tobacco	29634	-.454158 (0.603)		
	Non-tobacco	30804			

* p<0.05, t = value of the t statistic, df = degrees of freedom

tobacco crop. There was significant difference in assets owned by the *bidi* tobacco growers in respect to value of household, farm assets and livestock. It shows the priority of the farmers to have valuable assets. The similar results were reported by Saha et al., (2018) indicated that asset possession was significantly correlated with the empowerment. The net returns/acre and B:C ratio for tobacco crop (1.6) was high compared to wheat (1.43) and Jowar (1.36). These findings were in accordance with the results of Kumar et al., (2016). It is due to high market price for tobacco *i.e.* Rs. 90 per kg. Therefore the farmers in this area were cultivating tobacco crop since many years. The tobacco crop has advantages of easy access to inputs, timely finance from money lenders and traders and easy access to marketing.

Social impact

The social impact indicators were compared by using Wilcoxon Mann-Whitney test. Data from table 2 indicated that tobacco farmers were comparatively better off than non-tobacco growers. This indicates that the social impact on tobacco farmers was high which is due to high net profits from *bidi* tobacco. There was significant difference with high mean rank for tobacco and non-tobacco growers in respect of habitat security, educational security to children and

social empowerment. It was also observed that the tendency towards food security, health security is almost same for *bidi* tobacco and non-tobacco farmers. The similar results were reported by Kranthi (2012, 2015).

Information seeking behaviour

Data collected on availability of various sources of information to the tobacco and non-tobacco farmers indicated that there was major difference between the groups. Unlike Flue Cured Virginia, which is regulated by Tobacco Board of India, Ministry of Commerce, *Bidi* tobacco trade is dominated by private traders. Hence, traders are the major source of information for tobacco farmers in Gujarat. Small farmers seek information from progressive farmers. The findings were in agreement with Lal et al., (2012). Whereas in case of wheat and jowar crops, agriculture department officials and progressive farmers are the major sources of technical information.

Factors determining cultivation of tobacco and non-tobacco crops

The various factors for cultivating tobacco and non-tobacco crops were compared by using Friedman's two-way ANOVA

Table 2. Wilcoxon Mann-Whitney test for analysis of social impact (N=160)

Variables	Mean rank		Mann - Whitney U value	Z value	Asymp. Sig. (2-tailed)
	Tobacco (n ₁ =80)	Non-tobacco (n ₂ =80)			
Food security	89	72	2.52 ^{ns}	-2.359	.018
Habitat security	106	54	5.15	-7.155	.000*
Educational security	116	44	6.78	-8.963	.000*
Health security	82	78	7.20 ^{ns}	-.0443	0.636
Social empowerment	100	60	107.5	-5.471	.000*

analysis. From Table 3, it can be concluded that, the reasons expressed by the farmers for growing tobacco crop were high profit, availability of timely and sufficient credit, location suitability and Timely availability of inputs. The major contributing factors for growing non-tobacco crops were location suitability, adoption of improved technology, quick payment to the produce and government support. The similar results were reported by Chapke et al., (2018) & Paasa et al., (2016).

Constraints of tobacco and non-tobacco growers

Major constraints faced by the respondents were identified and administered to the respondents to analyse the major problems faced by them. Friedman’s two-way ANOVA test was used to compare tobacco and non-tobacco growers.

It was evident from Table 4 that among the constraints, price fluctuations (mean rank 8.81) was the major constraint for tobacco farmers followed by non-availability of labour (mean rank 8.65),

suckers problem (mean rank 5.38) and storage facilities (mean rank 3.93) were the major constraints for tobacco growers. In case of non-tobacco crops price fluctuations (mean rank 8.7), non-availability of sufficient credit (mean rank 8.2), high labour cost (mean rank 7.4), lack of technical knowledge (mean rank 5.2) were the major constraints. Similar results were reported by Shanabhoga et al., (2021). Farmers expressed their concern that the vertical spread existed between the wholesale and retail prices of the selected crops *i.e.* tobacco, wheat and jowar. Such diverse variations in price spread between the wholesale and retail prices could be due to asymmetry in the transmission of price signals from wholesale to retail prices and vice versa. This asymmetry in the transmission of prices normally occurs due to the actions of intermediaries in the vertical chain. Majority of the farmers have no storage facilities. In order to clear farmers debts and due to the lack of storage facilities, a vast majority of the farmers in the study area sell their marketable surplus of the product immediately after harvest and get low prices. Farmers expressed various suggestions to overcome the above constraints. The most important recommendation is, proper review of government policy of MSP (Minimum Support price) to all the crops. This need to be enhanced after consensus with farmer organizations across India for all the crops. In view of non-availability of labour and also huge labour cost, custom hiring centers to be run by the government or it is to be given to farmer producer organizations/progressive farmers with limited hiring charges. Farmers need to be educated on recent techniques of cultivation and farm management in local languages by government extension department officials functioning at grass root level. Proper infrastructural facilities to be established by the government to reduce the losses.

CONCLUSION

The farmers were having high socio-economic impact indicators than non-tobacco farmers in Anand and Kheda districts of Gujarat. The net returns from tobacco crop was significantly higher compared to the other major crops like wheat and jowar.

