Tobacco Research 46(1) : 1-6, 2020

SURVEY ON ECONOMIC VIABILITY OF FCV TOBACCO *Vis-à-Vis* ITS ALTERNATE CROPS IN ANDHRA PRADESH – PROSPECT OF CROP DIVERSIFICATION

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(Recieved on 15th Dec, 2019 and accepted on 1st Mar, 2020)

The study was aimed at analyzing the comparative economic viability of alternate crops to the FCV tobacco production in the three soil regions of Andhra Pradesh. The alternate crops to FCV Tobacco were identified based on area coverage and the farmers' acceptance to grow that crop if FCV tobacco is not available. The cost-return structure for FCV Tobacco (450 growers) as well as for Blackgram-Maize system, Maize, Sugarcane, Oil palm and Paddy for NLS region (240 farmers), Redgram and Bajra for SLS region (120 farmers) and Bengalgram, Maize and Jowar for SBS region (120 farmers) were studied. Even though the net return on variable cost invested ratio was found more than FCV Tobacco with 1.93 for Blackgram-Maize system in NLS region and 2.43 for Bengalgram & 1.69 for Maize in SBS region, the real gross margin in quantity terms was recorded more with FCV Tobacco. The gross returns on rupee invested (BCR) has clearly showed the dominant returns for FCV Tobacco compared to its alternate crops during 2016-17 season. It was revealed that the FCV Tobacco growers have received better returns by growing the crop compared to its alternate crops in all the three regions. The motives behind the FCV Tobacco cultivation by the growers were expressed as they were habituated to cultivate tobacco with production skills and infrastructure, getting the assured institutional loans and already attached to the bank with loan, no remunerative returns from alternative crops cultivated, availability of infrastructure like barn, grading sheds *etc.* & skilled contract migrant hired labour for production, assured market facility through Tobacco Bard *etc.*

INTRODUCTION

In India, tobacco is grown in 0.46 mha of area producing 800 million kg and is the 3rd largest producer of FCV tobacco in the world with an annual production of around 240 million kgs. Andhra Pradesh stands first in FCV tobacco area and production (Tobacco Institute of India, 2018). The crop is grown in four distinct soil zones in A.P viz., Northern light soil (NLS), Southern light soils (SLS), Northern black soils (NBS) and southern black soils (SBS) covering five districts.

The reduction in the crop size for FCV Tobacco (172 M kg in 2014-15 to 136 M kg in 2016-17) necessitates for the growing of alternative crops to it. As a party to the WHO's Framework Convention on Tobacco Control (FCTC) treaty, India is obligated to take measures to bring down the consumption and production of tobacco in the country through an array of measures to be implemented gradually over the years. Tobacco growers say, shifting to alternate cropping was not easy due to the typical soil conditions, which are more suitable to tobacco cultivation and moreover, returns from tobacco farming were high compared to other crops grown in the region.

In recent years, there has been considerable debate about the social, environmental and economic impact of tobacco growing, especially in developing countries. The GoI being a signatory of FCTC gave a call to encourage the tobacco farmers to switch to possible alternate crops. Existing studies indicate that farmers find it difficult to shift from tobacco to alternative crops because the cultivation of tobacco is considered profitable in monetary terms (Basil, 2009; Mahadevaswamy *et al.,* 2007 and Kumar *et al.,* 2010). Keeping these aspects in view, the present study was taken up with a broader objective to analyze the economic feasibility of FCV tobacco production and its alternate crops in different soil regions of Andhra Pradesh.

Key words: FCV Tobacco, Economic viability, alternate crops, return on rupee invested

MATERIALS AND METHODS

A Multi-Stage sampling technique was employed to select the respondents. The study covered three soil regions viz., NLS, SLS and SBS of Andhra Pradesh where most of the FCV tobacco is grown. Based on the probability proportion of tobacco farmer's population in each soil region, the sample is decided in each region. A total sample size of 450 tobacco growers (@ 150 from each soil region framed as owner, tenant & owner cum tenant growers) were selected out of total 45738 FCV growers. The primary data about cost of production of FCV tobacco as well as its alternate crops were collected through survey method with the help of pre-tested schedules by the field investigators in three spells of the crop period i.e., mid-crop season, harvesting season and post-harvest curing season during 2016-17. The alternate crops to FCV Tobacco were identified based on area coverage and the farmers' acceptance to grow that crop if FCV tobacco is not available. The cost-return structure for FCV Tobacco (450 growers) as well as for Blackgram-Maize system, Maize, Sugarcane, Oil palm and Paddy for NLS region (240 farmers), Redgram and Bajra for SLS region (120 farmers) and Bengalgram, Maize and Jowar for SBS region (120 farmers) were studied. The cost categorization employed by the Commission for Agricultural Costs and Prices, (CACP) Govt. of India was used to estimate the cost of cultivation of selected crops.

