



अखिल भारतीय समन्वित अनुसंधान परियोजना- चारा फसले एवं उपयोगिता
(भारतीय कृषि अनुसंधान परिषद)

**ALL INDIA COORDINATED RESEARCH PROJECT
ON FORAGE CROPS & UTILIZATION
(Indian Council of Agricultural Research)**



कार्यवृत्त - राष्ट्रीय समूह बैठक खरीफ 2018
तमिलनाडु कृषि विश्वविद्यालय, कोयंबटूर
अप्रैल 6-7, 2018

**Proceedings of the National Group Meeting : Kharif 2018
held at
Tamil Nadu Agricultural University, Coimbatore
April 6-7, 2018**

परियोजना समन्वयन इकाई,
अखिल भारतीय समन्वित अनुसंधान परियोजना- चारा फसले एवं उपयोगिता
भा. कृ. अनु. प.- भा. च. एवं चा. अनु. सं.-- झाँसी-284003 (उ.प्र.)

<http://aicrponforagecrops.res.in>

Project Coordinating Unit
All India Coordinated Research Project on Forage Crops & Utilization
ICAR - IGRI, Jhansi - 284003 (U.P.)

<http://aicrponforagecrops.res.in>

AICRP ON Forage Crops and Utilization
Tech. Pub. Number- 1/2018-19

Proceedings of the National Group Meeting: Kharif 2018

(Held at TNAU, Coimbatore during April 6-7, 2018)

This document is meant for official use only of the AICRP (FC&U) Centres, Coordinating Unit, ICAR Headquarters and Forage Scientists.

Compilation and Editing

Dr. A. K. Roy
Dr. R. K. Agrawal
Dr. N.R. Bhardwaj

Editorial Assistance

Shri O. N. Arya

Published by

Project Coordinator
AICRP on Forage Crops & Utilization,
ICAR-IGFRI, Jhansi-284 003
Uttar Pradesh

Phone/Fax: 0510-2730029
Email: pcforage@gmail.com
Web site: <http://www.aicrponforagecrops.res.in>

April, 2018

CONTENTS

Item	: Details	Pages
Summarized recommendations	: Summarized recommendations & Technologies	1-2
Technologies generated	: Technologies generated	3
Inaugural Session	: Inaugural Session	4
Technical Session-I	: Interactive Session with Stakeholders	5
Technical Session-II	: Breeder Seed Production	6
Technical Session-III	: Discipline-Wise Report	7-8
Technical Session-IV	: Formulation of Technical Programme	9-12
	: Crop Improvement	9-10
	: Crop Production	11
	: Crop Protection	12
Technical Session-V	: Review of Centre-Wise Activities	13-14
Technical Session-VI	: FTD & TSP Formulation	15-16
Technical Session -VII	: PGR/Breeding/Production/Protection issues	17
Technical Session-VIII	: Scientific , Administrative and Financial Issues	18
	: Varietal Identification Committee Meeting	19
	: Discipline-wise Technical Programme	
Annexure-A	: Forage Crop Improvement Trials	20-24
Annexure-B	: Forage Crop Production Trials	25-38
Annexure-C	: Forage Crop Protection Trials	39-40
Annexure-D	: Programme of National Group Meet Kharif-2018	41-43
Annexure-E	: List of Participants	44-47
Annexure-F	: Glimpses of Media Coverage	48-50

**ALL INDIA COORDINATED RESEARCH PROJECT ON FORAGE CROPS & UTILIZATION
(INDIAN COUNCIL OF AGRICULTURE RESEARCH)
National Group Meeting Kharif 2018
TNAU, Coimbatore
06-07 April 2018**

SUMMARIZED MAJOR RECOMMENDATIONS AND HIGHLIGHTS

Forage Crop Production Technologies

- **Fodder Ricebean:** In Manipur and similar situations of NEH region, application of 50% RDF (10:20 kg NP) + 2 tons poultry manure / ha is recommended for higher yields (400 q green, 70q dry and 9.75 q crude protein) of fodder rice bean. The technology can generate net return up to Rs. 50000 with B:C ratio of 2.10
- **Dual Purpose oat:** In Manipur and similar situations of NEH region, for dual purpose oat, application of 80:40:40 of NPK/ha (40% as basal, 20% at 30 DAS, 20% at 60 DAS and 20% at 90 DAS) + 7.5 t FYM/ha and cutting for fodder at 60 DAS and then leaving the crop for seed is recommended. The technology results in production of up to 240 q green fodder in addition to 21q seeds with net return of up to Rs. 90000 and B:C Ratio of 2.70.
- **Bajra x Napier Hybrid:** In Kerala state, application of 80 kg MgSO₄ along with RDF (200:50:50 kg NPK and 25 t/ha of FYM) to bajra x napier hybrid is recommended for higher fodder yield and better quality fodder. The technology resulted in production of up to 2100 q green fodder with higher crude protein content and net return of up to Rs. 94000, B:C Ratio of 2.35

Forage Crop Protection Technology

- **Cowpea defoliators management:** Foliar application of *B. bassiana*@ 5g/lit. (1X10⁷ cfu/ml) is recommended as an ecofriendly measure for management of defoliators in forage cowpea.

General recommendations

- Scientists were advised to get the novel germplasm registered with NBPGR.
- The centers were advised to communicate the status of excess breeder seed production to the Project Coordinator, so that steps would be taken up for its disposal. All the centers should take utmost care to produce the allocated breeder seed as it is a national commitment. If there is shortfall, efforts should be taken to grow it in off-season so as to fulfill the commitment.
- To meet the lean period demand, fodder conservation techniques like hay, silage, blocks etc. should be popularized by Universities and other government/ NGO institutions
- The fund is now being released under PFMS system. The centers should monitor the fund release and its utilization. From next financial year onwards, EAT module (**Expenditure-Advance-Transfer modules**) for fund utilization will be in operation. All the centers are requested to follow the financial guidelines issued by ICAR/ Ministry of finance regularly.
- The fund release is being done under various heads i.e. Grant in aid – Capital, Grant in aid – Salaries, Grant in aid – General, TSP etc. These heads should be strictly followed and expenditure should not cross the allotment in any head. The money from one head can not be transferred to other head. In Salaries, please strictly follow the number and nature of posts. No retirement and establishment benefits should be charged from AICRP fund.

- All the centers should strictly follow the datelines for various report submissions. Utilization certificates must be submitted before 30th April, 2018. AUC must be submitted before 30th June, 2018.
- Strengthening of Stylosanthes research work may be taken up at IGFR, RRS, Dharwad, BAIF, Uralikanchan and MPKV, Rahuri.
- All the centers should take initiative and become proactive for popularizing varieties developed by their centers and increase breeder seed demand by state departments. This will help in popularizing new varieties and increasing seed replacement rate.

TECHNOLOGIES GENERATED

Forage Crop Production Technologies

- **Fodder Ricebean:** In Manipur and similar situations of NEH region, application of 50% RDF (10:20 kg NP) + 2 tons poultry manure / ha is recommended for higher yields (400 q green, 70q dry and 9.75 q crude protein) of fodder rice bean. The technology can generate net return up to Rs. 50000 with B:C ratio of 2.10
- **Dual Purpose oat:** In Manipur and similar situations of NEH region, for dual purpose oat, application of 80:40:40 of NPK/ha (40% as basal, 20% at 30 DAS, 20% at 60 DAS and 20% at 90 DAS) + 7.5 t FYM/ha and cutting for fodder at 60 DAS and then leaving the crop for seed is recommended. The technology results in production of up to 240 q green fodder in addition to 21q seeds with net return of up to Rs. 90000 and B:C Ratio of 2.70.
- **Bajra x Napier Hybrid:** In Kerala state, application of 80 kg MgSO₄ along with RDF (200:50:50 kg NPK and 25 t/ha of FYM) to bajra x napier hybrid is recommended for higher fodder yield and better quality fodder. The technology resulted in production of up to 2100 q green fodder with higher crude protein content and net return of up to Rs. 94000, B:C Ratio of 2.35

Forage Crop Protection Technology

- **Cowpea defoliators management:** Foliar application of *B. bassiana* @ 5g/lit. (1×10^7 cfu/ml) is recommended as an eco-friendly measure for management of defoliators in forage cowpea.

INAUGURAL SESSION

The National Group Meeting of the All India Coordinated Research Project on Forage Crops and Utilization was inaugurated on 06th April, 2018 at Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu. It commenced with lighting the lamps by dignitaries, the ICAR song and University song/prayer.

The Inaugural session was chaired by Prof. K. Ramasamy, Hon'ble Vice Chancellor, TNAU, Coimbatore. Dr. I. S. Solanki, Assistant Director General (Food and Fodder Crops), ICAR was Chief Guest. Dr. R. V. Kumar, Director, ICAR-IGFRI, Jhansi was guest of honour.

The other dignitaries present included, Dr. K. Ramaraju, Director of Research, TNAU; Dr. K. Ganeshamurthy, Director, CPBG, TNAU; Dr J P Yadavendra, RAC member IGFRI; Dr Menhi lal, RAC member, IGFRI; Head of Divisions, IGFRI; Directors of RFS, DADF, Government of India, Representatives of NDDB, NSC, private organizations, etc. besides TNAU officials.

Dr. K. Ramaraju, Director of Research, TNAU welcomed the delegates and presented achievements of University for the farming community especially in the forage crops. He informed about the significant contribution and success of TNAU varieties particularly CO-3, CO-4, CO(CN)5 in BxN hybrid in increasing the fodder availability in the country.

Dr. A. K. Roy, Project Coordinator, AICRP on Forage Crops and Utilization presented the brief introduction of the AICRP on Forage Crops, Salient achievements during XII plan period and summary of activities and results of the trials carried out in kharif 2017. He highlighted need of more collaboration between various agencies for awareness of different stakeholder.

Dr. R. V. Kumar, Director, ICAR-IGFRI, Jhansi stressed on dissemination of technologies related to fodder crops and highlighted the importance of cultivated forage as well as pasture crops to bridge the demand and supply gap of forage availability.

Dr. I. S. Solanki, ADG (FFC), ICAR highlighted the various gaps in forage research and stressed upon the need of high yielding varieties with good nutritional quality and disease pest resistance. He further emphasised upon the need to develop and disseminate the technologies for the benefit of farmers and livestock owners.

Dr. K. Ramasamy, Vice Chancellor TNAU, highlighted the importance of forages and animal husbandry. He stressed on intensification of research and developmental activities in increasing forage resources in the country and need to work in holistic manner rather than piecemeal approach for solving the problems was highlighted.

Various publications were released at the occasion including the Annual Report of AICRP on Forage Crops and Utilization, Minimal Descriptors of Forage Crops, Database of Forage Crop Varieties-2018, Souvenir by TNAU, book by TNAU, and extension bulletin in regional languages by different AICRP centers. Certificates of appreciation were awarded to CAU, Imphal and UAS (B), ZRS, Mandya AICRP centres. Dr. K. Ganeshamurthy, Director, CPBG, TNAU presented the vote of thanks.

TECHNICAL SESSION - I

INTERACTIVE SESSION WITH STAKEHOLDERS

Chairman	:	Dr. I. S. Solanki, ADG (FFC), ICAR
Rapporteurs	:	Dr. S.D. Sivakumar

The session started with welcome address by the chairman by inviting different stakeholders like farmers, livestock keepers, dairy personal service providers like representatives of Department of Animal Husbandry, Milk Federation, National Dairy Development Board and private companies representative involved in feed and fodder development and animal husbandry to discuss on various problems and possible solutions related to fodder production.

Five progressive farmers involved in fodder production, fodder seed production, fodder agri-business, goat farming and integrated farming presented their experiences, expectations and problems. Besides, dairy production specialists from Dairy industry were invited to share their experiences in relation to fodder availability and their nutritive value. Farmer's experiences and expectations were presented individually in Audio Visual form with English sub-titles which was highly appreciated by the house.

Shri. Palanisamy of Theethipalayam village is cultivating almost all fodder varieties released by TNAU and also the tree fodder crops such as *Sesbania* and *Subabul*. He is feeding his goats with chopped green fodder mixture comprising 50% of Bajra Napier hybrid CO(BN) 5 and the rest from *Desmanthus*, *Mulberry*, *Sesbania* and *Subabul*. He requested the house to develop high yielding varieties in tree fodders.

Shri Natarajan requested the forum to develop drought tolerant varieties in fodder crops.

Shri Pattadurai, a progressive seed producer narrated his experience of fodder seed production and marketing. It was observed that sale price of seeds are low, hence he has been advised by the chairman to enhance the sale price of forage seeds substantially so as to minimize the loss incurred, if any.

Shri Subbaiyan, an entrepreneur is doing good business in preparing and exporting Lucerne dehydrated leaf meal. Most of his clients are keepers of good quality horses for race. He expressed problem of high cost in manual harvesting and requested house to develop efficient Lucerne harvester.

Shri Thiruvengadam of Perumpathi village, established Farmers Producers Organization (FPO) with the support of NABARD involving farmers of adjacent blocks. He had trained the farmers to cultivate fodder crops in between coconut plantation and helped in enhancing the livelihood of the farmers.

Dr. John Hendry Neizen, Dairy production specialist had presented the activities of Hatsun Agro Products Ltd., one of the leading dairies in South India. He highlighted the nutritive value of Bajra Napier hybrid CO 5 and CO (FS) 29 along with B:C ratio. The house very much appreciated his programme with benefit to farmers and good linkage with TNAU for technology extension and regular support to forage programme.

The **queries** raised by the house were appropriately addressed.

Dr. I. S. Solanki, ADG (FFC), ICAR and Chairman of the session, suggested considering all the available fodder technologies to reduce gap between supply & demand in the fodder in the country by effective involvement of Fodder Scientist & extension personnel. He emphasized that role of farmers and entrepreneurs is crucial for livelihood sustainability.

The session ended with vote of thanks to the Chairman.

TECHNICAL SESSION - II

BREEDER SEED PRODUCTION

Chairman	:	Dr. R. V. Kumar , Director, ICAR-IGFRI, Jhansi
BSP Report	:	Dr. Shahid Ahmed, Principal Scientist, IGFRI
Rapporteur	:	Dr. R. K. Agrawal

At the outset, the Chairman welcomed all the participants. Dr. Shahid Ahmed, Principal Scientist, presented the status of Breeder Seed Production in forage crops for production year *kharif 2017*; indent year *kharif 2018*.

Breeder Seed Production for production year *Kharif 2017*; indent year *Kharif 2018*

Dr. Shahid Ahmed presented the indent, allocation, production and surplus/deficit scenario of *Kharif 2018* indent (production year *Kharif 2017*). The total indent received from DAC, Government of India, was 134.52 q for 8 varieties of three forage crops, which were allocated to 7 institutes, NGOs/ SAU. The indent was for three varieties each in maize and pearl millet and two varieties in cowpea. The total quantity indented included forage maize 112.57 q, cowpea 19.55 q and pearl millet 2.40 q.

The overall breeder seed production was higher in comparison to allocated quantity. In maize, the production was 130.7 q (18.13 q surplus) and in pearl millet 7.35 q (4.95 q surplus). In cowpea production was 18.20 q (1.35 q deficit). Thus the total production was 156.25 q which was 21.73 q or 16.15 percent higher than the indented quantity. However, in Pratap Makka Chari (maize), AVKB-19 (Bajra) and UPC-8705 and EC 4216 (cowpea), the production was less than the indented quantity.

There was 10.45 q of surplus fodder seed was also produced by different centers of varieties not indented by DAC.

Allocation for production year 2017-18; Indent year 2018-19

The breeder seed indent received for *Kharif 2019* (production year *kharif 2018*) was also discussed. Total indent of 87.94 q for eight varieties in four forage crops is received. This includes 74.14 q for maize (African Tall, J-1006 and Pratap Makka Chari-6), 1.50 q for pearl millet (BAIF Bajra-1), 12.05q for cowpea (UPC-8705, Bundel Lobia -2 and EC-4216) and 0.25q for rice bean (Bidhan Rice Bean -2) . The allocation was made to 7 institutes, NGOs/ SAUs.

Chairman expressed satisfaction over the surplus production. He further emphasized that efforts should be made to increase the forage seed demand.

Recommendation:

- Efforts should be made by different institutions to increase the breeder seed demand by popularizing the varieties so that forage seed replacement rate is increased.

The meeting ended with vote of thanks to the chair.

