INTRODUCTION

Tobacco is one of the important high value cash crops in India. The country ranks second in the world tobacco production after China. Tobacco crop is cultivated in an area of 4.33 lakh ha, covering 15 states, with a production of about 760 M kg during 2021 (FAOSTAT, 2023). Tobacco, often quoted as golden crop, is an integral part of commerce and symbol of economic prosperity to millions of farmers. Tobacco production is an important source of livelihood and provides direct and/or indirect employment to the sizeable population in the country. India produces different styles of FCV tobacco, which vary in their physical and chemical characteristics under diverse climatic conditions and it is exported to over 114 countries across the globe. A unique feature of tobacco production in India is that myriad styles of tobacco are cultivated under widely diverse agro-ecological situations. Flue-cured Virginia (FCV), bidi, hookah, chewing, cigar-wrapper, cheroot, burley, oriental, HDBRG, lanka, pikka, natu etc., are the main tobacco types grown in the country, with FCV and burley tobacco being the main exportable types. There is great demand for Indian tobacco in the international markets due to its diversified styles, qualities, and price ranges. India is the third largest exporter of un-manufactured tobacco in the world. Exports of tobacco and tobacco products contributed to more than Rs. 6880 crore in terms of foreign exchange during 2021-22.

FCV tobacco is mainly used in cigarettes manufacturing. It is cultivated in an area of 1.39 lakh hectares, mainly in the states of Andhra Pradesh and Karnataka, with a production of around 201 million kg during 2020-21. It accounts for 30% of total tobacco production and 80% of overall tobacco exports in the country. However, FCV tobacco constitutes 72% of global tobacco production. This disparity is due to the unique pattern of tobacco consumption in India dominated by non-FCV products.

NICHE AREAS OF FCV TOBACCO CULTIVATION IN INDIA

Soil characteristics play an outstanding role in deciding the quality and commercial value of FCV tobacco. FVC tobacco is grown on different types of soils ranging from sands to sandy loams that differ in texture and soil fertility in the states of Andhra Pradesh, Karnataka, and Telangana.

Based on soils type and crop growing conditions, the FCV tobacco growing production domains are classified into four agro-climatic zones. They are Traditional Black soils (TBS), Northern light soils (NLS) and Southern light soils (SLS) in Andhra Pradesh and Karnataka light soils (KLS) in Karnataka state (Table 1). In Traditional black soils (TBS), tobacco is grown on conserved soil moisture as a post-monsoon crop during winter season (*rabi*) in an area of about 20,000 ha. Based on the agro-climatic zones, the black soils are divided again into Northern black soils (East and West Godavari districts), Central black soils (Khammam, Krishna and Guntur districts) and Southern black soils (Prakasam and Nellore districts). Northern light soils (NLS) encompass East Godavari and West Godavari districts of Andhra Pradesh (AP) and Khammam district of Telangana, where the crop is grown in an area of 17,000 ha. In NLS, FCV tobacco is grown under irrigated conditions during winter from October to March. Southern light soils (SLS) comprising of Prakasam and Nellore districts of AP occupy an area of 30,000 ha of red soils. Tobacco here is grown during winter on conserved soil moisture from North-East monsoon rains. In the Karnataka light soils (KLS), tobacco is grown as a monsoon crop (*Kharif*) in an area of 74,000 ha during south-west monsoon period from May-June to August-September in the districts of Mysore, Hassan, Coorg, Chikkamagalur, Davanagere and Shivamogga (Table-1).

Table-1: Major Production Domains of FCV Tobacco in India

Domains	States/Districts covered	Major soil group	Soil order	Rainfall (mm)	Crop growing conditions
Northern Light Soils (NLS)	AP: East and West Godavari Telangana: Khammam	Red Sandy and sandy loams Soils	Alfisols	1100 - 1200	Irrigated (15th Oct-15th March), *rabi*
Central Black Soils (CBS)	AP: Krishna, Guntur East & West Godavari	Heavy Black Soils	Vertisols	1000 – 1200	Dry (15th Oct- 15th March), *rabi* under conserved soil moisture
Southern Black Soils (SBS)	AP: Prakasam and Nellore	Medium Black Soils (silt loams)	Inceptisols/ Entisols	750 - 800	Semi -monsoon (15th Oct-15th March), *rabi* under conserved soil moisture
Southern Light Soils (SLS)	AP: Prakasam and Nellore	Red Sandy Loams and Sandy Clay Loams	Alfisols/ Oxisols	750 - 800	Semi -monsoon (15th Oct-15th March), *rabi* under conserved soil moisture
Karnataka Light Soils (KLS)	Karnataka: Mysore, Hasan	Red Sandy Loams	Alfisols	800-850	Monsoon (May-Sep), kharif