RESULTS AND DISCUSSION

The alternate crops to FCV Tobacco were identified based on the area covered by the crop in that respective soil region and the farmers acceptance to grow that crop as first alternative if Tobacco is not cultivated. Hence, Blackgram-Maize system, Maize, Sugarcane and Paddy for NLS region, Redgram and Bajra for SLS region and Bengalgram, Maize and Jowar for SBS region were chosen for study (Krishna, S.K. 2014).

Cost return structure of FCV Tobacco: The parameters like yield, prices realised, cost of production, returns and net return on rupee invested etc of FCV tobacco are presented in Table 1.

Table 1: productivity & returns realized by FCV Tobacco growers in AP (per Acre)

S No	Parameter	SLS	SBS	NLS
1	Yield (q/acre)	4.99	7.32	9.18
2	Cost of Cultivation (Rs/acre)	63545	90315	130688
3	Price (Rs/q)	11456	11941	15835
4	Gross returns (Rs)	57115	87424	145334
5	Net return (Rs)	-6430	-2892	14645
6	Gross margin (Rs)	6779	26485	65871
7	Net return on rupee invested (BCR)	0.90	0.97	1.11
8	Net return on Gross margin	1.13	1.43	1.83

The average gross returns realized by NLS region growers was more with Rs. 145334 per acre followed by Rs. 87424 in SBS and Rs. 57115 in SLS, which can be attributed to more yields as well as better prices attained by NLS farmers than other regions. The net return (GR – Total costs i.e Cost C3), realized was positive with Rs. 14646 per acre in NLS region, whereas negative to the tune of Rs. 6430 in SLS region and Rs. 2892 in SBS region. The Gross Margin (GR – Operating costs i.e. Cost A1), recorded was positive in all the three soil regions. It was realized considerably high in NLS region with Rs. 65872 per acre followed by Rs. 26485 in SBS region and with a low of Rs. 6779 in SLS region. The Average Net Return on Investment was recorded as 0.90 in SLS region and 0.97 in SBS region, indicating the one rupee investment resulted in 10 paise and 3 paise losses by FCV Tobacco growers respectively. But, in case of NLS region, it was observed that the growers gained 11 paise by cultivating FCV Tobacco. The Net Return over Gross Margin for was analyzed as 1.13 in SLS, 1.43 in SBS and 1.83 in NLS regions, indicating that the FCV Tobacco growers realized profits over one rupee operational costs to a tune 13, 43 and 83 paise respectively. More than unity of this ratio indicates that the FCV Tobacco growers have comfortably covered the cash expenses of production during 2016-17 season. (Qamar, 2007).

Economic viability of Alternate crops to FCV tobacco: SLS region: The net returns on rupee invested and net return on variable costs of FCV tobacco has shown dominance over Redgram and

Bajra revealing the economic feasibility of the crop as shown in Table 2. Even though the ratio measures has shown (BCR and NR on VC) little difference, the gross margin realized in the quantity terms can be noticed as Rs. 6779 for FCV Tobacco against Rs. -3135 for Redgram and Rs. 382 for Bajra (Venkateswarlu, K. 2004)

Table 2: Returns from alternate crops *vis a vis* FCV Tobacco crop in SLS region (Rs./ac)

S No	Particular	FCV Tobacco (n=150)	REDGRAM (n=80)	BAJRA (n=40)
1	Yield (q/acre)	4.99	2.43	8.06
2	Cost of cultivation (Rs/acre)	63545	20301	18575
3	Price (Rs/q)	11456	4322	1504
4	Gross returns (Rs)	57115	10502	12122
5	Net return (Rs)	-6430	-9799	-6453
6	Gross margin (Rs)	6779	-3135	383
7	Net return on rupee invested (BCR)	0.90	0.52	0.65
8	Net returns on Gross margin	1.13	0.77	1.03