TECHNICAL SESSION – III

Discipline wise report

Chairman	:	Dr. I. S. Solanki ADG (FFC), ICAR
Co-Chairman	:	Dr. J. P. Yadavendra & Dr. Menhi Lal
Convener:		Dr. A. K. Roy, Project Coordinator
Rapporteurs	:	Dr. D. K. Banyal and Dr. Usha C. Thomas

Crop Improvement

Dr. Shahid Ahmed, Principal Scientist (Plant Breeding), presented the results of forage breeding and quality evaluation trials conducted during *kharif* 2017. Total 19 trials in 4 annuals (Maize, Pearl millet, Cowpea & Rice bean) and 6 perennial crops (*Cenchrus ciliaris*, Bajra x Napier hybrid, *Cenchrus setigerus*, *Setaria anceps*, *Pennisetum* hybrid, *Desmanthus*) at 37 locations were conducted. A total of 256 multilocation experiments were conducted. A total of 106 entries including 57 annual and 49 perennials were tested. The summary of the trials is as follows

- **In IVT maize**, ten entries were tested along with 2 national checks at 24 locations in five zones. Three entries (DMRH-1410, IMH 1527 & TSFM-16-3) performed better and can be considered for promotion to AVT-1.
- **In combined AVT-1 and AVT-2 of maize**, 7 entries in AVT-1 and one entry in AVT-2 were tested at 9 locations in south and north east zones. Two entries -TSFM15-5 & ADV-6737-of AVT-1 performed better and can be considered for promotion to AVT-2.
- **In combined AVT-1 and AVT-2 (seed)** of maize, same entries were tested and reported.
- **In IVT pearl millet**, five entries along with 2 national checks and zonal checks were tested at 20 centers in all five zones. Three entries (FBL-1, TSFB-16-6 & TSFB-16-10) performed better only in hill zone and can be considered for promotion to AVT-1.
- In AVT- 1 pearl millet, four entries were evaluated at 12 locations in three zones (NW, NE and SZ). Based on performance, two entries (TSFB-15-8 & TSFB-15-4) can be considered for promotion to AVT-2 in NW and South zones.
- **In AVT-2 Pearl millet and AVT-2 (seed) pearl millet**, four entries were tested.
- **In IVT cowpea**, eight entries were tested at 26 locations in all five zones along with 2 national checks and respective zonal checks. Seven entries ie; C-217, PFC-12, TSFC-16-1, HFC-16-1, MFC-16-14, MFC-16-3 & TSFC-16-1 can be considered for promotion to AVT-1 for testing in HZ and SZ.
- **In AVT-1 Cowpea**, 3 entries were tested at 17 locations in three zones. None of the entries could perform significantly better than checks.
- **In AVT-2 Cowpea, and AVT-2 (seed) Cowpea**, 5 entries were tested at 14 locations in three zones. The trial is completed.
- **In IVT- Ricebean** – 5 entries were tested against 2 checks at 9 locations, none of the entries could perform significantly better than the checks.
- **In AVT-1 Rice bean**, two entries were tested at 9 locations, one entry JRGB-07-4 was found superior to checks and can be considered for promotion.
- The perennial trials on *Cenchrus ciliaris*, *C. setigerus*, BxN hybrids, *Setaria*, *Pennisetum* & *Desmanthes* will continue as such in coded form.

Crop Production

Dr. R. K. Agrawal, Principal Scientist & PI (Agronomy) presented the detailed report of 19 experiments (8 coordinated, 4 AVT & 7 location specific) conducted at 23 locations. The results of various experiments were presented and following recommendations given:

- In Manipur and similar situations of NEH region, application of 50% RDF (10:20 kg NP) + 2 tonne poultry manure / ha is recommended for higher yields (400 q green, 70q dry and 9.75 q crude protein) of fodder rice bean. The technology can generate net return up to Rs. 50000 with B:C ratio of 2.10
- In Manipur and similar situations of NEH region, for dual purpose oat, application of 80:40:40 of NPK/ha (40% as basal, 20% at 30 DAS, 20% at 60 DAS and 20% at 90 DAS) + 7.5 t FYM/ha and cutting for fodder at 60 DAS and then leaving the crop for seed is recommended. The technology results in production of up to 240 q green fodder in addition to 21q seeds with net return of up to Rs. 90000 and B:C Ratio of 2.70.
- In Kerala state, application of 80 kg MgSO₄ along with RDF (200: 50:50 kg NPK and 25 t/ha of FYM) to bajra x napier hybrid is recommended for higher fodder yield and better quality fodder. The technology resulted in production of up to 2100 q green fodder with higher crude protein content and net return of up to Rs. 94000, B:C Ratio of 2.35

Crop Protection

Dr. Nitish R. Bhardwaj, Scientist & PI (Plant Protection) presented the salient achievements of 7 experiments conducted at 5 locations during *Kharif* 2017. The detailed scenario of diseases and insect pests of forage crops were presented. The resistant entries of pearl millet, cowpea, maize, rice bean and other perennial crops were highlighted. The trial on biological management of defoliators on cowpea was validated after conducting for three years and following recommendations was emerged

- Foliar application of *B. bassiana*@ 5g/lit. (1×10^7 cfu/ml) is recommended as an eco-friendly measure for management of defoliators in forage cowpea.

The session ended with vote of thanks to the chair.

TECHNICAL SESSION – IV (CONCURRENT) FORMULATION OF TECHNICAL PROGRAMME

FORAGE CROP IMPROVEMENT

Chairman	:	Dr. I. S. Solanki, ADG (FFC), ICAR
Co-Chairman	:	Dr. J. P. Yadavendra
Convener	:	Dr. A. K. Roy, Project Coordinator
Rapporteurs	:	Dr. P. Mahadevu and Dr. Y. Jindal
Finalization of trials	:	Dr. Shahid Ahmed

At the outset, the Chairman welcomed the delegates. Dr. Shahid Ahmed, Head, Crop Improvement Division, IGFRI, presented the highlights of **19** breeding trials conducted during *Kharif* 2017 on **10** different forage crops for finalization of the technical programme for *Kharif* 2018. PC appraised the chairman about the forage breeding programme undertaken by the pearl millet, maize and sorghum AICRP's. Entries found promising for forage traits in their evaluations can be nominated exclusively in the AICRP-FCU trials. The chairman assured to call a meeting of Director, IGFRI, PCs of different AICRP's (Forage crops, Pearl millet, Maize, Sorghum) and ICAR authorities to discuss the issue based on the QRT recommendations of IGFRI & AICRP forage crops. After detailed discussion, following breeding trials were formulated.

Annual trials:

Maize:

- **IVT fodder maize** trial will be constituted with entries contributed by different centers and will be conducted at 24 locations. More entries will be communicated in a few days by IIMR, Ludhiana and AICRP Maize centers. Location Jorhat stands dropped due to early rains and low yield and Pusa is added as a new testing location.
- AVTM-1 and AVTM-2 are merged to form **Combined AVTM-1&2**: Three entries *viz.*, DMRH-1410, IMH 1527, TSFM-16-3, were promoted from IVTM-1 to AVTM-1. Similarly two entries TSFM-15-5 & ADV-6737 were promoted from AVT-1 to AVT-2. This trial will be evaluated at 9 locations of NEZ & SZ. Hybrid checks need to be added for comparison of hybrid entries.
- There will be no trial of AVT-2 seed as entries promoted in AVT-2 were tested for seed production potential in last year composite trial.

Pearl millet:

- New trial in **IVTPM** was constituted with 12 entries contributed by different centers and private companies + checks and will be conducted at 18 locations in 4 zones. The check RBB 1 may be added instead of RBC 2 & Moti bajra may be added as check for SZ.
- **AVTPM-1**: The trial is dropped for lack of entries promoted from IVT PM
- **AVTPM-2**: Two entries *viz.*, TSFB-15-8 and TSFB-15-4 were promoted from AVTPM to AVTPM seed. These entries will be evaluated at 8 locations of NWZ & SZ.
- **AVTPM-2 (Seed)**: Will be conducted simultaneously at six locations with the same entries as in AVTPM-2.

Cowpea:

- New trial in Cowpea (**IVTC**) was formulated with 8 entries (1 each from PAU, Mandya, HAU, Dharwad, Pantnagar & Hyderabad and two entries from Raipur) + checks and will be conducted at 27 locations with Pusa as a new testing location. Locations Karaikal and Kanpur stands dropped. South Zone check MFC 08-14 may be replaced with MFC 09-1.
- **AVTC-1**: Seven entries viz., C-217, PFC-12, TSFC-16-1, HFC-16-1, MFC-16-4, MFC-16-3, TSFC-16-1 were promoted from IVTC and will be tested at 10 locations of HZ&SZ. For Hill zone UPC 622 will be used as check.
- **AVTC-2 and AVTC-2 (seed)** are not constituted due to lack of entries promoted from AVTC-1

Rice bean:

- A single combined trial in **Rice bean** viz. IVT+AVT-2 was constituted with 3 entries to be tested under IVT and one entry JRGB 07-4 to be tested under AVT-2) + checks and will be conducted at 9 locations across the country.
- Similar trial with same entries will be constituted for seed production potential.

Perennial trials:

Guinea Grass:

- New trial in Guinea grass (**IVTGG**) was formulated with 4 entries (1 each from PAU and IGFR and 2 from Vellayani with appropriate checks and locations.

The following six perennial trials will be continued during *Kharif* 2018 in the coded form:

1. **VT *Cenchrus ciliaris* -2015 (4th year)**
2. **VT *Cenchrus setigerus* -2015 (4th year)**
3. **VT Bajra Napier Hybrid -2015 (4th year)**
4. **VT *Setaria* -2015 (4th year)**
5. **VT *Pennisetum* Hybrids – 2015 (4th year)**
6. **VT *Desmanthus* -2016 (3rd Year)**

General remarks:

- The Chairman suggested strengthening the *Stylosanthes* research work. IGFR, Dharwad; TNAU and MPKV, Rahuri and BAIF, Uralikanchan centres should take the lead in this direction to collect and distribute the promising genotypes for evaluation in other centers.
- It was observed that only a few centers are contributing entries. All centers should strengthen research work in their mandated crop and contribute entries in future trials.
- All centers should send seeds to coordinating unit before 30th April, 2018.

The session ended with vote of thanks to the Chairman.

TECHNICAL SESSION – IV (CONCURRENT) FORMULATION OF TECHNICAL PROGRAMME

FORAGE CROP PRODUCTION

Chairman	:	Dr. P. Devasenapathy, Professor and Head, TNAU, Coimbatore
Co-chairman	:	Dr. Menhi Lal
Rapporteurs	:	Dr. S.K. Jha & Dr. R. Joseph Koireng

Session began with introductory remarks of chairman. He emphasized on proper utilization of available resources. Dr. R. K. Agarwal, P.I. (Agronomy) discussed about ongoing trials. Four coordinated trials have been concluded and ongoing trials will be continued as per technical programme. In addition to ongoing trials, two new trials have been formulated during the session, and house decided two trials on one year pilot basis.

A. Concluding trials

1. 1K-15-AST-3L : Studies on Integrated nutrient management in Fodder Rice bean
2. R-14-AST-2: Effect of cutting and nutrient management on growth, yield and quality of oat
3. PS-14-AST-2: Impact of Mg and B on nutrient uptake, quality and yield of bajra napier hybrid
4. PS-14-AST-1: Effect of straw mulch on the water requirement, weeds and productivity of BN hybrid

B. New Trials

1. Evaluation of fodder value of maize varieties as influenced by nitrogen levels and de-topping before physiological maturity. (Dharwad, Mandya, Rahuri, Raipur, Uralikanchan, Imphal, Kalyani, Hisar)
2. Studies on intercropping of Lucerne in Guinea grass and Bajra x Napier hybrid under irrigated conditions (Dharwad).
3. Effect of cutting management on productivity of legume forage crops- one year trial on pilot basis.
4. Exploring the possibility of silage of paddy straw and sugarcane tops with different additives- one year trial on pilot basis.
5. Validation of best weed management module generated in IGFRI through AICRP-FC&U

SN	crops	Weed management technology	Centre
1	Berseem	Stale seed bed (10-15 Days before sowing) followed by application of Propaquizafop @ 0.1 kg. a.i./ha at 20 days after sowing	Pantnagar, Ludhiana, Srinagar, Ranchi, Jabalpur, Rahuri Palampur, Uralikanchan,
2	Cowpea	Imazethapyr @ 0.1 kg a.i./ha as pre-emergence (1-3 days after sowing) followed by one wheel hoe at 15-20 days	Pantnagar, Mandya, Vellayani, Bikaner, Coimbatore, Imphal
3	Sorghum	Oxadiargyl @ 0.09 kg a.i./ha as pre emergence (1-3 days after sowing) followed by 2, 4-D @1.0 kg a.i./ha at 20-25 days after sowing	Anand, Pantnagar, Palampur, Jabalpur, Imphal, Mandya.
4	BxN Hybrid	Oxadiargyl @ 0.09 kg a.i./ha as pre emergence (1-3 days after planting) followed by 2, 4-D @ 1.0 kg a.i./ha at 20-25 days after sowing	Vellayani, Rahuri, Hisar, Coimbatore, Mandya.

The session ended with vote of thanks to the chair

TECHNICAL SESSION-IV (CONCURRENT) FORMULATION OF TECHNICAL PROGRAMME

FORAGE CROP PROTECTION

Chairman	:	Dr. T. Raguchander, Prof. & Head, Dept. of Plant Pathology
Rapporteurs	:	Drs. Pravasini Behera and A. B. Tambe
Finalization of trials	:	Dr. Nitish R. Bhardwaj

At the outset, the chairman welcomed the delegates. Crop Protection Scientists of the forage group discussed in detail the results of the last *Kharif* season along with the ongoing technical programme. Scientists appraised the Chairman, regarding the results of last *Kharif* season along with the technical programme. The Chairman appreciated the work done by this small group and gave valuable suggestions. He emphasized on the importance of monitoring and surveillance of diseases and insect pests in forage crops which may create a gap in fodder production and emphasized that crop protection group can play an important role in minimizing this gap by development of suitable location or region specific crop protection technologies. He also emphasized to use uniform observation methodology among all centers for evaluation of breeding material against diseases and insect-pests, which will help in proper data compilation as well as accurate results.

Based on the discussions and advices of the Chairman the following recommendations emerged.

1. Chairman suggested the pest incidence should be monitored closely and an experiment on management of pests should be formulated. He also emphasized to use uniform observation methodology among all centres, which will help proper data compilation and interpretation of results.
2. The trials PPT-1 (Monitoring of diseases and insect pests in *Kharif* forage crops ecosystem), PPT-2 (Evaluation of *Kharif* breeding materials for their resistance to diseases and insect pests), PPT-21 (Integrated Management of BLSB of forage Maize (Modified), PPT-22 (Integrated Management of foliar diseases of forage Sorghum) and PPT-23 (Management of downy mildew of pearl millet using bioagents) will continue as such in *Kharif* 2018. Chairman made some recommendations with regard to dose of certain biocontrol agents and time of application of spray treatments, which were subsequently incorporated into the technical programme.
3. The trial PPT-16 (Efficacy of different biopesticides against aphids on forage sorghum) was deleted due to insufficient population of aphids for last two consecutive years and the same experiment will be considered for execution during Rabi 2018-19.
4. The PPT-24 validated on large scale area and the best treatment i.e. foliar application of *B. bassiana* @ 5g/lit. (1×10^7 cfu/ml) is recommended as an eco-friendly treatment for management of defoliators in forage cowpea.
5. A New trial PPT-25 from Ludhiana centre "Non chemical Management of *Helminthosporium* Leaf blight in fodder maize" was proposed and finalized.

The session ended with vote of thanks to the chair.

TECHNICAL SESSION - V

REVIEW OF CENTRE –WISE ACTIVITIES

Chairman	:	Dr. I. S. Solanki, ADG, (FFC) ICAR
Convener	:	Dr. A. K. Roy, Project Coordinator
Rapporteurs	:	Dr. Naveen Kumar and Dr. M. Shanti

The session started with the introductory remarks by the chairman, 20 centers from different zones presented their activities.

Hill Zone

- Palampur centre presented breeding programme in Setaria grass, maize and BN hybrids.
- Srinagar centre attempted crosses in maize and has presented elaborate TSP programme
- Hill zone centers were advised to collect more germplasm and concentrate on oat, clovers, range grasses etc. they should also explore possibilities of popularizing BxN hybrid, Guinea grass in lower hills.

North West Zone

- Ludhiana centre highlighted the BN hybrid released at their centre with low oxalate content. They also initiated colchicine induced hexaploidy in BN hybrids
- Hisar centre has presented activities in cowpea breeding. They are requested to meet Teosinte Var TL-1 seed demand of NDDDB and other agencies.
- Pantnagar centre elaborate breeding programme in cowpea. They had been instructed to register all the genetic stock with NBPGR.
- Bikaner centre presented work on arid grasses and bajra.

North East Zone

- At Faizabad the work is being undertaken on bajra crop.
- Ranchi centre presented PGR and crossing activities in Dinanath grass and rice bean.
- Bhubaneswar centre presented the plant protection activities.
- Kalyani centre has good germplasm collection of rice bean and has also initiated gamma ray induced mutagenesis in rice bean.
- Jorhat center presented the TSP, FTD activities and breeding efforts in rice bean.
- Outreach programme of Imphal centre were appreciated.

Central Zone

- Three new scientists joined at AAU, Anand centre. They were advised to concentrate on the ongoing activities and all the germplasm and breeding lines should be used for developing new varieties.
- Jabalpur centre presented work on mutation breeding in rice bean
- Rahuri centre has presented their breeding activities in multicut sorghum and BN hybrids.
- BAIF centre had highlighted the in-house breeding programme in maize and BN hybrids.
- Raipur center presented efforts of PGR activities and breeding programme.

South Zone

- Hyderabad centre presented research work on cowpea, bajra research which has good outcome in form of state release varieties. The center was also appreciated for the support received from University for development of infrastructure.
- Mandya centre presented hybridization programme in cowpea.
- Coimbatore centre was appreciated for their varieties and outreach programme.
- Vellayani has initiated mutation breeding in Guinea grass.

