

PROCEEDINGS OF NATIONAL SEMINAR ON CROP DIVERSIFICATION

18th JANUARY, 2016

ICAR - CENTRAL



Sponsored by

DAC & FW, Government of India



ICAR

Central Tobacco Research Institute

Rajahmundry - 533105, Andhra Pradesh, India



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OF
National Seminar
on
Crop Diversification**

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**DAC & FW, Ministry of Agriculture and Farmers' Welfare,
Government of India
New Delhi**

Organized by



**ICAR-Central Tobacco Research Institute
Rajahmundry, A.P.**



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The National Seminar on Crop Diversification sponsored by DAC & FW, GOI, was organised by the ICAR-CTRI at Rajahmundry on 18th January, 2016. The detailed programme sheet of the seminar is enclosed as Annexure-I and list of participants is enclosed as Annexure-II. A detailed note on the proceedings of the Seminar is furnished hereunder:

Inaugural Session

At the outset the Organizing Secretary of the seminar **Dr. Y. Subbaiah**, Principal Scientist invited the Chief Guest, Guests of Honour and other dignitaries to the dais. The dignitaries present on the dais included : Dr. A. Padma Raju, VC, ANGRAU, Hyderabad as Chief Guest; Dr. B.M.C. Reddy, VC, Dr. YSRHU, Venkataramannagudem as Guest of Honour; Dr. D. Damodar Reddy, Chairman, Organising Committee & Director, ICAR-CTRI, Rajahmundry; Dr. R.K. Mathur, Director, ICAR-IIOPR, Pedavegi as Guest of Honour; Dr. N. Gopalakrishnan, Former ADG (CC), ICAR, New Delhi as Special Guest (representing DDG(CS), ICAR); Dr. K. Deo Singh, Former Director, ICAR-CTRI, Rajahmundry as Guest of Honour; Dr. A.P. Singh, Addl. Commissioner (Crops), DAC & FW as Guest of Honour (representing Ministry of Agriculture & Farmers Welfare, GOI, New Delhi). A large number of Scientists from ICAR-CTRI and SAUs, Officials from State Agricultural Departments and Tobacco Board, Farmers and Industry representatives attended and actively participated in the deliberations during course of the Seminar.

Dr. D. Damodar Reddy, Chairman, Organising Committee extended a warm welcome to the dignitaries and delegates of the National Seminar. He thanked the DAC & FW, GOI for giving an opportunity to ICAR-CTRI to conduct the seminar of national importance and termed it as unique opportunity. He urged various stake-holder participants to discuss and deliberate thoroughly on core thematic areas of the seminar on crop diversification in tobacco growing areas. Further, he called up on the delegates to pay greater attention to the following specific issues relating to the subject of the seminar.

- Current Scenario of Tobacco Production in the Country,
- Crop Diversification ó Need and Scope in Tobacco Growing Regions,
- Bio-physical and Socio-economic Determinants of Crop Diversification,
- Crop Diversification Initiatives - Experiences and Expectations of Clients,
- Potentials and Constraints of Candidate Crops for Crop Diversification,
- Institutional and Policy Support to Crop Diversification.

The proceedings of the seminar started with lighting of the lamp by the dignitaries on the dais followed by the release of seminar brochure and current issue of the ICAR-CTRI newsletter by the Chief Guest, Dr. A. Padma Raju, VC, ANGRAU, Hyderabad and Guest of Honour, Dr. B.M.C. Reddy, VC, Dr. YSRHU, Venkataramannagudem. During the inaugural

session, the dignitaries on the dais addressed the participants and the reflections of the same are furnished hereunder:

Dr. B.M.C. Reddy, VC, Dr. YSRHU, Venkataramannagudem: Addressing on the occasion, Dr. B.M.C. Reddy said that the diversification from tobacco is an issue of significance on account of harmful effects of tobacco consumption. He reiterated, in the present complex and diverse situation, proper directives from the government are essential to provide all possible support to tobacco farmers. He requested the ICAR to take immediate initiative pragmatically to broaden the mandate of ICAR-CTRI and stressed the need for considering horticulture and major oil seed/ pulse crops as viable options to tobacco. Also suggested for the promotion of exotic fruits *Rambhutan, Salaka, Longan, and dragon fruits* suitable to humid tropical climate and insisted for the establishment of humid tropical fruit research centre in the region which may motivate the farmers to diversify from tobacco cultivation.



Dr. R.K. Mathur, Director, ICAR-IIOPR, Pedavegi: Dr. Mathur said that oil palm was in forefront during yellow revolution phase. Of late, the international pricing systems have become a hurdle to oil palm promotion in India. Ensuring of remunerative support price is vital that encourage the farmers to take up oil palm cultivation wherever assured irrigation facility is available. Thus, oil palm may stay as a candidate crop for diversification in FCV tobacco growing areas especially in Northern Light Soils of West Godavari district.



Dr. K. Deo Singh, Former Director, ICAR-CTRI, Rajahmundry: Dr. K. Deo Singh stated that the tobacco crop will be continued as long as the farmers cultivate it due to its remunerative nature and export demand. Dr. Singh indicated that there were attempts in the past to diversify the tobacco production system. But, none of the other crops have showed as much remunerative returns as that of tobacco. In view of the recent developments relating to health and environment, crop diversification assumes significance. He suggested that diversification of CTRI as ICAR Research Complex for Coastal Region may facilitate in diversification from tobacco crop in this region.



Dr. A. Padma Raju, VC, ANGRAU, Hyderabad: Dr. A. Padma Raju graced the national seminar as Chief Guest. He said that there were no distress deaths of farmers associated with FCV tobacco cultivation except in the year 2015 which was recurred after 12 years period. Earlier, Castor and Bengalgram were introduced in Prakasam district and tobacco area was replaced to some extent. In rainfed tobacco growing areas, net returns, ground water availability and quality of the

produce influence the farmer's decision on crop choices and diversification. Dr. Raju suggested that West Godavari farmers can opt for Cocoa and Coconut as these crops have better industry support at present. In Prakasam district, reduction in area on ad-hoc basis should not be done. More scientific way of reducing crop size using land use plan with long range crop planning may avoid price fluctuations thereby distress deaths in Prakasam district. He said, there is a greater scope for diversification in Prakasam district as it is very nearer to proposed capital of Andhra Pradesh, Amaravathi. He emphasised that remunerative returns to the farmers is ultimate driving force in crop diversification and suggested to formulate scientific master plan to promote crop diversification from tobacco.

