

Proceedings of IX Group Meeting held during 12-13th October, 2016

CONTENTS

<i>S.No.</i>	<i>Titles</i>	<i>Page No.</i>
1	Programme	1
2	Proceedings of Sessions	4
2.1	Inaugural Session	4
2.2	Combined Session	6
2.3	Concurrent Technical Sessions	8
2.3.1	Crop Improvement	8
2.3.2	Crop Production	16
2.3.3	Crop Chemistry & Soil Science	19
2.3.4	Crop Protection	20
2.3.4.1	Entomology	20
2.3.4.2	Pathology, Virology & Nematology	21
2.4	Plenary Session	23
3	List of invited participants	26
4	Important outcome of the group meeting	32

IX GROUP MEETING
ALL INDIA NETWORK PROJECT ON TOBACCO
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)

PROGRAMME

Venue: ICAR-Central Tobacco Research Institute, Rajahmundry

Dates: October 12 and 13, 2016

October 12, 2016

Inaugural Session: 10.00 - 10.45 hrs

10.00 hrs	Invocation	
10.05 hrs	Welcome	Dr. K. Siva Raju Nodal Officer, AINPT
10.15 hrs	Lighting the Lamp By the Chief Guest	Dr. Jeet Singh Sandhu Deputy Director General (CS), ICAR
10.20 hrs	Director's Address	Dr. D. Damodar Reddy Director, ICAR-CTRI, Rajahmundry
10.35 hrs	Chief Guest's Address	Dr. Jeet Singh Sandhu Deputy Director General (CS), ICAR
10.45 hrs	Vote of Thanks	Dr. H.R. Patel , Unit Head, BTRS, Anand
	Rapporteur	Dr. C. Nanda , Senior Scientist, ICAR-CTRI, Rajahmundry – 533 105

Tea Break 10.50-11.05 hrs

Combined Session

11.05 – 11.45 hrs

Chairman:

Dr. Jeet Singh Sandhu
Deputy Director General (CS), ICAR

Co-Chairman:

Dr. D. Damodar Reddy
Director, ICAR-CTRI, Rajahmundry

Rapporteur:

Dr. L.K. Prasad,
Principal Scientist, CC&SS, ICAR-CTRI

11.05 hrs

Speaker

Invited Lecture on “Water productivity in Agriculture”

Dr. C.L. Acharya
Former Director, ICAR-IISS, Bhopal &
Former Director, Ext. Edu. (CSKHPKV), Palampur

11.20 hrs Reports by Pls

Dr. K. Sarala (Crop Improvement)
Dr. S. Kasturi Krishna (Crop Production)
Dr. U. Sreedhar (Crop Protection)
Dr. C.Chandrasekhara Rao (Crop Chem.
& Soil Sci.)

Concurrent Technical Sessions

(11.50 to 17.00 hrs with lunch break between 13.00-14.00 hrs and tea break between 15.30-15.45 hrs)

Review of Annual Report of 2015-16, finalization of technical programme for 2016-17 and consideration of recommendations, technologies for release to the farmers

(a) Crop Improvement

Chairman:

Dr. R. Lakshminarayana
Former Project Co-ordinator, AICRP (Tobacco)

Rapporteur:

Dr. K. Sarala, Head, Crop Improvement
ICAR-CTRI, Rajahmundry

(b) Crop Chemistry & Soil Science and Crop Production

Chairman:

Dr. C.L. Acharya
Former Director, ICAR-IISS, Bhopal &
Former Director, Ext. Edu. (CSKHPKV), Palampur

Rapporteur:

Dr. Kasturi Krishna
Head, Crop Production, ICAR-CTRI

(c) Crop Protection

Entomology, Plant Pathology, Virology and Nematology

Chairman: **Dr. K.V. Ramana**
Former ADG (Plantation crops), ICAR

Co-Chairman: **Dr. Y.P. Singh**
Principal scientist, ICAR

Rapporteurs: **Dr. U. Sreedhar**
Head, Crop Protection, ICAR-CTRI

October 13, 2016

Continuation of Concurrent Technical Sessions

(09.30 – 13.30 hrs with lunch break between 13.30-14.30 hrs and tea breaks between 11.30-11.45 hrs and between 15.30-15.45 hrs)

Plenary Session: 15.45 - 17.00 hrs

Chairman: **Dr. D. Damodar Reddy**
Director, ICAR-CTRI, Rajahmundry

Co-Chairman: **Dr. K. Siva Raju**
Nodal Officer, AINPT

Rapporteur: **Dr. C.C.S. Rao**, Head, Div. of CC & SS

Presentation of Reports of:
Technical Sessions Rapporteurs

Chairman's Remarks: **Dr. D. Damodar Reddy**

Vote of Thanks: **Dr. S. Shivanna**, Chief Scientist, Shivamogga

National Anthem



2. PROCEEDINGS OF SESSIONS

2.1 INAUGURAL SESSION

Date: 12-10-2016

Time: 10.00 AM

Inaugural session of IX group meeting of AINPT began with inviting the Chief Guest, Dr. Jeet Singh Sandhu, Honorable Deputy Director General (Crop Sciences), ICAR, New Delhi, Dr. D. Damodhar Reddy, Director, ICAR-CTRI & Co-ordinator, AINPT, Rajahmundry and Dr. K. Siva Raju, Nodal Officer, AINPT on dais.

