

NAARM



वार्षिक प्रतिवेदन Annual Report 2011-12

राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी
National Academy of Agricultural Research Management



NAARM
Annual Report 2011-12

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2011 - 12



National Academy of Agricultural Research Management

Rajendranagar, Hyderabad 500030
<http://www.naarm.ernet.in>

NAARM Annual Report 2011-12

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Preface

The ever-emerging challenges for agriculture and their consequent implications for National Agricultural Research System (NARS) necessitate NAARM to continuously innovate in effectively and efficiently serving its clientele, which is one of the largest in the world. In this endeavour, the Academy strives to be a premier institute for agricultural management that enables NARS adapt to changes by innovating in terms of structural and functional approaches. Having the mission to enhance leadership, governance and innovation capacities through capacity strengthening, education, research, consultancy and policy support, the Academy supports smooth transition of NARS into National Agricultural Innovation System (NAIS).

With a view to fulfill its new vision, mission and the expanded mandate, NAARM has been re-structured into six divisions that focus on research systems management, human resources management, information and communication management, extension systems management, education systems management and agri-business management. Realizing the significant role of NAARM in NARS, ICAR revised its cadre strength from 43 to 62. The Vision document was reframed and a new Vision 2030 to satisfy the contemporary as well as emerging issues in agriculture was brought out as a guide to march ahead. The XII plan approach was also designed in line with the Vision 2030 framework.

The Academy, in 2011-12, planned and executed its capacity strengthening, research, policy support and educational programmes in tune with the diverse demands from the system and also from its clientele. The tailor-made capacity strengthening programmes of NAARM benefitted nearly 1500 agricultural professionals of NARS, which also include about 250 new entrants to the ICAR system. The Foundation Course for Agricultural Research Service (FOCARS) has been restructured in order to train the agricultural scientists to own a profile as stipulated by the NARS and its stakeholders. The highlights of the capacity building programmes include the new initiatives of the Academy to train the senior-level personnel in the RMP and pre-RMP positions of NARS on leadership development, refresher course for scientists who are lateral entrants through selection into ICAR system, and foundation course for newly recruited Administrative and Finance and Accounts Officers. NAARM organized several research and policy workshops that laid the platform for its customers to have meaningful dialogues resulting in recommendations on pragmatic policy strategies. The Academy expanded its research focus and the research accomplishments brought out management and policy issues related to current and prospective agricultural research outlook. The educational programmes of NAARM continued to receive overwhelming response and participation. Initiation and successful organization of Postgraduate Diploma in Technology Management in distance mode, through public-public collaboration with University of Hyderabad, is an added dimension in this educational venture. The Academy took innovative measures to have strong linkages and collaboration with national and global partners. Such measures, accomplished through individual as well as institutional feats, paid off well.

The Academy received unstinted and positive support in its endeavour from the Council. We would like to express our sincere gratitude to Dr S Ayyappan, Secretary, DARE, GOI, and Director General, ICAR, for extending encouragement, continuous support, and positive guidance towards all the initiatives of the Academy. We are also thankful to Dr Arvind Kumar, Deputy Director General (Education), for providing full support in strengthening the activities of the Academy. The support extended by Secretary, ICAR, as well the Personnel and Financial Divisions is gratefully acknowledged.

I sincerely thank Dr N.H. Rao, Joint Director, who headed the Academy as Acting Director during the major period under report for guiding various programmes and activities of the Academy reflected in this report.

I genuinely appreciate the earnest efforts taken by my senior colleagues in the faculty Dr P. Manikandan, Dr R. Kalpana Sastry, Dr S.K. Soam, Dr K.M. Reddy, Dr N. Sandhya Shenoy, Dr G.P. Reddy, Dr R. Venkattakumar, Dr B.S. Sontakki and the Academy's staff in compiling, editing, designing and printing this document. I also compliment the incredible contributions of the staff of the Academy who were instrumental for the achievements portrayed in this report.

I am sure that the information given in this document will be useful and relevant to the stakeholders of NARS. I look forward to the constant support from all our stakeholders and partners in furthering the cause of the Academy. I unreservedly welcome precious hints in fine-tuning and enhancing our efforts.



(S.L. Goswami)
Director

June 2012
Hyderabad

NAARM

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Executive Summary

Executive Summary

The activities of the National Academy of Agricultural Research Management (NAARM) are organized in four broad areas: capacity building, research, policy support and Post Graduate education.

Capacity building: The Academy developed a scheme to institutionalize an integrated competency framework for capacity building for research excellence and leadership succession across NARS to address future challenges. The new framework has been approved by the Governing Body of ICAR, is more participatory and ensures that institutions of ICAR play a key role in personnel development. It includes a new model of Foundation Course for ARS probationers (FOCARS), Executive Development Programmes for newly-recruited Directors and Management Development Programmes in Leadership for aspiring research managers (a Pre-RMP programme) that will be mandatory for recruitment to research management positions in ICAR from 2013. It also includes a refresher course for lateral entrants to the ARS at the levels of Senior and Principal Scientist.

Three FOCARS were organized during which 256 newly-recruited ARS probationers successfully completed their training at the Academy. The new model of FOCARS was implemented for 94th and 95th FOCARS batches. The new model comprises three phases. Phase 1 - (90 days) at NAARM including 4 weeks of Field Experience Training (FET) at villages; Phase 2 - 30 days at institutions posted; and Phase 3 - 90 days of professional training in their research areas. The Academy has designed evaluation criteria and proforma for all the 3 Phases and will communicate a comprehensive evaluation report at the end of 7 months. Foundation training for newly-recruited Administrative Officers (AOs), and Finance & Accounts Officers (FAOs) of ICAR institutes was organized for 22 AOs and FAOs. An international training programme on “Intellectual Property Rights in Agriculture in SAARC Countries” was jointly organized by SAARC Agriculture Centre and NAARM. Four Management Development Programmes were

organized on themes like Agricultural Research and Leadership Development in which 59 Heads of Divisions, Project Coordinators, Zonal Coordinators and Principal Scientists from ICAR and Directors of research from State Agricultural Universities participated. Another initiative taken was conducting refresher courses for directly recruited Senior and Principal Scientists (lateral entry to the ARS) to orient them to the ICAR and its processes. Two such programmes were conducted training 58 Senior and Principal Scientists. Pre-RMP programme is designed for HoDs / Principal Scientists/ Professors/ and others in pre-RMP cadres who aspire to take up RMP positions in ICAR. The programme has been made compulsory for recruitment to all RMP positions of ICAR from 2013. Another important domain of NAARM is rising to the expectations of NARS in conducting tailor-made programmes. Twenty such need-based programmes were organized training 470 professionals in different areas.

In addition to capacity building of scientists of ICAR, the Academy is planning to organize Faculty Development Programmes for SAUs and AUs focusing on enhancing the teaching-learning experience through development of core skills in education methodology, instructional technology and technology enhanced learning.

It has also been proposed to start Foundation Training in Extension Management for personnel of KVKs keeping in view the increasing number (about 630) and role of KVKs as the key interface between research and technology transfer systems. The Programme has been prepared in consultation with the Extension Division of ICAR.

Research: The research projects of the Academy are operative in five thematic areas: (i) Agricultural science and technology policy, (ii) Accelerating agricultural innovations through ICTs and institutional change (iii) Organization and management for strengthening agricultural research, (iv) Agri-marketing and

value chain management, and (v) Governance and institutional arrangements. A number of projects in these areas are funded by NAIP, DST and other agencies. The Academy is also the Consortium Leader for two of the six multi-institutional projects funded by NAIP. The research by faculty of NAARM has led to nearly 100 publications in peer reviewed national and international journals, a book, book chapters and other types of publications and presentations.

Policy Support: Eleven workshops, conferences and seminars conducted at the Academy provided a platform for dialogue on several issues of concern for national and international policy in agriculture. These included workshops on Leadership Effectiveness and Performance Enhancement in NARS, Public Private Partnership in Agriculture; Policy and Prioritization, Monitoring and Evaluation (PME) Support to Consortia-based Research Projects in Agriculture, Annual Conference of Indian Society of Agricultural Marketing, Policy Workshop on Training Transfer at NARS, etc. These workshops provided platform for 400 professionals from public and private institutions of NARS to deliberate and recommend pragmatic policy strategies.

Education: All students (20) of the outgoing batch of Post Graduate Diploma in Management (Agriculture) got cent per cent placements in mid-level management positions in private sector companies relating to retail, input (seed, fertilizers, chemicals), commodity exchange, services (logistics and collateral management) and finance. The students of the second batch of PGDMA (17), who were admitted in July 2010, are in final semester. The selection process included an all India test conducted jointly with MANAGE, Hyderabad and NIAM, Jaipur (Joint Entrance Test for Agribusiness Management or JETABM) followed by group discussions and personal interviews. The extension of AICTE approval for 2011-12 has been obtained. As per the new guidelines of AICTE, the admission process for the year 2012-13 has been initiated based on CAT/NAT and other examinations.

NAARM is successfully organizing a one-year Post Graduate Diploma in Technology Management in Agriculture (PGDTMA) in Open Distance Learning (ODL) mode in collaboration with University of Hyderabad. The diploma will be awarded jointly by the two institutions. Out of 122 students admitted in the first batch (2011) of PGDTMA, 88 students turned out for the term-end examination of First Semester.

Out of 116 applications received for the second batch, admission for 65 students has been completed. These include a number of executives from the industry and Academia, besides students pursuing PG studies and others.

Other activities

Agribusiness Knowledge Centre (AKC): The AKC is a Public Private Partnership (PPP) initiative between NAARM and Gyantech Information Systems Private Limited (GISPL), Hyderabad to primarily 'Value Chain' farmers, academia, research and industry through exchange of knowledge among them. AKC has established space for private sector to function at NAARM. Five Companies, viz. Futureage Infrastructure, Mozo Bamboo Plantations, Sahaja Aharam, Shree Jagadamba Samiti and Yes Bank have joined AKC. During the period under report, AKC has successfully conducted 3 Days National Mega Meet on Technology Commercialization from September 29 – October 1, 2011 with participation from ICAR institutes, private companies and grass root innovators wherein AKC has identified five technologies for further commercialization. AKC has entered MoU with 'efreshindia' (www.efreshindia.com) for providing content for crop management and good agricultural practices in four identified regions of Andhra Pradesh.