SBS region: The Table 3 shows that Bengalgram in SBS region showed better performance with net returns of Rs. 5302 per acre against the negative net returns realized by its competing crops including the FCV Tobacco (Rs -3153) per acre. But the gross margin realized high in case of FCV Tobacco with Rs. 26222.27 per acre compared to its alternate crops .The net returns of variable cost shows more than unity for all the crops in the zone. Even though the high ratio of 2.45 for Bengalgram against with a low ratio of 1.43 for FCV Tobacco is

Table 3: Returns from alternate crops *vis a vis* FCV Tobacco crop in SBS region (Rs./ac)

S No	Particular	FCV Tobacco (n=150)	Late *kharif* Maize(n=60)	Bengalgram (n=60)	Jowar (n=60)
1	Yield (q/acre)	7.32	27.54	6.82	17.89
2	Cost of cultivation (Rs/acre)	90315	40356	34891	31490
3	Price (Rs/q)	11941	1351	5894	1423
4	Gross returns (Rs)	87424	37207	40194	25580
5	Net return (Rs)	-2892	-3150	5303	-5910
6	Gross margin	264845	15240	23818	10644
7	Net return on rupee invested (BCR)	0.97	0.92	1.15	0.81
8	Net returns on Gross margin	1.43	1.69	2.45	1.71

Table 4: Returns from alternate crops vis a vis FCV Tobacco crop in NLS region (Rs./ac)

S No	Particular	FCV Tobacco (n=150)	Maize (n=40)	Sugarcane (n=40)	Paddy (n=400	Blackgram-Maize (n=40)	Oil palm # (n=20)
1	Yield (Q/acre)	9.18	28.11	37.69	27.04	4.98+31.64 @	50.44
2	Cost of cultivation (Rs/acre)	130688.25	48021.67	113714.77	50210.94	61861.39	449806.74
3	Price (Rs/Q)	15835.04	1385.75	2908.75	1481.50	4457.90+1462.25 @	7382.44
4	Gross returns (Rs)	145334.02	38953.43	109630.79	40059.76	68465.93	370671.73*
5	Net return (Rs)	14645.77	-9068.24	-4083.98	-10151.18	6604.54	-40084.26
6	Gross margin	65871.57	11698.94	29551.11	15585.62	33055.81	157791.55
7	Net return on rupee invested (BCR)	1.11	0.81	0.96	0.80	1.11	0.82
8	Net returns on Gross margin	1.83	1.43	1.37	1.64	1.93	1.47

#Data pertains to 10 years of Oil palm cultivation.
Net returns of Rs. 39050.75 obtained from the inter crop (Maize) for the first two years.
@Black gram + Maize yields and prices respectively
Source: Field survey data.

observed from the table, the real gross margin in quantity terms was recorded more with FCV Tobacco than Bengalgram in SBS region. It can be observed that the other alternate crops chosen (Jowar and Maize) were less efficient compared to FCV Tobacco and Bengalgram (Rao and Nancharaiah, 2012).

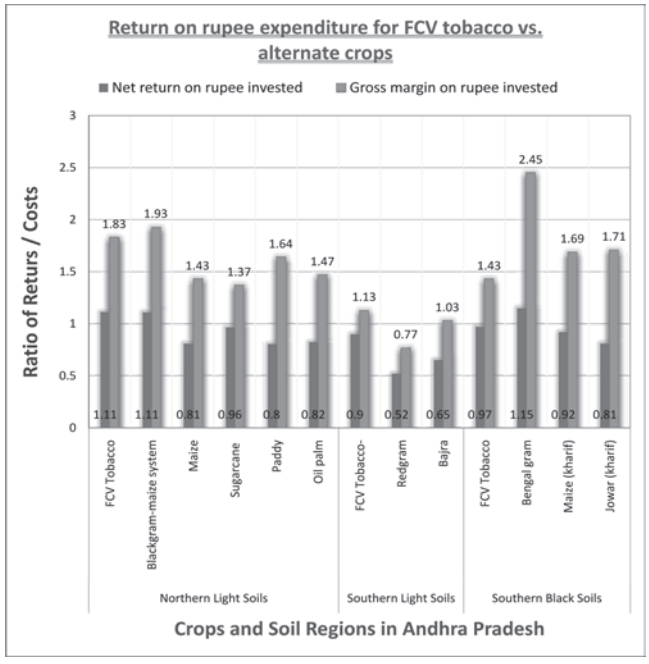

Figure 1 : Net return of rupee invested and gross margin on rupee invested in FCV Tobacco *Vs* alternate crops in different soil regions of Andhra Pradesh, 2016-17