Dr. K. Siva Raju, Nodal Officer, AINPT extended the formal welcome to the dignitaries on the dais, dignitaries and participants of the IX Group Meeting and informed briefly the importance and issues to be discussed during the meeting.

The IX group meeting was inaugurated by lighting the lamp by the Chief Guest, Dr. Jeet Singh Sandhu, DDG, Dr. D. Damodar Reddy, Director and other dignitaries.

Dr. D. Damodar Reddy, Director, ICAR-CTRI & Co-ordinator, AINPT, Rajahmundry addressed the delegates. He gave brief note on history and establishment of All India Network Project on Tobacco (AINPT). He mentioned the main objectives of AINPT on which the CTRI, main centers, sub-centers and voluntary centers are working under AINPT. He said that there were 114 projects (rather experiments) that are being carried out during 2015-16 with specific objectives towards achieving the broader objectives of AINPT. He mentioned that around 85 varieties of different tobacco types were released by AINPT. The impact of varietal development lead to the improvement in yields to an extent of 120% in SBS and TBS, 50% in NLS & SLS and up to 80% improvement in KLS. AINPT shared 1002 breeding materials among the centers to evaluate and develop varieties. He mentioned that during 2015 four varieties were released including one hybrid *i.e.*, CH-1, (which is a CMS hybrid), two varieties viz., LT-Kanchan (a low tar variety) and N-98 (High yielding variety) and one *bidi* variety NBD 119 (Nandyala Pogaku-1) for cultivation in Andhra Pradesh. In the year 2016, one *bidi* tobacco variety NBD 209 was released for cultivation at Nipani region of Karnataka and one FCV hybrid CH-3 released for KLS. He mentioned the important achievements/ technologies developed by various centers of AINPT during 2015-16 and also important research areas to be focused during 2016-17 including

- Breeding varieties with high yield coupled with multiple desired traits (like tolerance to weather/climatic change, low harmful substance & value added non-conventional uses)
- Enhancing resource use efficiency; developing effective management strategies for biotic stress specially *Orobanche* and exploring the prospectus of alternate fuels (solar energy and agri-waste bricks)
- Diversification through development of suitable crop and cropping systems.

He suggested that all centers should focus to address these issues. He also mentioned the budget allocated to AINPT was effectively and completely utilized. The Newsletter of ICAR-CTRI for the period Jan-June 2016 was released by DDG.

The chief guest Dr. Jeet Singh Sandhu, DDG (Crop Science), ICAR, New Delhi addressed the delegates. He mentioned that his first visit to the institute was as Agricultural Commissioner. He stressed the fact that tobacco is still a remunerative crop, though cultivated in dry area with poor soils and less resources in terms of nutrients & water. He highlighted that to meet the International obligations and considering health, the research efforts should focus on reducing harmful substances. He also mentioned that ideas may be sought from experts dealing with other crops in making the tobacco less harmful and more remunerative. He urged the scientific community to explore the extraction of phyto-chemicals unique to tobacco and be innovative to make the research more relevant. Dr. Sandhu highlighted the need for continuous change in our research approaches so as to adopt the fast changing scenario of agricultural research. He said that it would be difficult to solve all the problems individually and there is a need to collaborate with other agencies working on tobacco like ITC and to make full use of linkages with other organizations. He stressed that management of tobacco stem residue is to be addressed properly. He also mentioned the need to explore alternate crop and cropping systems to tobacco. He asked ICAR-CTRI to actively join Swatch Bharath Abhiyan launched by Govt. of India and thanked the Director for inviting him to ICAR-CTRI.

Dr. D. Damodar Reddy, Director, ICAR-CTRI thanked the DDG (CS), ICAR for accepting the invitation and requested him to allow, ICAR-CTRI to join some of the groups of ICAR institutes addressing control of *Orobanche*, climate change etc.,

Session ended with formal vote thanks by Dr. H.R. Patel, Unit Head, BTRS, Anand.