Linkages: The Academy continued its linkages with its traditional partners – institutes of ICAR, SAUs and the CGIAR institutions. In addition, new linkages have been developed with a wide range of international institutions including universities, agribusiness, industry and NGOs in areas related to technology management, post graduate education and capacity building.

Faculty Recognitions: The faculty of the Academy has been invited to be reviewers of research papers by editorial boards of several international and national journals. They are members of key international and national statutory bodies, programmes and committees. Several faculty members have also been invited as guest faculty by a number of management institutions. Several members are also recognized as Ph.D guides by many universities/institutions.

Reorganization of NAARM: NAARM has been restructured into six functional divisions in tune with its new vision and mandate. These are Human Resources Management; Information and Communication

Management; Research Systems Management; Agribusiness Management; Education Systems Management; and Extension Systems Management. Accordingly its cadre strength has also been increased to 62 from the represent 43. Efforts are underway to fill the positions by recruitment and transfer.

NAARM Vision 2030: The Vision document of NAARM was reviewed and the Vision 2030 for NAARM was prepared.

NAARM Collaborates with APTDC: Andhra Pradesh Technology Development and Promotion Centre (APTDC) & Confederation of Indian Industry (CII) in association with International Crop Research Institute for Semi-Arid Tropics (ICRISAT) organized AP-TEC 2012, a conference and exposition focusing on Technologies for Modern Agriculture on Mar. 3 and 4, 2012 at Hyderabad International Convention Centre (HICC), Hyderabad, with NAARM as knowledge partner.

National Stakeholders' Consultation Meet was organized by NAARM on March 14, 2012 to plan

and prioritize the XII Plan programmes. The XII Plan preparation was initiated at an earlier stage and the preliminary plan proposals were reviewed by DDG (Education) at NAARM.

Foundation Stone for PG Students' Apartments was laid on March 14, 2012 by Dr K.V. Raman, Former member, ASRB and former Director, NAARM in the presence of Dr S.P. Tiwari, Former DDG (Edn) and former Director, NAARM; Dr C. Prasad, Former DDG (Extn) and former Director, NAARM; and Dr S.L. Goswami, Director, NAARM.

ICAR Inter-Institutional Sports Meet: NAARM successfully conducted ICAR inter-institutional sports meet (Zone-IV) at RRC Grounds, Secunderabad during February. 27 – March 2, 2012. Around 650 players from 23 ICAR institutions participated in different sports and games competitions.

Participation in Rose Show: NAARM won several prizes in XXVI Rose Show conducted by Secunderabad Horticultural Society and also in XXXVI Annual Rose Show conducted by Hyderabad Rose Society.

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NAARM – An Overview

NAARM – An Overview

The National Academy of Agricultural Research Management (NAARM) was established in 1976 with the mandate to enhance the performance of India's National Agricultural Research System (NARS) through research, capacity strengthening and policy support in agricultural research and education management. The Indian NARS is one of the largest agricultural systems in the world employing over 30,000 scientists. The NARS has played a key role in initiating the science driven green revolution, which led to dramatic economic and social changes in the agricultural sector in India during the last 40 years. However, the agricultural sector in India continues to face new challenges in the form of increasing demand for food, globalization of agricultural trade, increasing role of regulatory systems in production and consumption, declining natural resource base of agricultural production and climate change. At the same time, new opportunities are becoming available in the form of emergence of agribusiness as a key sector of the economy and new technologies that can enhance agricultural production efficiencies and natural resources.

The institutions of NARS need to respond to these challenges and opportunities through institutional change that reflect the national and global trends as well as expectations of the society. The role of NAARM in this changing scenario is to build the individual and institutional capacity of NARS for innovation, to address the new and emerging challenges of the agricultural sector, while using the opportunities provided by the emerging technologies to advantage.

The activities of the Academy cover a broad range of themes in three key areas: agricultural research systems management and policies, information and communication management and human resources management. Through its need based and innovative capacity building programmes and demand driven research initiatives in specialized areas of agricultural research and education management, the Academy has

been supporting the NARS in evolving appropriate policies and programmes for institutional change. The Academy also undertakes and offers specialized consultancy services in the mandated activities on the strength of the experienced and expert faculty. The services of the Academy are sought nationally as well as globally for enhancing individual and institutional performance.

Training and research has been the focus of NAARM. However, to efficiently and effectively serve its clientele, the Academy needs to focus equally on the creation, dissemination, application and exchange of knowledge. Keeping this principle in view, the thrust of the Academy's activities for the XI Plan was proposed on two broad fronts:

- (i) Transforming the Academy into a fully integrated Institution of excellence offering courses at both post-graduate as well as doctoral level in Agricultural Management
- (ii) Research, capacity strengthening, policy support and consultancy to facilitate the organizational renewal of NARS to a more efficient and responsive National Agricultural Innovation System

Accordingly, the Academy revised its vision, mission, mandate and objectives to reflect the new priorities.

Vision

NAARM will be India's premier institute in agricultural management that enables NARS adapts to change through continuous innovation.

Mission

To enhance leadership, governance and innovation capacities of NARS through capacity strengthening, education, research, consultancy and policy support.

Mandate

The Academy is mandated to enhance the efficiency and effectiveness of NARS. Hence, the Academy needs,

- To be an integrated institution of agricultural management focusing on creation, dissemination and application of knowledge through its education, training, research, consultancy and policy support programmes
- To serve as an apex resource center for collection, compilation, documentation and dissemination of innovative learning resources and practices in agricultural management followed in India and other countries
- To work as a catalyst for building and enhancing the competence of individual scientists and the capability of institutions of NARS for addressing contemporary issues in agricultural management
- To facilitate the organizational renewal of the NARS and management of change
- To serve as a think tank for the NARS and provide research-based inputs and advice to agricultural policy makers, planners, administrators, and others
- To emerge as global thought and knowledge leader in agricultural management
- To establish and foster functional partnerships and effective networking with leading management institutes of the world in order to emerge as global thought and knowledge leader

Objectives

Commensurate with the mandate, the following objectives are set for the Academy:

- To impart agricultural management education
- To enhance the teaching-learning effectiveness through proper management of agricultural education
- To plan and organize need-based, multi-tier, stakeholder-driven and customized on-campus and off-campus training programmes
- To facilitate knowledge and technology dissemination management through innovative use of Information and Communication Technologies (ICTs)
- To undertake research on agricultural and

technology management, and address emerging concerns in agriculture

- To offer consultancy and manage dialogues to backstop training and to provide policy support to NARS
- To develop suitable management tools, practices and processes for facilitating organizational effectiveness
- To assemble quality resource material and function as a resource center of information and knowledge
- To promote facilitative work culture for fostering creativity and innovativeness
- To enhance administrative and financial management in the system
- To forge and strengthen partnerships, linkages and networking at regional, national and global levels and
- To take up other related activities for fulfilling the mandate.

Organization and Management

The Academy receives guidance for its effective functioning from the Institute Management Committee (IMC) and Research Advisory Committee (RAC), comprising eminent scientists, management experts, representatives from developmental agencies, progressive farmers, agripreneurs and administrative personnel from within and outside the Academy.

Based on the National Consultation on 'Role of NAARM in Changing R & D Perspectives' held in January, 2011, and in line with new Vision and Mission of NAARM, ICAR revised the sanctioned cadre strength of NAARM to 62 (including 2 RMPs: Director and Joint Director) from the existing 43 and increased the number of Divisions to six from the existing three as follows:

- (i) Research Systems Management (existing: Agricultural Research Systems Management and Policies Division)
- (ii) Human Resource Management
- (iii) Information and Communication Management
- (iv) Extension Systems Management
- (v) Education Systems Management
- (vi) Agribusiness Management

