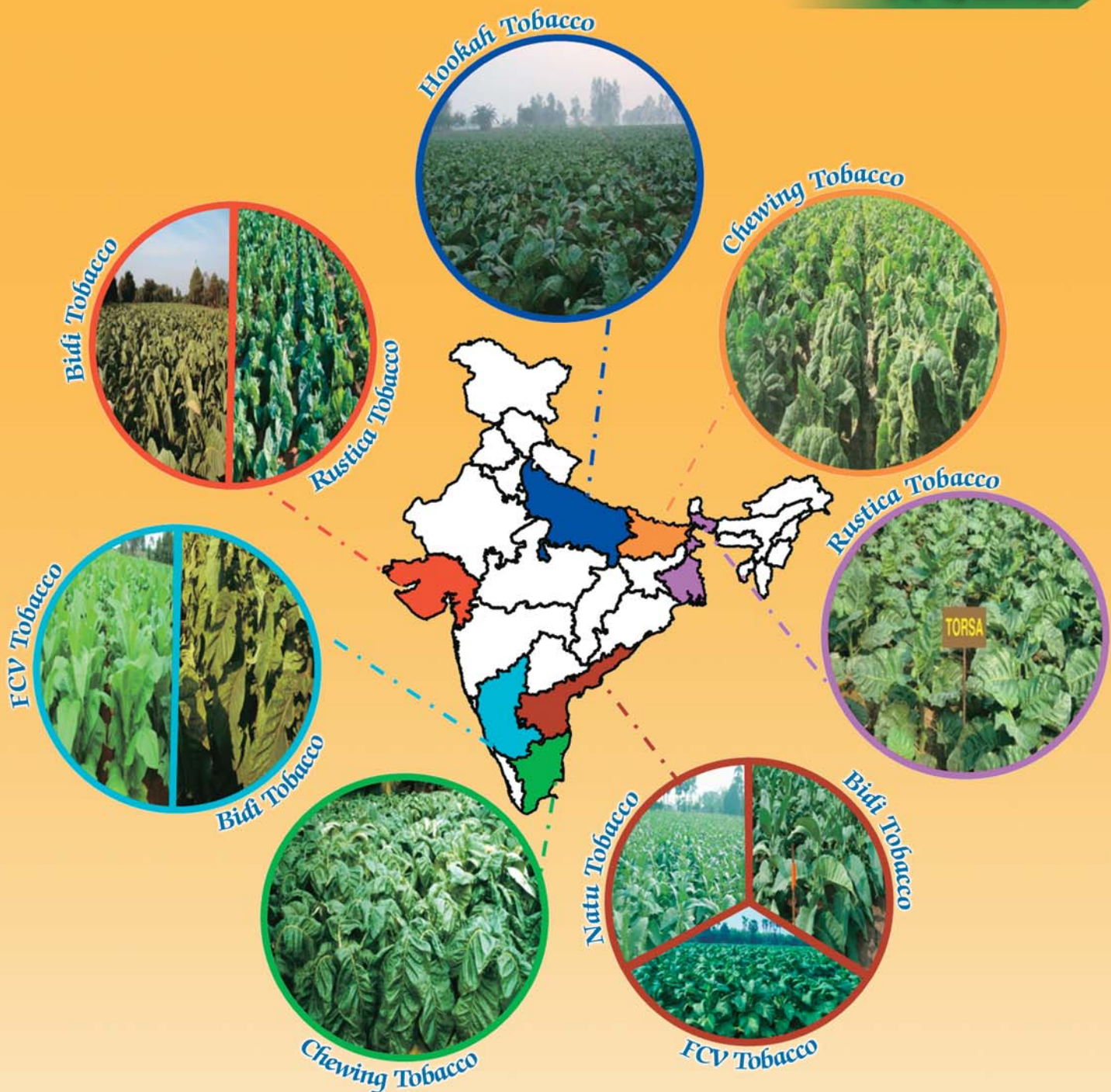


All India Network Project on Tobacco

A Glance



Tobacco: National Economy and Social Significance

India is one among the top five tobacco producing countries in the World. It ranks second in area and production after China and fourth in productivity after China, Brazil and USA. Tobacco one of the important high value commercial crops in India is valued for its huge potential to generate farm income and employment to farmers and farm labours. Different tobacco types are grown in an area of 4.5 lakh ha accounting for less than 0.3% of country's arable land, produces 804 M kg of cured

