Proceedings of 19th Meeting of Research Advisory Committee (RAC) for IGFRI held on May 12-14, 2012 at IGFRI, Jhansi

Preamble

The Director General, ICAR has constituted the fifth Research Advisory Committee, for the Indian Grassland and Fodder Research Institute, Jhansi vide letter No. 16-1/2012-IA.IV dated thes 07th February, 2012, as per the provisions contained under 71 A (a) of the Rules and Bye-laws of the ICAR.

Considering the approval of 18th RAC proceedings vide ICAR letter No.27-15-2011-FFC dated 13th July, 2011 the action taken on the recommendations was reviewed by the committee.

The 19th meeting of RAC was held on May 12-14, 2012 at IGFRI, Jhansi. The meeting was presided over by the Chairman, RAC Dr. Y.S. Ramakrishna, Ex Director CRIDA and Dr.E A H Roberts Chair on NRM Tea Research Association, Tocklai Experimental Station, Jorhat, wherein the following members along with Head of Divisions and programme leaders of IGFRI participated:

1.	Dr. Y.S. Ramakrishna	:	Chairman
2.	Dr. I. D. Tyagi	:	Member
3.	Dr. P.S. Pathak	:	Member
4.	Dr. K. S. Ramachandra	:	Member
5.	Dr. S.N. Shukla	:	Member
6.	Dr. S.A. Faruqui	:	Member
7.	Prof. S.R. Agrawal	:	Member
8.	Dr. Sunil Kumar	:	Member Secretary

At the outset Dr. S.A. Faruqui, Director IGFRI, Jhansi welcomed the Chairman and new RAC Members. The committee appreciated the work conducted by outgoing RAC.

The Chairman, Dr. Y. S. Ramakrishna in his introductory remarks praised the research outcome of the Institute, during 11th Plan and advised the scientists to organize the activities so the results are more oriented towards the goals set for 12th Plan. Chairman stressed upon the need to take up the research activities on forage crops particularly for biotic and abiotic stresses in view of the climate change. This was followed by the remarks from other RAC members. Dr. P.S. Pathak expressed that Institute has come long way to address various issues of forage resource intensification and transfer of proven technologies. Dr. I.D. Tyagi opined that enhanced milk production in the country is the outcome of enhanced green fodder availability. He urged the scientists to ensure the availability fodder seed to sustain this. Dr. K.S. Ramachandra praised the over all research activities of the Institute and felt the structured efforts of the scientists have put the IGFRI, Jhansi on International map. Dr. S.N. Shukla expressed that Institute is having good collection of forage germplasm and this should be utilized for breeding programmes to develop more varieties. Members were of the view that special efforts may be made in dairy rich areas to promote Institute's silage technology and varietal development programmes should be tailored to develop the suitable varieties for the purpose.

Dr. S.A. Faruqui, Director IGFRI presented the major activities and achievements of the Institute during the last five years and highlighted the important ones. After brief

exposure of Institute activities, he invited head of divisions to present salient achievements of their respective divisions during 11th five year plan and during the past one year.

As per the presentation of the salient research findings by the Heads of division and Officer in charges of Regional Research Stations followed by discussions by the RAC members, the following suggestions and recommendations were made.

RAC Suggestions/ Recommendations:

Crop Improvement

(i) PGR unit needs to be strengthened in terms of facilities/manpower and additional MT Storages modules.

(ii) Institute should maintain the germplasm holdings of all the species in the institute since it's inception, as a single common record in print & soft copies. This must include all the range species, cultivated and wild fodder species etc.

(iii) Further germplasm collection, evaluation & conservation in different range species fodder crops, need to be taken up in collaboration/consultation with NBPGR, New Delhi. Time bound programme on this may be developed for the 12th plan.

(iv) A document "**Fifty years of germplasm development at IGFRI"**. May be brought out for release at Golden Jubilee function.

(v) Development of high yielding, nutritive forage varieties tolerant to biotic and abiotic stresses may be strengthened and climate resilient plant types for different agro climatic regions may be identified.

(vi) Varieties best suitable for silage may be identified and facilities for testing these lines at one or two places may be taken up.

(vii) The institute needs to continue work on dual purpose staygreen sorghum, Pearl millet and oats for human consumption, giving emphasis on fodder quality and productivity. Similarly looking into the less number of varieties in maize for fodder purposes, crop improvement programme in fodder maize need to be taken up. This need to be taken up in collaboration/consultation with concern Directorate /AICRP.

(viii) Efforts need to be explored for developing multicut cultivated fodder legumes like cowpea and rice-bean.

(ix) All the available germplasm of the *Stylosanthes* species need to be properly maintained and also varietal improvement programmes are to be strengthened.

(x) The committee appreciates the effort of Institute in establishing good facilities for biotechnology research. The relevant biotechnology research programme(s) on fodder /range grasses need to be developed in consultation with NRCPB, New Delhi. The programmes may include work on genome sequencing, allele mining, development of markers (SSR), QTL(s) for important traits etc.

(xi) Suitable varieties and low cost technologies should be developed by conventional or Biotechnological methodologies focusing on the need and resources of the marginal farmers.

Crop Production

(i) Compilation & documentation of proven fodder production technologies on individual crops and production systems, may be taken up for publication on priority.
(ii) Perennial legume based fodder production system should be thoroughly reviewed for initiation of new programmes
(iii) Integrated Farming System Research with special focus on forage based livestock production system, may be taken up.
(iv) Assessing climate change impacts and developing ameliorations strategies for optimizing forage productivity may be taken up.
(v) Work on carbon sequestration potential and assessment of micro climatic changes of companion crops in tree based alternate land use system may be initiated as an inter divisional programme with specific involvement of physiologist.