Light soils produce thin and large bodied leaf, light in weight and color, mild in strength and weak in aroma whereas leaf produced in heavy soils is usually thick and heavy, dark colored, strong and aromatic. The tobacco produced in SBS is **Filler tobacco with** low nicotine and **neutral character and blends well with any tobacco.** NLS area produces flavourful to semi- flavouraful tobaccos with excellent ageing properties and neutral character which blends well with any tobacco. **FCV tobacco of SLS is of neutral character and blends well with any tobacco.** The KLS tobacco is referred as p**remium neutral filler tobaccos and preferred for its low nicotine content, high filling capacity and its suitability for blending well** (good neutral filler) **with any tobacco.** The different styles of tobacco produced in different zones meet the demands of the customers of different countries.

VARIETAL SPREAD

'Siri' is the major variety grown in SLS and TBS regions accounting for more than 90% of the area in the last decade. Other varieties grown are FCR-15, Hema, VT-1158 and CTRI Sulakshana. FCR-15 is a high yielding TMV resistant variety identified for the region is slowly gaining popularity among the farmers of the region in last three years. CTRI Sulakshana is a TMV resistant and aphid tolerant variety released for the region is grown in limited pockets. Hema and VT-1158 are the varieties released prior to Siri and are preferentially grown in certain areas.



Siri



CTRI Sulakshana



FCR-15

In Northern Light Soils, CH-3 is the major variety sown in an area of about 49% and other area is occupied by Kanchan, FCJ-11 and other varieties (mostly un-authorised). In KLS, Kanchan is the major variety cultivated covering more than 54% of the area, followed by CH-3 (45%) and rest by FCH-222. CH-3 is a flavourful hybrid cultivated for its favour quality leaf. Nematode problem is prevalent in KLS and black shank in NLS. Henece, Kanchan is a nematode and black shank tolerant variety is preferred in these areas. Before the release of CH-3, Kanchan occupied more than 90% of both KLS and NLS areas. FCH-222 is a *Fusarium* resistant variety, hence grown *Fusarium* affected areas. FCJ-11 a high yield somaclone with a yield potential of 3300 kg/ha has been released to NLS area.



Kanchan



CH-3



FCJ-11



FCH-222

TOBACCO PRODUCTION SCENARIO AND TRENDS

In India, FCV tobacco is grown by farmers who are registered with the Tobacco Board, which annually fixes the region-wise production targets. Barn is a crucial management unit based on which Tobacco Board takes the decision for allotting area for FCV cultivation. It is a physical structure where tobacco curing takes place. Tobacco Board Grower Registration (TBGR) Number is assigned to each tobacco farmers and is renewed in every crop season. Based on the targeted quota, the Board authorizes the FCV area to be planted per barn by the registered growers taking into consideration the number of licensed barns and productivity levels of the area. Additional charges are being levied for allowing sale of excess tobacco p roduced by registered growers over and above the quota authorized.

During 2020-21 crop season, a total of 86,051 growers covering 93,604.63 barns were registered with the Board for cultivation of FCV tobacco. Of them, 44,209 growers covering 39,294.63 barns were registered for cultivation of tobacco in Andhra Pradesh. An area of 63,947.23 ha was authorized for production of FCV tobacco against which an area of 65,142.40 ha., was actually planted. In Karnataka, 41,842 growers covering 54,310 barns were registered for cultivation of tobacco. As against an area of 67,344.40 ha. authorized for cultivation, an area of 73,609 ha., was planted under FCV tobacco.

