



ICAR-CTRI

News



ICAR - CENTRAL TOBACCO RESEARCH INSTITUTE - 533105, A.P.

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From the Director's Desk



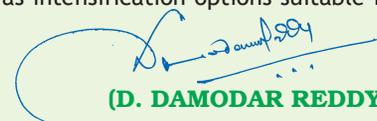
Covid-19 Pandemic: Emergence of Tobacco New Normal and Need for Crop Diversification

Tobacco, one of the important high value commercial crops, is vital to the developing economies. In India, it is valued for its potential to fetch higher income to farmers, to make significant contribution to national exchequer in terms of excise revenue and export earnings and to provide livelihood security to millions engaged in its production, processing and marketing. India grows tobacco in an area of 4.18 lakh ha and produces around 750 million kg cured leaf at a productivity level of 1795 kg/ha. Further, different types of tobacco are grown in as many as 15 states across differing agro-ecological regions. Hence, tobacco has a profound influence on the rural economy and economic wellbeing of farming communities in the regions of its cultivation.

On the flip side, the tobacco has been facing the negative and growing public perception owing to health risks and environmental issues associated with its consumption and production. With the advent of Covid-19 pandemic, the social stigma / disgrace attached to tobacco is exacerbated due to the realization that tobacco consumers are more vulnerable to infection and severity of diseases. In the present and future scenario of increased health consciousness is expected to reduce demand for tobacco, which in turn affects tobacco supply side as well. Another negative concern about tobacco is the deforestation caused due to the use of huge quantities of forest wood as fuel for running curing barns of flue cured tobacco. In addition, the stringent national and international tobacco control policies (WHO-FCTC, COTPA-2003) are already put in place to reduce the tobacco demand and supply. Further, the heightened anti-tobacco campaigns and enhanced health consciousness among the public will also affect the tobacco sector in future.

Nation-wide lockdown imposed in many countries to contain Covid-19 spread had impacted many economies across the World. There have been serious disruptions of trade across segments and tobacco was not an exception. During the period of lockdown, exports of tobacco and tobacco products from India to world nations have been severely affected. The demand for tobacco and tobacco products is expected to be reduced because the restrictions or ban on tobacco usage and consequently affecting supply side as well. The Covid-19 pandemic has led to emergence of Tobacco New Normal (TNN) characterized by: a) Increased health consciousness and awareness about tobacco related health hazards; b) Reduced demand and supply for tobacco; c) Stringent enforcement of tobacco control policies and regulation laws; d) Exacerbated social stigma / disgrace associated with tobacco and tobacco research; e) Shift in funding support from tobacco production to tobacco control. The TNN is contributing to policy changes. For example, the Tobacco Board in India has reduced the FCV tobacco crop size by 12% for the state of Karnataka and is all set to take similar crop size reduction measure for A.P. state as well.

The TNN also provides an opportunity for research institutions to align themselves with the changing priorities of the nation. The Indian agriculture has been witnessing paradigm shifts in outlook and focus from food security to income security, from conventional crops to commercial crops and from mono cropping to crop diversification. Government of India lays more emphasis on sustainable increase in farmers' income so as to ensure the overall well being of the agrarian community. Crop diversification, value addition and export promotion are some key areas that help augment the farm returns. Crop diversification is generally considered as an overarching gateway for enhanced resource use efficiency, sustain crop productivity and assured farmers' income. Viewed against this backdrop, there is a strong need to promote crop diversification as well as intensification options suitable for different tobacco growing regions.


(D. DAMODAR REDDY)

RESEARCH HIGHLIGHTS

Crop Improvement

- Burley tobacco entries, YB-19 (2540 kg/ha) and YB-22 (2260 kg/ha) were found to perform better over the popular variety Barket A1 in bulk trial.
- Selection (F₂-2) derived from a cross A-145 × Bhagyalakshmi recorded the highest seed yield of 1167 kg/ha.
- Genetic diversity was studied in nine germplasm groups viz., burley, EAC, FCV (exotic), JAC, Turkish, *N. rustica*, core collection, IPR entries, CMS etc.
- A user friendly menu driven Digital Notebook Software was developed for recording morphological data of tobacco lines in field using mobile, tab and laptop, and submitted for copyright.
- Draft DUS guidelines were prepared for characterization of FCV and *bidi* tobacco varieties and submitted to PPV & FR Authority, New Delhi.
- In the nicotine mapping population, primers TBM12, PT52816 and TM11062 were found to be linked with each other.
- Two protocols viz., 1) biochemical quantitative approach and 2) transcript analysis of CYP82E4, a key enzyme involved in the conversion process were standardized for screening and identifying Low Converter (LC) genotypes in burley tobacco.