The general suggestions to all the centres were as follows

- Under TSP programme & FTD activities, all centres are directed to maintain beneficiary farmer details viz., name of farmer, address, phone no., aadhar number etc. Details of village along with name of block and attestation of list of beneficiaries by Sarpanch if possible was advised to be maintained.
- Project Coordinator Dr. A. K. Roy directed all the centres to send the details of state level breeder seed indents to PC unit.
- pdf copies of Publications of any kind (folders, bulletins or booklets) released by AICRP centers must be sent to PC unit for uploading on the web site www.aicrponforagecrops.res.in.
- It was again pointed out that breeding efforts of a few centers are very poor in terms of entry in AICRP trials, these centers were advised to concentrate on breeding programme with sincerity.

The session ended with vote of thanks to the Chair.

TECHNICAL SESSION VI

FTD & TSP FORMULATION

Chairman	:	Dr. I. S. Solanki, ADG, (FFC) ICAR
Convener	:	Dr. A. K. Roy, Project Coordinator
Finalisation of programme	:	Dr. R. K. Agrawal

At the outset, the chairman welcomed all the participants. Dr R. K. Agrawal discussed with scientists of AICRP (FC&U) Coordinating and Cooperating centres for allotting FTD for *Kharif* 2018.

A total of 715 FTD's were proposed to be allotted to AICRP centres and co-operating centre during *Kharif* 2018 for the crops viz., BxN hybrid, sorghum, rice bean, maize, Pearl millet, Setaria and guinea grass and congo- signal grass etc. Out of 715 FTD's, 360 were allocated to BN Hybrid, 25 to Rice bean, 105 to Maize, 45 to Pearl millet, 50 to Cowpea, 10 to Guinea grass, 60 to forage sorghum, 4 to setaria and 20 to congo-signal grass.

Regarding FTDs, it was emphasized that

- Centers should use the resources of their institutions for carrying out the activities.
- FTDs should be conducted in the new villages every year, so that the technologies can be spread in larger areas

TSP programme

- TSP programme was proposed by AAU, Jorhat; OUAT, Bhubaneswar; BCKV, Kalyani; JNKVV, Jabalpur; BAIF, Uralikanchan; PJTSAU, Hyderabad; HPKV, Palampur; SKUAST-K, Srinagar; CAU, Imphal; IGKV, Raipur; KAU, Vellayani; GBPUAT, Pantnagar; BAU, Ranchi which was approved by the house. Project Coordinator assured that the TSP money will be made available to each center as per the budget provided by the council.

Regarding TSP programme, it was emphasized that

- The guidelines issued by Tribal Welfare Ministry, ICAR should be strictly followed.
- Centers can take help of KVK's and NGO's for effective execution of TSP programme
- Centers can use the budget for technology demonstration on fodder production and conservation, livestock development and distribution of small tools to tribal rural people.

All the centers need to provide following information regarding FTDs and TSPs

- The list of beneficiaries and their details including mobile number.
- Area covered under the programme and the relevant data in yield level.
- Efforts should be made to collect data on vertical and horizontal transfer of technologies.

Table: FTDs allotted to different centers

Centre	BN hybrid	Rice bean	Maize	Bajra	Cow pea	Sorghum	Guinea grass	Congo signal grass	Setaria	Total
Jorhat	10							20	20	50
Bhubaneswar	15		10							25
Kalyani	10	20	10							40
Ranchi	10		10				10			30
Faizabad				5						5
Jabalpur	5	5	5							15
Anand	10		10							20
BAIF	10			10	5					25
Bikaner	5			5	5					15
Ludhiana	200									200
Hyderabad	10			10		10				30
Mandya	10		10	10	10	10				50
Rahuri	20									20
Palampur	20								20	40
Srinagar			20							20
Imphal			10			10				20
Raipur			10							10
Vellayani	15				5					20
Pantnagar			10	5	5	10				30
Coimbatore	10				5	5				20
Hisar					15	15				30
Total	360	25	105	45	50	60	10	20	40	715

TECHNICAL SESSION - VII

PGR/BREEDING/PRODUCTION/PROTECTION ISSUES

Chairman	:	Dr. A. K. Roy
concener	:	Dr. N. R. Bhardwaj, Scientist AICRP coordinating unit
Rapporteurs	:	Dr. Santosh Jha & Dr. P. S. Takawale

- The germplasm collected and maintained by different centers should be submitted to NBPGR along with all the passport data to get IC No. Germplasm should be freely shared among the centers after completing all formalities.
- After identification of varieties, all centers must submit the proposal to CVRC for release and notification within 2 months.
- Scientists were asked to avoid publishing in on-line journals which are of poor NAAS rating and value.
- All centers must put emphasis on popularizing the technologies and publish the results in good journals.
- Scientists were advised to properly document the developed breeding material and get the novel germplasm registered with NBPGR.
- All centers should contribute entries in the coordinated trial. It was observed that a few centers are not contributing any entry in the trials, these centers were advised to strengthen their crop improvement activities.

The session ended with vote of thanks to the Chair.

TECHNICAL SESSION –VIII

Administrative and Financial Issues

Chairman	:	Dr. I. S. Solanki, ADG, (FFC) ICAR
Co- Chairman		Dr. Dinesh Kumar PS (FFC) ICAR
Convener		Dr. R. K. Agarwal, PS (AICRP coordinating unit)
Rapporteurs	:	Dr. A. H. Sonone

Dr. A.K. Roy, Chairman and Project Coordinator, AICRP on Forage Crops and Utilization informed the house that the 12th plan has ended now and new SFC for three years (2017-18 to 2019-2020) has already been approved and communicated to the centers.

The following points were emphasized for implementation

Administrative and financial issues

- The posts sanctioned in the project for 3 years 2017-18 to 2019-20 as per SFC approval has already been communicated along with budget approved under different heads like salary, TA, Research contingencies.
- All the centers should restrict expenditure within the approved budget only. If expenditure on salary head is exceeding the approved budget, the number of posts should be reduced at center level.
- Vacant posts in the administrative cadre should not be filled at any centers till further orders.
- Salary of staff engaged on contractual basis should be drawn from recurring contingency and not from salary head.
- Care must be taken that no person in higher scale be placed in AICRP on FC & U than sanctioned post.
- Retirement benefits should not be drawn from the ICAR – AICRP FC&U funds.
- All centers should submit Utilization Certificate before 30th April of every year, which should be signed by the OIC and Comptroller/ financial head.

The session ended with vote of thanks to the Chair.

Proceedings of Varietal Identification Committee Meeting

The meeting of Varietal Identification Committee of AICRP on Forage Crops and Utilization was held under the chairmanship of Dr. I. S. Solanki, Assistant Director General, (FFC), ICAR on 06th April, 2018 at TNAU, Coimbatore.

The following four proposals were put up before the committee. The committee deliberated in detail and following decisions were taken.

Fodder Bajra entry TSFB-14-10: The proposal was submitted by PJTSAU, Hyderabad for identification at All India level (North West Zone and South Zone). The committee noted that variety does not have significant superiority over the best check for yield, disease and quality parameters. The committee did not recommend for its identification.

Forage Cowpea entry TSFC-12-15: The proposal was submitted by PJTSAU, Hyderabad for identification at All India level (Hill, Central and South Zones). The committee noted that variety does not have significant superiority over the best check for yield, disease and quality parameters. The committee did not recommend for its identification.

Forage Cowpea entry MFC-09-3: The proposal was submitted by UAS (B) ZARS Mandya for identification for South Zone. The committee noted that variety does not have significant superiority over the best check for yield, disease and quality parameters. The committee did not recommend for its identification.

Forage Maize hybrid PAC-746: The proposal was submitted by Advanta UPL Limited, Hyderabad for identification for Hill and North West Zones. The committee noted that variety does not have significant superiority over the best check for yield, disease and quality parameters. The committee did not recommend for its identification.

(A K Roy)
Member Secretary

(I.S. Solanki)
Chairman

1. IVTM: Forage Maize (New)

Entries	:	19 + 2 (NC) + 1 hybrid check [CO(HM)8]
Entries	:	HPKV, Palampur (HPFM-9), PAU, Ludhiana (PFM 9 , PFM-10), BAIF (BAIF Maize - 6), TNAU (TNFM 131-9), SKUAST-K Srinagar (KDFM-3); VPKAS Almora (Vivek Maize Hybrid VMH 45, CMVLBC 2); IARI Delhi (AFH-6); IIMR Begusarai (IMHBG-18KF-1, IMHBG-18KF-2), GBPUA&T Pantnagar (DFH 1), Advanta Seeds Ltd (ADV 6781); Star Agro Pvt Ltd (Star 111), Rasi Seed Pvt Ltd (SCH 201), PJTSAU, Hyderabad (TSFM-16-10), Dholi, Muzaffarpur (MF-2018); UAS Dharwad (AH-8070, AH 8071R)
Checks	:	African Tall, J-1006, IIMR hybrid COHM-8
Design	:	RBD with 3 replications
Plot size	:	4 m x 1.8 m accommodating 4 m long 6 rows at 30 cm
Seed rate	:	50 Kg/ha (36g/Plot)
Fertilizers	:	80:40 kg/ha (N:P) 40:40 kg/ha (N:P) basal+ 40 N after 30 days
Seed	:	3.0 Kg/entry and 3.0 Kg/ NC
Locations (24)	:	HZ -Palampur, Srinagar; Rajouri, Almora NWZ -Ludhiana, Hisar, Udaipur, Pantnagar, Jalore NEZ -Faizabad, Bhubaneswar, Ranchi, Pusa, Imphal; CZ -Anand, Raipur, Jabalpur, Rahuri, Urulikanchan, Jhansi; SZ -Hyderabad, Coimbatore, Mandya, Karaikal

2. Combined AVTM-1 & 2: Forage Maize

Entries	:	5+2 (NC) + 1 hybrid check [CO(HM)8]
Entries	:	03 for AVT-1: DMRH-1410, IMH 1527, TSFM-16-3 02 for AVT-2: TSFM-15-5, ADV-6737
Checks	:	African Tall & J-1006
Design	:	RBD with 3 replications
Plot size	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Seed rate	:	50 Kg/ha (60g/Plot)
Fertilizers	:	80:40 kg/ha (N:P) 40:40 kg/ha (N:P) basal+ 40 N after 30 days
Seed	:	2 Kg/entry and 2 Kg/NC
Locations (9)	:	NEZ -Faizabad, Bhubaneswar, Ranchi, Jorhat, Imphal SZ -Hyderabad, Coimbatore, Mandya, Karaikal

3. IVTPM: Forage Pearl millet (New)

Entries	:	11+ 1 (NC) + 1 (ZC)
Entries	:	SKRAU, Bikaner (RBB 10), PJTSAU, Hyderabad (TSFB-17-7), Anand (AFB-38), JNKVV (JPM 18-3), PAU, Ludhiana (FBL 1, FBL 2, FBL 3), Advanta (Hybrid Code : ADV160061), Kanchan Ganga (K-25), JK agri (JKFBH 1521) Star Agro Pvt Ltd (Star Chandra),
Checks	:	Giant Bajra (NC), BAIF Bajra 1 (CZ) + AFB-3 (NWZ) + APFB-9-1 (NEZ), Moti Bajra (SZ)
Design	:	RBD with 3 replications
Plot size	:	4 m x 1.8 m accommodating 4 m long 6 rows at 30 cm
Seed rate	:	12 Kg/ha (9 g/Plot)
Fertilizers	:	40:20 kg/ha (N:P) basal
Seed	:	1 Kg/entry; 1 Kg/NC and 0.25 Kg/ZC
Locations (19)	:	NWZ -Ludhiana, Hisar, Bikaner, Jalore, NEZ -Faizabad, Pusa, Bhubaneswar, Ranchi CZ -Anand, Raipur, Jabalpur, Rahuri, Uralikanchan, Jhansi , Meerut SZ -Coimbatore, Hyderabad, Mandya, Raichur

4. AVTPM-2: Forage Pearl millet for NW SZ

Entries	:	2+ 1 (NC) + 1 (ZC)
Entries	:	TSFB-15-8, TSFB-15-4
Checks	:	Giant Bajra (NC), AFB-3 (NWZ), Moti Bajra (SZ)
Design	:	RBD with 5 replications
Plot size	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Seed rate	:	12 Kg/ha (15g/Plot)
Fertilizers	:	40:20 kg/ha (N:P) basal
Seed	:	1 Kg/entry; 1 Kg/NC and 0.40 Kg/ZC
Locations (8)	:	NWZ -Ludhiana, Hisar, Bikaner, Jalore SZ -Coimbatore, Hyderabad, Mandya, Raichur

5. AVTPM-2 (seed): Forage Pearl millet (seed)

Entries	:	2+ 1 (NC) + 1 (ZC)
Entries	:	TSFB-15-8, TSFB-15-4
Checks	:	Giant Bajra (NC), AFB-3 (ZC-NWZ), Moti Bajra (ZC-SZ)
Design	:	RBD with 5 replications
Plot size	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Seed rate	:	12 Kg/ha (15g/Plot)
Fertilizers	:	40:20 kg/ha (N:P) basal
Seed	:	1 Kg/entry; 1 Kg/NC and 0.30 Kg/ZC
Locations (8)	:	NWZ -Ludhiana, Hisar, Bikaner, Jalore SZ -Coimbatore, Hyderabad, Mandya, Raichur

6. IVTC: Forage Cowpea (New)

Entries	:	8 + 2 (NC) + 1 (ZC)
Entries	:	Ludhiana (PFC 31), Mandya(MFC-16-1), Hyderabad (TSFC-17-3), Raipur [(RFC-1(RCC 446), RFC-2 (RCC-48)], Dharwad (C-150), HAU (HFC 16-3), Pantnagar (UPC 1801),
Checks	:	National checks: Bundel Lobia-1, UPC-5286, Zonal checks: Bundel Lobia-2 (NWZ), UPC-622 (HZ), UPC-628 (NEZ), UPC-9202 (CZ) & MFC-09-1 (SZ)
Design	:	RBD with 3 replications
Plot size	:	4 m x 1.8 m accommodating 4 m long 6 rows at 30 cm
Seed rate	:	35.0 kg/ha (26 g/plot)
Fertilizers	:	20:40 kg/ha (N:P) basal
Seed	:	3.0 Kg/entry; 3.0 Kg/NC and 0.75 Kg/ZC
Locations (28)	:	HZ -Palampur, Srinagar, Rajouri NWZ -Ludhiana, Hisar, Pantnagar, Bikaner, Udaipur, Jalore NEZ -Faizabad, Bhubaneswar, Ranchi, Jorhat, Kalyani, Imphal, Pusa CZ -Anand, Rahuri, Urulikanchan, Jhansi, Raipur, Meerut SZ -Coimbatore, Vellayani, Mandya, Hyderabad, Dharwad & Raichur

7. AVTC-1: Cowpea HZ, SZ

Entries	:	6 + 2 (NC) + 1 (ZC)
Entries	:	C-217, PFC-12, TSFC-16-1, HFC-16-1, MFC-16-4, MFC-16-3
Checks	:	National checks: Bundel Lobia-1, UPC-5286 Zonal checks: & MFC-8-14 (SZ), UPC 622 (HZ)
Design	:	RBD with 3 replications
Plot size	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Seed rate	:	35.0 kg/ha (42 g/plot)
Fertilizers	:	20:40 kg/ha (N:P) basal
Seed	:	2.0 Kg for entry, NC and 1.3 kg for ZC
Locations (10)	:	HZ -Palampur, Srinagar, Rajouri, Almora SZ -Coimbatore, Vellayani, Mandya, Hyderabad, Dharwad, & Raichur

8. IVT Rice bean + AVT-2 Rice bean

Entries	:	4 + 2 (NC) + 1 for AVT-2
Entries	:	4 entries for IVT JOR-18-1, JOR -18-2, JRBJ08-4, KRB-11 1 entry for AVT-2 JRBJ-07-4
Checks	:	K-1 (Bidhan-1), Bidhan-2
Design	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Plot size	:	RBD with 3 replications
Seed rate	:	35.0 kg/ha (42 g/plot)
Fertilizers	:	20:40 kg/ha (N:P) basal
Seed	:	2 Kg/entry and 2 Kg/NC
Locations (9)	:	Kalyani, Ranchi, Bhubaneswar, Jorhat, Pusa, Vellayani, Jabalpur, Imphal & Palghar (Dapoli)

9. IVT Rice bean + AVT-2 Rice bean (seed)

Entries	:	4+ 2 (NC) + 1 for AVT-2
Entries	:	4 entries for IVT JOR-18-1, JOR -18-2, JRBJ08-4, KRB-11 1 entry for AVT-2 JRBJ-07-4
Checks	:	K-1 (Bidhan-1), Bidhan-2
Design	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Plot size	:	RBD with 3 replications
Seed rate	:	35.0 kg/ha (42 g/plot)
Fertilizers	:	20:40 kg/ha (N:P) basal
Seed	:	1 Kg/entry and 1 Kg/NC
Locations (6)	:	Kalyani, Ranchi, Jorhat, Jabalpur, Imphal, Pusa

10. VT *Cenchrus ciliaris* -2015 (4th year): (Perennial)

The trial will continue in coded form at the locations already established for Kharif 2018 also.

11. VT *Cenchrus setigerus* -2015 (4th year): (Perennial)

The trial will continue in coded form at the locations already established for Kharif 2018 also.

12. VTBN-2015 (4th year): Bajra Napier Hybrid (Perennial)

The trial will continue in coded form at the locations already established for Kharif 2018 also.