The area allocated for FCV tobacco by the Board has been drastically declined from 2.51 lakh hectares during 2010-11 to 1.39 lakh hectares in 2020-21. The decline is common in all the regions (Fig 1)) and more so prominent in NBS/CBS area, that they are now together restricted to only 1500 ha. Consequently, production has declined from 301 million kg to 201 million kg during the corresponding period. This is mainly attributed to crop size fixation policy in FCV tobacco, weather impacts and market dynamics in terms of price elasticity based on demand and supply. This has led to crop diversification in FCV tobacco-growing regions of India.

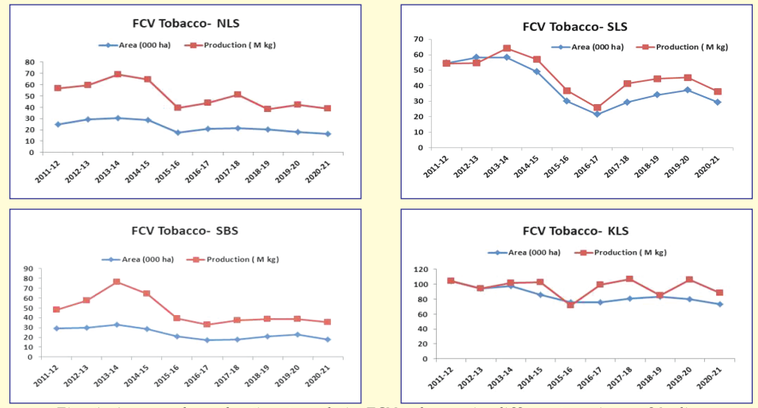


Fig. 1: Area and production trends in FCV tobacco in different regions of India during last decade

FCV TOBACCO PRODUCTIVITY TRENDS

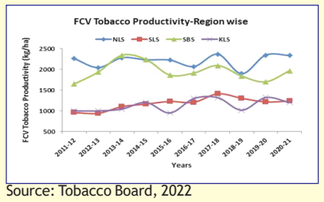
During last decade, there is an increasing trend in FCV tobacco productivity in India with record productivity of 1788 kg/ha during 2017-18 (Table-2). In Andhra Pradesh, the average productivity of FCV tobacco has increased from 1168 kg/ha in 2010-11 to 1422 kg/ha in 2020-21. In Karnataka, the average productivity of FCV tobacco has increased from 876 kg/ha in 2010-11 to 1100 kg/ha in 2020-21. This is mainly attributed to technological interventions (high-yielding varieties, production, and protection technologies) in the FCV tobacco value chain in India.

Table-2: Productivity trends in FCV tobacco in Andhra Pradesh, Karnataka and India during last decade

Year	Andhra Pradesh (kg/ha)	Karnataka (kg/ha)	India (kg/ha)
2011-12	1168	876	1022
2012-13	1566	899	1233
2013-14	1781	1086	1433
2014-15	1537	1058	1298
2015-16	1087	837	962
2016-17	1502	1302	1402
2017-18	2171	1405	1788
2018-19	1765	1049	1407
2019-20	1672	1269	1470
2020-21	1422	1100	1261

Source: Tobacco Board, 2022

In general, the tobacco productivity is highest (>2000 kg per ha) in NLS area as it is an irrigated system (Fig. 2). Next system that yield higher productivity (>1600 kg per ha) is SBS due to their relatively rich fertile soils. Poor soils and unfavourable climatic conditions are responsible for lower productivity (hovering arround 600 to 1000 kg per ha) in both SLS and KLS regions.

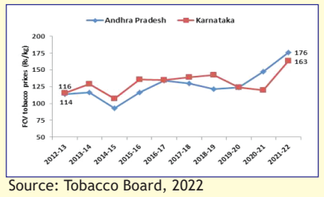


Source: Tobacco Board, 2022

Fig. 2: Productivity trends in FCV tobacco in different regions of India during last decade

MARKETING AND PRICE TREND IN FCV TOBACCO

Tobacco Board facilitates the marketing of FCV tobacco at their auction floors located at different production zones through e-auctions. During auction season, farmers take their produce on the days fixed for their village to the auction floors. The traders take part in the e-auction, a process to ensure transparency and fair price to farmers, for purchasing the tobacco bales. Within a reasonable time the sale amount is credited into the accounts of farmers.