Research Advisory Committee

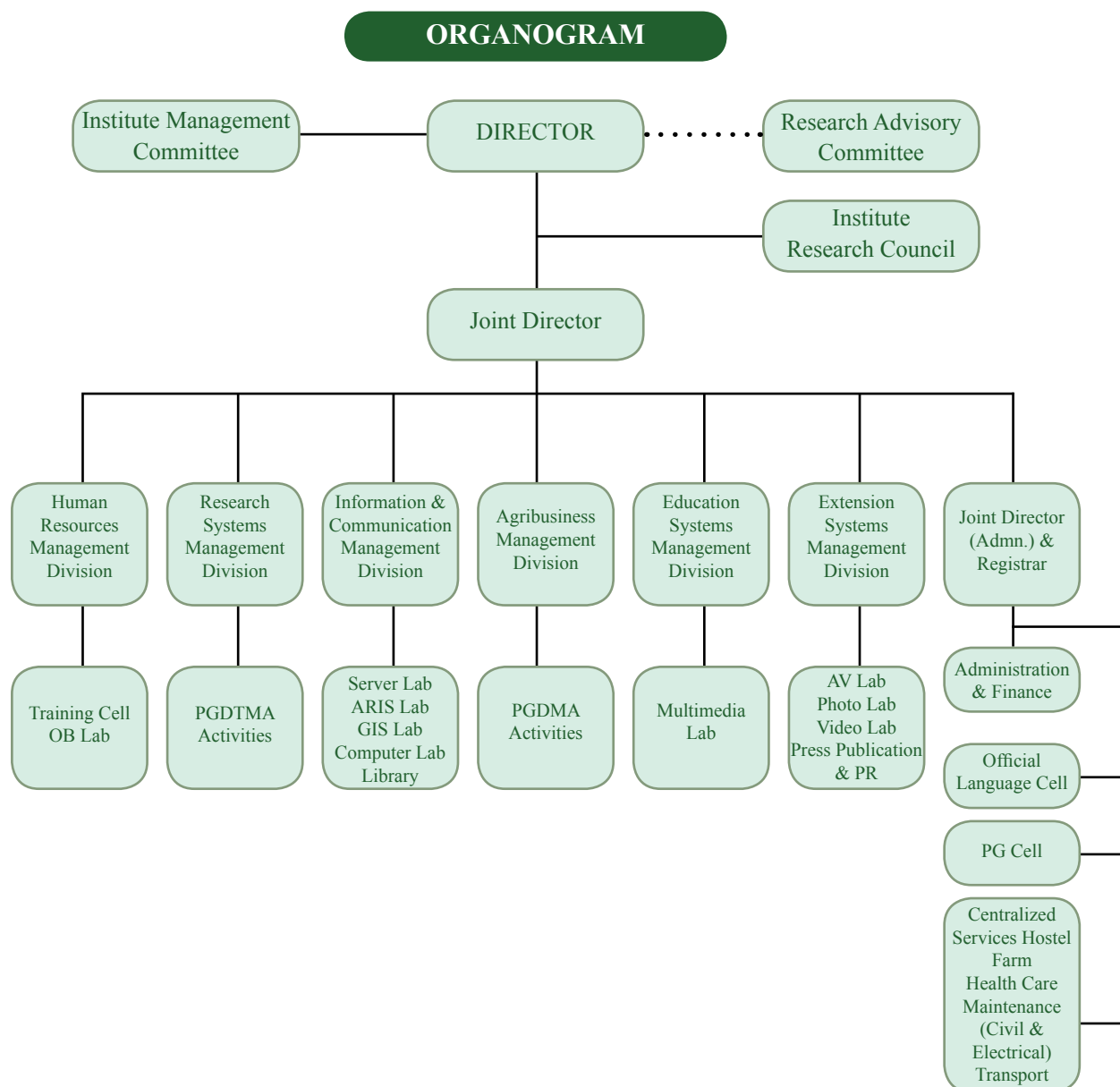
Designation	Name & Address
Chairman	Prof.V.S.Vyas Member, Economic Advisory Council to the Prime Minister & Deputy Chairman, State Planning Board, Rajasthan. 396, Vashundhara Extension, Gopalpura Bypass, Tonk Road, Jaipur.302018
Members	Dr Ashok Gulati Chairman, Commission for Agriculture Costs and Prices (CACP) Ministry of Agriculture, Government of India Room No. 161, G-Wing Krishi Bhawan, New Delhi – 110001
	Prof.P.G. Chengappa, Former Vice Chancellor, (UAS Bangalore), No. 43, Second Cross, Sneha Nagar, Amruthalli Main Road, Bangalore 560 092.
	Mr S. Sivakumar Chief Executive ITC-Agri Business Division, 31, Sarojini Dev Road, Secunderabad 500 003
	Dr Dinesh K.Marothia 19,Professor Colony,Krishak Nagar, Raipur-492006, Chhattisgarh
	Dr.S.Nagarajan 8/49 16th cross street, New Colony, Chrompet, Chennai 600044
	Dr Arvind Kumar Deputy Director General (Education) ICAR,Krishi Anusandhan Bhavan II, Pusa, New Delhi 110 012Member
	Director, NAARM Rajendranagar, Hyderabad - 500 030
	Shri G.V.Ramana Reddy B.Tech. (Agriculture Engineering) Horticulture Farmer & Proprietor SAGAR Agro Services, Premanjali Complex, D.V.K.Road (Bus Stop), Nalgonda – 508 001 (A.P.)
	Shri Feroze Masani Masani Farms Gangapur Road, Hirabagh, Apurvai Restaurant, Nashik – 422 005, Maharashtra
Member-Secretary	Dr R. Kalpana Sastry Head – ARSMP Division NAARM Rajendranagar, Hyderabad – 500 030

Institute Management Committee

Designation	Name & Address
Chairman	Director NAARM Rajendranagar, Hyderabad 500 030
Members	Dr. Phani Kumar, IAS Director General & Executive Director Centre for Good Governance Jubilee Hills, Hyderabad – 500 033
	Dr.C.V.S.K.Sharma Vice-Chancellor I/c. A.P. Horticulture University Venkataramannagudem P.B.No.7, Tadepalligudem, West Godavari District, A.P. 534 101
	Shri G.V.Ramana Reddy B.Tech. (Agriculture Engineering) Horticulture Farmer & Proprietor SAGAR Agro Services, Premanjali Complex, D.V.K.Road (Bus Stop), Nalgonda – 508 001 (A.P.)
	Dr.Ramesh Chand Director, National Centre for Agricultural Economics & Policy Research Library Avenue, Pusa New Delhi - 110 012
	Dr.(Mrs.) Malavika Dadlani Joint Director (Research) Indian Agricultural Research Institute Pusa, New Delhi - 110 012
	Shri S.K.C.Bose Senior Finance & Accounts Officer Central Research Institute for Dryland Agriculture, Santoshnagar Hyderabad - 500 059
	Dr.K.V.Sarvesh Director (Agriculture) Government of Karnataka No.1, Seshadri Road, Bangalore – 560 001
	Shri Feroze Masani Masani Farms Gangapur Road, Hirabagh, Apurvai Restaurant, Nashik – 422 005, Maharashtra
	Dr.K.R.Kranthi Director Central Institute for Cotton Research P.B. No. 2 NAGPUR 440 010 Maharashtra

	Dr.V.K.Gupta National Professor Indian Agricultural Statistics Research Institute Library Avenue, Pusa NEW DELHI 110 012
	Dr.K.Sharma Assistant Director General (HRD) ICAR, Krishi Anusandhan Bhavan-II Pusa, New Delhi 110 012
Member-Secretary	Shri Sanjay Kant Joint Director (A) & Registrar NAARM Rajendranagar, Hyderabad 500 030

The revised cadre strength approved by ICAR includes the 6 Divisions listed above. The new organogram and the approved allocation of cadres in each Division are given below.



Division-wise Cadre Strength of NAARM (Revised in 2011)

No.	Division/ Discipline	Professor/ Principal Scientist	Assoc. Professor/ Sr. Scientist	Asst. Professor/ Scientist	Total
Human Resources Management Division					
1.	Head of Division	1	-	-	1
2.	Human Resources Management	5	4	-	9
	Total	6	4	-	10
Research Systems Management Division					
3.	Head of Division	1	-	-	1
4.	Agricultural Research Management	1	1	-	2
5.	Research Project Management	1	-	-	1
6.	Technology Management	1	1	-	2
7.	Agricultural Economics	1	1	1	3
8.	Intellectual Property Law and Management	1	-	-	1
	Total	6	3	1	10
Information and Communication Management Division					
9.	Head of Division	1	-	-	1
10.	Computer Applications	1	1	-	2
11.	Statistics	1		1	2
12.	Agricultural Extension	1	3	-	4
13.	Business Communication		1	-	1
	Total	4	5	1	10
Agribusiness Management Division					
14.	Head of Division	1	-	-	1
15.	Agribusiness Management	1	1		2
16.	Agribusiness Management (Specialization in Marketing and Retail Management)	1	1	1	3
17.	Financial Management	1	1	-	2
18.	Agribusiness Management (specialization in Strategic Management)	1	-	-	1
19.	Macro Economics and International Trade	-	1	-	1
	Total	5	4	1	10
Education Systems Management Division					
20.	Head of Division	1	-	-	1
21.	Education Management	1	1	-	2
22.	Education Technology	2	1	-	3
23.	Education Psychology	1	1	-	2
24.	Education Information Systems	1	1	-	2
	Total	6	4	-	10
Extension Systems Management Division					
25.	Head of Division	1	-	-	1
26.	Agricultural Extension	2	2	-	4
27.	Rural sociology	1	1	-	2
28.	Extension Information Systems	2	1	-	3
	Total	6	4	-	10
	Total for all Divisions	33	24	3	60

Linkages

NAARM has a rewarding and rich experience of having partnership with many national and international institutions.

National

- Management Institutions like Administrative Staff College of India (ASCI), Indian School of Business (ISB), Indian Institutes of Management (IIMs), National Institute of Agricultural Extension Management (MANAGE), National Institute of Rural Development (NIRD), Institute of Public Enterprise (IPE)
- Private sector and NGOs
- Department of Science and Technology (DST)
- The ICAR system
- Agricultural Universities
- Department of Biotechnology (DBT)
- Agri-industry and agri-business professional bodies like CII, FICCI, etc

International

- The CGIAR institutions including International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) and International Food Policy Research Institute (IFPRI)
- The World Bank and the Food and Agriculture Organization (FAO) of the United Nations
- South Asian Association for Regional Cooperation (SAARC)

- Department of International Development (DFID, UK)
- NARS of developing countries like Sri Lanka, Nigeria, Yemen, Tanzania, Nepal, Afghanistan, etc.
- Some leading universities

Infrastructure and Logistics

The facilities available on the campus include state-of-art lecture halls with modern audio-visual aids, conference halls and auditorium; wi-fi enabled broadband internet service, indoor and outdoor games, excellent hostel facilities for trainees and students, in-campus hospital and a well equipped library. NAARM also has a digital library which has many publications in digital format. As a member of the consortium for e-resources in agriculture, NAARM has direct (CeRA) access to over 10,000 journals from EBSCO, CSIRO, Springer, and Open J-Gate. Excellent laboratory facilities and other facilities are available for:

- Multimedia
- Video production
- Geographical Information Systems
- Audio-visual
- Photography
- Web designing and development
- Offset printing
- Information search and retrieval
- Organizational behaviour
- Patent search

Human and Financial Resources

Human Resources (as on 31.03.2012)

Sl. No.	Category Posts	Sanctioned Strength	Filled Positions	Vacant Strength
1.	Scientific	62	29	33
2.	Technical	51	40	11
3.	Administrative	50	43*	11
4.	Supporting	39	35	04
	Total	202	147	59