13. VT *Setaria* -2015 (4th year): *Setaria anceps* (Perennial)

The trial will continue in coded form at the locations already established for Kharif 2018 also.

14. VT Pennisetum hybrids – 2015 (3rd year): (*P. glaucum* x *P. squamulatum*) (Perennial):

The trial will continue in coded form at the locations already established for Kharif 2018 also.

15. VT *Desmanthus* -2016 (2nd Year): *Desmenthus* (Perennial)

The trial will continue in coded form at the locations already established for Kharif 2018 also.

Seed Requirement of the Check Varieties for Kharif 2018 Trials

Seed should be dispatched immediately by speed post to reach Jhansi before 30th April, 2018.
Seeds must be untreated. any colour, chemical etc. must not be used for seeds.

S N	Crop	Variety	Quantity (in kg)	Institution
1.	Maize	African Tall	Total 9.0 kg [IVT - 3.0 + CAVT1 & 2 - 2.0; + 4.0 kg for agronomy]	MPKV, Rahuri
		J-1006	Total 9.0 kg [IVT - 3.0 + CAVT1 & 2 - 2.0; + 4.0 kg for agronomy]	PAU, Ludhiana
2.	Pearl Millet	Raj Bajra Chari-2	Total 3.0 kg [IVT -0.8 + AVT-2 - 0.6; AVT2 Seed – 0.6 +1.0 for agronomy]	SKRAU, Bikaner
		Giant Bajra	Total 3.0 kg [IVT -0.8 + AVT-2 - 0.6; AVT2 Seed – 0.6 +1.0 for agronomy]	MPKV, Rahuri
		BAIF Bajra-1	0.3 kg (IVT)	BAIF, Uralikanchan
		AFB-3	2.0 kg [IVT -0.25 + AVT-2- 0.4 + AVT-2 seed – 0.35 + AVT agronomy 1.0]	AAU, Anand
		APFB-9-1	0.3 kg [IVT -0.2 + AVT1 – 0.3]	PJTSAU, Hyderabad
		Moti Bajra	2.0 kg [IVT -0.25 + AVT-2- 0.4 + AVT-2 seed – 0.35 + AVT agronomy 1.0]	PJTSAU, Hyderabad
3.	Cowpea	Bundel Lobia-1	5.0 kg [IVT -3.0 + AVT1 – 2.0]	IGFRI, Jhansi
		UPC-5286	5.0 kg [IVT -3.0 + AVT1 – 2.0]	GBPUAT, Pantnagar
		Bundel Lobia-2	0.8 kg [IVT -0.8]	IGFRI, Jhansi
		UPC-622	2.0 kg [IVT -0.8 + AVT1 – 1.0]	GBPUAT, Pantnagar
		UPC-628	0.8 kg [IVT -0.8]	GBPUAT, Pantnagar
		UPC-9202	0.8 kg [IVT -0.8]	GBPUAT, Pantnagar
		MFC-8-14	1.0 kg [AVT1 – 1.0]	UAS, ZARS Mandya
		MFC-09-1	0.8 kg [IVT -0.8]	
4.	Rice Bean	Bidhan-1	3.0 kg [IVT -2.0 + AVT2 seed – 1.0]	BCKV, Kalyani
		Bidhan-2	3.0 kg [IVT -2.0 + AVT2 seed – 1.0]	BCKV, Kalyani

Seed requirement for entries

- **IVT Maize:** 3.0 kg/ entry;
- **CAVT-1&2 Maize:** 2.0 kg/entry
- **AVT agronomy :** 4.0 kg /entry
- ❖ **IVT Pearl millet:** 0.8 kg/ entry
- ❖ **AVT -2 Pearl millet:** 0.6 kg/ entry
- ❖ **AVT -2 Seed Pearl millet:** 0.6 kg/ entry
- ❖ **AVT -2 Pearl millet Agronomy :** 1.0 kg/ entry
- **IVT cowpea:** 3.0 kg /entry
- **AVT-1 cowpea:** 2.0 kg /entry
- ✓ **IVT – Rice bean –** 3.0 kg/ entry
- ✓ **AVT – Rice bean –** 3.0 kg/ entry

CHARACTERS TO BE OBSERVED

(A) GENERAL: FOR EACH TRIAL

1. Days to 50% flowering
2. Green fodder yield (q/ha)
3. Dry matter yield (q/ha)
4. Production efficiency (q/ha/day)
5. Dry matter percentage (DM %)
6. Seed yield (q/ha) of AVT-2 (Seed) trials.
7. In perennial crops seed yield is to be recorded only in final year.
8. Plant height (cm) (In case of Ricebean and Cowpea, vine length should be recorded)
8. Leaf/ Stem ratio
9. Quality attributes
 - (a) Crude protein yield (q/ha)
 - (b) Crude protein content (%)
 - (c) ADF and NDF estimates (%)
 - (d) IVDMD%

Note. The cut for green forage is to be taken at 50% flowering stage and per day productivity of each entry is to be reported.

Note:

1. Green fodder yield data to be recorded at 50% flowering stage.
2. For multi cut perennial crops it has to be recorded as per local agronomic practice (first cut at 50 days, subsequent cuts at 40 days).
3. All Kharif trials except seed trials are to be conducted strictly under rain-fed conditions.
4. Any Breeding trial comprising of the lesser entries due to missing of seed packets/damage of seed etc. should be compensated by increasing of replication or inclusion of the local checks/variety/strain so that the Degree of Freedom may not be less than 12.

(B) Yield conversion Factor:

$$\text{Yield (q/ha)} = \frac{\text{Yield (Kg /plot)}}{\text{Net plot size (m}^2\text{)}} \times 100$$

$$\text{Yield q/ha/day} = \frac{\text{Yield (q/ha)}}{\text{No. of days to harvest}}$$

- (C) 1. The Centres are expected to provide experimental details as per format given herewith.
 2. Each Centre must communicate trials at a glance as per columns given below:

AICRP ON FORAGE CROPS AND UTILIZAATION			
FORAGE BREED TRIALS/RANGE GRASSES & LEGUMES EVALUATION TRIALS AT A GLANCE			
S. No.	Trials allotted (No. & Name)	Trials conducted (No. & Name)	Trials not conducted/failed, also give reasons for not conducting the trials/failure (No. & Name)
1.			
2.			

**AICRP on Forage Crops and Utilization
Technical Programme
Forage Crop Production
Kharif Trials 2017-2018**

Annexure B

S. N.	Trial Name	Centre	Title	Concluding Year
1.	K-17-AST-1	Mandya, Coimbatore and Vellayani	Studies on performance top feeds under varied Planting geometry with and without intercrop	Kharif-21
2.	K-17-AST-2	Raipur	Standardization of seed production techniques in fodder Maize	Rabi 19-20
3.	K-17-AST-3	CZ-Jabalpur, Raipur, Uralikanchan, Rahuri, NEZ-Ranchi, Faizabad	Effect of new generation herbicides on weeds and forage yield of forage Maize	Kharif-2019
4.	PS-14-AST-3	Dharwad and Mandya	Response of Congo-signal grass (<i>Brachiaria ruziziensis</i> Cv. DBRS 1) to planting geometry and N levels	Rabi-17-18
5.	CS-15-AST-4	Pantnagar, Ranchi, Kalyani, Jabalpur	Development of climate resilient production technologies on productivity and economic of food-fodder based cropping systems	Kharif-19
6.	K-17-AST-4	Jorhat	Effect of Rice bean+ Teosinte intercropping system and INM on succeeding kharif Rice	Kharif-19
7.	K-15-AST-5L	Hyderabad	Studies on carbon sequestration in subabul (<i>Leucaena leucocephala</i>) based silvi-pastoral cropping system under rain fed agriculture	Kharif-20
8.	K-15 AST-8-7 L	Faizabad	Screening of genotypes of fodder bajra and oat under sodic soil	Rabi 18-19
9.	K-15-AST-10 C	Mandya and Vellayani	Intensive forage production through Agase based (<i>Sesbania grandiflora</i>) cropping system under protective irrigation	Kharif-19
10.	K-15-AST-13 C	Ludhiana and Palampur	Performance of multicut sorghum and pearl millet mixture at various seed rates under different methods of sowing	Kharif-18
11.	K-16-AST-2	Uralikanchan, Anand, Jabalpur, Kalyani, Bhubaneswar	Effect of different techniques of seed priming on productivity of forage maize	Kharif-18
12.	K-16-AST-8	Faizabad	Resource management in rice-oat cropping system under sodic soils.	
13.	K-18- AST-1	IGFRI-SRRS, Dharwad	Studies on intercropping of Lucerne in guinea grass and Bajra napier hybrid under irrigated conditions	Kharif 2020
14.	K-18-AST-2	Dharward, Mandya, Rahuri, Raipur, Uralikanchan, Imphal, Kalyani, Hisar	Evaluation of fodder value of maize varieties as influenced by nitrogen levels and de-topping before physiological maturity	kharif 2019
15.	K-18-AST-3	NEZ: Imphal Faizabad, SZ:Hyderabad, Coimbatore,	Effect of nitrogen levels on forage yield of promising entries of forage hybrid maize (AVTM- 2)	kharif 2018
16.	K-18-AST-4	NWZ-Ludhiana, Bikaner SZ-Hyderabad, Mandya	K-18-AST-4 (AVTPM-2-1): Second Advanced Varietal Trial in Forage Pearl millet (AVTPM-2-1)	kharif 2018

K-17-AST-1: Studies on performance top feeds under varied planting geometry with and without intercrop.

Locations (5): Mandya, Coimbatore, Vellayani and Hyderabad

Objectives:

- ✓ To standardize optimum plant population for higher green forage yield and quality.
- ✓ To study the performance of different plant species as top feed under sole and intercropping system.

Experimental details:

Design : Split plot	Season : Kharif-17 (starting year) 1st report in kharif 2018
Replication : 3	Treatments : 18
Plot Size : 6 m x 4 m	Nutrients : as per treatments

Main plot: Cropping System-2

1. Sole crop
2. Intercrop (Napier Bajra Hybrid)

Sub plot: Top Feeds - 3

1. Agase (*Sesbania grandiflora*)
2. Erythrina (*Erythrina indica*)
3. Drumstick (*Moringa oleifera*)

Sub-Sub Plot: Planting geometry-3

1. 2m x 1m
2. 2m x 0.5m
3. Paired system (between pairs-2m, within pairs 1m)

Observations to be recorded:

1. Total Green forage yield (q/ha) and number of cuttings
2. Dry matter % and Total Dry matter yield (q/ha)
3. Crude protein (%) and Crude protein yield (q/ha)
4. Economics
5. Fibre analyses
6. Soil Nutrient Status before and after completion of experiment (pH, OC %, Available N, P, K).

K-17-AST-2: Standardization of seed production techniques in fodder Maize.

Locations (2): IGKV, Raipur	Data Reporting: <i>kharif</i>
Conduction year: <i>kharif 2017, Rabi 2017-18</i> <i>kharif 2018, Rabi 2018-19</i>	Concluding Year: <i>kharif 2019</i> (After two year)

Objectives:

- To study the seed production potentiality of fodder maize.
- Comparison of *Kharif* and *Rabi* fodder seed production.
- To study the seed quality of fodder maize in *Kharif* and *Rabi*
- To study Economics of fodder maize seed production under *Kharif* and *Rabi* condition.

Experimental Details

Design: FRBD		Spacing : Row to row as per treatment Plant to plant 20 cm		
No. of Factors : 2		Plot Size: 6 X 4 m (24 m ²)		
No. of treatments : 9		Year of start : <i>Kharif 2017</i>		
No. of replications: 3 Total No of Plot : 27		Fertilizer: 50 P : 40 K kg/ha common, Basal application of Zinc 25 kg /ha		
Factor A :Levels of N (Kg/ha)-3 (Basal + 2 split)		Factor B: Spacing-3 (cm) (Plant to plant 20 cm)		
F ₁	80	Nitrogen Fertilizer scheduling: • Basal 40 %, • Knee high stage 30 % • Silk/ Tasseling stage 30 %	S ₁	50 - 12 Row (1,00,000 plants/ha)
F ₂	120		S ₂	60 - 10 Row (83,333 plants/ha)
F ₃	160		S ₃	75 - 8 Row (66,666 plants/ha)

Observations to be recorded:

1. Plant height (cm)
2. Plan population/meter length
3. Seed yield, Straw yield, harvest index
4. Cob observation: Cob length, grain /cob,
5. Seed quality: Test wt., seed viability, seed germination.
6. Stover Quality: Dry matter (%), Crude protein.
7. Economics: Gross return, net return, B:C ratio

K-17-AST-3: Effect of new generation herbicides on weeds and forage yield of forage Maize.

Locations: CZ: Jabalpur, Raipur, Uralikanchan, Rahuri and Anand NEZ: Ranchi, Bhubaneswar, Faizabad	Data Reporting: <i>kharif</i>
	Start year: <i>kharif 2017</i>
	Concluding Year: <i>kharif 2019 (After two year)</i>

Objectives:

1. To study the associated weed flora in fodder Maize.
2. To adjudge the suitable dose of new post emergence herbicides against weeds.
3. To study the effect of different treatments on growth and seed yield of fodder Maize.
4. To workout the economics of treatments.

Experimental details:

Design	: RCBD	Season	: Kharif-17
Replication	: 3	Treatments	: 10
Gross Plot Size	: 4.0mx3.0m	Seed Rate	: 40kg/ha
Net plot size	: 3.0m x1.8m	Variety	: African Tall
Nutrients	: 80:40:20(N:P ₂ O ₅ :K ₂ O kg/ha)	Distance between replication	: 1.0 m
Distance between rows	: 0.6 m	Distance between plots	: 1.5m
Total number of plots	: 24		

Treatments:- 10 Weed control measures

SN	Treatments	Dose a.i. /ha	Time of application
T1	Tembotrione	120g/ha	20 DAS
T2	Topramezone	35g/ha	20 DAS
T3	Tembotrione + Atrazine	120g+ 250g/ha	20 DAS
T4	Topramezone + Atrazine	35g+ 250g/ha	20 DAS
T5	Atrazine	1000g/ha	Pre-emergence
T6	Pendimethlin	1000 g/ha	Pre-emergence
T7	Atrazine + Pendimethlin	750+750 g/ha	Pre-emergence
T8	2,4-D	0.5kg/ha	20 DAS
T9	Hand weeding		20 and 40 DAS
T10	Weedy Check		

Observation to be recorded

	Crops
A. Weed flora in fodder maize	<ul style="list-style-type: none"> • Plant population/m row length at 15 DAS • Plant height at 30, and harvest • No. of leaves at 30 and harvest • Leaf area at 30 and 60 DAS • Stem girth at harvest • Green Fodder yield • Dry matter yield • CP content • L:S ratio
<ul style="list-style-type: none"> • Weed population/m² monocot and dicot wise at 30 DAS and harvest • Dry weight of weeds /m² at 30 and harvest • Weed index (%) • Weed control efficiency (%) 	
Economics	
<ul style="list-style-type: none"> • Cost of cultivation in rupees • Gross monetary returns in rupees • Net Monetary returns in rupees • Benefit – cost ratio 	

PS-14-AST-3: Response of Congo-signal grass (*Brachiaria ruziziensis* cv. DBRS 1) to planting geometry and N levels

Locations (2): Dharwad and Mandya	Data reporting: Kharif
Year of Start: 2014	Concluding report: Kharif :2018

Objectives:

- To evaluate performance of *Brachiaria ruziziensis* (var. DBRS 1) under irrigated and rainfed conditions
- To study the effect of planting geometry and nitrogen nutrition on the performance of *Brachiaria spp.*
- To study the interactive effect of growing systems, planting geometry and nitrogen nutrition on the performance of *Brachiaria spp.*

Technical details

Design: Split-split plot design **Replications:** Three **Plot size:** 3.6 m x 3.6 m

Start: Kharif 2014 **Duration:** Three year

Treatments:

Growing systems: 2 (Main plot)

- (i) Rainfed (G₁) (ii) Irrigated (Based on available soil moisture regime) (G₂)

Planting geometry: 2 (Sub plot)

- (i) 45 cm x 45 cm (8 rows plot) (P₁) (ii) 60 cm x 60 cm (6 rows plot) (P₂)

Nitrogen nutrition: 4 (sub-sub plot)

- Control
- 10 kg N/ha (Basal and after each cut) (N₂)
- 20 kg N/ha (Basal and after each cut) (N₃)
- 30 kg N/ha (Basal and after each cut) (N₄)

Observations:

Plant observations:

- Plant height at each cut
- No. of tillers at each cut
- Dry matter per /tiller at each cut
- Light interception at 30 days interval
- GFY and DFY/ha /cut & year
- CP content (%) and yield (q/ha) at each cut

Soil observation:

- OC (%), available N, P and K initial and at one year interval

CS-15-AST-4: Development of climate resilient production technologies on productivity and economics of food - fodder based cropping systems

Locations: (4): Pantnagar, Ranchi, Kalyani, Jabalpur

Objectives

- ✓ To study the effect of climate change on productivity and profitability of food– fodder based cropping systems.
- ✓ To find out the suitable climate resilient production technology for higher profitability of grain – fodder based cropping systems.