NLS region: In this region more number of alternate crops was found against FCV Tobacco due to assured irrigation facilities and the suitability of soils to cultivate varied crops. The Table 4 reveals that the net return realized was more in case of FCV Tobacco with Rs. 14645 per acre compared to its all other alternate crops studied. The analysis of gross margin shows that higher margin (Rs. 65871) per acre is achieved by FCV Tobacco compared to its annual crops as well as perennial crop that i.e Oil palm. It may be noted that the Oil palm cost returns structure was calculated for the initial ten years of cultivation. Even though the net return of Rupee invested shows an equal ratio of 1.11 for FCV Tobacco as well as Blackgram - Maize cropping system. The real net returns realized shows more economic efficiency with Rs. 14645 per acre for FCV Tobacco crop in the study area. Similarly the net return on variable cost realized more for Black gram / Maize system (1.93) than FCV Tobacco (1.83), a huge difference can be observed in the realization of real quantum of money in terms of gross margin towards FCV Tobacco crop. The other potential alternate crops (Paddy, sole Maize, Sugarcane and Oil palm) studied has realized less return in NLS region. (Krishna S K, 2014).

Table 5: Return on rupee expenditure (BCR) for FCV Tobacco vs. alternate crops

S No	Soil region	Crop	Return on rupee invested (BCR)			
			Gross margin		Net return	
1	**NLS**	FCV Tobacco	**1.83**	**(65871.57)**	**1.11**	**(14645.77)**
2		Blackgram-Maize system	**1.93**	**(33055.81)**	**1.11**	**(6604.54)**
3		Maize	**1.43**	**(11698.94)**	**0.81**	**(-9068.24)**
4		Sugarcane	**1.37**	**(29551.11)**	**0.96**	**(-4083.98)**
5		Paddy	**1.64**	**(15585.62)**	**0.80**	**(-10151.18)**
6		Oil palm #	**1.47**	**(157791.55)**	**0.82**	**(-40084.26)**
7	**SLS**	FCV Tobacco-	**1.13**	**(6779.33)**	**0.90**	**(-6430.02)**
8		Redgram	**0.77**	**(-3135.06)**	**0.52**	**(-9798.91)**
9		Bajra	**1.03**	**(382.77)**	**0.65**	**(-6452.93)**
10	**SBS**	FCV Tobacco	**1.43**	**(26222.27)**	**0.97**	**(-3153.66)**
11		Bengalgram	**2.45**	**(23817.76)**	**1.15**	**(5302.74)**
12		Maize (*kharif*)	**1.69**	**(15239.59)**	**0.92**	**(-3149.59)**
13		Jowar (*kharif*)	**1.71**	**(10643.67)**	**0.81**	**(-5910.19)**

Source: Field survey data.

Table 6: Reasons expressed by the growers for cultivating the FCV Tobacco

S No	Particular	NLS	SLS	SBS	Overall
1	Habituated to cultivate Tobacco with production skills and infrastructure	2	1	2	**1**
2	Getting the Assured Institutional loans and already attached to the bank with heavy loan amount.	4	2	3	**2**
3	Infrastructure like Barn, Grading sheds etc & Skilled contract Migrant hired labour available for production.	3	5	4	**4**
4	Registration of the Tobacco farming & barn license holders.	9	6	6	**6**
5	Labour Employment Generating crop	8	8	7	**9**
6	No Remunerative returns from Alternative crops cultivated	1	7	1	**3**
7	Assured Market facility through Tobacco board	5	3	11	**5**
8	Due to Sufficient loan Money rotation for family expenses	6	4	12	**8**
9	No need of any middle man for selling the product.	7	9	5	**7**
10	Prompt payment after sale proceeds directly to the farmers Bank Account	10	15	9	**11**
11	Money rotation through Bank loan from August to February & Product sale Money from March to July.	11	10	16	**12**
12	No other crop is profitable than Tobacco in this area.	13	11	10	**10**
13	Mutual benefits arrangements between owner and Tenant.	12	14	8	**13**
14	Repeated failures of alternate crops (productivity and prices)	16	13	14	**15**
15	Family labour is well engaged in Tobacco farming/processing	15	12	13	**14**
16	A bit of social status was attached to FCV Tobacco cultivation.	14	16	15	**16**