leaf and is exporting ~220 M kg (Tobacco leaf-83% & Tobacco products-17%). Tobacco sector makes a huge contribution to the revenue (Rs. 28,738 cr.) of the government in the form of excise duty (Rs. 22,737 cr.) and export earnings (Rs. 6001 cr.). Tobacco provides both direct & indirect employment and livelihood security to millions of people engaged in various stages of tobacco production, processing, manufacture and trade. It provides livelihood security to an estimated 45.7 million population viz., farmers, farm labour, *bidi* rollers,

factory workers, tendu leaf collectors, trade/retailers, around 70 percent of whom are in the agricultural sector. A unique feature of tobacco production in India is that both Flue-Cured Virginia (FCV) and non-FCV tobaccos are cultivated under widely varying agro-ecological situations. FCV, *bidi*, *hookah*, *chewing*, *cigar-wrapper*, *cheroot*, burley, oriental, HDBRG, *lanka*, *pikka*, *natu* etc., are the main types of tobacco grown in the country, with FCV and burley tobacco being the main exportable types. Indian tobacco has an edge over the leading tobacco producing countries in terms of production cost, average farm price and average export price, hence, Indian tobacco is considered as 'value for money'.

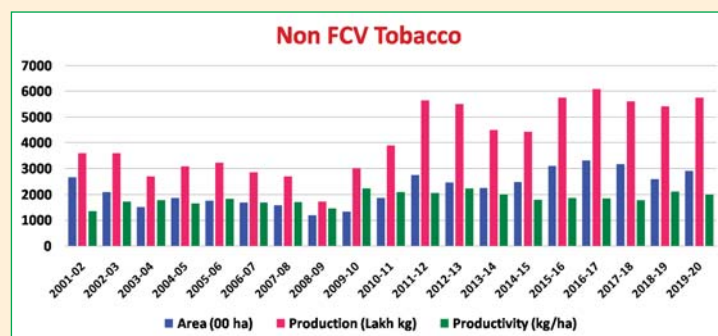
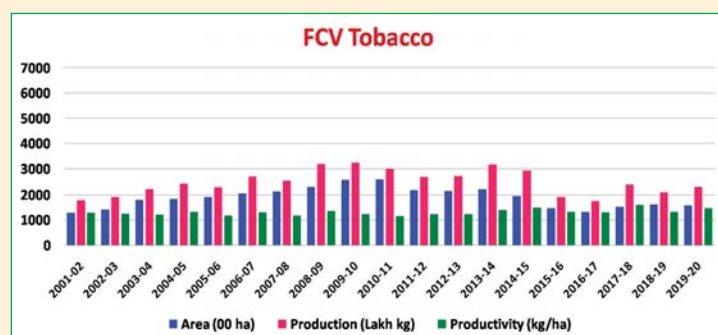
Tobacco is grown in as many as 15 states of India under different agro ecological conditions. Gujarat, Andhra Pradesh (A.P.) and Karnataka occupy 1st, 2nd and 3rd positions, respectively in both area and production of tobacco in the country. The other states cultivating tobacco include Uttar Pradesh (U.P.), West Bengal (W.B.), Bihar, Tamil Nadu (T.N.) and Odisha. Wide diversity in tobacco types, bio-physical & socio-economic aspects of each tobacco production zone necessitates development of location specific tobacco varieties and agro-techniques suitable for each niche of production.

centres, 7 sub-centres and 4 voluntary centres) are functioning at present.

The three main network centres of AINPT are located at Rajahmundry, Shivamogga and Anand; the seven sub-centres at Nipani, Nandyal, Berhampur, Araul, Dinjata, Guntur and Hunsur. The four voluntary centers of AINPT are functioning at Ladol, Jeelugumilli, Kandukur and Vedsandur. The centres at Rajahmundry, Guntur, Kandukur, Hunsur, Vedsandur and Dinjata are functioning under the administrative control of ICAR-Central Tobacco Research Institute (ICAR-CTRI), Rajahmundry. Anand, Shivamogga, Nipani, Nandyal, Berhampur and Araul centres are under the administrative control of respective Universities, viz., Anand Agricultural University, Anand; University of Horticulture and Agricultural Sciences, Shivamogga; University of Agricultural Sciences, Dharwad; Acharya NG Ranga Agricultural University, Guntur; Odisha University of Agriculture and Technology, Bhubaneswar and Chandra Sekhar Azad University of Agriculture and Technology, Kanpur, respectively.