Experimental detail:

Duration of the experiment : 03 years **Replication** : 04

Design : Split Plot Design **Plot Size** : 3m x 5 m

Main plot: (Climate Resilient technology): 04
1. Zero tillage- (All the crops)
2. Minimum tillage single pass of cultivator + sowing with seed drill.
3. Conventional tillage
4. Zero tillage- minimum tillage- Zero tillage.
Sub plot (Cropping systems): 04
1. Rice (upland) – Berseem - Maize + Cowpea
2. Maize (Baby corn) – Berseem – Sorghum (Fodder)
3. Maize (Baby corn) – Wheat – Rice bean (Fodder)
4. Sorghum (Fodder) – Berseem – Maize (Baby Corn)

Observation to be recorded:

- Green forage yield of all forage crops (Berseem, Maize, Cowpea, Sorghum, – Rice bean and total of the year
- Weed fresh and dry weight/ sq m
- Dry Forage yield of all forage crops (Berseem, Maize, Cowpea, Sorghum, – Rice bean and total of the year
- Green forage equivalent yield (taking market price of cereal fodder @rs 1.20, Leguminous 1.50, Wheat 2.0, rice 1.8, wheat bhusa 1.5, paddy straw Rs0.8/kg)
- Grain yields of grain crops
- Quality parameters (CP content, yield, NDF, ADF once)
- Residual soil fertility status of the systems at beginning and end of each crop cycle
- Cost of cultivation, Gross monetary returns, Net Monetary returns and Benefit – cost ratio

K-17-AST-4: Effect of Rice bean+ Teosinte intercropping system and INM on succeeding *kharif* Rice.

Locations: AAU, Jorhat (Assam).

Data Reporting: *kharif*

Start year: *kharif* 2017

Concluding Year: *kharif* 2019 (After two year)

Objectives:

- To assess the productivity of rice based food-forage cropping system.
- To determine the economics of food - forage cropping system

Experimental details:

Design : Split Plot

Season : Kharif-17

Replication : 3

Treatments : 12

Plot Size : 6 m x 4 m

Nutrients : As per treatment

Main plot: Inter Cropping System-4 (Summer Season)

- | | |
|-------------------------------|-------------------------------|
| 1. Sole Teosinte | 2. Sole Rice bean |
| 3. Teosinte + Rice bean (3:2) | 4. Teosinte + Rice bean (3:3) |

Sub plot: Nutrient Management - 3

- | | |
|---|--|
| 1. 100 % RDF through Inorganics | 2. 50% N of RDF through inorganics + 50% N through FYM |
| 3. 50% N of RDF through inorganics + 50% N through Vermicompost | |

Observations to be recorded:

Yield attributes and yields of Teosinte and rice bean	Yield attributes and yields of Rice	Quality of Fodder crops and rice straw
Plant population /sq.m	Plant height (cm)	CP content of rice bean, teosinte and rice straw
Plant height (cm)	Plant population /sq.m	Crude protein yield of crops and system
Leaf- stem ratio	Grain and straw yield/ha	Economic analysis
Green forage Yield	Productivity of cropping system	Gross return
Dry matter content	Land Equivalent Ratio (LER)	Net return
Dry matter yield	Green Forage Equivalent Yield	Return per rupee invested
Soil physico-chemical properties	Rice equivalent yield	
Physico chemical properties before and after completion of sequence.		

K-15-AST-5L: Studies on carbon sequestration in subabul based silvi-pastoral cropping system under rain fed agriculture

Location: Hyderabad

Objectives

- To study the organic matter input to soil through subabul based perennial fodder cropping system
- To study organic matter partitioning added through the ROTH-C

Experimental details

Design : RBD

Replications: 3

Treatments: 8

Duration: 05 years

Treatments	In subabul plantation
T ₁	Subabul (Sole crop)
T ₂	Subabul + APBN-1 as intercrop
T ₃	Subabul + APBN-1 + <i>Desmanthus</i> in 3:1 ratio
T ₄	Subabul + APBN-1 + <i>Desmanthus</i> (3:1) in stylo ground cover
T ₅	Subabul + <i>Cenchrus ciliaris</i>
T ₆	Subabul + <i>Cenchrus ciliaris</i> + <i>Desmanthus</i> intercrop (3:1 ratio) in Stylo ground cover
T ₇	Subabul + <i>Cenchrus ciliaris</i> + <i>Desmanthus</i> intercrop (3:1 ratio)
T ₈	Subabul + <i>Desmanthus</i> as intercrop

Observation to be recorded:

- a. Growth parameters of Subabul and companion crop.
- b. GFY and DFY at flowering and at seed maturity
- c. CP%, CF% at flowering and at harvest crops.
- d. Monthly OM input surface soil 0-30 cm
- e. Root biomass and carbon assessment from all component species.

Inputs for model

1. Clay % in soil
2. Plant residue input viz.,
 - a. Root biomass measured immediately after harvesting crop (Franzluebbers et al, 1999)
 - b. Rhizodeposition of C from root exudates and root turn over (Shamoot et al, 1968)
 - c. Leaf litter
3. Monthly mean temperature, rainfall, evaporation

Note: Studies will be continued & observations will be recorded in existing Subabul based Cropping system

K-15-AST8-7L: Screening of genotypes of fodder bajra and oat under sodic soil.

Location (1): Faizabad	Data Reporting: Rabi
Year of Start: Kharif 2015	Concluding year: Kharif 2017

Objective:

- To identify promising genotypes of bajra and oat for fodder production under sodic soil of eastern UP.

Experimental detail:

Design : RBD

Replication : Three

Plot Size : 4m x 5m

Treatment:

Kharif - Bajra genotypes: Eight

Rabi - Oat genotypes: Eight

Observations to be recorded:

- a. Plant height (cm) at 50% flowering, green forage yield, dry mater yield, CP%, CP yield and leaf: stem ratio for both the crops.
- b. Soil properties: Initial OC%, EC, pH, Exchangeable Na% and available NPK (kg/ha).

K-15-AST-10 C: Intensive Forage Production through Agase based (*Sesbania grandiflora*) cropping system under Protective Irrigation

Locations (3): Mandya and Vellayani	Data Reporting: Kharif
Year of Start: 2015	Concluding year: Kharif 2019

Objectives:

- To study the effect of cropping system on fodder yield, quality & soil fertility.
- To work out the economics.

Experimental Details:

No. of treatments : 7	Year of start: Kharif 2015
No. of replications: 3	Spacing: 2.0m x 1.0 m (Agase Sole)
Design: RCBD	Plot Size: 6.0 x 5.0 m

Treatment Details:

T ₁ - Agase + Congo Signal grass (2:2)	T ₂ - Agase + Rhodes grass (2:2)
T ₃ - Agase + Guinea grass (2:2)	T ₄ -Agase + Napier Bajra hybrid (2:1)
T ₅ -Agase + <i>Setaria anceps</i> (2:2)	T ₆ -Agase + Perennial fodder Sorghum (2:5)
T ₇ -Agase(Sole)	

Note: Agase will be raised in the paired row method (between pair 2m & within pair 1 m)

Observations to be recorded:

- Plant height (cm) at the time of harvest
- Green forage yield (q/ha)
- Dry matter yield (q/ha)
- Crude protein content (%) and yield (q/ha)
- Economics of the system (gross, net returns, B:C ratio)
- Soil N, P, K, OC, P^H and EC before sowing and after completion of the sequence

K-15-AST-13 C: performance of multicut Sorghum and Pearl millet mixture at variable seed rates under different methods of sowing.

Location (2): Palampur & Ludhiana	Data Reporting: Kharif
Year of Start: Kharif 2015	Concluding year: Kharif 2018

Objective

- To find out suitable method of sowing mixture of multicut sorghum and pearl millet with optimum seed rate.

Experimental Details:

Design : RBD **Replications:** Three **Plot size:** Gross 4 x 5.5 m, Net 3.60 m x 5 m

A) Varieties	Sorghum- PSC-4, Pearl millet- FBC-16 (different varieties for Palampur)
b) *Seed rates	Sorghum: pearl millet (5) 100: 0, 75:25, 50:50, 25:75, 0:100
c) Sowing methods	(2): Broadcast and line sowing (22.5 cm)
Seed rate	as per treatments
Fertilizer	As recommended for respective crop and in proportion of crop mixtures

* Seed rate: Sorghum- 37.5 kg/ha and pearl millet – 20 kg/ha

Observations to be recorded:

Growth parameters: Plant population, plant height (cm) and leaf: stem ratio of both the crops and equivalent ratio.

Yield parameters: Green fodder and dry matter yield of mixture and individual crops.

Quality parameters: CP content and yield.

Soil fertility parameters: Soil fertility status before experiment and after experiment each year.

Economics: Net returns and BC ratio.

K-16-AST-2: Effect of different techniques of seed priming on productivity of forage maize

Locations (6): Uralikanchan, Anand, Jabalpur, Kalyani , Bhubaneswar	Data Reporting: Kharif
Year of Start: 2016 for three years	Concluding year: Kharif 2019

Objectives:

- To identify the ideal seed priming methods for enhanced germination and improved crop yield in forage maize.
- To study economics of different seed priming methods
- To study effect of different seed priming methods on soil chemical properties

Experimental Details:

1.	Design	RBD	6.	Seed rate (kg/ha)	75
2.	Replications	03	7.	Spacing (cm)	30
3.	Plot size Gross	4 x 3 m	8.	No. of rows/plot	10
4.	Plot size Net	3.4 x 2.4	9.	Method of sowing	Line sowing
5.	Fertilizers (N:P:K kg/ha)	80:40:40	10.	Treatments	09

Note: Recommended package of practices will be followed as per the crop

Treatment details:

T ₁	Seed priming with water for 6 hrs	T ₆	Seed priming with KNO ₃ @ 0.5% for 12 hrs
T ₂	Seed priming with water for 12 hrs	T ₇	Seed priming with KH ₂ PO ₄ @ 0.5% for 6 hrs
T ₃	Seed priming with ZnSO ₄ @ 0.5 % for 6 hrs	T ₈	Seed priming with KH ₂ PO ₄ @ 0.5% for 12 hrs
T ₄	Seed priming with ZnSO ₄ @ 0.5 % for 12 hrs	T ₉	Control (no priming)
T ₅	Seed priming with KNO ₃ @ 0.5% for 6 hrs		

1. Plant height (cm)
2. Plant population/meter length
3. Days to 50% flowering
4. GFY, DFY, CP Content and yields
5. Economics: Gross return, net return, B:C ratio

K-16-AST-8: Resource management in rice- oat cropping system under sodic soil.

Location: NDUAT, Faizabad	Data Reporting: Rabi
Year of Start: kharif 2016	Concluding Year: Rabi 2019

Objectives:

- To study effect of organic sources of nutrients on yield and quality of forage in Rice-Oat cropping system.
- To study the influence of integrated resource management on soil fertility.
- To work out the economics

EXPERIMENTAL DETAILS

Design : RCBD **Replication(s)** : Three **Crop sequence** : Rice-Oat
Plot size : 4 x 3 M **Duration** : 4 years **No of Treatments:** 8

Treatment details:

T₁-Control

T₂- RDF 120 Kg N:60Kg P₂O₅:40 KgK₂O:25 Kg ZnSO₄/ha

T₃- 75 % RDF + 25%N substitution through bio- compost (press mud)

T₄- 75 % RDF + 25%N substitution through green manuring (dhaincha)

T₅- 75 % RDF + 25%N substitution through crop residue

T₆- 50% RDF + 50%N substitution through bio- compost (press mud)

T₇- 50% RDF + 50%N substitution through green manuring (dhaincha)

T₈- 50% RDF + 50%N substitution through crop residue

Note: All the treatments will be applied in rice and oat crop will be grown with recommended fertilizer dose.

Observations to be recorded:

Growth:

➤ Plant height (cm)	➤ No. of tillers per hill/m row length
➤ Leaf stem ratio	➤ Days to 50% Flowering

Yield and quality:

- Green fodder yield (q/ha)
- Crude protein yield (q/ha)
- Crude protein (%)
- Straw Yield (q/ha)
- **economics:** Net monetary returns & benefit cost ratio
- **Soil Properties:** OC %, EC, pH, Exchangeable Na% available NPK (Kg/ha)
- Dry matter yield (q/ha)
- Dry matter (%)
- Grain Yield (q/ha)
- Harvest Index (%)

NEW Trials

K-18-AST-1: Studies on intercropping of lucerne in guinea grass and bajra napier hybrid under irrigated conditions

Location (2): IGFRI-SRRS, Dharwad	Data Reporting: Kharif (data of July to June)
Year of Start: Kharif 2018	Concluding year: Kharif 2020

Objectives:

1. To study the feasibility of intercropping lucerne in bajra napier hybrid and guinea grass under irrigated systems
2. To identify the best combinations of bajra napier hybrid and guinea grass with lucerne for higher fodder yield
3. To work out the economics of intercropping of lucerne in bajra napier hybrid and guinea grass

Technical programme:

Treatments:

1. Guinea grass + Lucerne in 1:1 ratio
2. Guinea grass + Lucerne in 2:2 ratio
3. Guinea grass + Lucerne in 3:3 ratio
4. Bajra napier hybrid + Lucerne in 1:1 ratio
5. Bajra napier hybrid + Lucerne in 2:2 ratio
6. Bajra napier hybrid + Lucerne in 3:3 ratio
7. Sole Lucerne
8. Sole bajra napier hybrid
9. Sole guinea grass

Design : RBD

Replications: Three

Plot size: 6m x4.5 m

Varieties: Lucerne :RL 88

Bajra napier hybrid: DHN 6

Guinea grass: DGG 1

Fertilizer: RDF will be given on proportionate area basis

Lucerne: 30 kg N: 75 kg P₂O₅:60 kg K₂O/ha

Bajra napier hybrid: 150 kg N: 60 kg P₂O₅:60 kg K₂O/ha

Guinea grass: 150 kg N: 60 kg P₂O₅:60 kg K₂O/ha

Irrigation and Plant protection: As per need

Observations:

1. Growth observations at each harvest
2. Yield observations at each harvest
3. Annual LER, IER and other indices
4. Radiation interception studies at each cut
5. Quality parameters viz. CP and CF content yield (Once in *kharif, rabi, zaid*)
6. Available N, P and K and organic carbon before sowing and at the end of experiment
7. Weed composition and intensity at each cutting
8. Incidence of pests and diseases

K-18-AST-2: Evaluation of fodder value of maize varieties as influenced by nitrogen levels and de-topping before physiological maturity

Locations: (Dharward, Mandya, Rahuri, Raipur, Urulikanchan, Imphal, Kalyani, Hisar, NDRI SRRS Benglauru)	Data Reporting: <i>kharif</i>
	Start year: <i>kharif</i> 2018
	Concluding Year: <i>kharif</i> 2019 (After two year)

Objectives:

- To study the influence of nitrogen nutrition on the duration of the maize varieties for de-topping for fodder purpose
- To study the suitability in different maize varieties for de-topping for fodder purpose
- To study the nutritive value of de-topped maize portion
- To study the impact of de-topping on the yield parameter and yield of maize varieties and economics

Experimental details:

Treatments:

- I. Maize varieties; no-detopping and de-topping :
 - i. No de-topping (var. African tall, fodder type)
 - ii. De-topping 15 days after tasseling (var. African tall, fodder type)
 - iii. No de-topping (var. Stay green, Grain type)
 - iv. De-topping 15 days after tasseling (var. Stay green, Grain type)
- II. Nitrogen levels:
 - i. 0 kg N/ha
 - ii. 50 kg N/ha -50% basal and 50% top dressing at 30 DAS
 - iii. 100 kg N/ha - 50% basal and 50% top dressing at 30 DAS
 - iv. 150 kg N/ha - -50% basal and 50% top dressing at 30 DAS

(The participating center may choose grain type variety suitable to the location or may take Stay Green variety.

Design	:	Split Plot (Main plots: Maize varieties Sub plots: N levels)	Season	:	Kharif-17
Replication	:	3	Treatments	:	12
Plot Size	:	4 m x 3.6 m	Nutrients	:	As per treatment

Observations:

1. Days to de-topping
2. Total Plant height and height at de-topping
3. Total Number of leaves in the plant and number of leaves in the de-topped portion
4. Fresh weight of de-topped portion/plant
5. Dry weight of de-topped portion/plant
6. Fresh weight of de-topped portion/ha
7. Dry weight of de-topped portion/ha
8. Number of days for harvesting cobs
9. Yield parameters of cobs
10. Grain yield/ha
11. Stover yield/ha
12. CP, CF, NDF and ADF in de-toped portion
13. Net returns and B:C ratio

Exploratory Trial:

Exploring the possibility of silage of paddy straw and sugarcane tops with different additives

Location: Ludhiana	Data reporting: Kharif
Year of start: 2018	Concluding year: 2019

Objective:

- To study silage of sugarcane tops as influenced by different proportions of paddy straw.
- To study the silage quality of paddy straw + sugarcane tops with different additives.
- To study the fermentation characteristics of silage of paddy straw + sugarcane tops with different additives.

