

## PROCEEDINGS OF THE RESEARCH ADVISORY COMMITTEE MEETING

**Date: 19 May, 2016**

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

The second meeting of the current Research Advisory Committee (RAC) of ICAR-CTRI was held during 19<sup>th</sup> May, 2016 at ICAR-CTRI, Rajahmundry under the Chairmanship of Dr. A. Padma Raju, Former Vice-Chancellor, Acharya N.G. Ranga Agricultural University, Hyderabad. The following members attended the meeting.

Dr. A. Padma Raju, Vice-Chancellor, Acharya NG Ranga Agricultural University, Hyderabad – 500 030.	-	Chairman
Dr. V. S. Korikanthimath, Retd. Director, ICAR Research Complex, Goa	-	Member
Dr. Ashok Kumar, Professor and Head, Department of Soil Science, College of Agriculture, SVBPUA&T, Meerut	-	Member
Dr. T.V.K. Singh, Dean of Agriculture Professor Jayashankar Telangana State Agricultural University (PJ TSAU), Hyderabad	-	Member
Dr. D. Damodar Reddy Director, ICAR-CTRI, Rajahmundry	-	Member
Dr. R.K. Singh ADG (CC), ICAR, New Delhi	-	Member
Dr. K. Sarala, Principal Scientist & Head	-	Member-Secretary, RAC

Dr. J.L. Karihaloo, Senior Consultant, Asia-Pacific Association of Agricultural Research Institutions (APAARI), Bangkok and member, RAC could not attend the meeting in view of his pre-occupation. The Heads of Divisions, Heads of Research Stations, Scientists and Heads of Administration of ICAR-CTRI participated in the meeting.

Dr. K. Sarala, Member-Secretary, RAC welcomed the Chairman, Members of RAC and participants to the 2<sup>nd</sup> meeting of the current RAC. She briefed about the status of the actions taken/initiated in respect of various recommendations given during the last RAC meeting. The meeting started with the lighting of the lamp by dignitaries. Later, all the participants introduced themselves briefly.

Dr. D. Damodar Reddy, Director, made a concise presentation on the Institute and its research activities. He briefed about the global scenario on tobacco production, productivity and export trends, dynamics of Indian tobacco crop, salient research achievements of last year, future plan of action, research thrust areas etc. He informed that three FCV cultivars, JS-117 (low tar FCV line for NLS area), N-98 (An FCV line for SLS area) and CH-1 (CMS Hybrid), and one bidi variety (Nandyala Pogaku-1) were released by State sub-committee on varietal release, Andhra Pradesh. Dr. Reddy also informed that ICAR-CTRI is bestowed with ISO 9001:2008 certificate.

Dr. A. Padma Raju, Chairman, RAC in his address complemented the Director and his team for the progress made in various areas of the research and also for getting ISO 9001:2008 certification to the Institute. He felt that SAUs cannot ignore tobacco as majority of farmers are dependent on the crop. Dr. Padma Raju proposed to have collabobation of KVK, Kandukur with KVK, Darsi which is under ANGRAU. He further opined that there is a need to expand the mandate of ICAR-CTRI so as to conduct research on other crops like chillies, turmeric etc.

After the brief remarks of the Chairman, RAC, the Heads of Divisions and Heads of Research Stations presented the action taken report and salient research achievements of their respective Division/ Station. The brief details are given below.

Dr. K. Sarala, Head, Division of Crop Improvement presented the Action Taken Report (ATR) of the previous RAC meeting and research highlights, thrust areas and future plan of action pertaining to the Division of Crop Improvement. Dr. Padma Raju enquired about the extent of involvement of private sector in farmer welfare and funding for tobacco research. DR. R. K. Singh discussed about the project on TSNA biogenesis and suggested to exploit germplasm for reducing TSNA in cultivated tobacco. From a query from DR. R. K. Singh, Dr. Sarala said that the private companies are releasing tobacco varieties through AINPT.

Dr. S. Kasturi Krishna, Head, Div. of Crop Production presented the Action Taken Report (ATR), salient findings of research carried out in Division of Crop Production and activities of AKMU and Agricultural Extension. Keeping in view the serious problem of Broomrape menace, Committee suggested to interact with the Coordinator, weed control project, ANGRAU and to coordinate with ICAR-National Institute of Weed Science, Jabalpur in the process of finding solution to the problem. Suggested, that the Director, ICAR-CTRI may constitute a working group on Broomrape for accelerated solution. Committee, also, suggested organizing a training

programme on Good Agricultural Practices in Tobacco Production to sensitize relevant subject matter specialists of KVKs operating in tobacco growing districts. Further, suggested to conduct survey on adoption of practices by the best tobacco farmers (FCV) and the resultant yields and returns.