2.2 COMBINED SESSION

Review of research results by the Principal Investigators

Chairman:	Dr. Jeet Singh Sandhu Deputy Director General (CS), ICAR
Co-Chairman:	Dr. D. Damodar Reddy Director, ICAR-CTRI, Rajahmundry
Rapporteur:	Dr. L.K. Prasad, Principal Scientist, CC&SS, ICAR-CTRI

Invited lecture

Invited lecture was delivered by Dr. C.L. Acharya, Former Director, IISS, Bhopal on "Water productivity in Agriculture". He presented an over view of the status of water resources in India in relation to food production and productivity. He mentioned the ways and means to improve the WUE, In-situ and Ex-situ water conservation in rainfed and irrigated agriculture. He expressed concern over the exploitation of ground water in the country and calamities that are occurring due to change in climate. He explained about water saving techniques at farm level and water and nutrient application methods. He gave estimation that, an increase of 25 % WUE can give an additional crop yield of 85 MT *i.e.*, 44% of increase in crop yields by 2025. The lecture emphasized that by implementing the above techniques and thumb rules of water/resource saving in agriculture can help in usher the second green revolution.

Chairman appreciated Dr. C.L. Acharya for bringing out the issues related to water productivity and assured that they will be addressed / taken care at appropriate levels.

Presentation by ITC

Dr. C.T. Ganesh, LSTC, ITC (India) Ltd. gave presentation on "Development of WUE & Productive FCV tobacco genotypes under soil moisture limiting environments through physiological and molecular techniques".

Action Point:

Dr. R. Lakshminarayana, Former Co-ordinator AICRPT, asked to come up with clear cut assay that can be followed in drought tolerant studies for identifying lines in light textured soils in rainfed conditions.

Dr. J.S. Sandhu, DDG (Crop Science), ICAR asked about the areas in which ITC is interested to collaborate with ICAR-CTRI. Dr. C.T. Ganesh, has specified the areas in which they would like to have collaboration with ICAR-CTRI, Rajahmundry are

- a) Developing techniques for resilient agriculture
- b) Heat/drought tolerant mechanisms to mitigate climate change.
- c) Developing hybrids/varieties and also mentioned that they are open to have any collaboration in R & D.

During this session, the highlights of research projects conducted at various AINPT centers were presented by respective principal investigators.

- i. Dr. K. Sarala, Crop Improvement, Head, ICAR-CTRI, Rajahmundry.
- ii. Dr. S. Kasturi Krishna, Crop Production, Head, ICAR-CTRI, Rajahmundry.
- iii. Dr. U. Sridhar, Crop Protection, Head, ICAR-CTRI, Rajahmundry.
- iv. Dr. C. Chendrasekhara Rao, Head, Crop Chemistry and Soil Science, ICAR-CTRI, Rajahmundry.

Detailed results of the research projects will be presented by the concerned scientists

Action Point:

- One request was made to get a plant pathologist/ entomologist at Shivamogga centre as there are no scientists in these disciplines at present.

2.3 CONCURRENT TECHNICAL SESSIONS

2.3.1 CROP IMPROVEMENT

Chairman: **Dr. R. Lakshminarayana**
Former Project Co-ordinator,
AICRP (Tobacco)

Rapporteur: **Dr. C. Nanda, Senior Scientist,**
ICAR-CTRI-RS, Hunsur

Date: 12-10-2016

Time: 02.00 PM

Technical session on Crop Improvement was chaired by Dr. R. Lakshminarayana, Former Project Co-ordinator, AICRP (Tobacco). He thanked the Director and ICAR for inviting him for the AINPT group meetings. He welcomed all the delegates of different centers and requested them to present the results of experiments conducted during 2015-16 and technical programme for 2016-17.

FCV TOBACCO

ICAR-CTRI, RAJAHMUNDRY

Dr. A. V. S. R. Swamy presented the results of AINPT experiments

Action Points:

- As the crop yields were very low, house suggested to repeat the IVT of 2015-16 in the ensuing season *i.e.*, 2016-17
- AVT-I: FCR 30 was significantly superior over checks and trial will continue as AVT –II
- AVT-II: FCR 17 was found superior and proposed for bulk trial along with checks
- Bulk trial: FCR 4 (II year) and FCR 17 will be tested bulk trials along with checks, Siri and VT 1158.

ICAR-CTRI, JEELUGUMILLI

Dr. Swamy also presented the results of CTRI RS, Jeelugumilli.