Source: Field survey data.

The return on one rupee expenditure over operating cost (Cost A1) i.e the gross margin and return on one rupee expenditure over total cost (Cost C3) i.e BCR are presented in the figure 1 and Table 5.

It is clear from the table that the FCV Tobacco has shown upper hand with better economic efficiency against alternate crops in all the three regions of Andhra Pradesh during 2016-17. It was revealed that the FCV Tobacco growers have received better returns by growing the crop compared to its alternate crops in all the three regions (Nayak, N. 2015)

Reasons for continuing FCV tobacco

The motives behind the FCV Tobacco cultivation opined by the growers are presented in Table 5. They expressed reasons for continuing FCV tobacco production as they were habituated to cultivate tobacco with production skills and infrastructure, getting the assured institutional loans and already attached to the bank with loan, no remunerative returns from alternative crops cultivated, availability of infrastructure like barn, grading sheds etc & skilled contract migrant hired labour for production, assured market facility through tobacco board etc.

It can be concluded that the FCV Tobacco growers have showed better economic efficiency by growing the crop compared to its alternate crops in all the three regions. It was revealed that the FCV Tobacco growers have received better returns by growing the crop compared to its alternate crops in all the three regions. Availability of infrastructure like Barn, Grading sheds etc & Skilled contract Migrant hired labour for production, Assured market facility through Tobacco board etc. are the reasons for opting FCV Tobacco than its alternate crops.

ACKNOWLEDGEMENT

The authors are grateful to Tobacco Board, Ministry of commerce, Guntur, Andhra Pradesh for the financial assistance and ANGR Agricultural University, Lam, Guntur, Andhra Pradesh for providing the facilities for smooth conduct of the project.

REFERENCES

Basil, M., B. Thomas, P.S. Jason, and C. Parthene, 2009. Evaluation of tobacco cultivation alternatives under EU common agricultural policy. **J. Policy. Model.**. 31(2): 225-238.

Krishna, S.K. 2014. Alternative crops/ cropping systems to FCV tobacco. Training on good agricultural practices of FCV tobacco cultivation. *Central Tobacco Research Institute.* pp. 89-103.

Kumar, M.D., D.C. Naik, S. Sridhara, T.S. Vageesh, G.K. Girijesh, and S. Rangaiah. 2010. Investigation on economically viable alternative cropping systems for FCV tobacco (*Nicotiana tabacum*) in Karnataka. **Karn.J. Agril. Sci.** 23(5): 689-692.

Mahadevaswamy, M., K Giridhar and P.H. Kumar. 2007. Yield and economic performance of FCV tobacco in relation to diversified cropping systems under KLS Conditions. **Tob. Res.** 32(2): 81-85.

Nayak, N. 2015. Alternatives to FCV tobacco cultivation: preliminary observations from a tobacco growing region in India. **Current Agril. Res. J.** 3(1): 26-41.

Qamar, W., N.P.K. Ashfaq, M.F Ahmad, and M. Idress, 2007. Economics of Tobacco Production in district Swabi, NWFP. **J. Agril. & Biol. Sci.** 1(3): 30-35.

Rao, E.K and G. Nancharaiah, 2012. Alternative to tobacco crop cultivation in *rabi* season: A cost benefit analysis. *Agricultural Situation in India.* 69(2): 67-78.

Venkateswarlu, K. 2004. Economic analysis of FCV tobacco vis-a-vis alternate crops in Prakasam district of Andhra Pradesh. *M. Sc.* (*Ag.*) *Thesis.* Acharya N. G. Ranga Agricultural University, Hyderabad.