Technical Session

Inaugural session was followed by the Technical Session wherein resource persons made their presentations on the main thematic areas of the seminar. A gist of the presentations made by different speakers is as follows:

Dr. N. Gopalakrishnan, Former ADG (Commercial Crops), ICAR, New Delhi made a presentation on “**Crop Diversification for Sustainable Farm Productivity and Livelihood Security**”. He said world population is estimated to be growing at two persons per second. Production demand is driven by population growth and land availability. Mega trends influencing global agriculture are based on demand and supply factors and global constraints. He has called for bringing risk reduction strategies and urged to integrate the concepts and practices of natural ecosystem into the agricultural practices. He suggested to reduce the use of unproductive inputs and to optimize material inputs and to increase biotic and landscape diversity. Further, he has given a brief account of sustainable systems, transition of Indian agriculture, present scenario of Indian agriculture, context and concerns.



Dr. Gopalakrishnan spoke on different approaches and national initiatives like NICRA taken up by ICAR at different levels in tandem with various ministries and departments to address the concerns related to diversification. He explained the key activities of risk management and smart farming. Further, he discussed about strategies of crop diversification, different facets of crop diversification, questions that arise in the process of diversification from tobacco to other crop options. He has called for involvement of tobacco farmers themselves at different stages of implementation of Crop Diversification which is the key element. Further, he highlighted that identifying ways and means of finding a viable solution and its delivery to the farmers is the key factor in diversification. He concluded his presentation by saying excerpt from *Rigveda* “*Let noble thoughts come from all universe*”.

Dr. D. Damodar Reddy, Director, ICAR-CTRI, Rajahmundry made his presentation on **“Myriad Facets of Tobacco Production in India - Options for Crop Diversification”**. Dr. Reddy presented critical analysis of the tobacco production dynamics in the world during the



past 50 years and highlighted the fact that the global tobacco production showed an increasing trend over the years. In particular, the average growth rate during the last 10 years has been about 120 M kg per annum. The Asia's average production share of tobacco increased linearly from 45% during 1964-73 to 65% during 2004-13. In contrast, the other regions of the world registered a decline in their share in tobacco production in the past 50 years. Three major tobacco producing countries viz., China, India and Brazil account for 2/3rd of world tobacco production. Tobacco productivity is highest in USA (2542 kg/ha) followed by China and Brazil, while India occupies 4th place (1700 kg/ha) in the world. When it comes to export of un-manufactured tobacco, Brazil is always being the leader while India, China and USA occupy second, third and fourth positions, respectively at present (2013). The tobacco producer price also varies very widely across the countries, with the highest and lowest being in USA (4742 USD/tonne) and India (1961 USD/ tonne), respectively.

Dr. Reddy discussed about the various types of tobacco grown in India and also brought out the clear differences in the production dynamics of FCV and non-FCV tobaccos. At present, the Indian tobacco production is about 800 M kg of which FCV tobacco represents about 300 M kg and the rest 500 M kg is of non-FCV type. He pointed out that FCV tobacco is largely grown in the states of Andhra Pradesh and Karnataka, while bidi tobacco is predominantly grown in the state of Gujarat. While elaborating on emerging and unfolding scenario of tobacco sector in the country, he opined that the tobacco crop is in the whirlpool of conflicting concerns and interests of different stake holders. He emphasised that there is no single set of diversification options for all regions where tobacco is predominantly grown. In fact, a myriad of factors including bio-physical, environment, input availability, market facility, technological backup, cost of cultivation, net returns, subsidies, fertiliser nutrients, restrictive measures in support of national food security and remunerative price will dictate the options available for crop diversification in tobacco growing areas. He presented some next best crop options for different FCV tobacco growing regions of A.P and Karnataka and also for non-FCV tobacco regions. He said, a policy driven diversification also takes place particularly in the areas of FCV tobacco that is under regulation by Tobacco Board. For example, the Tobacco Boards decision to fix the FCV tobacco crop size at 120 M kg in respect of Andhra Pradesh for the current year (2015-16) as against 172 M kg in the previous year will result in sparing of about 41 thousand ha of tobacco area in A.P. and thus contribute to crop diversification.

Dr. Pankaj Chaturvedi, Professor & Head, Tata Memorial Hospital, Mumbai made a presentation on **“Diversification is the Need of the Hour in the Interest of Society and Farmers Too”** and remarked that he always stand for farmers. He expressed that demand and supply reduction has to happen simultaneously. Indian tobacco demand will be declined due to glut in international demand and it is going to be reduced by 20% in



domestic use in next 10 years. Hence, we should make farmer ready for crop diversification. He said that continuous tobacco cultivation is not advisable as its consumption causes one million deaths/year. Further stated that 27.5 crore Indians are using tobacco products that kill every 3rd user.

Dr. Chaturvedi remarked, tobacco has become a killer plant and COTPA had prohibited the cigarettes and other tobacco products. He reminded about the Justice for Juvenile Act-77 which prohibited/ restricted selling of tobacco products to minors with an imprisonment of 7 years. In India, 85-90% of tobacco is consumed in the form of *Gutka*. Further, he stated that there are thousands of barns registered in India causing pollution through CO₂ emission and through deforestation. He also stressed upon green tobacco sickness and nicotine toxicity to farmers who live 24/7 in the tobacco fields. He showed two videos on cancer patients affected by tobacco consumption.