The existing Scientific, Technical, Administrative and Supporting staff strength was 16, 21, 03 and 01, respectively.

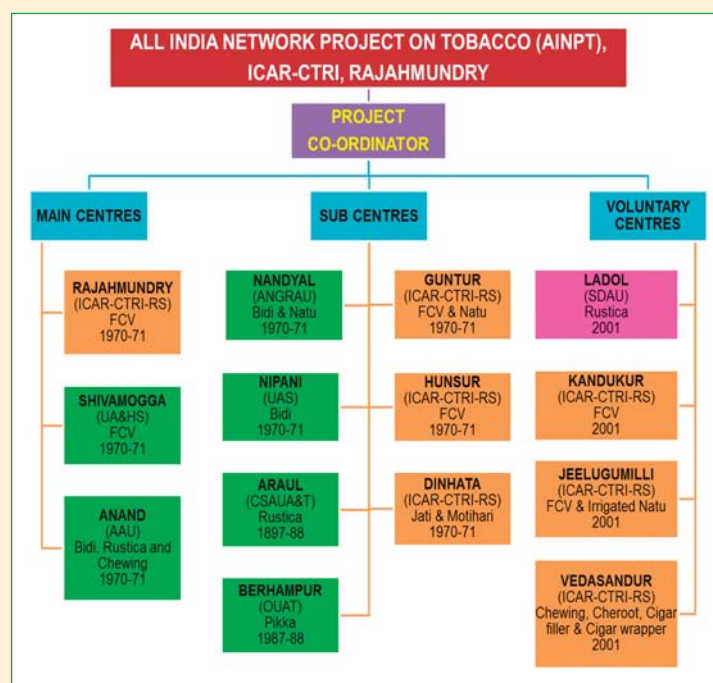
Trends in Tobacco Area, Production and Productivity



History

In India, different tobacco types are grown under diverse agro-climatic conditions. To cater the location specific needs of different tobacco types, the All India Coordinated Project on Tobacco was established by Indian Council of Agricultural Research during 1970-71 with the headquarters of the Coordinating unit at Anand (Gujarat). The headquarters was subsequently shifted to ICAR-CTRI, Rajahmundry, Andhra Pradesh on 16-08-1998. Further, the AICRP on Tobacco was renamed as All India Network Research Project on Tobacco and kept under the administrative control of the Director, ICAR-CTRI, Rajahmundry. A total of numbers of 14 centres (3 Main

Organogram



Mandate

Tobacco improvement through co-ordinated multi-disciplinary and multi-location research on different tobacco types (FCV, *Bidi*, *Natu*, *Chewing* and *Hookah* etc.) grown in their respective niche areas in the country.

Objectives

1. To coordinate the research on different tobacco types for enhancing the productivity and quality.
2. Multi-location testing of tobacco breeding lines for identification of varieties with high yield potential,

superior quality and tolerance/ resistance to biotic and abiotic stresses.

- Development/ evaluation of site specific crop production and protection technologies for different tobacco types in a system perspective.

predominant position. Apart from the varieties released so far six varieties (FCV-02, *Bidi-01*, *Chewing-01*, *Rustica-01* and *Jati-01*) identified recently were in the process of released by the respective state governments.