*4 staff in position shows excess consequent upon administrative cadre review

Budget Allocation and Expenditure during 2011-12

Expenditure Statement - Non-Plan

Sl. No.	Head of Account	R.E. 2011-12 (Rs. in lakhs)	Expenditure up to 31.3.12 (Rs. in lakhs)
I	Capital	37.50	36.31
	Sub-Total (A)	37.50	36.31
II	Revenue		
1.	(a) Establishment Charges Including LSP & PF	1043.40	863.39
	(b) Wages	87.00	87.00
	(c) OTA	0.50	0.46
2.	Travelling Allowance	9.15	9.15
3.	Other charges including equipment	334	291.33
4.	Works		
	1. Maintenance & Repairs		
	a) Office Buildings	87.28	73.80
	b) Residential Buildings	37.25	52.30
	2. Minor Works	12.72	11.15
5.	Pension & Other Retirement Benefits	200.00	199.99
6.	Loans & Advances	5.00	4.52
	Sub-Total (B)	1816.30	1593.00
	Grand Total (A+B)	1853.80	1629.39

Expenditure Statement – Plan

Sl. No.	Head of Account	R.E. 2011-12 (Rs. in lakhs)	Expenditure up to 31.3.12 (Rs. in lakhs)
1.	Establishment	324.60	240.37
2.	Travelling Allowance	39.57	39.57
3.	H.R.D	16.03	15.99
4.	Other Charges	201.10	161.22
5.	Equipment	220.04	165.54
6.	Information Technology	109.81	70.65
7.	Furniture & Fixtures	85.56	85.56
8.	Books & Journals	71.79	71.78
9.	Works	1042.50	1042.50
	Total	2111.00	1893.17

Resource Generation

i) Off-campus and Sponsored Programmes 2011-12

Sl. No.	Name of the Programme	Amount (Rs. in lakhs)
1	Multimedia Applications in e-content development	2.69
2	Stress Management Strategies for Enhancing the Efficiency & Effectiveness of the Faculty & Officers at Work Place	1.94
3	Writing Winning Research Proposals Programme for Senior Scientists of Central Silk Board	3.00
4	Proposal for Conducting a Specialized short-term Training for Technical Personal of CAZRI, Jodhpur	2.12
5	Innovations 4 Industry in Crop Science	2.75
6	Capacity Building Programme on International Trade towards Enhancement of Competitiveness of Indian Agriculture	1.26
7	Competency Enhancement Programme for Technical Officers	2.65

ii. Fee from Educational Programmes

Sl. No.	Name of the Programme	Amount (Rs. in lakhs)
1.	PDGMA (2010-12) II year	53.14
2.	PDGMA (2011-13) I year	53.77
3.	PGDTMA (2011-12)	5.63
4.	PGDTMA (2012-13)	5.31

iii) Resource Generation from Other Activities

Sl. No.	Name of the Programme	Amount (Rs. in lakhs)
1.	ICAR SRF Examination	23.43
2.	Revenue Receipts	15.74

iv) Resource Generation through Sponsored Research Projects

Sl. No.	Name of the Programme	Amount released/available in 2011-12 till 31.03.12 (Rs. in lakhs)
1.	Post Doctoral Programme under Bangladesh Agricultural Research Council (BARC)	5.05

Total revenue generated: Rs. 178.49 lakhs

NAARM

Annual Report 2011-12

Capacity Building

Capacity Building

New Initiatives: Integrated Framework and Strategy for Capacity Building of NARS

Significant new initiatives were taken during the year to institutionalize a new integrated capacity development framework and strategy for research and academic excellence and leadership succession across NARS to address future challenges. The framework and strategy are based on expected competencies for scientists and faculty to enhance their productivity in their various roles at different stages in their career (from scientists to research managers and leaders), and institutional mechanisms that enable and sustain excellence in performance. A key assumption is that achieving excellence is a continuous, intense and long term process leading to sustained improvements in knowledge, skills and leadership attributes, and that it is driven by both institutional and individual initiative and value systems. It also requires continued commitment of leadership and resources to the development of people in organizations. Training is an important and necessary component but not sufficient. It needs to be complemented with development experience that can be realized only with institutional and individual faculty commitment to invest in growth and excellence. Such a framework and strategy

(i) New model of FOCARS (implemented in 2011-12 for 94th and 95th FOCARS):

The new model comprises three phases

Phase	Capacity building area
Phase 1 (90 days) at NAARM including 4 weeks Field Experience Training (FET) at village level	Orientation to ICAR, scenario/context of agricultural research for development, discipline competencies focusing on core research skills (research methodology, developing research project proposals for competitive funding, project management, scientific communication, project management including M&E), personal effectiveness, information management and business orientation including stakeholder engagement during FET. (Evaluation and grading by NAARM)
Phase 2: 30 days at institution of appointment	Orientation to research and institutional processes of institution (Evaluation and grading by Director of Institute where appointed)
Phase 3: 90 days professional training in specific research areas	Professional training in specific research areas by attachment to leading scientists/professors/ laboratories/ institutions identified by the institute where posted (Evaluation and grading by Director of Institute in consultation with the mentor/Director of the institute attached)

would need to be based on expected competencies for scientists and faculty at different stages of their career.

The new capacity building framework developed by the Academy, identifies six performance dimensions and the major competencies for each dimension. The scope and emphasis on the dimensions and competencies at different stages of the career of a scientist have been identified. The essential elements of the framework are given below:

The six performance dimensions of the capacity building framework

Discipline competencies	Personal effectiveness
Managing information and knowledge	Business orientation
Leading and managing (<i>people, work, change</i>)	Building linkages – including global linkages

The framework has been validated through discussions and presentations at various fora. Within this general framework, a suite of capacity building programmes that include FOCARS and other programmes have also been *approved by the Governing Body of ICAR*. The key aspects of the various programmes are as follows.

The Academy has designed evaluation criteria and proforma for the 3 Phases, and will communicate a comprehensive evaluation report at the end of 7 months.

(ii) Pre-RMP Programme: The Programme is designed for HoDs / Principal Scientists/ Professors/ and others in pre-RMP cadres who wish to take up RMP positions in ICAR (not formally titled with RMP responsibilities but lead important programmes/projects/teams). The competencies emphasized are: personal effectiveness; managing information and knowledge, business orientation and leading and managing (people, work). The programme has been made compulsory for recruitment to all RMP positions of ICAR from 2013.

(iii) Executive Development Programme for Directors of Institutes and senior managers: This Programme will focus on competencies related to managing people and change, and building national and global linkages.

(iv) Refresher Courses for directly recruited Senior and Principal Scientists: (lateral entry to the ARS) to orient them to the ICAR and its processes.

Each of the above four types of programmes will be organized by the Academy twice every year to enable participation by all the stakeholders.

Faculty Development in SAUs and AUs: In addition to capacity building of scientists of ICAR, the Academy has become more inclusive with respect to capacity building of the NARS by specifically focusing on

the competencies required for faculty of Agricultural Universities at various stages of their career. An entire suite of programmes, that cover the entire range of performance dimensions and competencies required of faculty and education managers, will be offered (similar to scientists of ICAR). There will be specific focus on enhancing the teaching-learning experience through development of core skills in education methodology, instructional technology, and technology enhanced learning. A new Division of Educational Systems Management has been created to manage these programmes.

Foundation Training in Extension Management for personnel of KVKs: A new foundation course model has been developed for training in extension, keeping in view the increasing number (about 630) and role of KVKs as the key interface between research and technology transfer systems. This model too is based on identification of important performance dimensions and the competencies in each dimension. The Programme has been prepared in consultation with the Extension Division of ICAR. A new Extension Systems Management division has been created to address these capacity building activities.

Programmes Organized

1. Foundation Course for Agricultural Research Service (FOCARS)

FOCARS, the flagship Programme of the Academy, is designed for the newly recruited entry-level scientists in Agricultural Research Service (ARS) of the ICAR. During 2011-12, three programmes were organized.

Programmes Organized during 2011-12

Sl. No.	Type of Programme	No. of Programmes	No. of Participants
1.	Foundation Course for Agricultural Research Service (FOCARS)	3	256
2.	Foundation Training of Directly Recruited Combined Cadre Officers (AOs and FAOs) of ICAR	1	22
3.	International Programmes	1	19
4.	Leadership Programmes	4	59
5.	Refresher Courses	3	82
6.	Need-based Programmes	20	470
7.	Workshops / Seminars	11	509
8.	Off-campus Programmes	2	49
Total		45	1466

Details of FOCARS Programmes Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Course Directors
1	93 rd FOCARS	April 27- August.24, 2011	100	B.S. Sontakki Ranjit Kumar
2	94 th FOCARS	September 15- December 13, 2011	136	S.K. Nanda R. Venkattakumar
3	95 th FOCARS	January 23 - April 21, 2012	20	G.P. Reddy K. Kareemulla

The 93rd FOCARS was organized in the earlier format of 120-days duration with three phases. Phase 1 and 3 were conducted at the Academy. During Phase 2, the trainees were sent to rural areas across the country for FET. Phase 1 covered global and national agricultural scenarios and policy perspectives, issues related to WTO and IP management, research project management, communication management, information management, organizational and behavioral issues, administrative and financial rules, and participatory rural appraisal techniques. In phase 2 of the Programme, the scientists underwent Field Experience Training (FET) in various centers of ICAR institutes/agricultural universities/KVKs, wherein they interacted with farmers, extension agencies, input agencies, scientists and others to identify the local problems through PRA techniques and developed interdisciplinary research projects. In phase 3 of the Programme at the Academy, the trainees focused on sharing their experiences and visited various institutions of repute located in-and-around Hyderabad. After the successful completion of the training, they were posted in different constituent research institutes of ICAR.

94th and 95th FOCARS were organized in the new pattern approved by the Governing Body of ICAR. In this pattern, the training at NAARM including Field Experience Training (FET) is for 90 days. This is followed by one month orientation training at institute of appointment and 3 months attachment training in a reputed advanced laboratory/institution under the guidance of a senior mentor. Both the batches are in their institutional orientation/attachment training phase. An integrated evaluation will be provided by NAARM at the end of 7 months.