Farmers' representatives have raised some questions to Dr. Chaturvedi. They wanted to know whether the cancer is caused due to smoking of cigarettes only or any other reasons. How is it established that the cancer is directly caused by tobacco only? Then, why are the non-smokers also getting cancer? What % of cancer is caused by FCV and non-FCV tobacco? Dr. Chaturvedi replied that pure tobacco causes cancer which was evident by the human, animal and epidemiological studies. He said a monograph was prepared by the Ministry of Health on directives of Supreme Court of India. Lung cancer, Mouth cancer and Esophagus cancer are accounting for 40-50 % of cancers and is attributed to tobacco in Andhra Pradesh. Tobacco related health problems should be dealt separately and solution should be found for individual case.

Shri Maruti Prasad, Auction Superintendent (Production), Tobacco Board, Guntur presented on “**Crop Diversification Efforts in FCV Tobacco Growing Areas – Tobacco Board’s Experiences**” on behalf of Shri Manoj Kumar Dwivedi, IAS, Chairman - Tobacco Board. He spoke about crop diversification, its objectives and tried to make a distinction between the general crop diversification and the crop diversification from tobacco. He has indicated that the tobacco crop has firm demand and its supply is being regulated as per the demand. Well organised seed to sale establishment, state of the art marketing system and availability of huge scale of finance compared to other crops are the significant positive features of tobacco. He further explained about WHO's Frame Work Convention on Tobacco Control (FCTC) and stated that the FCTC does not prohibit tobacco growing, nor impose any schedule for phasing out tobacco growing and does not aim to penalize tobacco growers and workers for cultivating tobacco rather it imposes an obligation on parties to promote economically viable alternatives for those who will be affected by reduction in tobacco demand.



He said about different steps initiated by the Tobacco Board towards crop diversification and strategies that were adopted. The board has a demand driven policy with a ceiling for crop size fixation. He mentioned the other programmes and schemes initiated by Ministry of Health & Family Welfare and Ministry of Agriculture and Farmers' Welfare. He spoke about experiences of crop diversification in the global scenario, crop diversification

from tobacco before establishment of Tobacco Board and how phasing out of tobacco cultivation took place in Central Black Soils.

Shri Prasad further informed that significant reduction in area under FCV tobacco due to reduction in the crop size from 170 million kg to 120 million kg during 2015-16 crop season in Andhra Pradesh. As a result, about 48000 hectares of land was released from tobacco cultivation and alternative crops grown were *red gram, cotton, chillies, bajra and cowpea* in Southern Light Soils (SLS), *blackgram, redgram, cotton, chillies* and *social forestry* in black soils and *sugarcane, eucalyptus, maize, cotton, groundnut and vegetables* in Northern Light Soils (NLS). He spoke about the strategies for crop diversification from tobacco. Further, gave a brief account of proposed recommendations from Tobacco Board i.e., developing comprehensive data base, baseline analysis of the problem, conducting research to find potential crops and to validate long term sustainability of the identified substitute crops, extensive farmer training programmes and phase wise introduction of the substitute crops.

Dr. A.P Singh, Addl. Commissioner (Crops), DAC&FW, New Delhi presented on **“Support for Crop Diversification”** and explained about crop diversification and policy needs on crop



diversification to address issues connected with exhaustive use of natural resources under single cropping system, diminishing productivity and economic returns, environment protection, policy interventions, social need, climate change, international obligations etc. He discussed about the issues on diversification from tobacco like higher economic return, huge foreign exchange and tobacco potential to provide employment to millions of people directly or indirectly. He said government will not push farmers but support the gradual diversification from tobacco. He remarked that government has balanced coordination between ministries dealing with the issue, working in tandem and will take up the programme through a step by step process.

Further, he gave an account of different centrally sponsored Missions/Schemes on crop production that are initiated by Government of India. He explained about crop diversification programme and its activities initiated in A.P. He said that DAC & FW has earmarked an outlay of Rs. 25.00 crores (Central Share) for tobacco growing states during 2015-16. States covered under crop diversification programme on tobacco are Andhra Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Odisha, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal and programme is being implemented on 60: 40 sharing basis between Government of India and State Governments from 2015-16. He told that GOI has already approved the programme for the state of Andhra Pradesh for 2015-16 which include both agriculture and horticultural crops with Rs. 10 crores as central share. Also, said that main role of DAC & WF is to supplement the efforts of the state government and provide a support to the farmers to grow alternative crops in tobacco growing areas.

Dr. N.D.R.K. Sharma, State Consultant, NFSM, Govt. of A.P. presented on “Possible Alternative Crops and Cropping Systems for Diversification in Tobacco Growing Regions of Andhra Pradesh” and suggested to find out different areas with low productivity and high investment. He remarked, in general, the area of a particular crop depends on previous year price. The government of A.P. is working out mandal level plans with the help of village level data for identifying the best alternative crops that are to be grown in tobacco growing areas. Double crop sequence systems are to be identified. Pulses are the best crop options and said red gram area increased in Prakasam district with an estimated production of 1.14 lakh metric tonnes. He explained about centrally sponsored programmes on cereals and pulses.



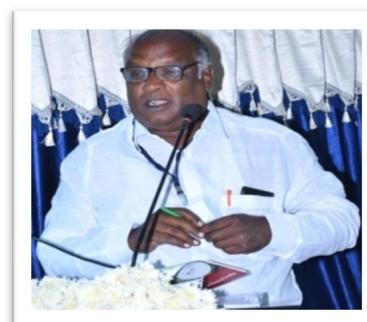
H.R. Patel, Unit Officer, BTRS, Anand presented on “Prospects and Constraints of Available Options for Crop Diversification in Bidi Tobacco Growing Areas of Gujarat”.



He explained about area, production, export potential and revenue generated by the bidi tobacco. He informed that there are 2.9 lakh bidi growers and as a cottage industry, bidi rolling provides employment to 4.4 million people. Tendu leaf collection involves 2.2 million tribals. Major beneficiaries are the small & marginal farmers, rural women, tribal youth and weaker sections of the society. He said that 1.42 % of the state area is under tobacco cultivation in Gujarat state. The studies on cropping sequences in bidi tobacco areas indicated that the net income was highest in tobacco-bajra followed by sole crop of tobacco and cotton-bajra.