Technical programme:

Treatment Detail:

T1= 100% sugar cane tops + no additives	T9= 50% sugar cane tops +50% paddy straw + no additives
T2= 100% sugar cane tops + 1% molasses	T10= 50% sugar cane tops +50% paddy straw + 1% molasses
T3= 100% sugar cane tops + 1% urea	T11= 50% sugar cane tops +50% paddy straw + 1% urea
T4= 100% sugar cane tops + 1% molasses+1% urea	T12= 50% sugar cane tops +50% paddy straw + 1% molasses+1% urea
T5= 75% sugar cane tops +25% paddy straw + no additives	T13= 25% sugar cane tops +75% paddy straw + no additives
T6= 75% sugar cane tops +25% paddy straw + 1% molasses	T14= 25% sugar cane tops +75% paddy straw + 1% molasses
T7= 75% sugar cane tops +25% paddy straw + 1% urea	T15= 25% sugar cane tops +75% paddy straw + 1% urea
T8= 75% sugar cane tops +25% paddy straw + 1% molasses+1% urea	T16= 25% sugar cane tops +75% paddy straw + 1% molasses+1% urea

Design- RBD

Replications-03

Observations to be recorded:

Physical Characters	Fermentation Characteristics	Quality traits
Moisture level	pH	Crude protein
Aroma of silage	Ammonical- N	Neutral detergent Fibre
Color of silage	Lactic acid	Acid Detergent Fibre
	Acetic acid	<i>In vitro</i> dry matter digestibility
		Ash

AVT Trials:

K-18-AST-3: (AVTM- 2): Effect of nitrogen levels on forage yield of promising entries of forage hybrid maize

Locations (4) NEZ: Imphal Faizabad SZ: Hyderabad, Coimbatore	Data Reporting : kharif
Year of Start: 2018 (1 year)	Concluding Year: kharif 2019

Objective: To study the response of promising entries of maize to nitrogen levels

Entries No.	:	5 (2+2 (NC) + 1 hybrid)
Entries Name	:	TSFM-15-5, ADV-6737
National Checks	:	African Tall, J-1006 (Checks), Hybrid COHM-8
N Levels	:	Five: 0, 40, 80, 120 and 160 kg N/ha (half N as basal and half N after 30 DAS and 40 kg P ₂ O ₅ /ha as basal to all treatments)
Fertilizers	:	60:40 kg/ha (P:K) basal
Design	:	FRBD with 3 replications
Plot size	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Total plots	:	75
Seed rate	:	50 kg/ha (60g/plot)
Seed requirement/entry /Centre	:	900 gm per center
Seed requirement/entry/all Centre	:	3.6 kg Total/entry for 4 centres

Observations:

- Plant population/m² at 15 DAS and harvest, Plant height and Leaf: stem ratio at harvest
- Green fodder and dry matter yields (q/ha), Green fodder productivity/day/ha
- Crude protein content and crude protein yield (q/ha)

K-18-AST-4 (AVTPM-2): Second Advanced Varietal Trial in Forage Pearl millet (Agronomy)

Locations (4) NWZ: Ludhiana, Bikaner SZ: Hyderabad, Mandya	Data Reporting : Kharif
Year of Start: 2018 (1 year)	Concluding Year: kharif 2019

Entries No.	:	4{(2+ 1 (NC) + 1 (ZC)}
Entries Name	:	TSFB-15-8, TSFB-15-4
Checks	:	Giant Bajra (NC), AFB-3 (ZC-NWZ), Moti Bajra (ZC-SZ)
N Levels	:	Four (0, 30, 60, 90 kg/ha)
Fertilizers	:	40:40 kg/ha (P:K) basal
Design	:	RBD with 3 replications
Plot size	:	4 m x 3 m accommodating 4 m long 10 rows at 30 cm
Total plots	:	72
Seed rate	:	15 kg/ha (20g/plot)
Seed requirement/trial	:	240g in each centre
Seed requirement/entry and NC/ four Centre	:	960 g
Seed requirement/ZC/Two Centre	:	480 gm {AFB-3 (ZC-NWZ), Moti Bajra (ZC-SZ)}

Observations:

- Plant population/m² at 15 DAS and harvest, Plant height and Leaf: stem ratio at harvest
- Green fodder and dry matter yields (q/ha), Green fodder productivity/day/ha
- Crude protein content and crude protein yield (q/ha)

AICRP on Forage Crops and Utilization
Technical Programme Forage Crop Protection
Kharif 2018

Annexure C

PPT 1: Monitoring of diseases and insect pests in *Kharif* forage crops ecosystem.

Locations: Bhubaneswar, Jhansi, Palampur, Dharwad, Rahuri & Ludhiana

PPT 2: Evaluation of *Kharif* breeding materials for their resistance to diseases and insect pests.

Locations: Bhubaneswar, Jhansi, Palampur, Rahuri, Dharwad, Hisar & Ludhiana

PPT 21: Integrated Management of BLSB of forage Maize (Modified)

Locations: Palampur and Bhubaneswar

Design: RBD

Replication: 3

Plot size: 3 x 2 m²

Treatments:

- T₁ = Seed treatment with *T. viride*@ 5g/kg
T₂ = Seed treatment with carbendazim@ 2 g/kg seed
T₃ = T₁+ Two foliar spray of carbendazim@1g/l at 10 days interval
T₄ = T₁+ Two foliar sprays with *P. fluorescens*@ 10g (10⁷ cfu/ml) at 10 days interval
T₅ = T₁+ Two foliar sprays with (Tryflosystrobin+Tebuconazole) @ 1g/l at 10 days interval
T₆ = T₂+ Two spray of carbendazim@1g/l at 10 days interval
T₇ = T₂+ Two foliar sprays with (Tryflosystrobin+Tebuconazole) @ 1g/l at 10 days interval
T₈ = T₂+ Two foliar sprays with *P. fluorescens*@ 10g (10⁷ cfu/ml) at 10 days interval
T₉ = T₁+ One spray each of carbendazim@1g/l and *P. fluorescens*@ 10g (10⁷ cfu/ml) at 10 days interval
T₁₀ = T₂+ One spray each of carbendazim@1g/l and *P. fluorescens*@ 10g (10⁷ cfu/ml) at 10 days interval
T₁₁ = T₂+ One spray each of (Tryflosystrobin+Tebuconazole) @ 1g/l and *P. fluorescens*@ 10g (10⁷ cfu/ml) at 10 days interval
T₁₂ = Stripping of lower leaves
T₁₃ = Control

Observations:

1. Banded leaf and sheath blight Incidence (%)
2. GFY (q/ha)

PPT 22: Integrated Management of foliar diseases of forage Sorghum

Locations: Palampur and Ludhiana

Design: RBD

Replication: 3

Plot size: 2 x 2 m²

Treatments:

- T₁ = Seed treatment with *T. viride*@ 5g/kg
T₂ = Seed treatment with carbendazim@ 2 g/kg seed
T₃ = Two foliar sprays with neem bio-pesticide (Achook) @ 3% at 10 days interval
T₄ = Two foliar sprays with propiconazole @ 1g/l at 10 days interval
T₅ = T₁+ Two foliar sprays with neem bio-pesticide (Achook) @ 3% at 10 days interval
T₆ = T₁+ Two foliar sprays with propiconazole @ 1g/l at 10 days interval
T₇ = T₂+ Two foliar sprays with neem bio-pesticide (Achook) @ 3% at 10 days interval
T₈ = T₂+ Two foliar sprays with propiconazole @ 1g/l at 10 days interval
T₉ = T₁+ One spray each of neem bio-pesticide (Achook) @ 3% and propiconazole @ 1g/l at 10 days interval
T₁₀ = T₂+ One spray each of neem bio-pesticide (Achook) @ 3% and propiconazole @ 1g/l at 10 days interval
T₁₁ = Control

Observations:

1. Severity of Anthracnose (*Collectotrichum graminicola*), Zonate leaf spot (*Gloeopercospora sorghi*) and Grey leaf spot (*Cercospora sorghi*)
2. GFY (q/ha)

PPT 23: Management of downy mildew of pearl millet using bioagents**Location:** Ludhiana**Design:** RBD **Replication:** 3 **Plot size:** 2x2 m²**Treatments:**

- T₁ = Seed treatment with *Trichoderma viride* @ 5 g/kg seed
T₂ = Seed treatment with *Pseudomonas fluorescens* @ 5g/kg seed
T₃ = Seed treatment with *Bacillus subtilis* @ 5g/kg seed
T₄ = Seed treatment with metalaxyl @ 2g/kg seed
T₅ = T₁ + two foliar spray of *Trichoderma viride* @ 5g/l at 10 days interval
T₆ = T₂ + two foliar spray of *Pseudomonas fluorescens* @ 10g/l at 10 days interval
T₇ = T₃ + two foliar spray of *Bacillus subtilis* @ 5g/l at 10 days interval
T₈ = Two foliar spray of chemical check (Ridomil MZ @ 2.5g/l) at 10 days interval
T₉ = Control

Observations:

1. Downy mildew (*Sclerophthora graminicola*) incidence.
2. GFY (q/ha)

PPT 25: Non chemical management of *Helminthosporium* leaf blight in fodder maize**Locations:** Ludhiana**Design:** RBD **Replication:** 3 **Plot size:** 3x3 m²**Treatments:**

- T₁ = Two foliar spray of *Pseudomonas fluorescens* @ 10g/l at 10 days interval
T₂ = Two foliar spray of *Bacillus subtilis* @ 10g/l at 10 days interval
T₃ = Two foliar spray of *Meliazedarach* @ 3.0% at 10 days interval
T₄ = Two foliar spray of *Murrayakoenigii* @ 3.0% at 10 days interval
T₆ = Two foliar spray of mancozeb @ 0.25% at 10 days interval
T₇ = Control

Observations:

1. *Helminthosporium* leaf blight severity.
2. GFY (q/ha)

ALL INDIA COORDINATED RESEARCH PROJECT ON FORAGE CROPS & UTILIZATION

(Indian Council of Agricultural Research)

NATIONAL GROUP MEET: *Kharif-2018*

Date: 6-7 April, 2018

Venue: TNAU, Coimbatore, Tamil Nadu

TENTATIVE PROGRAMME

April 6, 2018

08:00-10:00	REGISTRATION
-------------	--------------

10:00-11:00	INAUGURATION
Chief Guest	Dr. I. S. Solanki, ADG (FFC), ICAR
Chairman	Dr. K. Ramasamy, Vice Chancellor, TNAU, Coimbatore
Guest of Honour	Dr. R.V.Kumar, Director, ICAR-IGFRI, Jhansi
Welcome Address	Dr. K. Ramaraju, Director of Research, TNAU, Coimbatore
Project Coordinator's Report	Dr. A. K. Roy, Project Coordinator
Remarks Guest of Honour	Dr. R.V.Kumar, Director, ICAR-IGFRI, Jhansi
Chief Guest's Address	Dr. I. S. Solanki, ADG (FFC), ICAR
Chairman's Address	Dr. K. Ramasamy, Vice Chancellor, TNAU, Coimbatore
Vote of Thanks	Dr. K. Ganesamurthy, Director, CPBG, TNAU, Coimbatore
11:00-11:15	High Tea

11:15-12:45 TECHNICAL SESSION-I: INTERACTIVE SESSION WITH STAKEHOLDERS	
Chairman	Dr. I. S. Solanki, ADG (FFC), ICAR
The session will be held with 2-3 lectures on technical aspects and ready to share technologies by SAU/ICAR. It will also showcase advances made by certain centers at farmer's field. Different stakeholders like Animal husbandry group, livestock keepers, dairy personnel, fodder growers, forage seed growers will present their expectations and problems in the interaction meeting.	
Rapporteur	Dr. S. D. Sivakumar

12:45-13:30 TECHNICAL SESSION-II: BREEDER SEED PRODUCTION	
Chairman	Dr. R.V.Kumar, Director, ICAR-IGFRI, Jhansi
BSP Report & Allocation	Dr. Shahid Ahmed
Rapporteur	Dr. R. K. Agrawal
13:30-14:00	LUNCH

14:00-15:00 TECHNICAL SESSION-III: DISCIPLINEWISE REPORT	
Chairman	Dr. I. S. Solanki, ADG (FFC), ICAR
Co-Chairman	Dr. J.P. Yadavendra and Dr. Menhi Lal
Convener	Dr. A. K. Roy, PC
Forage crop Improvement	Dr. Shahid Ahmed
Forage crop Production	Dr. R. K. Agrawal
Forage crop Protection	Dr. Nitish R Bhardwaj
Rapporteurs	Dr. D. K. Banyal & Dr. Usha Thomas

15:00-16:30 TECHNICAL SESSION-IV (concurrent sessions) FORMULATION OF TECHNICAL PROGRAMME	
TECHNICAL SESSION-IV (Concurrent)-FORAGE CROP IMPROVEMENT	
Chairman	Dr. I. S. Solanki, ADG (FFC), ICAR
Co-Chairman	Dr. J.P. Yadavendra
Rapporteurs	Dr. P. Mahadevu & Dr. Y. Jindal
Finalization of varietal trials	Dr. Shahid Ahmed

TECHNICAL SESSION-IV (Concurrent)-FORAGE CROP PRODUCTION	
Chairman	Professor and Head, Dept. of Agronomy, DCM, TNAU, Coimbatore
Co-Chairman	Dr. Menhi Lal
Rapporteurs	Dr. S. K. Jha & Dr. Joseph Koering
Finalization of trials	Dr. R. K. Agarwal

TECHNICAL SESSION-IV (Concurrent)–FORAGE CROP PROTECTION	
Chairman	Professor and Head, Dept. of Plant Pathology, CPPS, TNAU, Coimbatore
Rapporteurs	Dr. Pravisini Behera & Dr. A. B. Tambe
Finalization of trials	Dr. Nitish R Bhardwaj
16:30-16:45	Tea

16:45-18:30	TECHNICAL SESSION V: REVIEW OF CENTRE-WISE ACTIVITIES
Chairman	Dr. I. S. Solanki, ADG (FFC), ICAR
Convener	Dr. A. K. Roy, Project Coordinator (FCU)
Rapporteurs	Dr. Naveen Kumar & Dr. M. Shanti
Hill Zone	CSK HPKV Palampur ; SKUAST (K) Srinagar; SKUAST-JammuRRSRajouri
North West Zone	PAU Ludhiana, CCS HAU Hisar, GBPUAT Pantnagar, SKRAU, Bikaner, IGFRI-RRS Avikanagar, CAZRI Jodhpur,
North East Zone	NDUAT, Faizabad ; BAU Ranchi ; BCKV Kalyani; OUAT Bhubaneswar ; AAU Jorhat ; CAU Imphal ; RAU Pusa
Central Zone	AAU Anand ; JNKVV Jabalpur ; IGFRI Jhansi ; MPKV Rahuri ; BAIF Urulikanchan ; IGKV Raipur, Palghar
South Zone	PJTSAU Hyderabad ; UAS (B) ZRC Mandya ; TNAU Coimbatore ; KAU Vellayani ; IGFRI-RRS; Dharwad

18.30–19.30	VARIETAL IDENTIFICATION COMMITTEE MEETING
--------------------	--

April 7, 2018

9:00-9:30	TECHNICAL SESSION-VI: FTD & TSP FORMULATION
Chairman	Dr. I. S. Solanki, ADG (FFC), ICAR
Convener	Dr. A. K. Roy, Project Coordinator
Rapporteurs	Dr. R. K. Agrawal

9.30-10.30	TECHNICAL SESSION VII: PGR/breeding/production/protection issues
Chairman	Dr. A. K. Roy, PC
Co-Chairman	Dr. Dinesh Kumar, FFC ICAR
Convener	Dr. Nitish R. Bhardwaj
Rapporteurs	Dr. Santosh Jha & Dr P Takawale
lectures on various aspects; Future programme/thrust areas/identification	
10:30-10:45	Tea

10:45-11.00	TECHNICAL SESSION-VIII: Scientific, Administrative and financial issues
Chairman	Dr. I. S. Solanki, ADG (FFC), ICAR
Co-Chairman	Dr. Dinesh Kumar, FFC ICAR
Convener	Dr. A. K. Roy, Project Coordinator (FCU)
Rapporteur	Dr. A. Sonone

11:00-12.00	TECHNICAL SESSION V: REVIEW OF CENTRE-WISE ACTIVITIES-Continues
--------------------	--

12.00-13:00	TECHNICAL SESSION-IX: PLENARY SESSION
Chairman	Dr. I. S. Solanki, ADG FFC, ICAR
Co-Chairman	Dr. K. Ramaraju, Director of Research, TNAU, Coimbatore
Convener	Dr. A. K. Roy, PC
Rapporteurs	Dr. R. K. Agrawal & Dr. P. Mahadevu

Presentation of the recommendations by respective rapporteurs	
Technical session – I Interactive session with stakeholders	Dr. S. D. Sivkumar
Technical session – II Breeder Seed Production	Dr. R. K. Agrawal
Technical session – III Discipline-wise presentation	Dr. D. K. Banyal
Technical session - IV Forage Crop Improvement	Dr. P. Mahadevu
Technical session - IV Forage Crop Production	Dr. S. K. Jha
Technical session – IV Forage Crop Protection	Dr. Pravasini Behera
Technical session – V Centre wise activities	Dr. M. Shanti
Technical session – VI FTD & TSP formulation	Dr. R. K. Agrawal
Technical session-VII PGR/breeding/production/protection issues	Dr. P. Takawale
Technical session – VIII – Scientific/ administration/ financial issues	Dr. A. Sonone
Varietal Identification Committee Meeting Report	Dr. A. K. Roy
Co chairman's remarks	Dr. K. Ramaraju
Chairman's Remarks	Dr. I. S. Solanki
Vote of Thanks	Dr. C. Babu & Dr. A. K Roy