2. Foundation Course for Administrative Officers and Finance & Accounts Officers of ICAR

The foundation course for newly recruited Administrative Officers, and Finance & Accounts Officers of ICAR institutes was inaugurated at the Academy on March 12, 2012. The main objectives of the programme were: to provide an overview of the ICAR administrative set up and general financial



Details of Foundation Course for Administrative Officers & Accounts Officers of ICAR

Sl. No.	Title	Duration	No. of Participants	Course Directors
1	Foundation Course for Administrative Officers and Finance & Accounts Officers of ICAR	March 12-April 13, 2012	22	S.K. Soam, Sanjay Kant Zakir Hussain Khilji

and accounting system in ICAR and other modern management principles to the newly recruited Finance and Accounts Officers, to strengthen the existing administrative management processes in ICAR institutes through continuing training programmes and to provide other modern management techniques to the AOs and FAOs. This one month programme also aimed at improving skills and efficiency of the AOs and FAOs of the combined cadre in discharging their functions and providing constructive support to the leaders of Research Institutes in meeting the organizational goals and needs.

3. International Training Programme

Intellectual Property Rights in Agriculture in SAARC Countries

There was a felt need to impart skills in the art and science, transfer of agri-technologies among agricultural scientists of SAARC countries. Therefore, an international training programme on “Intellectual Property Rights in Agriculture in SAARC Countries” was jointly organized by SAARC Agriculture Centre and NAARM from October 10 to 17, 2011. The major objectives of the programme were: to equip the participants with advanced tools in IP management and commercializing agricultural technologies including frontier sciences, and to build knowledge and skills in technology management. Keeping in view the importance of the Programme, the resource persons were drawn from industry, law schools, Indian School of Business, NGOs and other reputed organizations



from Hyderabad and other places.

4. Leadership Programmes

The Academy offered Management Development Programmes (MDPs) to Heads of divisions, project coordinators, zonal coordinators and principal scientists from ICAR and directors of research from SAUs. Four MDPs were organized during the year under report.

Management Development Programme in Agricultural Research

Two Management Development Programmes in Agricultural Research were organized at the academy. Major objectives of these programmes were to develop middle level management competencies in the organizational set-up of research institutions, appraise on issues of administration and financial

Details of International Programme Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Course Directors
1	Intellectual Property Rights in Agriculture in SAARC Countries	October 10-17, 2011	19	R. Kalpana Sastry S.K. Soam

Details of Management Development Programmes Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Course Directors
1	Management Development Programme in Agricultural Research	October 20 - 25, 2011	19	Bharat S. Sontakki K.H. Rao
2	Management Development Programme on Leadership Development	November 1 - 21, 2011	11	P. Manikandan R. Kalpana Sastry
3	Management Development Programme for Comptrollers of Agricultural Universities	January 30 - February 3, 2012	17	K. Srinivas Zakir Hussain Khilji
4	Management Development Programme in Agricultural Research	February 2 - 7, 2012	12	K.H. Rao R.V.S. Rao



management, sensitize on areas of contemporary importance in agricultural research management and develop insights into human resource development initiatives and strategies for agricultural research. The Programme was structured around three themes namely, human resource development; administration and financial management and issues of people at work and leadership development.

Management Development Programme on Leadership Development

Researchers in the National Agricultural Research System (NARS), who play a very important bridge role in the organization, need to be identified and groomed to take up leadership positions in future. With this felt need, a Management Development Programme on Leadership Development – a Pre-RMP programme was organized. The major objectives were to help participants understand their own personality dimensions, to explore leadership challenges and core competencies needed in present-day context, to develop understanding and skills in research and technology management, information and knowledge management, administration and finance management, and to adapt ideas of diverse skills for sharpening capacities to effectively execute various roles in the organization. The pedagogy included a blend of lectures, self-exploration exercises, case analysis, experiential learning and group discussion.

MDP for Comptrollers of Agricultural Universities

A Management Development Programme for Comptrollers of Agricultural Universities was organized with major objectives to implement research projects and educational programmes, including those funded by multilateral agencies, more efficiently

and effectively, to understand the demands for good governance and accountability in public institutions and seek improved ways to administer, account and report on use of public funds, to understand the role of intellectual property management, and public-private partnerships, in facilitating technology transfer and commercializing knowledge based technologies, to create appropriate mechanisms and systems for an enabling working environment between finance & administration professionals and faculty & researchers in institutions of NARS. It was the first Programme of the Academy designed to suite the comptrollers of Universities which has been initiated on behest of DDG (Edn), ICAR. The faculty was drawn from AG office, Center for Good Governance and University of Hyderabad.



5. Refresher Courses

Summer School on Advances in Educational Methodology and Instructional Technology

Strong understanding of the teaching-learning principles, selection of the appropriate technology and/or methodologies with due considerations of the long-term and potential benefit to the student are key issues in creation of effective teaching and learning environments. To address these issues objectively, the Summer School on Advances in Educational Methodology and Instructional Technology was organized to bring awareness on philosophy of educational methodology and instructional technology for student-centred approach, sensitize the participants in identifying and articulating the learning goals and objectives which provide the foundation for the instructional design, development, delivery, and assessment of agriculture knowledge and skills, to provide an insight into different methods of teaching and learning and also provide hands on experience on effective teaching, e-learning methods, e-learning content development, e-teaching, evaluation of e-learning and e-teaching and e-learning software.

Details of Refresher Courses Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Programme Director(s)
1	Summer School on Advances in Educational Methodology and Instructional Technology (Sponsored by Education Division of ICAR)	July 3-23, 2011	24	K.H. Rao
2	Refresher Course on Agricultural Research Management for Newly Recruited Senior / Principal Scientists of non-ARS Stream (Lateral entry to ICAR from University and other than ARS of ICAR system)	November 3-23, 2011	28	S.K. Nanda M.N. Reddy
3	Refresher Course on Agricultural Research Management for Newly Recruited Senior / Principal Scientists of Non-ARS Stream (Lateral entry to ICAR from University and other than ARS of ICAR system)	January 19-February 8, 2012	30	S.K. Nanda Ranjit Kumar

Multimedia skill development using different softwares along with hands-on-practice are part of the core curriculum along with aspects like personality development of teachers, role perception of teachers, self motivation of teachers for motivating students and organizational commitment of teachers.

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Refresher Course on Agricultural Research Management

A Refresher Course on Agricultural Research Management for newly recruited Principal Scientists and Senior Scientists of non-ARS stream was conducted from November 3 to 23, 2011. The Programme was designed for conceptual awareness and competency enhancement in the theme areas of scientific endeavours and institute management, administration and finance functions, institution building, and legislative acts along with orienting to the national economy vis-à-vis national and international agriculture and the role of the research institutes.



Refresher Course on Agricultural Research Management

A Refresher Course on Agricultural Research Management was organized from January 19 to February 8, 2012 for newly recruited Senior / Principal Scientists of non-ARS stream. The programme aimed at mainstreaming these researchers to ICAR system and their skill development for improving the efficiency and effectiveness of research projects. The programme was structured around agricultural scenario analysis, IPR and technology management, research project management, human resource management, ICT application and administrative and financial management.

6. Need-based Programmes

During the reporting period, the Academy organized a number of programmes for senior-level personnel in NARS. Scientists, faculty members (teachers/trainers),

research managers, technical officers, administrative officers, and finance and accounts officers from NAIP consortia, ICAR institutes, and agricultural universities participated in these training programmes. The various need-based programmes organized during the year are listed below.

Stress Management Strategies for Enhancing Efficiency and Effectiveness at Work Place

Two training programmes on Stress Management Strategies for Enhancing Efficiency and Effectiveness at Work Place were organized for faculty members of College of Veterinary Science, Sri Venkateswara



Veterinary University, Rajendranagar, Hyderabad. The main objective of these programmes is to equip the participants to adopt stress management strategies in

Details of Need-based Programmes Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Programme Director(s)
1	Stress Management Strategies for Enhancing Efficiency and Effectiveness at Work Place (Sponsored by SVVU, Tirupati for the faculty of College of Veterinary Science, Hyderabad)	April 19-21, 2011	20	K.H. Rao P. Manikandan B.S. Sontakki
2	Stress Management Strategies for Enhancing Efficiency and Effectiveness at Work Place (Sponsored by SVVU, Tirupati for the faculty of College of Veterinary Science, Hyderabad)	May 4-6, 2011	21	K.H. Rao P. Manikandan B.S. Sontakki
3	Employer's Perspective on Labour-related Laws (ICAR Sponsored)	May 10 – 12, 2011	31	Sanjay Kant S.K. Soam
4	Employer's Perspective on Labour-related Laws (ICAR Sponsored)	August 4-6, 2011	35	Sanjay Kant S.K. Soam
5	IT based Decision Support Systems on Web based Information Management for Knowledge Sharing (Sponsored under L&CB project of NAIP)	August 3-12, 2011	16	G.R.K. Murthy N. Sandhya Shenoy
6	Data Analysis Using SAS (NAIP Sponsored)	August 17-23, 2011	23	Ananta Sarkar M.N. Reddy
7	Training Programme on Writing Winning Research Proposals for Central Silk Board Participants (Sponsored by Central Silk Board)	September 2-8, 2011	31	S.K. Soam
8	National Training on Policy Perspectives in Value Chain Management and Commodity Research in Indian Agriculture (NAIP Sponsored)	December 12-21, 2011	16	Ranjit Kumar

9	Developing Winning Research Proposals in Agricultural Research (Sponsored under L&CB project of NAIP)	Dec. 13-17, 2011	18	D. Rama Rao S.K. Soam
10	Data Analysis Using SAS (NAIP Sponsored)	December 14-20, 2011	11	M.N. Reddy G.P. Reddy
11	IT based Decision Support Systems for Digital Content Development (Sponsored under L&CB project of NAIP)	December 20-30, 2011	31	V.K.J. Rao K.M. Reddy
12	National Training on Science Policy and Technology Forecasting in Agriculture (NAIP Sponsored)	January 16-25, 2012	21	S.K. Soam D. Rama Rao
13	Data Analysis using SAS (NAIP Sponsored)	January 27 – February 2, 2012	16	A. Dhandapani
14	Training Workshop on Research Project Proposal Development (Sponsored by NFBSFARA, ICAR)	February 15 - 18, 2012	39	D. Rama Rao S.K. Soam
15	Training Workshop on Research Project Proposal Development (Sponsored by NFBSFARA, ICAR)	February 20-23, 2012	35	D. Rama Rao S.K. Soam
16	Training Workshop on Scientific Report Writing and Presentation (NAIP Sponsored)	March 6-9, 2012	23	D. Rama Rao B.S. Sontakki
17	Training Workshop on Scientific Report Writing and Presentation (NAIP Sponsored)	March 19-22, 2012	22	D. Rama Rao B.S. Sontakki
18	National Training on Applications of Geo-informatics and Crop Simulation Models for Agricultural Management (NAIP Sponsored)	March 13-26, 2012	15	S.K. Soam
19	National Stakeholders Consultation Meet	March 14, 2012	31	K. Kareemulla R. Venkattakumar
20	Capacity Building Programme on International Trade towards Enhancement of Competitiveness of Indian Agriculture (Sponsored DAC, MoA, GoI)	March 14-16, 2012	31	D. Babu Ranjit Kumar

order to improve the efficiency and effectiveness in the performance in their respective functional areas at their work place. The core content included individual, group and organizational stressors; personality development, attitude and behaviour modifications to cope up with occupational stress; conceptual and human skills in stress management; values and ethics in functional areas of teaching, research and administration and management in the college/university for improved performance along with sound theoretical knowledge,

hands-on-experience. Yoga and meditation as stress management tools were also practiced.