Source: Tobacco Board, 2022

Fig.3: Price trends in FCV tobacco in Andhra Pradesh and Karnataka during last decade

The prices of FCV tobacco has significantly increased from Rs 114/kg to Rs 176/kg in Andhra Pradesh and Rs 116/kg to Rs 163/kg in Karnataka during the last decade (Fig.3). This is mainly due to growing demand for Indian tobacco in the global markets and reduced supply from competing countries. This is a stimulating factor for the growers to continue with the FCV tobacco cultivation in spite of its regulation by Tobacco Board. This is clearly evident from the penalties collected by the Tobacco Board for excess production.

INCOME OF FCV TOBACCO FARMERS

The technology-led growth in the productivity of FCV tobacco resulted in significant rise farm produce. Enhanced production coupled with higher prices has led to substantial increase in farmers' income. The net income of FCV tobacco farmers was estimated around Rs 50000/ha, however, it depends on the annual prices and non-price factors in tobacco production system.

MAJOR EXPORT DESTINATIONS OF UNMANUFACTURED TOBACCO

Globally, India is the only country which produces tobacco in two seasons and it is a net exporter of FCV tobacco. The major part of it is exported to Belgium, Egypt, UAE, Yemen, Belarus, Korea RP, Philippines, Indonesia, Poland, Nepal etc. (Table-3). Belgium is India's FCV tobacco major export destination, 25% of the FCV production worth Rs.43,599 tons was exported to Belgium at a price of Rs.264 per kilogram. Egypt and UAE are other important FCV tobacco markets accounting for 7.6% and 7% of exports respectively.

Table 3. Country-wise export of unmanufactured tobacco by volume and value during 2020-21

Destination	Quantity (tons)	Value (Rs. Crore)
Belgium	43599	1149
Egypt	16173	234
UAE	14798	250
Yemen	7748	105
Belarus	7070	133
Korea RP	6503	168
Philippines	6301	103
Indonesia	6008	158
Poland	5346	154
Nepal	5161	133

Source: Tobacco Board, 2022

MAJOR ISSUES OF CONCERN IN FCV TOBACCO CULTIVATION

a) Residues of Crop Protection Agents (CPAs)

Residue of Crop Protection Agents (CPAs) used in controlling pests, diseases and weeds are an important issue of concern in FCV exports. The residues in cured leaf should not exceed Guidance Residue Limits (GRL) of the few allowed pesticides by CORESTA (Cooperation Centre for Scientific Research Relative to Tobacco) and these limits are being reconsidered and lowered year after year. In some cases, the importing countries sets the limits for CPAs. Even if few bales having higher CPAs are mixed with normal bales in a lot, total consignments may be rejected. In view of growing awareness and stringent regulations being enforced by tobacco importing countries in recent times, it is essential that the residues levels of Crop Protection Agents (CPAs) in tobacco leaf be minimised. Hence, integrated management of pests and diseases with minimum reliance on CPAs has assumed greater importance in FCV tobacco production. In spite of large scale awareness programmes being organised by all the stake holders to reduce CPA residues, stray cases of higher CPA cases are appearing. Traceability of the bales to farm level and educating them will eliminate the problem.

b) Wood fuel use in Flue-curing

The fuel wood used for FCV curing is a cause for environmental concerns in terms of deforestation and pollution. An estimated quantity of around 1000 million kg of fuel wood is required for curing FCV tobacco at current production level in India. The curing cost accounts for nearly 30% of FCV tobacco cost of cultivation. Hence, the concept of promoting alternative fuels to wood is gaining momentum. Various energy saving techniques viz., barn insulation and covering the roof with polycarbonate sheets for trapping heat, turbo fan for heat circulation, modified furnace for energy conservation, etc. are being recommended for wood fuel saving. The natural no cost renewable source i.e. solar heat energy can very well be used for supplementing the wood partly or fully. Energy saving techniques will not only the save the wood fuel but also reduce the cost of cultivation of FCV tobacco. Tobacco Board is promoting grow your one fuel concept for reducing the dependency on forest wood.