He has mentioned that different crops/cropping sequences are under investigation at BTRC, AAU, Anand to select next best crop sequence to bidi tobacco. He remarked that no better remunerative crop than tobacco especially under rainfed condition is available at present. However, if tobacco crop is to be regulated, castor- summer groundnut or cotton-summer groundnut crop rotation is found to be alternative crop rotation to tobacco. For *rustica* tobacco, paddy-amaranthus and cowpea or mung followed by tobacco as a crop sequence was found remunerative.

Shri Gadde Seshagiri Rao, Farmers Representative and Member, Tobacco Board, Guntur presented on “Farmers Perspective on Crop Diversification in Tobacco Growing Areas”. He has given an outlook about how the tobacco farmers in general and NLS farmers in particular prospered because of FCV tobacco. Also indicated the case in Karnataka where very poor families have improved their livelihoods due to FCV tobacco cultivation. He pointed out, why only FCV tobacco is being targeted which is only 300 million kg as compared to 500 million kg of non-FCV tobacco. He drew the attention over the illicit cigarettes and indicated that about 25 million kg are coming from other countries and consequently our country is losing the revenue. He said that price fluctuations of crop produce in respect of other crop options need to be controlled



by the government. He has given examples of Oil Palm, Sugarcane, Maize, and Chickpea where constant price fluctuations exist due to one or other policies.

He urged the government to involve tobacco farmers and consider their concerns before making a policy. The farmers will opt for crop diversification as and when required but any policy on the subject should not be imposed on the farmers against their interest. Nicotine addiction is much in non-FCV products than FCV products, he concluded.

Shri Javare Gowda, Farmer Representative from Karnataka spoke about **“Farmers Perspective on Crop Diversification in Tobacco Growing Areas of Karnataka”**. He said that tobacco farmers are responsible for more income earnings by the Government of India



but policies are being implemented without bothering about the concerns expressed by the tobacco farmers. He remarked that only FCV tobacco farmers are targeted or pushed so much. He said that FCV tobacco crop is regulated, but government is not regulating non-FCV tobacco. He expressed serious concerns over ban on funding for tobacco and related activities. He said that parliament is not taking interest on concerns of tobacco farmers in the crop diversification issue. He requested the organisers to

take these issues into account and allow farmers to flourish rather than perish.

Shri H.G. Raveesh, Leaf Manager, ITC Ltd. presented on **“Indian FCV Tobacco: Challenges in Crop Diversification”** on behalf of Shri M. Umamaheswara Rao, President, Indian Tobacco Association, Guntur. He said that 46 million people depend on tobacco cultivation which occupies 0.3 % of arable land. Further stated, 85 % revenue comes from FCV tobacco which is grown in areas with low and erratic rainfall and poor soil fertility. He said that there are consistent returns, structured market facility and no middle man system in FCV tobacco and pointed out that there is no in depth research on viable alternative crops.



He suggested to focus on un-regulated non-FCV tobacco crop having less export potential for initiating crop diversification efforts. He insisted to support regulated FCV tobacco crop till the stage comes to demonstrate economically viable crops that can provide sustainable livelihood. Appreciating the efforts, suggested to involve farmers, trade, CTTRI and tobacco board in dialogue and deliberations while promoting crop diversification interventions.

Panel Discussion

Technical Session was followed by the panel discussion wherein various issues relating to crop diversification in tobacco growing areas are discussed by all the stake-holders of tobacco. Representatives from DAC&FW, ICAR/SAUs, Tobacco Board, State Agricultural Departments, Farmers and Industry participated as panel members.

Dr. D. Damodar Reddy, Director, ICAR-CTRI while initiating the discussion, briefed the importance of the session and introduced the following key issues related to crop diversification in tobacco growing areas.

- Is there a need for crop diversification? If so, what are the hot-spots for crop diversification?
- Possible crops/ cropping systems as viable options for diversification in tobacco growing areas
- Market size, market demand and profitability of identified crop options
- Nature and extent of institutional, infrastructure and policy support expected by the farmers to adopt identified viable options
- What to do with existing infrastructural facilities like barn, structures, etc. in the FCV tobacco growing areas?
- What is the scope for livelihood diversification which the tobacco farmers can switch to?

Dr. K. Deo Singh, Former Director, ICAR-CTRI; Dr. N. Gopalakrishnan, Former ADG (CC), ICAR; Dr. R.K. Mathur Director, ICAR-IIOPR and Dr. A.P. Singh, Addl. Commissioner, DAC & FW, GOI facilitated the panel discussion.

Farmers from Karnataka Light Soil (KLS) region and Northern Light Soil (NLS) region of Andhra Pradesh together informed the house that their standard of living and economic condition are enhanced due to tobacco cultivation. They further remarked, presently, agriculture is not much remunerative. However, tobacco cultivation is remunerative as compared to other crops being cultivated. Hence, as long as the demand exists and price is remunerative, there is no necessity of diversification for tobacco crop.

Farmer participants from different tobacco growing regions revealed their experiences with tobacco vis-a-vis other crops and concluded that tobacco cultivation is the best option as compared to other crops.

Sri Javare Gowda, a farmer from KLS area opined that diversification is not necessary for tobacco as long as demand exists and price is remunerative. **Sri Vikram Raj Urs, farmer from same area** shared his experience of practicing sericulture and growing of banana for some years. He told that they are not profitable as the price fluctuations are high

while FCV tobacco has well organised marketing system. They also pointed out, even if the government gives good compensation for existing curing barns and other infrastructural facilities, the farmers who grow FCV tobacco on their own never leave tobacco cultivation. Only landlords who leased out their land and barn may give up tobacco cultivation on accepting compensation from the government.