Employer's Perspective on Labour-related Laws

To face the changing pattern of labour deployment vis-à-vis rules and statutory provisions, it is necessary to improve the capacity of the concerned officers in handling this area carefully to keep balance with work output of the organization and compliance

to statutory provisions. Therefore, to strengthen and improve the pattern of labour deployment and to expose the participants to various enactments, statutory provisions related to labour Act, two training programmes on Employer's Perspective on Labour Related Laws in ICAR were organized. The training methodology included case studies, group discussions along with open house session with main thrust on various enactments and statutory provisions through interactive sessions. Sixty six Heads of administration, farm superintendents, farm managers and estate managers from ICAR institutes participated in these ICAR sponsored programmes. Mr P.M. Srivastava, Regional Labour Commissioner (Central) and his team extended full support in conducting this Programme and deliberated extensively on the various practical issues raised by the participants.



IT-based Decision Support Systems on Web based Information Management for Knowledge Sharing

A training Programme on IT-based Decision Support Systems Web based Information Management for Knowledge Sharing was organized under Learning and Capacity Building (L&CB) project of NAIP. The main objectives were to sensitize the participants on the role of ICTs for Decision Support Systems (DSS), orient the participants on the latest database management technologies and enhance their skills in making use of these tools, expose the participants on Participatory Geographic Information Systems (PGIS) for decision support, facilitate the participants in generation of web based and multimedia based information modules and to expose participants on e-learning modules preparation.

Data Analysis Using SAS

Three training programmes on Data Analysis using SAS were organized to impart training to the participants on the use of SAS for different statistical analyses such as

design of experiments, regression, time series analysis, multi-varied techniques, non-linear and statistical genetics, etc. The faculty members of agricultural universities and scientists and senior scientists of ICAR institutes were trained.

Writing Winning Research Proposals

A training Programme on Writing Winning Research Proposals was organized for the Central Silk Board personnel. The Programme aimed to develop the skills for writing winning research proposals that can win funds from donors focusing on the needs of the stakeholders; to give practice in writing various components of a research proposal and also to develop a good project design and budget estimate that is rationally accepted. The participants were also sensitized on the use of log frame and Project Evaluation and Review Technique (PERT) in research programme planning.

Policy Perspectives in Value Chain Management and Commodity Research in Indian Agriculture

The application of the Supply-Chain Management (SCM) concept in agriculture is quite in line with the current needs of different stakeholders. Therefore, understanding the concept of value chains and its implications in agricultural operations and conduct of Value Chain Analysis (VCA) in agriculture, mapping the chain, assessment of governance, SWOT analysis, quantitative methods and metrics for VCA, enablers of value chains and R&D initiatives in value chains for agri-business in India with different commodities perspectives is a must to learn. Hence, a National Training on Policy Perspectives in Value Chain Management and Commodity Research in Indian Agriculture was organized under NAIP. The broad themes covered were introduction to agricultural value chains; research and quantitative techniques;



innovations in agricultural value chains. Dr Karl Rich from Norwegian Institute of International Affairs was the main resource person emphasizing on mapping, rapid value chain analysis, process and management, etc. The Programme provided an excellent opportunity to develop analytical skills required for assessing the performance of various components of chain involved in commodity research and agribusiness through discussion groups, case studies, and project development.

Developing Winning Research Proposals in Agricultural Research

It is vital for the scientists of agricultural research organizations to design projects that can attract external funding for specific research efforts in the times of increasing competition for scarce research funding. In order to develop the skills for writing winning research proposals that can win funds from donors focusing on the needs of the stakeholders, give practice in writing various components of a research proposal, explain the use of Log Frame and Project Evaluation and Review Techniques (PERT) in research Programme planning and develop a good project design and budget estimate that is rationally accepted, a training Programme on Developing Winning Research Proposals in Agricultural Research was organized. At the end of the Programme, the participants were able to write a good concept note which is a preamble to writing winning research proposals to external donors by sharpening writing skills and project management techniques.



IT-based Decision Support System for Digital Content Development

National Agricultural Research System (NARS) is increasingly employing multimedia for information communication and dissemination to all its stakeholders. This calls for speedy transformation of technology based societies, information needs into

multimedia based web environments. In order to develop an understanding and appreciation of use of multimedia in e-learning and knowledge management; to expose participants to digitizing, synthesizing, animating and packing images, sound, graphics, videos and text for both web and CD based content and to familiarize participants with multimedia production tools in various categories and enable them to develop their own modules for participatory knowledge management, a training programme on IT-based Decision Support System for Digital Content Development was organized.

National Training on Science Policy and Technology Forecasting in Agriculture

In the recent times, the science and technology has been playing a vital role in socio-economic development as well as deciding the global economic and trade policy. As a proactive measure, Govt. of India developed and implemented the science and technology policy-2003. A national training on Science Policy and Technology Forecasting in Agriculture was organized at NAARM to strengthen the knowledge of agricultural scientists in the area of science policy and technology forecasting with respect to national policies and international scenario, to provide a technical forum for analysing the constraints and opportunity for strengthening agricultural research system in tune with national science policy and to understand the science policy and technology forecasting in developed nations for mutual learning and identifying the technology cooperation opportunities. Dr David Spielman, Senior Research Fellow, IFPRI, Washington DC was the foreign training expert for the Programme along with NAARM and guest faculty.



Training Workshops on Research Project Proposal Development

Two sponsored workshops on Research Project

Proposal Development were organized from February 15 to 18, 2012 and from February 20 to 23, 2012. These programmes were organized exclusively for the PIs and Co-PIs of 44 short listed proposals under the National Fund for Basic, Strategic and Frontier Application Research in Agriculture (NFBSFARA) of ICAR. These workshops aimed at developing skills for research project proposal development focusing on the needs of the stakeholders, and also hands-on practice in writing various components of a research proposal along with the use of log frame and World Bank result framework concepts for research project planning, monitoring and evaluation. Seventy-four scientists and faculty members working in academic and research institutes from both public and private sectors got benefited through these workshops sponsored by NFBSFARA.

Training Workshops on Scientific Report Writing and Presentation

For bringing awareness and building necessary skills among the scientists of NARS about writing successful reports with special focus on NAIP sub-projects, two training workshops on Scientific Report Writing and Presentation were organized. The main objectives were to develop the skills for writing winning research reports that can meet donors' requirements and also the needs of the stakeholders, sensitize on effective communication of research results and give practice in writing various types of research reports and their communication through a variety of media. The workshop broadly covered project formulation; risk assessment; scientific report writing; scientific communication; effective presentation of project results, etc. Forty-four CPis and CCPIs of NAIP sub-projects and scientists of NARS attended these workshops.

Applications of Geo-informatics and Crop Simulation Models in Agricultural Management

A training Programme on Applications of Geo-informatics and Crop Simulation Models in Agricultural Management was organized. The Programme covered the theoretical foundations and practical applications of integrating GIS tools, precision agriculture and crop growth simulation models in agricultural management under three modules. Dr Rajiv Khosla, Professor of Precision Agriculture at Colorado State University, USA was the chief resource person for the Programme.



National Stakeholders Consultation Meet

A national Stakeholders' Consultation Meet was organized at NAARM on March 14, 2012 to brainstorm on strategies and approaches to be followed by NAARM for the 12th Five-Year plan period. Directors of ICAR institutes, former Directors of NAARM; Vice Chancellors of State Agricultural Universities, farmers and farmer leaders, NGOs, Agri companies, line department officials, bankers deliberated, and gave their valuable inputs during this meet.



International Trade towards Enhancement of Competitiveness of Indian Agriculture

To provide an in-depth understanding of relevant dynamic agricultural trade environment and evolve efficient strategies for enhancing the competitiveness of agriculture sector at each level, a capacity building programme on International Trade towards Enhancement of Competitiveness of Indian Agriculture was organized. The programme aimed to enhance awareness about emerging business opportunities for Indian agriculture and agro exports, understand issues in production and marketing of agro products for exports, develop an understanding about export-import procedures and documentation, understand the International trade logistics and SCM for agriculture, institutional framework for promotion



of agro exports at Central and State level and analyze the implementation issues with reference to various

WTO agreements affecting agricultural exports from India and defining the role of State Governments. The Programme was funded by Department of Agriculture and Co-operation, Ministry of Agriculture, Govt. of India with technical support from Indian Institute of Foreign Trade (IIFT), New Delhi.