Action Points:

- IVT: Entries FCJ 26, FCJ 28, FCR 37, FCR 38, FCR 39 and FCK 6 were proposed for evaluation in AVT I along with three checks.
- AVT I: As none of the lines were superior the trial may be discontinued
- AVT II: FCJ 15 was found superior and proposed for bulk trial
- Bulk trial: FCJ 11(2nd year) and FCJ 15 (2nd year) will be in bulk trials during 16-17 Kanchan and LT Kanchan

ICAR-CTRI RS, GUNTUR

Dr. P. Venkateswarlu presented the results of AINPT experiments

Action Points:

- IVT: FCK 5, FCK 6, FCR 34 and FCR 38 were promoted to AVT-I along with checks with four replications.
- AVT –I: Repeat the trial as AVT-II
- AVT-II: Superior entry FCR 17 will be assessed in bulk trial

ICAR-CTRI RS, KANDUKUR

Dr. P. V. Venugopal Rao presented the results of AINPT experiments

Action Points:

- Hema may be discontinued as check in future experiments
- IVT: FCR 34, FCR 39, FCS 3 and FCK 6 were promoted to AVT-I with Siri, VT 1158 and N 98 as checks
- AVT –I: Continue the experiment as AVT-II
- AVT-II: Out of two superior lines FCR 15 and FCR 16, FCR 15 was proposed for bulk trial with Siri as check
- Bulk trial: FCR 10 (2nd year) and FCR 15 will be in bulk trial during 16-17 with Siri as check.

ICAR-CTRI RS, HUNSUR

Dr. C. Nanda presented the results of AINPT experiments

Action Points:

- IVT: None of the entry promoted to AVT –I
- AVT-I: As the entries were non- significant trial may be discontinued
- AVT-II: None were promoted to bulk trial
- Bulk trial: KLSH 10 is better than checks. On-farm trial may be conducted with KLSH-10.

AINPT CENTRE, SHIVAMOGGA

Dr. H. Shivanna presented the results of AINPT experiments

Action Points:

- IVT: FCS-4, FCS-3, FCJ-27 and FCJ-30 were promoted to AVT-I with three checks and four replications
- AVT -I: As the entries were non- significant trial may be discontinued
- Station Selection Trial: As the entries were non- significant trial may be discontinued
- Station Hybrid Trial: As the entries were non- significant trial may be discontinued
- Germplasm evaluation trial: Original names of germplasm lines may be given instead of codes. Evaluation of germplasm lines may be undertaken in incomplete block designs.
- Details of Station evaluation trials and AINPT trials planted during the current season need to be reported to the co-ordinating unit
- Information on Tobios-6 may be furnished to the co-ordinating unit.

BIDI TOBACCO

BTRS, ANAND

Mr. D.R. Delvadiya presented the results of AINPT experiments

Action Points:

- IVT: ABD 138, and ABD 151 were promoted to AVT-I for evaluation against three checks with five replications
- AVT-I: ABD 152 was found superior and trial to be continued as AVT-II
- AVT-II: trial may be repeated with all the lines included and the results may be presented along with pooled analysis.
- Station Hybrid trial: As the entries were non- significant trial may be discontinued
- Station trials (BDABR 20.2.1 and BDABR 20.4): Lines ABD 145, ABD 163 and ABD 167 were found superior and were promoted to IVT
- Station trials (BDABR 37.1): May be continued for the second year
- Station trials (BDABR 45.1): May be continued for the second year
- Status report on varietal and hybrid breeding may be furnished to the Co-ordinating unit
- In all trials checks other than A145 should not be included

Date: 13.10.2016

AINPT CENTRE, NIPANI

Dr. Gowri Sajjanar presented the results of AINPT experiments

Action Points:

- IVT: Promote ABD 151, NBD289 and NBD 290 to AVT-I along with the Checks
- IVT conducted during 2014-15 was repeated during 2015-16 designating it as AVT-I. In the present report the data are given for 2015-16 and pooled analysis for 2014-15 & 15-16. Hence forth there will be no AVT testing for this set of material. The entry NBD 277 showed significant superiority over checks in the pooled analysis. Hence, NBD 277 is to be bulk tested along with checks during 2016-17. The AVT-II has been planted during the current season with deletions of NyBD59. The centre is in the habit of taking entire set of IVT to AVT next year. This happened for 2004-15, 2015-16, 2015-16 and 2016-17. The correct procedure is not followed and the centre is promoting the

entries from IVT to AVT without informing the co-ordinating unit leading to confusion. This should be corrected forthwith.

- Station Trial: NBD 296 was found superior over check and trial may be continued for the second year.
- F₁s should be evaluated before forwarding it to F₂. F₂s may be restricted to two with maximum population (2500 plants) and all the breeding material to be run in one project number.

AINPT CENTRE, NANDYAL

Mrs. P. Pulli Bai presented the results of AINPT experiments

Action Points:

- IVT: NBD 289, NBD 290 and ABD 138 may be promoted to AVT-I and evaluated against checks
- AVT-I : to be continued as AVT-II
- AVT-II: ABD 132, NBD 260 and ABD131 were promoted to bulk trial. The data on spangle score, leaf thickness and photos of the lines may be obtained.
- Bulk trial: ABD 119 and ABD 124 were found superior and consumer opinion may be taken and sample to be sent to Anand centre for trade assessment
- On farm trial: ABD 115 was performing better. Samples may be sent to smoke (1kg) and trade assessment to Anand centre as well as to CTRI along with checks.
- Station hybrid trial: NyBTH 121 and NyBTH 124 were promising, NyBTH 121 promoted to IVT. NyBTH 124 to be bulk assessed and may be contributed to IVT next year.
- Station hybrid trial-II: As the entries were non- significant trial may be discontinued
- Observational Varietal Trial: Bulk trial may be conducted with the superior lines and assessed against checks.
- Hybridization and selection: to be continued.
- In tables checks should be presented at the last.