13:00-14:00	Lunch
--------------------	--------------

14:00-17.00	TECHNICAL SESSION V: REVIEW OF CENTRE-WISE ACTIVITIES-Continues & TNAU field visit
--------------------	---

ALL INDIA COORDINATED RESEARCH PROJECT ON FORAGE CROPS AND UTILIZATION
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)
NATIONAL GROUP MEET– Kharif - 2018

Annexure E

LIST OF ATTENDEES

ALL INDIA COORDINATED RESEARCH PROJECT ON FORAGE CROPS AND UTILIZATION (INDIAN COUNCIL OF AGRICULTURAL RESEARCH)	
NATIONAL GROUP MEET– Kharif - 2018	
Date: 6-7 April, 2018	Venue: TNAU, Coimbatore, Tamil Nadu
LIST OF ATTENDEES	
A. Indian Council of Agricultural Research, Krishi Bhavan, New Delhi- 110 001	
1	Dr. I. S. Solanki, ADG (FFC), I.C.A.R.
2	Dr. Dinesh Kumar, Principal Scientist (Food & Fodder Crops), I.C.A.R.
B. Forage Experts	
3	Dr. Jagdish Prasad Yadavendra, Ex Professor Plant Breeding & RAC member, IGfRI
4	Dr. Menhi Lal, Ex Professor (Agronomy) & RAC member, IGfRI
C. AICRP on Forage Crops & Utilization, Project Coordinating Unit, IGfRI, Jhansi	
5	Dr. A. K. Roy, Project Coordinator
6	Dr. R. K. Agrawal, Principal Scientist (Agronomy)
7	Dr. Nitish Bhardwaj, Plant Pathologist
8.	Sri O. N. Arya, CTO
D. ICAR- Indian Grassland and Fodder Research Institute, Jhansi 284003 (U.P.)	
9	Dr. R. V. Kumar, Director
10	Dr Asim K Misra , Head, Plant Animal Relationship Division
11	Dr. Seva Nayak, Head, Crop Improvement Division
12	Dr. Gitanjali Sahay, Principal Scientist, Crop Improvement Division
13	Dr. Shahid Ahmed, Principal Scientist (PB), Crop Improvement Division
14.	Dr. K. Sridhar, Principal Scientist, ICAR-IGfRI, SRRS, Dharwad
15.	Dr. B.G. Shivakumar, Principal Scientist & OIC, ICAR-IGfRI, SRRS, Dharwad
16.	Dr. Vijay K Yadav, Principal Scientist (Plant Breeding) & Head, Seed Technology Division
E. Dept. of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture & Farmers Welfare, New Delhi-110 001	
17	Dr. Ajai Kumar Yadav, Director I/C, RFS, P.O. Cattle Farm Avadi, Alamadhi, PO Edapalayam, via Red Hills, Chennai 600052
18	Dr. Banvir Singh, Director, Regional Fodder Station, Pahadi Shrif, Hyderabad 500 005
19	Dr. P.P. Singh, Director, Regional Fodder Station, Post Textile Mills, Near HMT, Hisar 125 001
20	Mr. Brijendra Koli, Director I/C, Regional Fodder Station, P.O. Netaji Subhash Sanatorium, Kalyani, Distt. Nadia (W.B.)
21	Dr Santhosh M, Director I/C, Regional Fodder Station, Suratgarh-335 804 Suratgarh- Sriganganagar Road, (Rajasthan)
22	Sh Yogendra Kumar, Director, Regional Fodder Station, 29-B, C/C, Gandhi Nagar, Jammu 180 004 (J&K)
23	Dr. Mahesh P. S., Director, Regional Fodder Station, Bangalore
F. AICRP on Forage Crops & Utilization centres	
Anand Agricultural University, Anand 388 110 (Gujarat)	
24	Dr. D. P. Gohil , Research Scientist
25	Dr. Hirenkumar Kantilal Patel , Assistant Research Scientist
26	Dr. Rathod Pareshkumar Himmatlal, Biochemistry
	Orissa University of Agric. & Technology, Bhubaneswar 751 003 (Orissa)
27	Mrs. Pravasini Behera, Jr. Pathologist, OIC AICRP –FC
Rajasthan Agricultural University, Bikaner 334 002 (Rajasthan)	
28	Dr. S. S. Shekhawat, Forage Breeder & OIC, AICRP-FC
29	Dr. R. C. Bairwa, Asstt. Prof. (Agro.)
N.D. University of Agriculture & Technology, Kumarganj, Faizabad 224 001 (Uttar Pradesh)	
30	Dr. Ramesh Singh Yadav, Agronomist
CCS Haryana Agricultural University, Hisar 125 004 (Haryana)	
31	Dr. Yogesh Jindal, Asstt. Sci. (PB)
32	Dr. Dalbir Singh Phogat, Sr. Scientist (Plant Breeding)
33	Dr. Uma Devi, Assistant Agronomist
Professor Jayashankar Telangana State Agricultural University, Hyderabad 500 030 (Telangana)	
34	Dr. T. Sashikala, Sr. Scientist (Plant Breeding) & OIC, AICRP -FC
35	Dr. Murali Bellamkonda, Scientist (Agronomy)
36	Dr. M. Shanti, Principal Scientist (SSAC)

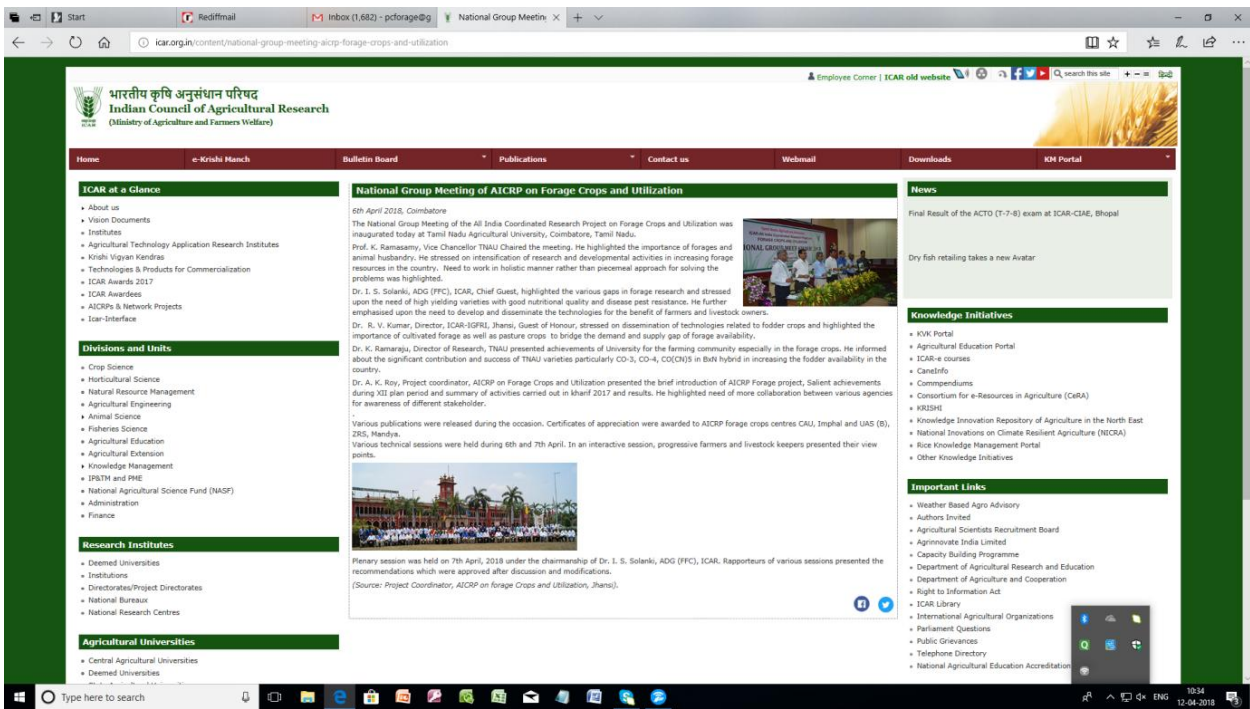
	Central Agricultural University, PO Box 23, Imphal 795 004 (Manipur)
37	Mr. R. Joseph Koirang, Jr. Agronomist (Agronomy)
	J.N. Krishi Viswavidyalaya, Jabalpur 482 004 (Madhya Pradesh)
38	Dr. A. K. Mehta, Sr. Forage Breeder & OIC, AICRP-FC
39	Dr. Amit Jha, Jr. Scientist (Agronomy)
40	Dr. S.K. Bilaiya, Forage Breeder
	Assam Agricultural University, Jorhat 785 013 (Assam)
41	Dr. Karuna Kanta Sharma, Principal Scientist (Agronomy) and OIC
42	Dr. Seuji Bora Neog, Principal Scientist (Plant Breeding)
	Bidhan Chandra Krishi Viswavidyalaya, Kalyani 741 235 (West Bengal)
43	Dr. Kalyan Jana, Agronomist & OIC AICRP -FC
	Punjab Agricultural University, Ludhiana 141 004 (Punjab)
44	Dr. Rahul Kapoor, Sr. Forage Breeder
45	Dr. Meenakshi Goyal, Asst. Biochemist
46	Dr. Ashlesha, Asst. Plant Pathologist
	University of Agricultural Sciences, Bangalore (Campus Mandya) 572 202 (Karnataka)
48	Dr. P. Mahadevu, Sr. Breeder & OIC AICRP -FC
49	Dr. B. G. Shekara, Scientist (Agronomy)
50	Dr. M. R. Krishnappa, Professor (Fodder Crops)
	CSK Himachal Pradesh Krishi Viswavidyalaya, Palampur 176 062 (Himachal Pradesh)
51	Dr. Naveen Kumar, Sr. Agronomist & OIC, AICRP-FC
52	Dr. V. K. Sood, Sr. Forage Breeder
53	Dr. D. K. Banyal, Sr. Sci. (Plant Pathology)
54	Dr. Rajan Katoch, Sci. (Biochemistry)
	G.B. Pant University of Agriculture & Technology, Pantnagar 263 145 (Uttaranchal)
55	Dr. Mahendra Singh Pal, Prof. Agronomy & OIC, AICRP FC
56	Dr. Birendra Prasad, Sr. Scientist (Plant Breeding)
	Mahatma Phule Krishi Viswavidyalaya, Rahuri 413 722, Ahmednagar (Maharashtra)
57	Dr. A. H. Sonone, Sr. Forage Breeder & OIC AICRP –FC
58	Dr. A. B. Tambe, Sr. Scientist (Entomology)
	Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur 492 012 (Chhattisgarh)
59	Dr. S.K. Jha, OIC and Scientist (Agronomy)
60	Dr. Mayuri Sahu, Scientist (Plant Breeding)
	Birsa Agricultural University, Kanke, Ranchi 834 007 (Jharkhand)
61	Dr. Birendra Kumar, Jr. Scientist (Agronomy)
62	Dr. Yogendra Prasad, Jr. Scientist, Plant Breeding
	S. K. University of Agricultural Sciences & Technology, Srinagar 190 121 (Jammu & Kashmir)
63	Dr. Ansar-ul-Haq, Scientist (Agronomy)
	BAIF Development Research Foundation, Uralikanchan 412 202, Pune (Maharashtra)
64	Mr. P.S. Takawale, Forage Breeder & OIC, AICRP -FC
65	Mr. R. V. Kale, Scientist (Agronomy)
	Kerala Agricultural University, Vellayani, Thiruvananthapuram 695 522 (Kerala)
66	Dr. Mareen Abraham, Assoc. Professor (PB) & OIC AICRP -FC
67	Dr. Usha C Thomas, Astd. Professor (Agronomy)
	RPCAU, Pusa, Bihar
68	Dr. Nilanjaya, Asst. Professor and PI (PB)
	G. Collaborating Centres
	Sardar Vallabh Bhai Patel University of Agriculture and Technology, Meerut 250 110 (Uttar Pradesh)
69	Dr. S. A. Kherki, Professor (Plant Breeding)
	Dr. B.S. Kokan Krishi Vidyapeeth, Agric. Res. Station, Mahim Road , Palghar 401404 (Maharashtra)
70	Dr. Umesh S. Kudtarkar. Jr. Agrostologist
	ICAR-Indian Veterinary Research Institute, Bareilly 243 122 (Uttar Pradesh)
71	Dr. Pijush Kanti Mukherjee, Senior Scientist, Agronomy
	Regional Agricultural Research Station, Tirupathi
72	Dr. S. Tirumala Reddy, Scientist (Agronomy)
	National Dairy Development Board, Anand 388 001 (Gujarat)/Noida 201 301
73	Mr. Digvijay Singh, Sr. Manager (AN group)
74	Dr. V. Sridhar, General Manager, Animal Nutrition Group, NDDB, Anand
75	Ms. Romy Jacob, Sr. Manager, AN Group, NDDB, Anand
76	Ms. A Krithiga, Manager, CS Group, NDDB, Anand

National Seeds Corporation, Chennai	
77	Mrs. P. P. Ayisha, Regional Manager
H. Private companies/ NGO	
78	Dr. John Henry Niezen, Specialist – Dairy Herd Development, HAPL, Chennai
79	Mr. K. Maniraja, HAPL, Chennai
80	Mr. Aditya Sharma, UPL Ltd., Hyderabad
81	Mr. Anvesh Kumar, Manager, Thirumala Milk Products Pvt. Ltd.
82	Mr. Chandrasekaran. K, Senior Manager, Thirumala Milk Products Pvt. Ltd., Thiruvannamalai
83	Dr. Vijay Hande, Senior Breeder, Novogold seeds, Pune
84	Mr. V. Rajakumar, AGM (Fodder), AAVIN, Chennai – 51
85	Mr. M. Duraisamy, Palani Seeds, Namakkal
I. Participants from TNAU, Coimbatore	
86	Dr. K. Ramasamy, Vice Chancellor, TNAU, Coimbatore
87	Dr. K. Ramaraju, Director of Research, TNAU, Coimbatore
88	Dr. D. Sudhakar, Registrar i/c, TNAU, Coimbatore.
89	Dr. K. Ganesamurthy, Director, Centre for Plant Breeding and Genetics
90	Dr. S. Mohan, Special Officer (P&PR), TNAU, Coimbatore
91	Dr. R. Gnanam, Director, Centre for Plant Molecular Biology and Biotechnology
92	Dr. C. Babu, Prof. and Head (Forage Crops)
93	Dr. S.D. Sivakumar, Asst. Professor (Forage Crops)
94	Dr. R. Sudhagar, Asst. Professor (Forage Crops)
95	Dr. G. Vijayakumar, Professor and Head (Retd.), Dept. of Forage Crops
96	Professor and Head, Dept. of Agronomy, DCM, TNAU, Coimbatore
97	Professor and Head, Dept. of Plant Pathology, CPPS, TNAU, Coimbatore
98	Mr. P. Jayakumar, Agrl. Supervisor (Forage Crops)
99	Mr. S. Veeraganesh, Agrl. Supervisor (Forage Crops)
100	Mr. C. Rajendran, Lab Technician (Forage Crops)
101	Mrs. N. Pavithra, JRF (Forage Crops)
102	Ms. P. Thenmozhi, JRF (Forage Crops)
103	Dr. P. Jeyaprakash, Prof. and Head (Rice)
104	Dr. P. Jayamani, Prof. and Head (Pulses)
105	Dr. P. Sumathi, Prof. and Head (Millets)
106	Dr. P.L. Viswanathan, Prof. and Head (Oil Seeds)
107	Dr. K.N. Ganesan, Professor (CPBG)
108	Dr. S. Rajeswari, Professor (CPBG)
109	Dr. D. Packiaraj, Professor (Breeder Seeds)
110	Dr. A. John Joel, Professor (Genetics)
111	Dr. S. Manonmani, Professor (Oil Seeds)
112	Dr. R. Ravikesavan, Professor (Millets)
113	Dr. V. Ravichandran, Assoc. Professor (Rice)
114	Dr. N. Sakthivel, Assoc. Professor (Cotton)
115	Dr. N. Premalatha, Asst. Professor (Cotton)
116	Dr. R. Chandirakala, Asst. Professor (Oil Seeds)
117	Dr. T. Selvakumar Asst. Professor (Oil Seeds)
118	Dr. S. Geethanjali, Asst. Professor (UG Teaching)
119	Dr. V. Thiruvengadam, Asst. Professor (PGR)
120	Dr. K. Iyanar, Asst. Professor
121	Dr. A. Yuvaraja, Asst. Professor (Millets)
122	Dr. I. Johnson, Asst. Professor (Millets)
123	Mr. D. Elango, Agrl. Supervisor, (Rice)
124	Mr. P. Balamurugan, Agrl. Supervisor, (Millets)
125	Mr. R. Jaisankar, Agrl. Supervisor (Millets)
126	Mr. S. Rajeshkumar, Lab Technician (Soil Science)
127	Ms. Swathi Lekkala, III Ph. D., (GPB)
128	Ms. Anusha Mariam Thomas, II M. Sc. (GPB)
129	Mr. Rajesh Jolad, II M. Sc. (Agronomy)
130	Mr. T. Navaselvakumaran, I M. Sc. (GPB)