7. Workshops and Seminars

Leadership for Transition to NAIS

In order to explore the concept of leadership and the ways in which leadership is being exercised in the present to develop personal effectiveness and

Feedback on Programmes Organized by the Academy during 2011-12

Programme	Feedback
Foundation Course for Agricultural Research Service (FOCARS)	<ul style="list-style-type: none"> • Overall content and organization of the course was very good and useful • Course is useful and informative • Field experience training is very good • Good opportunity for learning new skills • The probationers may be encouraged to write proposal documents while at NAARM and these should be sent to the respective places of posting. • Frontier areas of research and ethics and values highlighted are immensely useful. • More time may be allotted to statistical software for data analysis. • More time on electives may be allotted • More practicals needed. • Guest faculty involvement needs a re-look. Outstanding people who are role models need to be invited. This could include some management experts outside ICAR. • More interaction with farmers associations, NGOs and private sector may be included
Senior Level Programmes	<ul style="list-style-type: none"> • Content and training material were good • Acquisition of new knowledge and skills was facilitated • Both academic and infrastructure facilities provided by NAARM were good • Good exposure to different areas was interactive, informative and interesting • Supply of relevant computer software to the trainees for their use in back-home situation. • Case study exercise to be included • More hands on experience needed • Opportunities to be given to participants for making presentation of their case studies • More training resource materials may be provided
Workshops / Conferences	<ul style="list-style-type: none"> • Provides an excellent forum for sharing information on topical issues • Theme ideas are to be identified based on needs analysis, which change rapidly • Need for the selection of good resource persons. • Structured presentation by participants as case studies need to be included • Case studies for Indian context and success stories need to be incorporated.

Details of Workshops and Seminars Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Programme Director(s)
1	Leadership for Transition to NAIS (Sponsored under L&CB project of NAIP)	July 1-6, 2011	24	P. Manikandan R.V.S. Rao
2	Leadership Effectiveness and Performance Enhancement in NARS (Sponsored under L&CB project of NAIP)	July 29-30, 2011	26	R.V.S. Rao P. Manikandan
3	National Workshop on Public Private Partnership in Agriculture – Challenges and Opportunities (Sponsored under L&CB project of NAIP)	September 19-20, 2011	46	G.P. Reddy K.H. Rao
4	Policy and Prioritization, Monitoring and Evaluation (PME) Support to consortia based Research Projects in Agriculture (Sponsored under L&CB project of NAIP)	September 22-27, 2011	21	Bharat S. Sontakki G.P. Reddy
5	National Mega Meet on Technology Commercialization (organized by AKC)	September 29–October 1, 2011	47	D.S.K. Rao D. Rama Rao
6	Workshop-cum-Installation Training of Nodal Officers on Strengthening Statistical Computing for NARS	November 15-16, 2011	27	M.N. Reddy A. Dhandapani
7	Innovations for Industry Meet in Crop Science	November 19, 2011	148	R. Kalpana Sastry
8	25th Annual Conference of Indian Society of Agricultural Marketing	November 22-24, 2011	110	G.P. Reddy
9	One-day Workshop on Web based System for Half-yearly Progress Monitoring of Scientists of ICAR	February 13, 2012	32	K. Srinivas P.D. Sreekanth
10	Workshop on Management of Stress	February 14-16, 2012	13	A. Debnath
11	Policy Workshop on Training Transfer at NARS (Sponsored under L&CB project of NAIP)	March 27-28, 2012	15	R. Venkattakumar Bharat S. Sontakki

leadership actions for the future to adapt ideas of leadership for successful management of change and innovation, a workshop on Leadership for Transition to NAIS was organized under NAIP. The workshop consisted of a blend of lectures, self-exploration exercises, case analyses, experiential learning and group discussion. It provided excellent opportunities for mutual interaction and information and experience sharing among the participants.



Workshop on Leadership Effectiveness and Performance Enhancement in NARS

A workshop on Leadership Effectiveness and Performance Enhancement in NARS was organized under NAIP from July 29 to 30, 2011 to sensitize on the issues of leadership effectiveness, to synthesize the experiences on successful Leadership and to evolve an action plan for employing effective leadership skills and strategic management in NARS. Major recommendations brought out during the project workshop on issues like i) What are the ways to improve leadership effectiveness in NARS? ii) Case studies of effective leadership in NARS iii) different indicators of leadership effectiveness as observed in an organization iv) different factors affecting both positively and negatively on leadership effectiveness in your organization v) ways to performance enhancement in Agricultural Research, vi) different indicators of performance enhancement in agricultural research as observed in an organization, etc.

National Workshop on Public-Private Partnership in Agriculture – Challenges and Opportunities

A National Workshop on “Public-Private Partnership in Agriculture – Challenges and Opportunities” was organized with objectives to document successful PPP models and institutional arrangements in agriculture and policy options for extending their application to other promising areas, to explore opportunities for PPP in areas of research, education, extension and agribusiness, to understand the PPP process and methods to reduce negative perceptions and to foster better understanding of potential partnerships and to develop a roadmap to up-scale and replicate successful PPP models in agriculture. The workshop provided an excellent opportunity to discuss how the role of public private partnerships in food and agriculture can expand and sustain to improve the reach, effectiveness, and efficiency of agricultural growth and development.



Policy and Prioritization, Monitoring and Evaluation (PME) Support to Consortia-based Research in Agriculture

Policy and Prioritization, Monitoring and Evaluation (PME) efforts are critical issues in management of agricultural research and development (R & D) in times of fiscal constraint. An MDP Workshop on Policy and Prioritization, Monitoring and Evaluation (PME) Support to Consortia-based Research in Agriculture was organized to orient the participants to the concepts of PME in agricultural R&D, equip them with major techniques of PME in different areas of agricultural research and development, discuss empirical studies and to synthesize experiences in application of PME techniques and bring together the viewpoints of researcher, administrator and donor to make PME effective and rewarding. The Programme provided an excellent opportunity to know theoretical logic and empirical application of various PME techniques and their analysis along with discussion on emerging issues to senior-level scientists involved in PME activities of approved NAIP consortia projects and In-charges of PME cells of ICAR institutes and SAUs who took part in the programme.



National Meet on Technology Commercialization

There is a renewed thrust to link research with innovation and embed research in wider partnerships with industry and civil society to establish an effective invention-innovation continuum. It is however observed that though patents are being filed and obtained, the percentage of patents that are being successfully commercialized are not even five per cent of the total number of patents. There is an urgent need to strengthen this important aspect of innovation-invention to reap the benefits by enabling

successful commercialization. Hence, a National Meet on Technology Commercialization was organized to showcase up to 100 patents/technologies and assess their commercial viability, understand and document challenges faced with respect to technology commercialization, choose five most promising technologies out of the presented technologies for commercialization, form a 'working group' of technology commercialization specialists to take forward the chosen five most promising technologies and to formulate a strategy policy paper on 'technology commercialization'.

In the meet around 100 patent holders and another 100 captains of industry, investors and technology commercialization experts reviewed all the patents and chose five most promising technologies for commercialization. A working group on 'Technology Commercialization' was also formed to handhold the most promising five technologies to successful commercialization, and lay a path for future technology commercialization initiatives in the country. This meet was organized by Agribusiness Knowledge Centre (AKC) in association with Gyantech Information Systems.

Workshop-cum-Installation Training of Nodal Officers on Strengthening Statistical Computing for NARS

A Workshop-cum-Installation Training of Nodal Officers on Strengthening Statistical Computing for NARS was organized at the Academy to provide hands-on training on installation and usage of SAS 9.3 to the 28 nodal officers of ICAR institutes and SAUs.

Innovations for Industry Meet in Crop Science

To provide an opportunity for the private sector to witness a wide range of knowledge-based



and entrepreneur-ready technologies, the Zonal Technology Management - Business Planning and Development (ZTM-BPD) Unit, South Zone, Cochin (ICAR) in collaboration with NAARM has organized "Innovations 4 Industry Meet in Crop Science" at NAARM. The meet was organized as a part of the business incubation drive designed for the agricultural sector to promote entrepreneurs with the help of latest R&D facilities and vast knowledge available with the Indian Council of Agricultural Research (ICAR). Dr Swapan Kumar Dutta, Deputy Director General, Crop Science Division of ICAR, New Delhi was the Chief Guest whereas Dr Bangali Baboo, National Director, NAIP was the Guest of Honour on the inaugural session.

A technology brochure titled "Innovations – A Technology Showcase in Crop Science" and a Video Film on "Crop Science Innovations" were released on the occasion. The event brought together innovators and entrepreneurs from the field of agriculture especially crop sciences on a common platform through exhibition, panel discussions and interactions. The exhibition showcased the latest technologies generated by public sector crop science organizations under ICAR like Directorate of Oilseeds Research (DOR), Directorate of Sorghum Research (DSR), Directorate of Rice Research (DRR) and Central Research Institute for Dryland Agriculture (CRIDA) from Hyderabad along with Central Tobacco Research Institute (CTRI), Rajahmundry and National Bureau of Agriculturally Important Insects (NBAIL), Bengaluru and Sugarcane Breeding Institute (SBI), Coimbatore.



Annual Conference of Indian Society of Agricultural Marketing

"There is a need to revisit the subsidy regime for a number of reasons, including the pressure it exerts on food inflation", said RBI Governor D. Subba Rao, during the inaugural function of three-day 25th

Annual Conference of Indian Society of Agricultural Marketing (ISAM) organized at the Academy on November 22, 2011.

In his presidential address on “The Challenge of Food Inflation”, he said that persistent and elevated food inflation over the last few years has emerged as a major policy concern, especially as it could potentially threaten our collective aspiration for a higher inclusive and sustainable growth. Dr Abhijit Sen, Member,



Planning Commission, Govt. of India, who was Chief Guest on the occasion, said the Planning Commission has decided that ICAR and other players in National Agricultural Research System must deliver viable technological solutions by the end of the 12th plan and clear-cut goals and deliverables for the 13th Plan. Prof. Ch. Hanumantha Rao, Guest of Honour on the occasion, expressed that infrastructure like marketing requirements have assumed special importance in the context of increased diversification uncertainties. Prof. R. Radhakrishna, President, ISAM, briefed about the key objectives of the conference, i.e., how market information is important and crucial for agricultural development, role of public private partnership in agribusiness and the role of agricultural marketing in food security. Books titled “Agribusiness Potential of Maharashtra” and “Agribusiness Potential of Gujarat” was released on the occasion. Technical sessions were



organized under three thematic areas i.e., significance of market information for agricultural development; role of agricultural marketing in food security and public-private partnership in agribusiness. The conference was attended by 74 delegates representing as members of Indian Society of Agricultural Marketing.