FCV tobacco leaf harvesting



Curing barn with polycarbonate roof top

c) NTRM (Non-tobacco related material)

Non-tobacco related material (NTRM) viz., sand/soil, weeds, plastics, hessian cloth, gunny pieces, paper bits, broomsticks, etc in tobacco bales is an issue of concern in tobacco exports. Precautions need to be taken for avoiding these these NTRMs during harvesting, curing and baling the tobacco leaves. Keeping an NTRM basket in the grading hall will help to collect and throw the foreign material.
Institution support

INSTITUTION SUPPORT

ICAR-CTRI, Rajahmundry an Institute under Indian Council of Agricultural Research, Ministry of Agriculture and Farmers Welfare, Government of India and All India Network Centre on Tobacco, University of Agricultural and Horticultural Sciences. Shivamogga are involved in conducting research on various production related aspects of FCV tobacco. In addition M/s ITC LTD, a private company is involved in research and technology development of FCV tobacco. Tobacco Board, Ministry of Commerce and Industry, Government of India regulate production and marketing issues of FCV tobacco. Tobacco supplies inputs, provides credit and under takes various welfare measures for the benefit of tobacco farmers. The Tobacco Institute of India (TII) is formed as a representative body of farmers, manufacturers, exporters and ancillaries of the cigarettes' segment of the tobacco industry in India. It is recognized as a repository of reliable information on the industry and is privileged to be consulted by Government, Parliamentary Committees, Chambers of Commerce/Trade Associations and Media for information and policy recommendations on Tobacco issues. With a strong base of institutional support, hither to not available other crops can effectively be used to find solutions to FCV crop related problems.

CONVERGENCE APPROACH: A SUCCESSFUL MODEL FOR FIELD LEVEL EXTENSION

Many extension service providers, individually and collectively, in the field are providing different kinds of services and support to FCV farmers. This crop enjoys best extension network involving ICAR-CTRI, Tobacco Board, Trade members and progressive farmers. Many of the extension activities in tobacco are under taken in a convergence mode with coordinated efforts of ICAR-CTRI, Tobacco Board, Trade members and progressive farmers in addressing the issues in a participatory mode. Novel approaches such as Model Project Area (for demonstrations on latest technologies in low productive areas), Field Friends Programmes (for identifying filed level problems and providing timely solutions), Mobile Based Advisory Services, and Progressive Farmer Circles etc. are followed to transfer the technology effectively. All these programmes are aiming at re-orientation of crop production in accordance with the latest requirements of domestic and export market, and improving quality of tobacco crop by instructing farmers about the best farm practices starting from seed to sales with the dynamic involvement of people form trade and industry.

CONCLUSION

FCV tobacco is a unique crop having positive and negative shades. Though its consumption is considered harmful, its cultivation providing income to the farmers and revenue (foreign exchange and excise duties) to the Indian economy. Fuel wood used for flue curing is an environment issue. However, on the other side, it is generating lot of employment opportunities and high returns to the farmers. FCV cultivation is highly profitable, FCV tobacco sector as a whole is organised and supported by various stake holders in convergent mode, which no other crop in the country enjoys such a unique position.

Published by

Director

ICAR – Central Tobacco Research Institute
Rajahmundry – 533105, Andhra Pradesh, India.
Phone: 0883-2449871-4, Fax: 0883-2448341, 2410555
e-mail :directorctri@gmail.com; Website : https://ctri.icar.gov.in

Word process & Designing by **Md. Elias**

INTERNATIONAL YEAR OF MILLETS 2023

G20 भारत 2023 INDIA

Status Paper on Indian FCV Tobacco



K. Sarala, M. Sheshu Madhav and K. Viswanatha Reddy

भाकृअनुप
ICAR

ICAR-CTRI

भाकृअनुप – केन्द्रीय तम्बाकू अनुसंधान संस्थान
ICAR-CENTRAL TOBACCO RESEARCH INSTITUTE
(An ISO 9001:2015 Certified Institute)
RAJAHMUNDRY - 533 105, ANDHRA PRADESH, INDIA