AINPT CENTRE, ARAUL

Dr. A.K. Srivastava presented the results of AINPT experiments

Bidi tobacco trials may be discontinued

NATU TOBACCO

AINPT CENTRE, NANDYAL

Mrs. P. Pulli Bai presented the results of AINPT experiments on *natu* tobacco

Action Points:

- Trade opinion on the lines may be taken and only those promising lines to be forwarded

PIKKA TOBACCO

AINPT CENTRE, BERHAMPUR

Dr. K. Sarala presented results of AINPT experiments conducted at Berhampur centre in the absence of scientist from the centre.

Action Points:

- PBBR 2: Ninety germplasm lines maintained
- PBBR 4: Ten ABLs selected
- PBBR-5: Out of 9 entries tested, NF3-6-2, NF3-15-1 and PVM-14-1 found superior and proposed for bulk trial
- PBBR-8: The trial will be repeated
- Avoid giving decimal points for cured leaf yield figures

RUSTICA TOBACCO

AINPT CENTRE, ARAUL

Dr. A.K. Srivastava presented results of AINPT experiments

Action Points:

- IVT: ArR51 and LR81 were promoted to AVT-I for evaluation against checks.
- AVT-I: to be continued as AVT-II
- AVT-II: None were promoted to bulk trial
- Bulk trial: ArR 27 and ArR 29 were found superior, hence must be assessed by trade (Hookah and Chewing people). Data on chemistry should be collected.
- Station Trial: ArR57 and ArR58 were contributed to IVT.
- Station Trial-2: Trail to be continued for the second year.

BTRS, ANAND

Shri. D.R. Delvadiya presented the results of AINPT experiments

Action Points:

- IVT: AR 121 and LR 82 with three checks to be promoted to AVT1.
- AVT-I: As the entries were non- significant trial may be discontinued
- AVT-II: As the entries were non- significant trial may be discontinued
- Station Trial-: Trail to be continued for the second year.

AINPT CENTRE, LADOL

Shri. D.R. Delvadiya presented results of AINPT experiments conducted at Ladol centre as the scientist from Ladol was not attended the meeting

Action Points:

- Three entries AR 121, LR 82 and LR 81 were promoted to AVT-I along with the checks with five replications
- AVT-I: to be continued as AVT-II
- AVT-II: LR 77 promoted to bulk trial.
- Large scale varietal trial: LR 77, LR 72 and LR 82 should be bulk assessed with checks and trade assessment should also to be done.

ICAR-CTRI-RS, DINHATA

Dr. K. Sarala presented the results of Dinhata centre as the scientist from Dinhata was not attended the meeting.

Action Points:

- IVT: None promoted to AVT-I
- AVT-I: As the entries were non- significant trial may be discontinued

At the end of the session, Dr. R. Lakshminarayana, chairman of the technical session on Crop Improvement complimented all the scientists for the work done. The chairman felt that the scientist from Pusa, Berhampur, Ladol and Dinhata must attend these meetings as they are important to finalize the technical programme for 2016-17. He opined that sufficient care should be taken while preparing reports, tables and to include photographs where ever necessary. He stressed on use of proper designs like Feder's, Augmented design, compact family block design, incomplete designs etc., for evaluation of progenies, crosses and generations. He also emphasized on evaluating few number of F₂'s with large population and importance of germplasm maintenance. He suggested that all centres should send the list of germplasm maintained in their respective centres.

CROP PRODUCTION AND CROP CHEMISTRY & SOIL SCIENCE

2.3.2 CROP PRODUCTION

Chairman: **Dr. C.L. Acharya**
Former Director, ICAR-IISS, Bhopal &
Former Director, Ext. Edu. (CSKHPKV), Palampur

Rapporteur: **Dr. Kasturi Krishna**
Head, Crop Production, ICAR-CTRI

FCV TOBACCO

ICAR-CTRI-RS, HUNSUR

Dr. M. Mahadevaswamy, Principal Scientist (Agronomy), ICAR-CTRI-RS, Hunsur presented the highlights of the Karnataka FCV tobacco crop during 2015-16 season. He presented the research results of the trial conducted on foliar nutrition of N and K on FCV tobacco in KLS (VFHAG-16).