Dr. C. Chandrasekhara Rao, Head, Division of Crop Chemistry and Soil Science presented the Action Taken Report (ATR), salient findings and future areas of research. Considering the previous year achievements, RAC requested to initiate studies on response of FCV tobacco to Zinc applications, delineation of micronutrient deficient areas and preparation of soil maps for micronutrients. Also, suggested to take up collaborative studies with Universities, Institutions, trade and Tobacco Board on utilization of solar energy for curing the FCV tobacco with a multidisciplinary team.

Dr. U. Sreedhar, Head, Division of Crop Protection presented the Action Taken Report (ATR), salient achievements and future thrust areas. He sought the strong recommendation by RAC members for the early posting of the plant protection scientists by the Council. Dr. T.V.K. Singh suggested carrying out base line resistance studies for different pesticides to screen and recommend them. Also, requested to workout cost benefit ratios for proven crop protection technologies.

Later, Dr. S. Ramakrishnan, Head i/c, CTRI Research Station, Hunsur, Dr. P. Venkateswarlu, Head i/c, CTRI Research Station, Guntur, Dr. M. Anuradha, Head, CTRI Research Station, Kandukur, Dr. M. Kumaresan, Head i/c, CTRI Research Station, Vendasandur, Dr. S. Mandi, Head i/c, CTRI Research Station, Dinhat and Dr. S.Kasturi Krishna, Head i/c, CTRI Research Station, Jeelugumilli have presented the Action Taken Reports and salient research findings of their respective stations. RAC critically analyzed the achievements and given appropriate suggestions for further improvement.

### **Remarks of the Chairman and Members of RAC**

At the end, Chairman and the members of RAC congratulated Director and the team of scientists for getting ISO 9001:2008 certificate to the Institute and for organizing the National Seminar on Crop Diversification. Also, expressed happiness over the acceptance of all the five (four on scientific and one on administration) recommendations made by the last RAC meeting by the Council and implemented by CTRI, Rajahmundry as per the prescribed time frame. RAC made note of increase in the production of tobacco in spite of apprehension on the impact of tobacco consumption on human health. RAC complemented the excellent progress made in Crop Improvement, Crop Production and Crop Protection areas. Further, the RAC made the following advices for improving the research at ICAR-CTRI.

- Government of India has to come out with clear cut policy interventions on production of tobacco.
- There is an urgent need to setup referral lab for monitoring the pesticide residue either with financial support of i) ICAR ii) DBT iii) DST iv) private sectors like M/s. ITC ILTD Ltd.
- Study the influence of organic/inorganic tobacco cultivation on qualitative parameters.
- All the sub-stations should come out with alternate cropping systems/farming systems which can generate more income than mono-crop of tobacco.
- Understand soil as whole and generate data on soil properties for the soils giving good crop
- Clear cut mandate is essential for ICAR and SAUs to avoid duplication of research
- Currently research work is being carried out on substitutions of sulphate of potash ( $K_2SO_4$ ) with ashes of organic material. Initiate work on use of fly ash, coffee husk and rice husk ash which contain high percent of K in cultivation of tobacco.
- Studies on response of FCV tobacco to Zinc applications and delineation of micronutrient deficient areas and preparation of soil maps for micronutrients are to be initiated.
- Data on soil physical as well as soils microbiological properties are to be included in soil Health cards
- Drought resistance studies in relation to soil properties are to be taken up.
- Studies on utilisation of commercially available K-Solubilising bacteria for improving the K-Use efficiency are to be taken-up.
- Small working group may be constituted on control of *Orobanche* and also collaborate with ICAR-Directorate of Weed Research, Jabalpur.
- Inter institutional collaborations may be sought to effectively utilize solar radiations/ energy
- The Institute should constantly made to pursue with Council to post entry level scientists particular in the disciplines of Organic Chemistry, Agril. Chemicals, Plant Pathology, Plant Breeding, Plant Physiology etc. to CTRI.
- Provide adequate man power and finance to all the sub-stations.
- Involve KVKs for various outreach programmes of the Institute
- Research on climate change may be initiated
- Create tobacco germplasm core collection for its effective management
- Explore the possibility of new genomic tools viz., trait specific markers, gene silencing and genome editing for reducing TSNA
- Base line resistance studies should be carried out for different pesticides and the data help us to screen and recommend different chemicals.
- Cost benefit ratios should be worked out for proven crop protection technologies.
- Compatibility/ Phytotoxic studies should also be carried along with efficacy tests of pesticides on insect pests and diseases.