Crop Production

- The determinants for crop diversification in FCV tobacco growing areas found to be size of landholding, family size, access to modern irrigation facilities, farm income, infrastructure and number of livestock possessed.
- Infrastructural factors (storage and processing structures) in NLS, resource factors (rainfed conditions and lack of irrigation facilities) in SLS & SBS and socio-psychological factors in KLS regions (small and marginal holdings and low investment capacity) are identified as the major constraints for crop diversification from FCV tobacco to other crops.
- A prototype of tobacco transplanter was developed in collaboration with ICAR-CIAE, Bhopal and evaluated.

Crop Protection

- The bio-intensive IPM module with four rows of jowar as barrier crop, one spray of neem seed kernel suspension @ 1% at 10 days, one spray of *Lecanicillium lecanii* @ 1×10^{13} CFU at 25 days and one spray of pymetrozine @ 0.03% at 40 days after planting exhibited 81.45% reduction in infestation by tobacco whitefly (leaf curl), 6.97% increase in cured leaf yield with an incremental benefit cost ratio of 2.84 over untreated control.
- In Vinukonda region, leaf curl/whitefly, *Bemisia tabaci* and bud worm, *Helicoverpa armigera* were recorded to an extent of 10-12 & 5-7%, respectively. IPM comprised of yellow sticky traps, pheromone traps, need based application of neem formulations and imidacloprid reduced infestation levels of leaf curl (4-5%) and bud worm (2-3%).
- New molecules, spinetoram 12 SC @ 0.009% and pyridalyl 10 EC @ 0.015% were found highly effective in protecting the seedlings from *Spodoptera litura* damage in tobacco seed beds.

Natural Resource Management

- Application of oil palm biochars + 100% RDF significantly improved the cured leaf yield. Maximum soil available potassium was recorded in oil palm empty fruit bunch biochar (OEFB biochar) applied treatments.
- A movable solar thermal hot air blower 20'x 3' x 2 1/2'x 0.9' was fabricated for harnessing the solar energy. The hot air temperature from prototype is 176°F (80°C). Integration of this technique with other interventions has the potential to reduce the wood fuel requirement for FCV tobacco curing by 54%.



- Secondary nutrient sulphur status was assessed in Southern Light Soils region of FCV tobacco and its spatial distribution map using Arc GIS was prepared. The available sulfur content in SLS varied from 3.1 to 142.8 with a mean sulfur content of 20.1 mg kg⁻¹.
- The available calcium content in SLS region varied between 1.25 to 56.3

cmol (+) kg⁻¹ with a mean value of 17.8 cmol (+) kg⁻¹. The available magnesium content varied between 0.25 to 16.3 cmol (+) kg⁻¹ with a mean value of 4.08 cmol (+) kg⁻¹. Soils under FCV tobacco in parts of *Podili, Kandukur and Kanigiri* APF showed low available sulfur (Min: 3.06 - 4.81 mg kg⁻¹).

ICT Applications/ Initiatives

- E-advisory services were provided to the FCV tobacco farmers. 'WhatsApp' groups were created for NLS, NBS, SLS and SBS farmers. Relevant information viz., advisories on timely agricultural operations including suggestions of the AP government guidelines prescribed by the National Agricultural Advisor, etc. were shared in these groups during the Covid-19 lockdown period.
- Mobile App on 'CTRI-FCV Tobacco' was downloaded by 500+ users and the same was applied for copyright with Dy No. 6923/2020-CO/SW.
- E-office is being implemented successfully from 30.06.2020 at ICAR-CTRI and its Research Stations.
- Video Conferencing facility was established at ICAR-CTRI for organizing /participating in virtual conferences /meetings/ webinars.

TRANSFER OF TECHNOLOGY

Diagnostic visit

- On 28.01.2020, scientists along with officials of Tobacco Board visited tobacco fields in the SBS/SLS area that were damaged due to heavy rains received during January 2-4, 2020 and suggested suitable remedial measures.

Training programmes conducted

- Training programme on "Improving production and quality of Ginger and Turmeric for Karnataka farmers" was conducted on 11.03.2020.
- A one-day training programme on "Energy and water conservation measures and demand side management in agriculture sector" was conducted on 13.03.2020 at KVK, ICAR-CTRI RS, Kandukur and KVK, Kalvacharla. A total of 215 farmers attended the programme.
- ICAR-CTRI RS, Hunsur conducted nine training programmes in co-ordination with Tobacco Board and trade on various issues of nursery management and held interaction sessions with farmers.