Action Point

- Chairman suggested harvesting the rain water for 5 acre field and economics of this cropping system need to be calculated for the benefit of farmers of KLS region. The above project is to be continued during 2016-17 season with the suggested treatments.

AINPT CENTRE, SHIVAMOGGA

Dr. Shivanna presented the research highlights of the Shivamogga centre. He presented the results of VFSAG-64. As suggested in the previous workshop conducted during 2015-16 on farm trial of the above project was not taken up by the centre. Feeler trial on tray seedling production was also presented. He also presented the new project on chemical weed control in FCV tobacco. The chemical used in the experiment was already proved in other studies. Hence, bulk plots are to be taken to see the effect of above herbicides.

Action Points

- Pooled data of VFSAG 64- to be present
- On farm trail of VFSAG-64 need to be conducted either in Hunsur or Shivamogga regions.
- In the VFSAG-64 project calculate the fuel use efficiency based on the cured leaf yield obtained from each curing and not for total cured leaf at the end of the season.

- Pooled data is to be presented and conclusions may be drawn for the above project
- The feeler trial on tray seedling production need to be closed and the technology developed at Hunsur Research Station is to be adopted here also.

BIDI TOBACCO

BTRS, ANAND

Dr. K.M. Gedia, Anand presented the results of two *bidi* tobacco experiments (BDAAG 157 & 158) and two rustica tobacco experiments (RUDgAg 18 &19).

Action Points

- BDAAG 157 & RUDgAg 18 & 19 are concluded.
- Soil analysis data and biometric observations, quality chemistry should be presented while giving the data of research projects.
- As the 'N' used is on higher side in *bidi* tobacco, 'N' suggesting in the treatments to be presented.

New Project: BDAAG 20 presented by the Dr. Gedia was not approved by the house.

AINPT CENTRE, NANDYAL

Mr. K. Prabhakar from RARS, Nandyal presented the research results of four on-going experiments on *bidi* tobacco viz., BD N4Ag 12-15.

Action Points

- In experiment depth issue moisture content is to be taken as the crop is grown entirely on rainfed condition. **Two new projects proposed were not approved** and house suggested to take up the biometric observations and quality parameters in all the experiments.

AINPT CENTRE, NIPANI

Dr. P.S. Matiwade, Principal Scientist (Agronomy) presented the results of sulphur application in *bidi* tobacco. Significant results were not observed for sulphur application. Hence, it should be closed.

Action Points:

1. Available 'P' in the soil needs to be checked for its accuracy.
2. **New Project on performance of promising *bidi* tobacco variety to N & topping levels was not approved by the House.**
3. Plastic mulching in *bidi* tobacco and conservation agricultural practices are to be studied in the current season.

***RUSTICA* TOBACCO**

AINPT CENTRE, ARAUL

Dr. A.K. Srivastava presented the results of two *bidi* tobacco experiments (ArAg 6A & 6B) and two *rustica* tobacco experiments (RUArAg 27A & B). As these experiments were conducted for two years, house suggested to present the pooled data in the ensuing workshop. He proposed **two new experiments**, but after through discussion it was decided that as dates of planting was already established at the centre, they are **not approved**.

Action Point

- New project on Integrated Nutrient management practices in *rustica* tobacco is to be prepared and send to the station by the PI of the agronomy experiments. Soil and plant nutrient status need to be presented in the experiment.

AINPT CENTRE, BHERHAMPUR

Concerned scientists from Berhampur centre was not attended the Group meeting. The area of the tobacco in the state is also less than 2,000 ha. Hence, decision may be taken weather to continue the project at Berhampur or not.

2.3.3 CROP CHEMISTRY & SOIL SCIENCE

RAJAHMUNDRY

Dr. C. Chandrasekhara Rao, Head, Division of Crop Chemistry and Soil Science presented the quality of leaf samples received from different centers. He expressed that chloride content is in increasing trend in northern light soils of tobacco.

ANAND

Dr. K. Gedia, Agronomist, Anand centre presented the results of Biochemistry project as the biochemist could not attend the Group meeting.

Action Point: In BDAB10-17 project it was suggested to screen all the germplasm lines in one or two years instead of screening only few lines every year to reduce the effect of weather vagaries on yield and other qualities of tobacco.

SHIVAMOGGA

From Shivamogga centre VFSC-20 project was discussed though the concerned scientist could not attend the meeting.

House suggested explore the possibility for composting tobacco stem.

Chairman Suggestions:

1. Emphasis on enhancing input use efficiency by Integrated Nutrient Management and thereby reducing cost of cultivation.
2. Suggested to utilize the tobacco stems for composting purpose as farmers are not utilizing the stems.
3. In all the projects along with yield data scientist should give the analytical characters and supporting observations for each treatment.
4. Scientist should be encouraged to work in the crop.