131	Mr. Elaventhana, I M. Sc. (MPB)
132	Mr. V. Allan, I M. Sc. (GPB)
133	Mr. M. Muthuraj, I M. Sc. (GPB)
134	Mr. G. Karthikeyan, I M. Sc. (Environmental Science)
135	Mr. Muthu Prabakaran, I M. Sc. (Agrl. Statistics)
136	Ms. G. D. Arpitha, I M. Sc. (GPB)
137	Ms. A. Chinthiya, I M. Sc. (GPB)
138	Ms. S. Divya, I M. Sc. (GPB)
139	Mr. S. E. Diwakar Reddy, I M. Sc. (GPB)
140	Mr. A. Kumaresan, I M. Sc. (GPB)
141	Ms. B. Mohana Priya, I M. Sc. (GPB)
142	Mr. J. Muthukaruppaiah, I M. Sc. (GPB)
143	Mr. S. R. Rakesh, I M. Sc. (GPB)
144	Mr. N. Ramya Selvi, I M. Sc. (GPB)
145	Ms. R. Rasitha, I M. Sc. (GPB)
146	Ms. R. Sangeetha, I M. Sc. (GPB)
147	Ms. V. K. I. Sri Subalakshmi, I M. Sc. (GPB)
148	Ms. S. Subhashini, I M. Sc. (GPB)
149	Ms. L. M. Tharageshwari, I M. Sc. (GPB)
150	Ms. S. Vishwabharathy, I M. Sc. (GPB)
151	Ms. V. Jayashree, I M. Sc. (GPB)
152	Ms. Varsha P. Vengilat, I M. Sc. (GPB)
153	Ms. Athira Sojan, II M. Sc. (GPB)
154	Ms. M. S. Niji, II M. Sc. (GPB)
155	Ms. K. Swathi, II M. Sc. (GPB)
156	Ms. Nandhitha Gopan, II M. Sc. (GPB)
157	Mr. Nizam Ali, II M. Sc. (GPB)
158	Mr. Rahul Roy, II M. Sc. (GPB)
159	Ms. Prisca Seili, II M. Sc. (GPB)
160	Ms. Vishnu Brindha Devi, II M. Sc. (GPB)
Forage farmers	
161	Mr. K. Palanisamy, Theethipalayam
162	Mr. S. Natarajan, Chinnamathampalayam
163	Mr. R. Subbaiyan, A. G. Pudur
164	Mr. V. R. Pattadurai, Avalpoondurai
165	Mr. T. Thiruvengadam, Perumpathi

Glimpses of Media Coverage

Annexure F



Glimpses of media coverage

AFTERNOON, COIMBATORE – APRIL 7, 2018

AFTERNOON English Daily

National Forage Science Meet held at TNAU



COIMBATORE, APR 7
National Group Meet - Kharif, 2018 of All India Coordinated Research Project on Forage Crops and Utilization was held in Tamil Nadu Agricultural University to have discussion on the progress of research made during kharif 2017 and formulate the technical programme for kharif 2018.

The programme was organized by Department of Forage Crops, Centre for Plant Breeding and Genetics (CPBG), TNAU in co-ordination with Indian Council of Agricultural Research (ICAR), New Delhi. Forage scientists working in ICAR institutes and State Agricultural Universities across the country have participated in the meet.

Progressive forage farmers and stakeholders were invited to have interaction to frame the research agenda about

their obstacles in fodder cultivation.

Dr. K. Ramasamy, Vice Chancellor, TNAU, Coimbatore presided over the meet and Dr. I. S. Solanki, ADG (FFC), ICAR, New Delhi delivered the special address.

Dr. R.V. Kumar, Director, ICAR- IGFR, Jhansi has offered remarks in the meeting. Dr. A. K. Roy, Project Coordinator, ICAR- Indian Grassland and Fodder Research Institute, Jhansi, presented project coordinator report for the kharif 2017.

Dr. K. Ramaraju, Director of Research and Dr. K. Ganesamurthy, Director, CPBG, TNAU, Coimbatore also took part in the event.

Dr. K. Ramasamy while addressing the dignitaries and participants had briefed the importance of forages and animal husbandry in Indian economy. He added that,

Production of green fodder is having unique challenge under the present land use options driven by growing human population, hence intensification of research and development activities in fodder productivity and economic management practices would offer great scope to make the country self-sufficient in quality fodder.

Further VC mentioned that, TNAU has so far released 25 high fodder yielding varieties to cater to the needs of dairy farmers. Among them, Cumbu Napier hybrids CO (CN) 4 and CO (BN) 5, Perennial fodder sorghum CO (FS) 29, Lucerne CO 2 and Hedge Lucerne have revolutionized milk production in India.

A book titled 'Forage Crops and Dairying' on improved fodder cultivation and animal husbandry techniques was released in the event.

THE TIMES OF INDIA, COIMBATORE – APRIL 10, 2018

TIMES CITY

THE TIMES OF INDIA, COIMBATORE | TUESDAY, APRIL 10, 2018

NATIONAL MEET TO IMPROVE FORAGE CROP PRODUCTIVITY



SCIENCE: Present land use pattern led to shortage in forage crops

The national meet of All India Coordinated Research Project on Forage Crops and Utilization, Kharif 2018, was held at Tamil Nadu Agricultural University (TNAU) on April 6. The event discussed the progress of research programmes formulated during Kharif 2017 and sought to form the technical programme for Kharif 2018. The programme was organised by the department of forage crops, centre for plant breeding and genetics (CPBG), TNAU, in coordination with Indian Council of Agricultural

Research (ICAR), New Delhi. In his address, vice-chancellor of TNAU K. Ramasamy said production of green fodder was insufficient under the present land use pattern driven by growing human population. He said intensification of research and development activities in fodder productivity and economic management practices would make the country self-sufficient in quality fodder. He added that TNAU had so far released 25 high-yielding fodder varieties for the needs of dairy farmers.

LECTURE ON YOGA

A Vinshinam Institute for Home Science and Higher Education for Women celebrated the 90th birth anniversary of its former chancellor Rajamonal P. Deivas on April 7. The honorary chief guest, H.R. Venkatesh, founder and vice-chancellor of Sivani Vivekananda Yoga Anusandhana Samsthan, Bengaluru, delivered a lecture on 'Yoga as Education'. He said yoga could prepare students physically and mentally by integration of physical, mental and spiritual faculties. He explained the dimensions of yoga and added that it could be used to calm mind and de-stress the practitioners. Due to awareness and concentration, yoga education makes practitioners self-disciplined and self-controlled, he added.



DE-STRESS: Yoga leads to self-control for practitioners

DINAMALAR, COIMBATORE – APRIL 9, 2018

தினமலர்

செவ்வாய்க்காள் • திங்கள் ஏப்ரல் 9 2018

பள்ளி, கல்லூரி, பல்கலைச் செய்திகள்...

செவ்வாய்க்காள் அகத்தினை. வினாபட்டி, படிப்பு போன்றவற்றில் சந்தித்த மாணவர்களுக்கு விருதுகள் வழங்கப்பட்டன. தேசியக் கல்வித் தேர்வு பெற்ற மாணவர்களுக்கு, பன்னாட்டு அளவில் வழங்கப்பட்டது. சி.எம்.எஸ்., அருங்கட்டை வேளாண் அகத்தினை, இளை வேளாண் விழாவுடனும், பொருளாளர் சந்திப்புடன், உள்ளிட்ட பல் பத்திரிகைகள்.

ஆராய்ச்சி கலந்துகொள்ளும்
பல்கலை நன்றி நவீன விழா
அறிவியல் கல்வி உயர்வுத் திட்டம், நவீன விழா நடந்தது. துணைவேந்தர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார். பல்கலை ஒன்றியம் உள் சிறப்பு அமைப்புகள் பத்திரிகை, மாணவர்களுக்கு விருது வழங்கினார். இதில், பல்வேறு பீடங்களின் கீழ், தனித்தனியாகவே மாணவர்களுக்கு, பீடங்கள் வழங்கி வழங்கப்பட்டது. பதினாறு கல்வி, உள் தேசிய, ஒன்றியம் போர்டுகள், உள்ளிட்ட பல் பத்திரிகைகள்.

தமிழ்நாடு வேளாண்மை பல்கலைப்பள்ளி, தீவிரப்பயிற்சி துறை சார்ந்த, சீயி பருவத்திற்கான தேசிய குழுவின்மேல் தீவிரப்பயிற்சிக்கான ஆராய்ச்சி திட்டத்தின் கலந்துகொள்ளும் விழா நடந்தது. இதில், கல்வி அமைச்சர் குறித்து பேசினார். வேளாண்மை துறை ஆராய்ச்சி குறித்து தீவிரப்பயிற்சி உதவி தலைமை இயக்குனர் பேசினார். தலைமை இயக்குனர் பேசினார்.

வினாப்பேரிகள் துறை விருதுகளின்மேல் உருவாக்கப்பட்ட, தீவிரப்பயிற்சி நிறுவனம் சார்பு, தொழில்நுட்பங்கள் குறித்த பத்திரிகைகள், சி.எம்.எஸ். வெளியிடப்பட்டன.

இதில், பல் பத்திரிகை துறை இயக்குனர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார். பல்கலை ஒன்றியம் உள் சிறப்பு அமைப்புகள் பத்திரிகை, மாணவர்களுக்கு விருது வழங்கினார். இதில், பல்வேறு பீடங்களின் கீழ், தனித்தனியாகவே மாணவர்களுக்கு, பீடங்கள் வழங்கி வழங்கப்பட்டது. பதினாறு கல்வி, உள் தேசிய, ஒன்றியம் போர்டுகள், உள்ளிட்ட பல் பத்திரிகைகள்.

அறிவியல் கல்வி உயர்வுத் திட்டம், நவீன விழா நடந்தது. துணைவேந்தர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார். பல்கலை ஒன்றியம் உள் சிறப்பு அமைப்புகள் பத்திரிகை, மாணவர்களுக்கு விருது வழங்கினார். இதில், பல்வேறு பீடங்களின் கீழ், தனித்தனியாகவே மாணவர்களுக்கு, பீடங்கள் வழங்கி வழங்கப்பட்டது. பதினாறு கல்வி, உள் தேசிய, ஒன்றியம் போர்டுகள், உள்ளிட்ட பல் பத்திரிகைகள்.



அறிவியல் கல்வி உயர்வுத் திட்டம், நவீன விழா நடந்தது.

PIRPAGAL (TAMIL), COIMBATORE – APRIL 7, 2018

விற்பகல்

சனிக்கிழமை 07.04.2018



தேசிய குழுவின்மேல் தீவிரப்பயிற்சிக்கான ஆராய்ச்சி திட்டத்தின் கீழ் 2018 பருவத்திற்கான கலந்துகொள்ளும் விழாவுடன் சந்திப்பை துவக்கி வைத்தார். துணைவேந்தர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார்.

காரியம் பருவ கலந்தாய்வு கூட்டம்

தேசிய குழுவின்மேல் தீவிரப்பயிற்சிக்கான ஆராய்ச்சி திட்டத்தின் கீழ் 2018 பருவத்திற்கான கலந்துகொள்ளும் விழாவுடன் சந்திப்பை துவக்கி வைத்தார். துணைவேந்தர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார்.

தலைமை இயக்குனர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார். பல்கலை ஒன்றியம் உள் சிறப்பு அமைப்புகள் பத்திரிகை, மாணவர்களுக்கு விருது வழங்கினார். இதில், பல்வேறு பீடங்களின் கீழ், தனித்தனியாகவே மாணவர்களுக்கு, பீடங்கள் வழங்கி வழங்கப்பட்டது. பதினாறு கல்வி, உள் தேசிய, ஒன்றியம் போர்டுகள், உள்ளிட்ட பல் பத்திரிகைகள்.

அறிவியல் கல்வி உயர்வுத் திட்டம், நவீன விழா நடந்தது. துணைவேந்தர் சி.எம்.எஸ். விழாவுடன் சந்திப்பை துவக்கி வைத்தார். பல்கலை ஒன்றியம் உள் சிறப்பு அமைப்புகள் பத்திரிகை, மாணவர்களுக்கு விருது வழங்கினார். இதில், பல்வேறு பீடங்களின் கீழ், தனித்தனியாகவே மாணவர்களுக்கு, பீடங்கள் வழங்கி வழங்கப்பட்டது. பதினாறு கல்வி, உள் தேசிய, ஒன்றியம் போர்டுகள், உள்ளிட்ட பல் பத்திரிகைகள்.

தினகரன்

08-04-2018

கோவையிலிருந்து

கோவை வேளாண்மை பல்கலைப்பள்ளியில்

தீவனப்பயிர் ஆராய்ச்சி திட்ட கலந்தாய்வுக் கூட்டம்

கோவை வேளாண்மை பல்கலைப்பள்ளியில் தீவனப்பயிர் ஆராய்ச்சித் திட்ட கலந்தாய்வுக் கூட்டம் நடைபெற்றது. கோவை வேளாண்மை பல்கலைப்பள்ளியின் துறை, புதுடெல்லி இந்திய வேளாண் ஆராய்ச்சி கழகம் ஆய்வகம் இணைந்து நடந்த தீவனப்பயிர் ஆராய்ச்சித் திட்ட கலந்தாய்வுக் கூட்டம் நடைபெற்றது. தேசிய உணவு மற்றும் தீவனப்பயிர்கள் துறை உதவி இயக்குநர் ஜி.எஸ். சோலங்கி தொடங்கி வைத்தார். தீவனப்பயிர்கள் துறைத் தலைவர் எஸ்.பாபுவரவேற்றார். துணைவேந்தர் கோமோயி தலைமை வகித்து பேசும்போது, 'பெருநெல் வரும் மக்கள்தொகைக்கு, உணவுத் தேவைப்பயிர் பூர்த்தி செய்வதில் பந்தீவனங்கள் முக்கியப் பங்கு வகிக்கின்றன. வேளாண்மை பல்கலைக்கழகத்தில் இதுவரை 25 தீவனப்பயிர்கள் வெளியிடப்பட்டுள்ளன. கம்பு பயிரில் கோ 4 மற்றும் 5, தீவனச்சோளத்தில் கோ 29 மற்றும் 31, குதிரைமசாலில் கோ 2 மற்றும் 3 ஆகியவை குறிப்பிடத்தக்கவை. இவை நாட்டின் பால்வளத்தைப் பெருக்கப் பெரும் பங்காற்றுகின்றன என்றார். புல் மற்றும் தீவனப்பயிர் ஆராய்ச்சி நிறுவன இயக்குநர் ஆர்.வி.குமார், தீவனப்பயிர்களுக்கான தேசிய திட்ட இயக்குநர் ஏ.கே.ரா.யு. வேளாண்மை பல்கலை ஆராய்ச்சி இயக்குநர் குராமராக, க.கணேசமூர்த்தி ஆகியோர் பேசினர். அனைத்தொருங்கு தீவனப்பயிர்கள் துறையின் ஆராய்ச்சியாளர்கள் உருவாக்கிய தீவனப்பயிர்கள் மற்றும் பால் பண்ணையைக் குறித்த நூல் மற்றும் குறந்தகடு வெளியிடப்பட்டது.

தினகரன்

Dinakaran दिनकरन

www.dinakaran.com

வேளாண் பல்கலைப்பள்ளியில் கலந்தாய்வுக் கூட்டம்

கோவை, ஏப். 8: புதுடெல்லி வேளாண் ஆராய்ச்சி கழகம், வேளாண் பல்கலைக்கழக தீவனப்பயிர் சார்பில் காரீப்பயிர்களைக் கான கலந்தாய்வுக் கூட்டம் வேளாண்மை பல்கலைப்பள்ளியில் நடந்தது. இதில் வேளாண்மை பல்கலைக்கழகத்தின் தலைமை தாங்கி கூட்டத்தைத் தொடங்கி வைத்தார். கோவை வேளாண்மை பல்கலைக்கழகம் இதுவரை 25 தீவனப்பயிர் ரகங்களை வெளியிட்டுள்ளது என்று தீவனப்பயிர் குறையும் தீவனப்பயிர்களுள் உதவி தலைமை இயக்குநர் சோலங்கி, தேசிய புல் மற்றும் தீவனப்பயிர் ஆராய்ச்சி நிறுவன இயக்குநர் குமார் மற்றும் வேளாண் விஞ்ஞானி கள், விவசாயிகள் கலந்து கொண்டனர்.

Coimbatore

DECCAN CHRONICLE

SUNDAY | 8 APRIL 2018 | COIMBATORE

SHORT TAKES

Book on animal husbandry launched in Kovai

Coimbatore: A book titled 'Forage Crops and Dairying' contains information on improved fodder cultivation and animal husbandry techniques authored by scientists of department of forage crops was released at the National Group Meet, 'Kharif, 2018' of all India coordinated research project on forage crops and utilization at the Tamil Nadu Agricultural University (TNAU) here. The programme was organized by department of forage crops, Centre for Plant Breeding and Genetics (CPBG), TNAU in co-ordination with Indian Council of Agricultural Research (ICAR), New Delhi. Forage scientists working in ICAR institutes and State Agricultural Universities from across the country participated in the meet, besides progressive farmers. The event was presided over by Dr K. Ramasamy, vice chancellor, TNAU, and special address was delivered by Dr I. S. Solanki, ADG (FFC), ICAR, New Delhi. Dr R.V. Kumar, director, ICAR-IGFRI, Jhansi, Dr A. K. Roy, project coordinator, ICAR-Indian Grassland and Fodder Research Institute, Jhansi, participated. Dr K. Ramaraju, director of research and Dr K. Ganesamurthy, director, CPBG, TNAU, Coimbatore also participated.