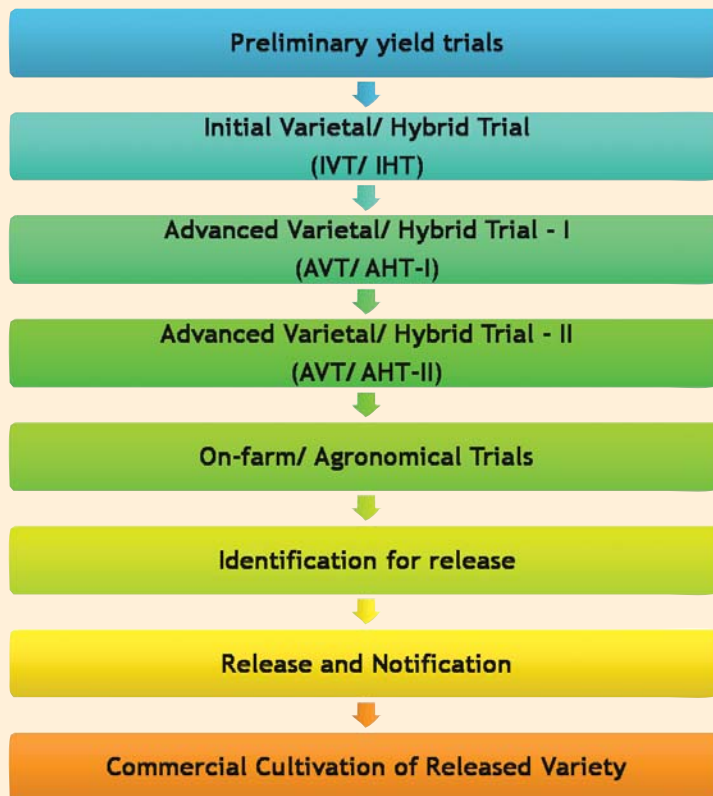
Varietal Spread

More than 95% of the tobacco area is occupied by the varieties released by AINPT system.

Variety	Tobacco Zone	Percentage occupied
Siri	SLS and SBS in AP	>85
CH 3	NLS in AP	>80
Kanchan	KLS in Karnataka	>50
A 119	Gujarat, Karnataka & AP	>70
GCT 3	Gujarat	>85
DCT 4	North Gujarat	>57
Azad Kanchan	Uttar Pradesh	>40
Torsa	West Bengal	>40
Abirami	Tamil Nadu	>50

AP: Andhra Pradesh

Procedure for Variety Release



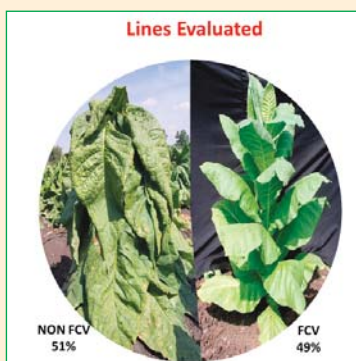
Germplasm

The centres of AINPT are actively engaged in maintaining the tobacco germplasm which are being utilized from time to time for developing pre-breeding lines and advanced breeding lines for higher yields and also resistant lines for biotic and abiotic stress.

Activities

Multi-Location Trials

The advanced breeding lines/hybrids developed in various tobacco types through different breeding methods by different centres and also by the private research organization were evaluated through multi-location trials (IVT, AVT and On-farm trials) at different respective centres. The lines showing the consistent superiority in different multi-location trials will be identified in the varietal identification committee. A total number of ~1700 lines were evaluated by different centres since the inception of AINPT of which both FCV (49%) and Non-FCV (51%) lines are equally contributed.



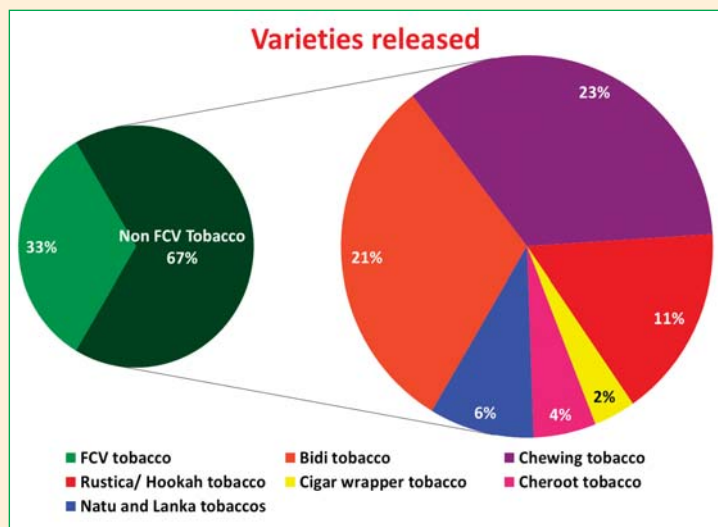
Varietal Development

Varietal Identification

Every year during the annual group meeting/ workshops the identified superior lines in multi-location trials, satisfying all criteria to release as a variety/ hybrid will be identified in the Varietal Identification Committee meeting constituted by the ICAR. After identification the varieties will be submitted for respective State Seed Sub Committees.