2.3.4 CROP PROTECTION

2.3.4.1 ENTOMOLOGY

Chairman:	Dr. K.V. Ramana Former ADG (Horticulture), ICAR
Co-Chairman:	Dr. Y.P. Singh Principal Scientist -ICAR
Rapporteur:	Dr. U. Sreedhar, Head & PI, Div. of Crop Protection, ICAR-ICAR-CTRI, Rajahmundry

ANAND

Dr. N.A Bhatt presented the results of the experiments BDAENC 86, BDAENC 88, BDAENC 90 & RUAEN 01.

NANDYAL

Dr. J. Manjunath presented the results of the experiments BDNyEN-1, BDNyEN-3, BDNyEN-4 and BDNyEN-5. He proposed a new experiment on mass production of *Aenasius bambawalei* which was approved by the house.

House suggested maintaining the crops in the Entomophage park throughout the year at Nandyal centre and to include plant species in consultation with Anand Centre.

SHIVAMOGGA

Dr. Shivanna presented the results of Entomology experiments in the absence of Entomologist.

During 2016-17 the Entomology experiments are not being conducted in the absence of Scientists (Entomology)

2.3.4.2 PATHOLOGY, VIROLOGY AND NEMATOLOGY

ANAND

Dr. K.R. Joshi presented the results of BDAPP 126, BDAPP 128, BDAPP 132, BDAPP 502, BDAPP 508, BDAPP 510, BDAPP 619, BDAP 682, and BDAPP 811. It was suggested to screen all the leaf curl free entries of BDAPP 502 under glass house conditions. The experiments BDAPP 132 and BDAPP 811 were concluded with the following recommendations.

The *bidi* tobacco farmers of middle Gujarat are recommended to raise the nursery by covering the nursery beds with agro-shade net (75 % shade) and spray drench with azoxystrobin 23 SC @0.023% as and when required to minimise the damping off disease and to get more number of healthy seedlings.

Logistic regression model was developed for prediction of frog eye spot disease in *bidi* tobacco nursery and main field based on meteorological parameters. The house suggested validating the model to establish its accuracy in predicting the disease.

Dr. K. R Joshi presented the results of BDAPP 128, BDAPP 619. He proposed a new experiment BDAPP 683 "Effect of bulk manures in management of nematodes in bidi tobacco nursery" was approved by the house with some modifications. It was suggested to exclude the treatment of mustard cake and to record initial nematode population in all the treatments.

NIPANI

Dr. I.K. Kalppanavar presented the results of BDNPP 21 & BDNPP 22. House advised him to take up experiment on evaluation of new fungicides against Black shank disease.

SHIVAMOGGA

Dr. Shivanna presented the results of VFSPP 701, VFSPP 708, VFSPP 709 & VFSPP 805.

Out of 8 Experiments in Crop Protection 2 Experiments VFSNM 619 & VFSNM 633 were vitiated due to drought.

The absence of Crop Protection Scientists was viewed seriously by the house and felt that it should not be repeated in future.

HUNSUR

Dr. S. Ramakrishnan proposed a new experiment "Effect of *rabi* crops on root-knot nematode infection in *Kharif* tobacco grown in KLS". The house approved the experiment with some modifications in the treatments.

In their concluding remarks Chairman & Co-Chairman appreciated the improvement in presentations. They suggested that all the Scientists in the project should ensure uniformity in conducting experiments, recording of observations, reporting and presentation of results.

The session concluded with vote of thanks by the Rapporteur to Chairman & Co-Chairman.

2.4 PLENARY SESSION

Chairman:	Dr. D. Damodar Reddy Director, ICAR-CTRI
Co-Chairman:	Dr. K. Siva Raju Nodal Officer, AINPT
Rapporteur:	Dr. C. Chandra Sekhara Rao Head & PI, CC & SS

Date: 13-10-2016

Time: 02.00 PM

In the Plenary Session rapporteurs of different sessions presented the report. Chairman's of different sessions given their remarks over the presentations of respective scientists. Director, ICAR-CTRI, Rajahmundry chairman of the plenary session expressed his views and also given suggestions for overall improvement of the experiments conducted and also the presentation.

Dr. L.K. Prasad, Principal Scientist, ICAR-CTRI, Rajahmundry, rapporteur of combined session presented the report. Director suggested that, scientific parameters that are to be studied for evaluating the proposed hybrids by ITC Ltd.-ILTD Division are to be given by the ITC-ILTD.

Dr. C.L. Acharya opined that the drought resistant parameters of the proposed entries are to be quantified for evaluating the entries. The house appropriate nomenclature for the entries would be drought resistance/ tolerant lines rather than WUE hybrids. Director suggested to submit the relevant information before evaluation and the stipulated procedures are to be followed for evaluating the varieties. The house approved the evaluation of hybrid in southern light soils and black soils.