Participants spoke on distress faced by the tobacco growers during 2014-15 crop season and need for diversification. During the discussion, Additional commissioner (crops) DAC and FW, New Delhi stated very clearly that the main aim of the Ministry of Agriculture and Farmers Welfare is to protect the interests of the farmers and farmers will not be subjected to stress. He also mentioned that Central Government is a suggestive body and state governments are decisive bodies to initiate and implement the decisions.

Sri Reddy Naidu, a farmer from NLS area, shared his experience in growing other crops like oil palm, sugar cane and rice. He mentioned that no crop is as remunerative as that of tobacco. Main reason is the price fluctuations in other crops. He opined that government should take measures to provide remunerative prices to farmers produce. He also mentioned that farmers want remunerative price for the produce they produced by incurring lot of expenditure. If remunerative price exists, farmers are ready to grow any crop. He also felt that government should regulate the adoption of crop options. He remarked, based on soil and climatic conditions, farmers should be given a **Crop plan card** in which details of the crops to be grown should be mentioned. **Another farmer from the same area Sri P. Rambabu** told that FCV tobacco farmer, tobacco board, tobacco trade are working with good co-ordination. Hence, there is no need for diversification. He also felt that lot of regulations are on FCV tobacco and not on non-FCV tobacco which is more harmful.

Sri P. Nageswara Rao, a farmer from SBS area shared his experiences. He mentioned that he has grown different crops like chillies, black gram, bengal gram, banana etc. bengal gram productivity is good but price fluctuations are very high. Hence, they are comfortable with FCV tobacco cultivation.

Sri Srikanth, a farmer from SLS area, mentioned that due to drought and excessive rains, they are getting low productivity in tobacco. He also mentioned, except tobacco which will withstand adverse weather conditions, other crops cannot be grown in those situations.

Sri B.N. Mitra, Manager (Extension), Tobacco Board mentioned that the productivity levels of FCV tobacco grown in KLS, NLS, SBS and SLS are 5 q, 8 q, 6-6.5 q and 4 q per acre, respectively. Due to low rainfall and poor water holding capacity of soils, yields are very low in SLS area. He mentioned that some pockets of SLS area i.e. Podili and Kanigiri in particular needs diversification interventions and drought tolerant varieties.

Alluri Ramakrishna, a farmer from NLS area mentioned that he started tobacco cultivation with one barn. At present, he is having 20 barns and 2 crore worth infrastructure. He mentioned that he practiced many enterprises including animal husbandry but none found as remunerative as tobacco.

Sri G. Sehagirirao, NLS tobacco farmer opined that all tobacco types should be brought under one umbrella i.e., Tobacco Board. Then diversification can be thought of.

There was a discussion on research on alternative crops to tobacco. Farmers said that there is no need for research output to recommend alternative crops to tobacco. However, scientists from different tobacco growing regions cited few examples of crops that can be considered as options for crop diversification in tobacco areas. **Dr. M. Kumaresan, Head I/C, CTRI Rs, Veda sandur** mentioned that maize, chillies and annaul moringa are next best crops to chewing tobacco. **Dr. P. Muniratnam, Principal Scientist, RARS, Nandyal** mentioned bidi tobacco is grown in that area. In small pockets, natu tobacco is also grown. However, tobacco farmers prefer to grow tobacco only. **Sri Mandi, Head I/C, CTRI RS, West Bengal** mentioned that next best crops in that area are Wheat, Potato and Mustard. Tobacco is more remunerative than other crops. Price fluctuations are more in other crops. The house in principle recognise the need to systematically pursue research on various crop options/ livelihood enterprises and explore the possibilities of considering them as candidate crops for diversification in tobacco growing areas. The panellists felt that CTRI needs to take a lead role on this issue.

While participating in the discussion, **Dr. N. Gopalakrishnan, Former ADG(CC), ICAR** stressed that biodiversity is needed. Strategic plans should be made to tide over unforeseen situations. In case, if law is enacted by the Supreme Court, alternative solutions should be explored to act as ready reckoner for adoption.

Participants discussed on shifting of tobacco cultivation from black soils to light soils and remarked, as the demand for black soil tobacco is reduced, the prices have gone down. Hence, farmers of black soil region shifted to other crops like chillies and cotton claimed that they are remunerative.

There was a **discussion on use of wood as fuel to cure FCV tobacco** and issue of deforestation. It was mentioned, in Karnataka, many alternative materials like coffee husk, coconut husk, roots of eucalyptus etc. are being used as fuel. In addition, it was also mentioned that **farmers are growing energy plantations. Hence the threat of deforestation is addressed.**

Dr. M. Mani, Chief scientist, ITC-ILTD division explained that FCV tobacco produced under irrigated conditions of NLS is semi flavourful tobacco and tobacco produced as rain fed crop during kharif season in Karnataka state is filler tobacco. The filler tobacco is being preferred by other countries. He stated that the tobacco produced in SLS and SBS area is coloury filler. The demand for these tobaccos mainly depends on the tobacco produced elsewhere in the world. He remarked that soil aggregation is the major problem in SLS area of A.P. and opined that rain water harvesting and use of improved practices can make the SLS tobacco farms profitable.

Dr. N.D.R.K. Sarma, State consultant, NFSM, Got. Of A.P. opined as long as the demand exists, no need of diversification from tobacco. When demand is less, diversification is needed. He mentioned that low productivity and low quality areas should be delineated at mandal level.

Dr. A. P. Singh, Additional Commissioner (Crops), DAC&FW mentioned that at ministry level, farmers welfare is given due thrust and said labour shortage demands mechanisation. He further remarked that identifying actual farmers is also difficult task. However, farmers welfare is ultimate motto.

Dr. R. Laxminarayana, Former Project Coordinator, AINPT, ICAR-CTRI said that crop diversification is always a natural process and one cannot force the farmers for diversification. In East Godavari district, majority of tobacco growing area has already been diversified to crops like paddy and sugarcane. In Kurnool district, bidi tobacco farmers shifted to millets cultivation. In Guntur district, tobacco crop was replaced by cotton, chillies, maize and bengal gram. Hence, alternatives to tobacco crop should be identified and recommended as a ready reckoner for its adoption in tobacco growing areas if, situation calls for. **Dr. R.K. Mathur**, Director, ICAR-IIOPR, Pedavegi appreciated the coordinated approach that existed in tobacco group. He mentioned that on consumption point of view, tobacco is not good. He remarked, diversification with suitable options is essentially required to provide remunerative returns to the farming community.