- Three information brochures on 'Best Cultivation Practices of FCV Tobacco' for NLS, SLS and Black soils in telugu language was compiled, published and soft copy was given to Tobacco Board for display in 'Digital Kiosks' established at 'Rythu Barosa Kendras' scheme of Andhra Pradesh government.

HRD initiatives

- Under Human Resource Development (HRD), a training programme was organised on "Scientific Tobacco Field Crop Management Practices" during 20-21 March, 2020 at ICAR-CTRI, Rajahmundry" to 14 recently recruited technical employees of ICAR-CTRI.
- As part of HRD, an exposure visit to ICAR-Indian Institute of Oil Palm Research, Pedavegi was organised for 24 SSS staff of ICAR-CTRI on 25.01.2020.

SC SUB-PLAN

ICAR-CTRI RS, Jeelugumilli

- Organized a field demonstration on 'FCJ-11 - A high yielding Virginia tobacco variety for NLS area' under Scheduled Caste Sub-Plan (SCSP) on 03.02.2020 at Thaduvayi village under Jangareddygudem-II APF, West Godavari district, Andhra Pradesh. A total of 250 Scheduled Caste (SC) farmers from NLS region participated in the programme.
- Training programme on "Post-Harvest Product Management and Demonstration of Relay Cropping of Groundnut in FCV Tobacco" was conducted on 07.03.2020 to 200 SC farmers.
- Critical inputs viz., sulphate of potash (for improving yield and quality of FCV tobacco) and tarpaulins (for reducing the NTRM in cured leaf of FCV tobacco) were distributed to 350 SC farmers on 07.03.2020.



- A training programme on "Crop intensification for enhancing farm

returns" was organized for 150 SC farmers during June 25-27, 2020. Korra seed, fertilizers (50 kg DAP) and Foxtail millet were distributed to the farmers.

ICAR-CTRI RS, Guntur

- Critical inputs viz., sunhemp seed and DAP fertilizer for soil health management and HDPE tarpaulins for post-harvest produce management were distributed to 100 burley tobacco SC farmers on 10.06.2020 at Vinukonda.



ICAR-CTRI RS, Kandukur

- Critical inputs viz., sulphate of potash (05.01.2020), curometers (05.01.2020), battery operated-cum-manual sprayers (10.02.2020) and tobacco bale boxes were supplied to 540 SC tobacco farmers.
- Awareness programmes on "Vegetable Seedling Production and Kitchen Gardening (05.01.2020) and "Millet Processing" (10.02.2020) were organized. Vegetable seed kits and millet kits were distributed to 370 SC women.



- A training programme was organized during June 8-12, 2020 on "Soil Health Management" and sunhemp seed was distributed to 100 SC farmers.
- A capacity building programme on "Integrated Pest Management" was organized on 10.02.2020. A total of 200 SC farmers participated in the programme. The Chief Guest, Dr. H. Shivanna, Ex-Vice Chancellor, UAS, Bangalore enlisted the various measures for upliftment of SC farmers and farm women. Dr. D. Damodar Reddy,

Director, ICAR-CTRI explained about the SCSP and the importance of IPM in crop management.



ICAR-CTRI RS, Hunsur

- FCV tobacco seed (Kanchan) was supplied as a critical input to the farmers of Melur, T. Ankanahally and Dadadahally villages in Karnataka.

ICAR-CTRI RS, Vedasandur

- Conducted two field visits, two exposure visits and five training programs on 'Post-Harvest Operations, Integrated Farming Systems, Agronomic Practices, Application & Use of Bio-fertilizers for Rabi crops and Drip Irrigation Techniques for Rabi Crops' during January - March, 2020 in five villages viz., Pungambadi, Thallipatti, Vadugampadi, RP Pallampatti and Karisalpatti of Tamil Nadu, respectively. A total of 270 SC tobacco farmers participated in these programmes.



ICAR-CTRI RS, Dinhata

- Training on "Crop Loss Minimization and Post-Harvest Handling of Jati & Motihari tobacco" was conducted during March 18-19, 2020. A total number of 1030 farmers attended the programme.
- NEH programme was implemented in collaboration with ICAR Research Complex for NEH region, Barapani and NRC on Mithun, Dimapur, Nagaland with a total financial outlay of Rs 20 lakhs.

International Women's Day

International Women's Day was celebrated at ICAR-CTRI, Rajahmundry and its Research Stations on 08.03.2020 with the theme, "Achievements of women in the field of agriculture". The women staff of ICAR-CTRI participated actively in various competitions held on the occasion.