Table 3. Factors contributing for cultivating tobacco and non-tobacco crops

S.No.	Factors	Mean Rank	Std. Deviation
a)	Tobacco crop favouring factors		
1	High profit	8.92	1.23
2	Availability of timely and sufficient credit	8.31	1.54
3	Location suitability	7.42	1.54
4	Timely availability of inputs	6.15	0.11
5	Knowledge on GAP	5.22	1.55
6	Access to market	4.84	1.19
7	Following fellow farmers	3.31	1.78
b)	Non-Tobacco crop favouring factors		
1	Location suitability	7.95	0.77
2	Adoption of improved technology	7.25	1.25
3	Quick payment to the produce	5.55	0.24
4	Government support	4.32	1.78
5	Contact with institutions/organizations	3.87	1.55
6	Access to credit facilities	3.54	1.85

Table 4. Mean ranks comparison of constraints by tobacco and non-tobacco farmers

Constraints	Tobacco growers		Constraints	Non-tobacco growers	
	Mean rank	Std. deviation		Mean rank	Std. deviation
Price fluctuations	8.81	1.15	Price fluctuations	8.7	0.95
Non-availability of labour	8.65	1.23	Non-availability of sufficient credit	8.2	0.85
Suckers problem	5.38	1.14	High labour cost	7.4	1.12
Storage facilities	3.93	0.56	Lack of technical knowledge	5.2	1.29
Damping off disease	3.47	0.96	Unorganized market	2.9	0.54
Unorganized market	2.25	1.58	Storage facilities	2.5	1.54

Tobacco crop facilitated the farmers for creation of wealth and enhanced care for health and education to their children. The tobacco crop played the major impact on community development and provided not only livelihood security but also good standard of living to tobacco farmers in *bidi* tobacco growing areas of Gujarat. But the present national policies in the recent past few years is against the cultivation of tobacco. This disregards the socio-economic importance who are dependent on Tobacco. Balanced tobacco regulation and rational taxation can safeguard livelihood of millions of tobacco farmers. It is therefor imperative to keep in mind the huge socio-economic significance of tobacco in India, particularly for supporting sustainable livelihood for millions of people, while framing tobacco control policies for the country. The farmers preferences towards shifting from tobacco to other crops need to be taken into consideration before implementing any anti-tobacco policies in tobacco growing areas.

REFERENCES

- AAU (Anand Agricultural University). (2022). *Bidi Tobacco*. <http://www.aau.in/college-menu/208/211>
- Chapke, R. R., & Tonapi, V. A. (2018). Socio-economic impact and adoption of improved post-rainy sorghum (*Sorghum bicolor*) production technologies in Maharashtra. *Indian Journal of Agricultural Science*, 88(7), 992-997.
- Dupdal, R., Manjunatha, B. L., Rajkumar, D., & Patil, S. L. (2020). Perception and economic impact of agromet advisory services: A case study of Thrissur AICRPAM centre of Kerala State. *Indian Journal of Extension Education*, 56(3), 10-16.
- Food and Agriculture Organization (FAOSTAT). (2020). *Statistical Data Reports*. <https://www.fao.org/faostat/en/#data>
- Goyal, S. K., Biswal, P. C., & Ranganathan, K.V. K. (2004). Economic history of tobacco production in India. Narendra Niketan, New Delhi, pp 2-7.
- Hema, B., Reddy, D. D., & Krishna, S. K. (2020). Covid-19 Triggered Tobacco New Normal: Need for Crop Diversification. *Journal of Community Mobilization and Sustainable Development*, 15(1), 268-277.
- Kranthi, K.C. (2012). The impact of tobacco cultivation on dalit agricultural labourers in Prakasam district of Andhra Pradesh. *Journal of Asian and African Studies*, 47(4), 363-376.
- Kranthi, K.C. (2015). Socio-economic impact of tobacco cultivation on dalit agricultural laborers-a case study from Andhra Pradesh, India. *Journal of Developing Societies*, 31(1), 77-97.
- Lal, P. G., & Wilson, N. C. (2012). The Perverse Economics of the Bidi and Tendu Trade. *Economic and Political Weekly*, 47(2), 77-79.
- Paas, W., Kanellopoulos, A., van de Ven, G., & Reidsma, P. (2016). Integrated impact assessment of climate and socio-economic change on dairy farms in a watershed in the Netherlands. *Wageningen Journal of Life Sciences*, 78, 35-45.
- Pal, S., & Kaur, R. (2020). Discriminatory analysis of adopters and non adopters of kitchen Gardening in Punjab. *Indian Journal of Extension Education*, 56(4), 107-110.
- Panchal, S. K., Pundir, R. S., & Sharma, H. (2016). Cost and return analysis of bidi tobacco in Gujarat. *Indian Journal of Economics and Development*, 12(3), 595-598.
- Saha, A., Pradhan, K., Das, R., & Sarkar, V. (2018). Exploring the social empowerment of women through SHG Approach. *Indian Journal of Extension Education*, 54(1), 99-103.
- Shanabhoga, M. B., Suresha, S. V., & Shivani, D. (2021). Constraints faced by pomegranate growers using public and private extension service. *Indian Research Journal of Extension Education*, 21(1), 78-82.
- Tobacco Board. (2020). https://tobaccoboard.com/tbdata/publications/files/AR-2019-20_Eng.pdf
- Tobacco Institute of India (TII). (2021). *The Golden Leaf in Parliament*. <https://www.tiionline.org/publications/the-golden-leaf-in-parliament/>.
- Vivek, M. C., & Sahana, S. (2021). Socio-economic characteristics of the farmers following e-tendering system for Arecanut in Karnataka. *Indian Research Journal of Extension Education*, 21(2&3), 117-125.