- Pathologist is urgently required to post to the Institute as viral diseases are becoming more in tobacco in all regions.
- Studies on pest population dynamics should be carried out and correlate with abiotic weather factors.
- Scientists should be encouraged to publish research papers in professional journals with high impact factor.
- All the scientists have to work with team spirit and take the institute to greater heights to meet the needs and aspirations of farmers and other stake holders

### Recommendations of RAC

The RAC of ICAR-CTRI expressed happiness over the acceptance of all its recommendations made during 2015 (five relating to scientific research and one on administration) by the Council and complemented the institute for the action taken on its recommendations as per the prescribed timeframe. After thorough discussion and careful consideration of the actions initiated on the earlier recommendations, the RAC made the following recommendations for fine tuning the Institute's research in identified priority areas.

Sl. No.	RAC recommendations-2016	Time line for initiation of Action
	Research	
1	Developing tobacco varieties with low levels of harmful constituents in leaves is one of the emerging research priorities of tobacco sector. While appreciating the institute's research initiatives relating to TAR, TSNA etc., the RAC calls for a multipronged effort to lower contents of harmful substances. It specifically suggested to explore the possibility of new genomic tools such as trait specific markers, gene silencing, genome editing etc. for reducing TSNA content	Initiated and on-going
2	Despite the extensive research on a wide range of host crops including tobacco, the menace of Broomrape ( <i>Orobanche</i> ) continues to be an enigma. An effective solution/method for its complete control at the farm level still remains elusive. The RAC suggests initiating a strategic research based on distinct phases of parasite life cycle with a view to develop an integrated approach aimed at reducing the parasite seed load in soil for lasting impact. Forging research collaboration with other research institutes/SAUs needs to be thought of in this important research area.	Initiated and on-going
3	Tobacco is grown on a range of soils with widely differing constraints and potentials. Addressing soil fertility/health related constraints through balanced and integrated nutrient	2016-17

Sl. No.	RAC recommendations-2016	Time line for initiation of Action
	<b>Research</b>	
	management becomes critical for sustained productivity and quality of tobacco. Therefore, the RAC advocates developing data bases on soil fertility covering not only major but also secondary and micro nutrients for important production domains of FCV tobacco for ensuring the balanced fertilization. Also due attention may be paid to Zn nutrition, K supplementation through coffee and rice husk ashes, nutrient use efficiency, etc.	
4	Management of biotic stresses (pests and diseases) by employing the strategies that are effective, low-cost and result in no/little pesticides residues in the produce is vital for obtaining optimum productivity and quality of tobacco. The RAC recommends that (i) pest population dynamics be studied and correlated with abiotic weather factors, (ii) while evaluating the bio-efficacy of new molecules, due attention needs to be given to base line resistance and compatibility/ phytotoxicity, (ii) Benefit to cost ratios to be worked out for proven crop protection technologies. Recognizing importance of pesticide residue issues in tobacco, the RAC recommends strongly for establishing a REFERRAL LAB for monitoring pesticide residues, with the financial support from ICAR/Tobacco Board/Industry.	Initiated and on-going
5	The RAC, while complimenting the institute for initiating a series of preliminary studies well before the scheduled time to explore the possibilities of using solar energy for curing of FCV by taking advantage of green-house effect, suggested to put in concerted and additional efforts, in collaboration with other R&D agencies, for effective trapping of solar energy during day time and maintaining desired barn temperatures during night by heat supplementation to ensure proper curing of tobacco.	2016-17
	<b>Administration</b>	
6	At present, the institute is operating with less than 50% of sanctioned scientific strength, with 4 of its research stations manned with a single scientist. The RAC, therefore, feels an urgent need for filling up of all vacant positions scientists and accordingly recommends for early action on priority to post the scientists, particularly in the disciplines of Organic Chemistry, Agril. Chemicals, Plant Pathology, Plant Breeding, Plant Physiology etc.	2016-17

The Chairman and Members of RAC thanked Dr. T. Mohapatra, Secretary, DARE & DG, ICAR and Dr. J.S. Sandhu, DDG (CS), ICAR, New Delhi for giving them the opportunity of review the research conducted at ICAR-CTRI. The Committee also thanked Dr. D. Damodar Reddy, Director, ICAR-CTRI, Heads of Divisions and Stations for nice presentations and cooperation in reviewing and fine tuning the tobacco research.

Finally, the meeting concluded with the vote of thanks proposed by Dr. A.V.S.R.Swamy, Principal Scientist, Division of Crop Improvement, ICAR-CTRI, Rajahmundry.