Dr. C. Nanda rapporteur of the Crop Improvement session, Dr. Kasturi Krishna, rapporteur of the Crop Production and CC & SS session and Dr. U. Sreedhar, rapporteur of the Crop Protection session presented their reports and also important action taken points in their respective divisions.

Dr. C.L. Acharya, Chairman of the Crop Production and Crop Chemistry and Soil Science session suggested the

- Experiments are to be conducted increase the input and water use efficiency to bring down the cost of cultivation.
- He felt that, there is ample scope for research in tobacco and the issues related to tobacco cultivation are to be addressed so long the farmers cultivate tobacco.
- Possibilities are to be explored for utilization of tobacco stem in soil health improvement.
- Energy conservation strategies are to be planned to reduce the wood consumption in curing.

Dr. R. Lakshminarayana, Chairman of Crop Improvement given suggestions on three important aspects :

1. Conducting the field experiments
2. Preparation of the reports
3. Monitoring of the experiments

Suggestions

- The experimental data need to be analyzed statistically
- Entries at IVT and AVT levels are to be evaluated by including appropriate checks
- Only selected entries of IVT are to be promoted to AVT. All the centers need to consult the monitoring unit at Rajahmundry, before conducting AVT
- Proper statistical designs are selected for conducting the experiments and the data is to be processed accordingly

Coordination unit

1. Regular monitoring is to be done by the monitoring unit.
2. Scientists are to be advised to take proper photographs of the experiment and also important trails and are to be presented in support of their data
3. Cured leaf samples are to be subjected for trade evaluation before promoting to bulk evaluations/release.
4. All the centres need to maintain the cafeteria of the released varieties for evaluating the yield and quality. This will also help in submission of desired reports.

Dr. K.V. Ramana, Chairman of the Crop Improvement session suggested that

1. The AINPT centres are to be monitored regularly.
2. Steps are to be initiated to fill the vacant posts
3. A separate session is to be included in group meeting/ workshop to discuss the recommendations to farming community.

Director, CTRI, informed that during the group meetings, a separate book on research achievements and work plan was prepared where the brief summary of different experiments. Salient research achievements and work plan for 2016-17 was given. After making the necessary corrections, detailed report will be submitted by each centre.

- All the scientists have to interact regularly with principal investigators
- Scientists conducting the experiments should have the clarity about the purpose of conducting the experiments.
- Scientists have to put more efforts in execution of the experiments. All the experiments which are vitiated have to be properly justified.
- Treatment/ experimental protocols are to be followed scrupulously.
- Routine types of experiments are to be discontinued.
- Information as desired by NO, AINPT is to be submitted properly and effectively.

Group meeting was concluded with vote of thanks proposed by Dr. S. Shivanna, Chief scientist, AINPT center, Shivamogga.

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4. IMPORTANT OUTCOME OF THE GROUP MEETING

- ✓ FCV tobacco hybrid CH-3(Flavorful CMS hybrid) for KLS region, Karnataka was released during 2016 by state varietal release committee.
- ✓ Bidi tobacco variety NBD-209(moderately resistant to RK Nematode and brown spot) for Nipani, Karnataka area was also released during 2016 by state varietal release committee.
- ✓ At Anand use of agro-shade net (75% or 90% shade) coupled with the spray of azoxystrobin 23 SC @ 0.023% (10 ml/10 l water/ 100 m²)
 - Checks the damping-off disease
 - Produces more number of healthy transplantable seedlings
 - ICBR of 1: 5.6 (75% shade) and 1: 5.4 (90% shade).
- ✓ At Nandyal Bidi tobacco entry, ABD-115 recorded higher cured leaf yield (1980 kg/ha) over the check A-119 (1191 kg/ha) under OFT.
- ✓ Foliar application of N and K twice at 45 and 60 DAT was effective to increase bidi tobacco yield. KNO₃ foliar spray @ 2.5% proved effective compared to AS or urea with SOP at Anand
- ✓ Insecticides- triazophos 40% EC, azadirachtin 1%, imidacloprid 17.8% SL and thiamethoxam 25% WG found effective against mealybug and its parasitoids at Anand
- ✓ At Behrampur tobacco found more remunerative (Rs. 64, 867/ha & B:C = 2.7) than Groundnut- Green gram and Maize-Green gram cropping systems
- ✓ At Nipani area application of 20 kg S/ha improved the yield of bidi tobacco (1598 kg/ha) over no S (1339 kg/ha)
- ✓ At Shivamogga substitution of 50 kg K/ha through tobacco stem ash or tobacco stem compost increased cured leaf yield.
- ✓ Fungicides fenamidone 10% + mancozeb 50 WG at 0.3% and azoxystrobin 23 EC at 0.1% were found effective in controlling the black shank at Shivamogga area.