ISO Audit

ISO Surveillance audit was conducted on 24.01.2020 and the auditor recommended for the continuation of ISO 9001:2015 certification to ICAR-CTRI.

Tobacco Seed Supply

Truthfully labeled seed (390 kg) of five FCV tobacco varieties was supplied to Tobacco Board, Guntur for distribution to tobacco farmers of Andhra Pradesh.

Expert Committee meeting

Expert Committee meeting was conducted in Virtual Mode on 22.06.2020 and 27.06.2020 for Rechristening and Broadening the mandate of ICAR-CTRI. Dr. H. S. Gupta, Chairman & Ex-Director, ICAR-IARI, New Delhi, Dr. C.L. Acharya, Member & Ex-Director, ICAR-IISS, Bhopal, Dr. Mruthyunjaya, Member & Ex-National Director, NAIP, New Delhi, Dr. K. S. Varaprasad, Member & Ex-Director, ICAR-IIOR, Hyderabad, Dr. Prakash S. Naik, Member & Ex-Director, ICAR-IIVR, Varanasi and Dr. D. Damodar Reddy, Member Secretary & Director, ICAR-CTRI participated in the meeting.

Pulse seed hub

- About 370 q of foundation seed of bengal gram (variety NBeG- 49) was produced from farmers fields and ICAR-CTRI RS, Guntur.
- Around 27 q of certified seed of red gram (variety LRG- 41) was produced at ICAR-CTRI RS, Guntur.

KVK

Training Programmes

ICAR-CTRI-Krishi Vigyan Kendra, Kalavacharla organized training programmes for rural youth and rural women on "Rejuvenation of Old and Senile Orchards of Cashew and Mango" (08.01.2020 to 09.01.2020), "Integrated Crop Management in Maize" (09.01.2020 to 10.01.2020), "Integrated Pest Management in Pandal Vegetable Crops" (24.03.2020 to 25.03.2020), "Year Round Fodder Production" (25.01.2020), "Value Addition of Fruits and Vegetables" (24.01.2020 to 25.01.2020) and "Value Addition of Moringa" (12.02.2020 to 13.02.2020). Also conducted Skill Training for Rural Youth (STRY) on "Production of Seedlings, Nursery Management, Grafting methods in Cashew and Mango" in collaboration with ATMA, East Godavari from 27.01.2020 to 02.02.2020.



Farmers' Awareness Programme

Farmers' Awareness Programme on **MEGHDOT mobile app** under DAMU project was organized on 21.03.2020. Thirty-five farmers and youth from Sri Rangapatnam and Gadarada villages participated in the programme. Dr. D. Damodar Reddy, Director, ICAR-CTRI participated and briefed the weather based agricultural practices.

SAC Meeting

Scientific Advisory Committee (SAC) meeting of KVK, Kalavacharla was organized at ICAR-CTRI, Rajahmundry on 11.05.2020 under the Chairmanship of Dr. D. Damodar Reddy, Director, ICAR-CTRI with limited number of farmers and members following the lockdown guidelines. The work done during 2019-2020 was reviewed and the action plan for 2020-21 was finalized.

Web-casting of Global Potato Conclave 2020

Hon'ble Prime Minister's address (through video conferencing) during the inaugural session of 'Global Potato Conclave 2020' organized at Gandhinagar, Gujarat on 28.01.2020 was web telecasted by ICAR-CTRI. About 200 staff members viewed the event.



VISITORS

- Shri Y. Raghunadha Babu, Chairman, Tobacco Board, Guntur visited ICAR-CTRI, Rajahmundry on 04.02.2020.



PERSONALIA

Retirements

The following 18 employees of the Institute retired from the Council's service on attaining superannuation.

S.No.	Name	Date
1.	Srinivasa	29.02.2020
2.	T. Syamala Devi	31.03.2020
3.	G. Lakshamma	31.03.2020
4.	Y. Ramabai	30.04.2020
5.	N. Sambasiva Rao	30.06.2020
6.	Dr.G.Raghupathi Rao	30.06.2020
7.	Dr. D.V. Subhashini	30.06.2020
8.	V. Jayamma	30.06.2020
9.	V. Venkata Sivaram	30.06.2020
10.	P. Janakiramaiah	30.06.2020
11.	R. Indrani	30.06.2020
12.	Dama Singaiah	30.06.2020
13.	E. Radha Krishna	30.06.2020
14.	Chinnesetty Sarojini	30.06.2020
15.	Uppati Kalyanam	30.06.2020
16.	N.Chandra Barman	30.06.2020
17.	A.K. Maheswari	30.06.2020
18.	Devamma	30.06.2020