Grassland & Silvipasture Management

(i) Recommendations of 18th RAC are partially attended. They need to be re-looked for appropriate action.
(ii) The division should focus on soil-plant-animal system of landuse in grassland and silvipasture systems. This may be taken up in a multi disciplinary, inter divisional mode, to generate holistic knowledge/technology.
(iii) Under the theme "**Improvement and management of degraded rangelands/wastelands and grazing management**", the projects taken up do not match the theme. Hence, suitable projects may be initiated.
(iv) There are many small ongoing projects of Hortipasture systems, based on individual fruit crop species. They all need to be clubbed to form as part of a single programme with focus on soil health, water and nutrient management and livestock production management in a inter divisional mode involving disciplines of soil science, SWE, microbiology and LPM etc.

Plant Animal Relationship

(i) The division has generated valuable data on grain to straw ratios of different crop across agro-ecological zones of India. Based on the data, projected availability of wheat straw, paddy straw and sorghum Stover's for the year 2020 has been arrived. Such studies are also being carried out by other animal science Institutes especially NIANP, Banglore. In view of this, it is necessary for **harmonization of data sets** generated at various Institutes/SAUS for arriving at a common set of information at National level.
(ii) Work on organic milk production has been carried out since last five years and some useful results have been demonstrated. The project has completed its objective, may be concluded. The data may be compiled as a good publication.
(iii) Methane production potentials of tropical fodder has been worked out and the data generated from this project is being quoted by the MOEF, GOI. However, the data generated needs thorough revalidation and they may also be compared with result of studies from other sister institutes/organizations.
(iv) Nutritional evaluation of fodder/forages and fodder based feeding systems for different species of livestock maintained under different agro-ecological conditions needs greater focus during 12^{th} plan period.

(v) Grazing studies appears by and large restricted mainly to the Institute farm. It would be desirable if large scale-grazing studies are taken up at village level, as a model, with focus on livelihood enhancement.

(vi) Silage making has caught up in a big way among dairy farmers of Punjab and Haryana. IGFRI could play an important role in further refinements of this technology in these areas.

Seed Technology

(i) Certain recommendations of previous RAC are partially attended. They need to be re-looked for appropriate action.

(ii) Developing appropriate technology, promoting entrepreneurship for vegetatively propogated materials such as BN hybrid, guinea grass etc. to ensure year round availability may be taken up.

(iii) Economics (BC ratio) of seed production technologies of forage crops and range species may be worked out, for their viable adoption by farmers.

(iv) Package and practices for quality seed production of range species and fodder crops needs to be further strengthened. A publication on package of practices of seed production technologies may be brought out.

(v) Research on enhancing formation of pure germinating seeds needs to be strengthened.

(vi) Development of seed standards for range grasses and range legumes needs to be taken up

(vii) Eco-friendly low cost storage of forage seeds may be developed.

Farm Machinery & Post Harvest Technology

(i) Research project /entrepreneurship development on production of leaf meal and its block from Stylosanthes and Subabool needs to be strengthened with focus on its economics.

(ii) Technology developed for "urea treatment of straws during the threshing operation" appears to be quite promising. However, its acceptability at field level, and cost economics, quality of treated material under different storage periods need to be worked out. If successful, the technology holds considerable promise for commercialization.

(iii) Post harvest management of fodder through in–field baling in forage production areas in participatory mode may be taken up. Viability of custom hiring of baling machines and long term storage techniques may be worked out.

(iv) Commercialization of feed pellets making through small entrepreneurship, to increase the availability of product at village level may be promoted.

(v) Development of planting and harvesting machines for vegetatively propagated forages may be taken on priority.

Social Sciences

(i) A document on, "**50 years of Social Sciences research at IGFRI**" need to be brought out on the occasion of Golden Jubilee celebrations. The document may highlight the studies conducted on, Technologies tested and their adoption, constraints identified, issues for future research and other relevant details.

(ii) Socio-economic issues related with enhancing fodder technologies adoption by small and marginal farmers, improved management of CPRs and JFM areas and market linkages, enabling livelihood enhancement may be identified and addressed.
(iii) Participatory Technology Assessment and Refinement through networking of various stakeholders for increasing fodder production.
(iv) Farmers training and education through Fodder technology demonstrations and communication technology need to be further enhanced including ICT based transfer of technology for speedy and wider dissemination.

Regional Research Station, Avikanagar

(i) Crop improvement programme on dual-purpose Pearl millet and Guar needs to be strengthened in addition to other mandated activities.
(ii) Developing seed standards of range grasses and legumes.
(iii) Working out suitable silvi/horti-pasture/ system for semi-arid areas of Rajasthan with focus on small ruminant management.

Regional Research Station, Dharwad

(i) Crop improvement programme on Stylosanthes, Lucerne and Bracharia should be further strengthened.
(ii) Work carried out under sweet sorghum project till now need to be compiled and presented in next meeting.
(iii) Enhancing seed production and productivity in Stylos, Lucerne and Brachiaria may be taken up.
(iv) Field adoption of production technology for BN hybrid, Guinea grass and Lucerne under irrigated conditions and Stylosanthes, perennial sorghum and Brachiaria under rainfed conditions of southern India may be compiled in the form of booklet.

Regional Research Station, Palampur

(i) Work carried out at this station, so far may be compiled.

General

(i) The Institute may bring out a edited book on "50 years of Grassland and Forage Research in India" inviting eminent scientists who have contributed on various aspects related to this theme and be released during Golden Jubilee celebrations.
(ii) The RAC requests ICAR to take up with ASRB to expedite the filling up of vacancies at both Institute and Regional Stations on priority basis.
(iii) The 12th plan programmes of Institute were reviewed by RAC and some suggestions were provided with respect to proposed programmes as placed at annexure-I.

Acknowledgements

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