The session was concluded with the remarks of **Dr. D. Damodar Reddy**, Director, ICAR-CTRI, stating that the issue of crop diversification is a continuous process and need based practice being adopted by the farmers. Futuristic and long term strategies have to be formulated and kept ready to effectively deal with the various facets of crop diversification in tobacco growing areas. Vote of thanks was proposed by Dr. A.V.S.R. Swamy, Principal Scientist, Division of Crop Improvement, ICAR-CTRI, Rajahmundry and the seminar came to an end with National Anthem.

Recommendations/view points emerging from the deliberations of the National Seminar on Crop Diversification

1. The farmer representatives participating in the Seminar are of the opinion that with the prevailing market prices, the tobacco crop has been fetching them highly remunerative returns over the years as compared to other crops grown in respective tobacco growing areas. Further, they expressed their interest unequivocally to continue with the tobacco and recognised least scope for the crop diversification in tobacco growing areas. The efforts on the Crop Diversification in the tobacco growing areas should, therefore, duly consider the present and future interest of the tobacco farmers and enlist their willing support for success.
2. At present, the FCV tobacco fetches relatively more returns to the farmers than non-FCV tobacco in the country and is mainly meant for export purpose. Unlike FCV tobacco that is under regulation by the Tobacco Board, the non-FCV tobacco represents unorganised and unregulated crop vulnerable to income fluctuations to the farmers. Crop diversification initiatives need to be taken up first in the non-FCV tobacco growing areas so as to ensure stable and high returns to the farmers.

3. There are instances where FCV tobacco is grown on areas that are otherwise unsuitable or unproductive. There is a need to discourage such practice immediately. In such areas, there is need to promote crop diversification by taking up suitable non-tobacco crop/cropping system options.
4. Crop diversification in tobacco growing areas by going in for next best crop/cropping system options should be looked at as a part of the emerging greater national policy in the national interest. But, this should appropriately address the needs and concerns of the tobacco farming community for effective implementation of diversification plans in a gradual and phased manner. A concrete road map for viable crop/ cropping system options needs to be prepared with a focus on requisite special assistance like crop insurance and proofing the price fluctuations, and special incentives for the tobacco farmers opting for diversification.
5. Tobacco, particularly FCV tobacco, enjoys the advantage of institutional and market support that is put in place over the years. The farmers often complain about non availability of the similar support for other crops viz., pulses, cereals, etc. There is, therefore, a need to look at the possibilities of strengthening the institutional, marketing and other support systems for other crops as well, so as to motivate the tobacco growers take up crop diversification.
6. Majority of the stakeholders in the tobacco sector held the overwhelming view that the institutions like CTRI and Tobacco Board should continue to provide R&D backup for tobacco to ensure the increased and stable farm returns to the tobacco farming community. Nevertheless, research institutes like CTRI need to work on all possible alternative crop/farm enterprise and livelihood diversification options that the tobacco farmers can switch to in the event of decline in tobacco demand and consequently returns. Accordingly, the house felt that the mandate of the CTRI needs to be enlarged and broad based so as to include other crops/ farm enterprises in addition to the tobacco.

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ICAR-CENTRAL TOBACCO RESEARCH INSTITUTE
RAJAHMUNDRY – 533105



NATIONAL SEMINAR ON CROP DIVERSIFICATION

18th January, 2016

Venue: Seminar Hall-I, ICAR-CTRI, Rajahmundry

PROGRAMME

8.30- 9.30 hrs	REGISTRATION	
SESSION-I 9.30-13.00 hrs	INAUGURATION AND INVITED PRESENTATIONS	
	Inviting Dignitaries to the Dais	Dr. Y. Subbaiah Organising Secretary
	Invocation	
	Welcome Address Chairman, Organising Committee	Dr. D. Damodar Reddy Director, ICAR-CTRI, Rajahmundry
	Lighting the Lamp and Inauguration of the Seminar	All Dignitaries
	Release of Seminar Brochure and CTRI Newsletter	Chief Guest & Guests of Honour
	Address by the Guests of Honour	Dr. B.M.C. Reddy , Vice Chancellor Dr. YSRHU, Venkataramannagudem Dr. R.K. Mathur Director, ICAR-IIOPR, Pedavegi Dr. K. Deo Singh , Former Director, ICAR-CTRI, Rajahmundry
	Address by the Chief Guest	Dr. A. Padma Raju , Vice Chancellor ANGRAU, Hyderabad
	Coffee Break (10.45-11.00 hrs)	
	PRESENTATIONS BY RESOURCE PERSONS	
Topic	Resource Person	
1. Crop Diversification for Sustainable Farm Productivity & Livelihood Security	Dr. J.S. Sandhu DDG (CS), ICAR, New Delhi / Dr. N. Gopalakrishnan Former ADG (Commercial Crops), ICAR, New Delhi	
2. Myriad Facets of Tobacco Production in India – Options for Crop Diversification	Dr. D. Damodar Reddy Director, ICAR-CTRI, Rajahmundry	
3. Diversification is the Need of the Hour in the Interest of Society and Farmers Too	Dr. Pankaj Chaturvedi Prof. & Head, Tata Memorial Hospital, Mumbai	

(Contd...2)