Varieties Released

So far 94 tobacco varieties were released of which 82 varieties (87%) were released through AINPT. The type-wise varieties released reveals that 67% are Non-FCV tobacco varieties and 33% are FCV tobacco varieties. Among the Non-FCV tobacco varieties *chewing*, *bidi* and *rustica* types occupies



Centre	Tobacco Type	Number of Germplasm
Rajahmundry	FCV	3386
Shivamogga	FCV	130
Kandukur	FCV	308
Guntur	<i>Natu</i>	150
Hunsur	FCV	506
Anand	<i>Bidi</i>	202
	<i>Rustica</i>	260
Araul	<i>Rustica</i>	390
Ladol	<i>Rustica</i>	278
Nipani	<i>Bidi</i>	240
Nandyal	<i>Bidi</i>	136
	<i>Natu</i>	76
Berhampur	<i>Pikka</i>	115
Dinhata	<i>Jati</i>	70
	<i>Motihari</i>	185
Vedasandur	<i>Chewing</i>	85
	<i>Cigar & Cheroot</i>	60

Seed Supply

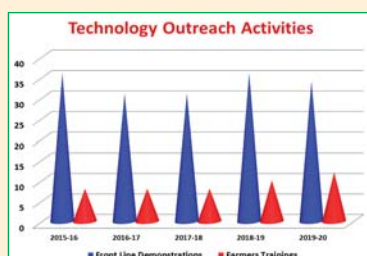
The SAU centres of AINPT supply a total of 15,000 kg tobacco seed of different types every year to the farmers in different zones. The varieties developed by the AINPT centres occupy more than 95% of the tobacco growing areas.

Agro-Technologies developed

Apart from developing the location specific varieties the AINPT centres also developed the site-specific production and protection technologies for enhancing the resource use efficiency, crop husbandry, cropping sequences/ intensifications, management of insect pests/ diseases/ nematodes *etc.* The technologies developed were updated in the package of practices from time to time. A total number of 72 technologies encompassing crop production 43 and protection 29 were developed and popularized for the last 15 years.

Technology Outreach Activities

To disseminate the technologies developed, the AINPT centres are conducting different programmes *viz.*, On-farm trials, Front line demonstrations, Training programmes, Field visits/ Exposure visits, Radio talks, T.V. Talks, Exhibitions, Kisan Mela and Kisan Gosthi regularly.



Group Meetings/ Workshops

Every year AINPT conducts group meetings/ workshops wherein the progress of the different research programmes at different centres will be reviewed and new technical programme for the ensuing season will be finalized. Apart from that varietal identification and screening of the tobacco entries from private research organisations for their evaluation will be taken up. Since inception, AINPT conducted 11 Group meetings and 24 Workshops.

Government of India Programmes

Tribal Sub-Plan

Tribal Sub Plan was implemented at AINPT centre Anand and Nandyal. Trainings, Front-line Demonstrations, Exhibitions and Exposure visits were conducted and Critical inputs were supplied. A total number of 207 beneficiaries were covered.



Supply of inputs under Tribal Sub-Plan

NEH Programme

NEH programme was implemented in collaboration with ICAR-NRC on Mithun, Medziphema, Nagaland and ICAR research complex for NEH region, Umaim, Meghalaya. The programme include supplying critical inputs {piglets, pig feed, day old chicks, Poultry feed (Starter and Grower)} for establishing subsidiary enterprises to enhance household income and capacity building programmes.

Publications

A total number of 419 research papers were published in national and international journals apart from books (05), booklets (15) and folders (22).

Way Forward

In view of the importance of tobacco in terms of employment generation, revenue to the government and the inceptent value of the phytochemicals in tobacco & its role in unraveling the various issues through biotechnological tools, the research need to be further strengthened for the benefit of the farming community.

D. Damodar Reddy, C. Chandra Sekhara Rao, B. Krishna Kumari, T. Anuhya Jayaprada and Md. Elias



ALL INDIA NETWORK PROJECT ON TOBACCO ICAR-CENTRAL TOBACCO RESEARCH INSTITUTE

(An ISO 9001:2015 Certified Institute)

RAJAHMUNDRY - 533 105, Andhra Pradesh

E-mail: directorctri@gmail.com, director.ctri@icar.gov.in, ainpt.ctri@icar.gov.in

Website: <https://ctri.icar.gov.in>, <https://aicrp.icar.gov.in/tobacco/>

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