	4. Crop Diversification Efforts in FCV Tobacco Growing Areas – Tobacco Board Experiences	Shri Manoj Kumar Dwivedi , IAS Chairman, Tobacco Board, Guntur/ Shri Ch. Maruthi Prasad Tobacco Board, Guntur
	5. Support for Crop Diversification	Dr. A.P. Singh Addl. Commissioner (Crops), DAC & FW, New Delhi
	6. Possible Alternative Crops and Cropping Systems for Diversification in Tobacco Growing Regions of Andhra Pradesh	Dr. N.D.R.K. Sarma State Consultant, NFSM, Govt. of A.P.
	7. Prospects and Constraints of Available Options for Crop Diversification in <i>Bidi</i> Tobacco Growing Areas of Gujarat	Dr. H.R. Patel Unit Officer, BTRC, Anand
	8. Farmers' Perspective on Crop Diversification in Tobacco Growing Areas	Shri G. Seshagiri Rao Farmers' Representative & Member, Tobacco Board, Guntur
	9. Industry's Perspective on Crop Diversification in Tobacco Growing Areas	Shri M. Umamaheswara Rao President, ITA
	Rapporteurs	Dr. T.G.K. Murthy , Principal Scientist, ICAR-CTRI Dr. M. Kumaresan , Head I/C, CTRI RS, Vedasandur Dr. L.K. Prasad , Principal Scientist, ICAR-CTRI Dr. G. Raghupathi Rao , Sr. Scientist, ICAR-CTRI Ms. J. Poorna Bindu , Scientist, ICAR-CTRI
	Lunch Break (13.00-13.45 hrs)	
SESSION-II 13.45-15.45 hrs	PANEL DISCUSSION ON ISSUES RELATED TO CROP DIVERSIFICATION IN TOBACCO GROWING AREAS	
	Chairman	Dr. A. Padma Raju , VC, ANGRAU, Hyderabad
	Co-Chairman	Dr. K. Deo Singh , Former Director, ICAR-CTRI
	Panel Members	Representatives from DAC & FW, ICAR/ SAUs, Tobacco Board, State Agril. Departments, Farmers and Industry
	Rapporteurs	Dr. M. Anuradha , Head, CTRI RS, Kandukur Dr. K. Sarala , Head, Div. of Crop Improvement, ICAR-CTRI Dr. S.V. Krishna Reddy , Principal Scientist, ICAR-CTRI Dr. P. Venkateswarlu , Head I/C, CTRI RS, Guntur Shri Sunil Mandi , Head I/C, CTRI RS, Dinhat
15.45 hrs	Vote of Thanks	Dr. A.V.S.R. Swamy Principal Scientist, ICAR-CTRI
15.55 hrs	National Anthem	
SESSION- III 16.00-18.00 hrs	FIELD VISIT	All Participants



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NATIONAL SEMINAR ON CROP DIVERSIFICATION

18th January, 2016

LIST OF PARTICIPANTS

S.No.	Organization	Address
1.	Invited Guests	Dr. A. Padma Raju, VC, ANGRAU, Hyderabad
2.		Dr. B.M.C. Reddy, VC, Dr.YSRHU, Venkataramannagudem
3.		Dr. K. Deo Singh, Former Director, ICAR-CTRI, Rajahmundry
4.		Dr. N.D.R.K. Sarma, State Consultant, NFSM, Commissionerate of Agri., Govt. of AP, Hyderabad
5.		Dr. Pankaj Chaturvedi, Head & Neck Surgeon, Tata Memorial Hospital, Mumbai
6.	DAC & FW, GOI	Dr. A.P. Singh, Addl. Commissioner (Crops), New Delhi
7.		Dr. S.S. Kagi, Assistant Director, Directorate of Oil Seeds Development, Hyderabad
8.	ICAR & SAUs	Dr. D. Damodar Reddy, Director, ICAR-CTRI, Rajahmundry
9.		Dr. N. Gopalakrishnan, Former ADG(CC), ICAR, New Delhi
10.		Dr. R.K. Mathur, Director, ICAR-IIOPR, Pedavegi
11.		Dr. S.V. Ramana Rao, Principal Scientist, ICAR-IIOR, Hyderabad
12.		Dr. K.V. Seetharamaiah, Associate Dean, Ag. College, Rajahmundry
13.		Dr. H.R. Patel, Unit Officer, BTRC, AAU, Anand
14.		Dr. P. Munirathnam, Principal Scientist, RARS, Nandyal
15.		Dr. S. Kasturi Krishna, Head, Crop Production, ICAR-CTRI, Rajahmundry
16.		Dr.C.Chandrasekhara Rao, Head, CC&SS, ICAR-CTRI, Rajahmundry
17.		Dr. K. Sarala, Head, Crop Improvement, ICAR-CTRI, Rajahmundry
18.		Dr. U. Sreedhar, Head I/C, Crop Protection, ICAR-CTRI, Rajahmundry
19.		Dr. T.G.K. Murthy, Principal Scientist, ICAR-CTRI, Rajahmundry
20.		Dr. K. Siva Raju, Principal Scientist, ICAR-CTRI, Rajahmundry
21.		Dr. A.V.S.R. Swamy, Principal Scientist, ICAR-CTRI, Rajahmundry
22.		Dr. Y. Subbaiah, Principal Scientist, ICAR-CTRI, Rajahmundry
23.		Dr. D.V. Subhashini, Principal Scientist, ICAR-CTRI, Rajahmundry
24.		Dr. S.V. Krishna Reddy, Principal Scientist, ICAR-CTRI, Rajahmundry
25.		Dr. K. Suman Kalyani, Principal Scientist, ICAR-CTRI, Rajahmundry
26.		Dr. L.K. Prasad, Principal Scientist, ICAR-CTRI, Rajahmundry
27.		Dr. G. Raghupathi Rao, Senior Scientist, ICAR-CTRI, Rajahmundry
28.		Dr. H. Ravisankar, Senior Scientist, ICAR-CTRI, Rajahmundry

29.		Dr. K. Prabhakara Rao, Scientist, ICAR-CTRI, Rajahmundry
30.		Dr. J. Poorna Bindu, Scientist, ICAR-CTRI, Rajahmundry
31.		Dr. V.S.G.R. Naidu, Programme Coordinator, CTRI- KVK, Kalavacharla
32.		Dr. K. Nageswara Rao, Head, CTRI RS, Jeelugumilli
33.		Dr. M. Anuradha, Head, CTRI RS, Kandukur
34.		Dr. M. Kumaresan, Head I/C, CTRI RS, Vendasandur
35.		Dr. P. Venkateswarlu, Head I/C, CTRI RS, Guntur
36.		Dr. S. Ramakrishnan, Head I/C, CTRI RS, Hunsur
37.		Shri S. Mandi, Head I/C, CTRI RS, Dinjata
38.	Tobacco Board	Sri B.N. Mitra, Manager(Extension),Guntur
39.		Sri T. Srinadh, Manager(Marketing), Guntur
40.		Sri Ch. Maruthi Prasad, Auction Supdt (Production), Guntur
41.		Sri G. Bhaskar Reddy, Regional Manager(SBS), Ongole
42.		Sri G. Ratnasagar, Regional Manager(SLS), Ongole
43.		Sri M. Sreerama Murthy, Regional Manager(NLS), Rajahmundry
44.	State Agricultural Departments	Sri V.T. Rama Rao, DDA, East Godavari Dt., Andhra Pradesh
45.		Smt. T. Sudha Rani, ADA, West Godavari Dt. , Andhra Pradesh
46.		Sri Brahmaiah, DDA, Prakasam Dt., Andhra Pradesh
47.		Sri M. Ramalingaiah, DDA, Guntur Dt., Andhra Pradesh
48.		Sri Venkatesh, ADA, Mysore Dt., Karnataka
49.		Sri Muthuraj, DDA, Hasan Dt. Karnataka
50.	Farmers	Sri M.D. Patel, Bidi tobacco area, Gujarat
51.		Sri G.C. Patel, Bidi tobacco area, Gujarat
52.		Sri K.B. Patel, Bidi tobacco area, Gujarat
53.		Sri B.V. Javare Gowda, KLS area, Karnataka
54.		Sri K. Shivanna, KLS area, Karnataka
55.		Sri Vikram Raj Urs, KLS area, Karnataka
56.		Sri R.V. Viswanath, KLS area, Karnataka
57.		Sri R. Veeranjanyulu, SLS area, Andhra Pradesh
58.		Sri R. Srikanth Babu, SLS area, Andhra Pradesh
59.		Sri A. Gurubrahmam, SLS area, Andhra Pradesh
60.		Sri B. Krishna Reddy, SLS area, Andhra Pradesh
61.		Sri P. Nageswara Rao, SBS area, Andhra Pradesh
62.		Sri B. Hanumantha Rao, SBS area, Andhra Pradesh
63.		Sri N. Surendrakumar, SBS area, Andhra Pradesh
64.		Sri B. Ramasubba Reddy, SBS area, Andhra Pradesh
65.		Sri G. Seshagiri Rao, NLS area, Andhra Pradesh
66.		Sri K. Reddy Naidu, NLS area, Andhra Pradesh
67.		Sri P. Rambabu, NLS area, Andhra Pradesh
68.		Sri A. Ramakrishna, NLS area, Andhra Pradesh
69.		Sri A. Gopala Krishna, NLS area, Andhra Pradesh
70.		Sri K. Srinivasa Rao, NLS area, Andhra Pradesh
71.		Sri K. Surya Prakasa Rao, NLS area, Andhra Pradesh
72.		Sri Y. Sarath Babu, NLS area, Andhra Pradesh
73.		Sri A. Eswarudu, NLS area, Andhra Pradesh
74.		Sri K.V.V. Satyanarayana, NLS area, Andhra Pradesh
75.		Sri K.V. Satyanarayana, NBS area, Andhra Pradesh
76.		Sri V. Satyanarayana, NBS area, Andhra Pradesh

77.		Sri P. Prakasa Rao, NBS area, Andhra Pradesh
78.		Sri B. Subrahmanyam, NBS area, Andhra Pradesh
79.		Sri K. Gangadharam, NBS area, Andhra Pradesh
80.		Sri Pendurthi Ramachandrarao, NBS area, Andhra Pradesh
81.	Tobacco Industry	Sri K. Santi Bhushan, ITA, Guntur
82.		Dr. M. Mani, Chief Scientist, ITC Ltd-ABD-ILTD, Rajahmundry
83.		Sri H.G. Raveesh, Leaf Manager, ITC Ltd-ABD-ILTD, Rajahmundry
84.		Sri V. Kannaiah, PSS Co. Ltd., Guntur
85.		Sri Y.S. Patil, GPI Co. Ltd., Ongole
86.		Sri P. Guravaiah, Alliance Ltd., Guntur
87.		Sri D. Ramachandram, ML&Co Ltd., Rajahmundry
88.	ISTS Executive Committee Members	Dr. R. Lakshminarayana, Former PC (AINPT), CTRI, Rajahmundry
89.		Dr. C.V. Narasimha Rao, Principal Scientist(Rtd), CTRI, Rajahmundry
90.		Sri N. Prabhakara Rao, Technical Officer (Rtd), CTRI, Rajahmundry
91.	Administrative & Technical Staff, ICAR-CTRI, Rajahmundry.	Sri S.L.V. Prasad, Senior Administrative Officer
92.		Smt. P.V.S. Bharathi, Finance & Accounts Officer
93.		Smt. V. Bhagyalakshmi, Assistant Administrative Officer
94.		Sri K.T.R. Singh, PS to Director
95.		Smt. N. Aruna Kumari, Chief Technical Officer
96.		Dr. M. Nageswara Rao, Chief Technical Officer
97.		Sri C.V.K. Reddy, Assistant Chief Technical Officer
98.		Sri I. Jagadish Chandra, Senior Technical Officer
99.		Sri G. Nagesh Kantha Rao, Senior Technical Officer
100.		Sri M.N.P. Kumar, Senior Technical Officer
101.		Smt. B. Krishna Kumari, Senior Technical Officer
102.		Smt. K. Padmaja, Senior Technical Officer
103.		Dr. S.K. Dam, Senior Technical Officer
104.		Sri Md. Elias, Senior Technical Assistant
105.		Sri N. Johnson, Senior Technical Assistant