Workshop on Web-based System for Half-yearly Progress Monitoring of the Scientists of ICAR

To implement Dr P.L. Gautam’s Committee recommendations on Half-Yearly Progress Monitoring (HYPM) of the Scientists in ICAR, a web based software has been designed and developed at IASRI, New Delhi with a view to ensure more objective evaluation of the half yearly performance monitoring of Scientists in ICAR. To maintain reliable and effective implementation of HYPM, it has been integrated with Personnel Management Information System Network for ICAR (PERMISNET) and Project Management System of ICAR (PIMS-ICAR) for visibility of ARS Scientists of all ICAR institutes and their respective ongoing research projects. To impart training on HYPM management, a workshop on Web-based System for Half-yearly Progress Monitoring of the Scientists of ICAR was organized on February 13, 2012 at the Academy. All the aspects pertaining to HYPM management were covered during this workshop.

Workshop on Management of Stress

A workshop on Management of Stress was organized at the Academy from February 14 to 16, 2012 with objectives to develop in-depth understanding of the forces causing stress and its effects – physical, social and organizational, to understand the mechanism of occurrence of various stress related disorders – cardiac, hypertension, diabetes and other psycho-somatic diseases and to develop constructive means for coping



up with distress and achieve productive and enriched life-style.

Policy Workshop on Training Transfer in NARS

“Training transfer” is effective application of knowledge, skills and attitude (KSA) gained by the participants of the capacity building Programme during training back at the job environment over a period of time. NAARM being a capacity building organization has the responsibility to address the ‘training transfer in NARS’ of KSA pertaining to its capacity building programmes. Hence, a two days NAIP-Sponsored policy workshop on “Training transfer in NARS” was organized at NAARM during March 27-28, 2012. The purpose of the workshop was to present the results of the project on “Training transfer in NARS” for peer validation and to gather the expectation and strategies of the delegates to achieve effective ‘training transfer’ in NARS. Delegates from ICAR organizations and representatives from training organizations participated in this workshop. There were presentations on theme by learned speakers like Dr B. R Virmani, Director CORD-M and Dr R. K Samanta, Former Vice-Chancellor, BCKV, Kalyani. The detailed deliberations during the workshop led to pragmatic recommendations relevant to stakeholders of NARS.



Details of Off-Campus Training Programmes Organized during 2011-12

Sl. No.	Title	Duration	No. of Participants	Course Director
1	Specialized short-term Training for Improving Efficiency of Technical Personnel of CAZRI, Jodhpur	October 17-20, 2011	25	P. Manikandan
2	Training Programme on Data Analysis using SAS	February 13-18, 2012	24	A. Dhandapani

8. Off-Campus Training Programmes

Improving Efficiency of Technical Personnel of CAZRI

Based on the request received from the Director, CAZRI, Jodhpur, an off-campus, specialized short-term training Programme for improving efficiency of technical personnel of CAZRI was organized from October 17-20, 2011. The major objective of this programme was to provide opportunities for technical personnel to understand the importance of human relations at work and to develop appropriate skills with a view to enhance their efficiency and effectiveness. The programme provided opportunity for the participants to get exposed to various issues related to human skills that would have a profound effect on their performance in the time to come. The understanding and the learning of these important issues were brought out through experiential approach involving exercises, games, self-exploration, and other interactive approaches. Dr P. Manikandan, Head, Division of HRM, was the Director of this Programme which had benefited 25 senior-level technical personnel of CAZRI.

Data Analysis Using SAS

Training programme on Data Analysis Using SAS was organized to impart training to the participants on the use of SAS for different statistical analyses such as design of experiments, regression, time series analysis, multi-varied techniques, non-linear and statistical genetics, etc. The faculty members of college of agriculture, Tirupati got benefited through this programme.

NAARM

Annual Report 2011-12

Research

Research

The Academy receives significant support for research from ICAR and other agencies through both direct and competitive grants. The research programmes are broadly organized in the following five areas.

- Agricultural science and technology policy
- Accelerating agricultural innovations through ICTs

and institutional change

- Organization and management for strengthening agricultural research
- Agri-marketing and value chain management
- Governance and institutional arrangements in areas of topical issues

Research Projects in Operation During 2011-12

#	Title	Project Team	Funding
Agricultural Science and Technology Policy			
1.	Assessment of Developments in Nanotechnology for Agricultural R&D	R. Kalpana Sastry N.H. Rao	NAIP
2.	Knowledge Discovery and Knowledge Management Tools to Characterize Livelihoods Systems	N.H. Rao	NAIP
Accelerating Agricultural Innovations through ICTs and Institutional Change			
3.	Training Needs and Impact Assessment of L& CB	B.S. Sontakki K.H. Rao G.P. Reddy R.Venkattakumar	NAIP
4.	Strategies to Promote Use of ICTs in Agricultural Value Chains	D. Rama Rao	NAIP
5.	IT-based Decision Support System for Effective Knowledge and Technology Transfer	G.R.K. Murthy K.M. Reddy	NAIP
6.	Empowering Rural Women through Information and Communication Technologies (ICTs)	N. Sandhya Shenoy V.K.J. Rao	NAIP
7.	Digital Multimedia for Agri-innovation Transfer (DMAT)	K.M. Reddy V.K.J. Rao G.R.K. Murthy	NAIP
8.	Digitally Enabled Customization of Information for Decision and Empowerment	V.K.J. Rao N. Sandhya Shenoy K.M. Reddy	NAIP
9.	Technology Delivery Models for Less Favoured Areas	B.S. Sontakki R. Venkattakumar	NAIP
10.	Strengthening Statistical Computing for NARS	A. Dhandapani G.P. Reddy	NAIP
11.	Analysis of Emerging Institutional Arrangements for Providing Broad-based Services to Farming Community-Agricultural Clinics and Agribusiness Centres (ACABC)	R. Venkattakumar B.S. Sontakki P. Manikandan Rasheed Sulaiman P. Chandrashekara	Institute

Organization and Management for Strengthening Agricultural Research			
12.	Assessment of Future Human Capital Requirements in Agriculture	D. Rama Rao S.K. Nanda	NAIP
13.	Technological Forecasting and Assessment of Future of Fly Ash in India	D. Rama Rao S.K. Nanda K. Kareemulla	DST
14.	Change Management for Promoting Innovation	P. Manikandan R.V.S. Rao	NAIP
15.	Leadership Effectiveness for Promoting Innovation	R.V.S. Rao P. Manikandan	NAIP
16.	Performance Enhancement for Promoting Innovation	R.V.S. Rao P. Manikandan	NAIP
17.	Assessment and Development of Organizational Citizenship Behavior for promoting Efficiency and effectiveness in NARS	K.H. Rao B.S. Sontakki R.V.S. Rao G.P. Reddy	NAIP
18.	Procedures for Total Quality Management in Multi-stakeholder and Multi-institutional Consortia-based Research Project	S.K. Nanda B.S. Sontakki	NAIP
19.	Assessing Training Transfer in National Agricultural Research System	R. Venkattakumar B.S. Sontakki P. Manikandan A. Dhandapani	Institute
Agri-marketing and Value Chain Management			
20.	Policy Support for Strengthening the Value Chain to Address the Challenges of Globalization	G.P. Reddy N.H. Rao M.N. Reddy K.H. Rao	NAIP
21.	Export Potential of Fruits and Vegetables of India in Asian Countries: Issues, Priorities and Policy Concerns	D. Babu Ranjit Kumar, AnantaSarkar P.C.Meena	Institute
22.	Decision Support System for Optimizing Returns from Perishable Commodities	G.R.K. Murthy K.M. Reddy	Institute
23.	Value Chains of High Value Crops (HVC) in Economically Backward Region: Efficiency, Institutions and Policy Environment	Ranjit Kumar P.C. Meena Ananta Sarkar	Institute
24.	Impact of Commodity Future on Spot Price and Risk Management in High Value Commodities	P.C. Meena Ranjit Kumar Ananta Sarkar D. Babu	Institute
Governance and Institutional Arrangements in Areas of Topical Issues			
25.	Intellectual Property Management in Public Private Partnerships - Patents, PVP and Copyrights	R. Kalpana Sastry S.K. Soam Jyothi Badri	NAIP
26.	IP Management in Public Private Partnerships - Agro-biodiversity, Geographical Indications and Traditional Knowledge	S.K. Soam R. Kalpana Sastry	NAIP

27.	IP Management and Transfer/Commercialization of Agricultural Technology Scheme	R. Kalpana Sastry Jyothi Badri	NAIP
28.	Prioritization and Socio-economic Impact of Agriculture Research and Development	K. Srinivas Ranjit Kumar P.C. Meena	Institute
Emeritus Scientist Scheme			
29.	Intellectual Property Landscaping Studies of Veterinary Immunobiologicals: Technology Assessment through different Informational Sources	J.R. Rao M.S. Pavani	ICAR
Post-doctoral Research Project			
30.	Assessment of Research Priorities for Crop Sector in Bangladesh	Paresh Golder (Bangladesh) R. Kalpana Sastry K. Srinivas	Bangladesh Agricultural Research Council

Agricultural Science and Technology Policy

1. Assessment of Developments in Nanotechnology for Agricultural R&D

Objectives

- To develop a more coherent systems approach for planning technology development and implementation across the agricultural supply chains
- To assess where innovation can contribute to competitive advantage

Progress

The specially designed database model was used to organize information from R&D indicators in nanotechnology (NT). Knowledge mapping concepts were applied and two case studies were developed. Major outputs from work include development of assessment of nanotechnology for agri-biotechnologies and water. All these can be useful in preparation of road map for policy in use of NT in agriculture. Major outcome has been recognition at several platforms at both national and international levels during the year 2011-12 and extending the knowledge domain to several institutions of NARS and outside NARS for initiating research studies in key areas. This has resulted in several early stage R&D projects being initiated by several institutes. The data analysis also reveals the need to undertake more

research studies on ethical, environmental and risk assessment of nanotechnology in agriculture before the technologies can be released or applied.

2. Knowledge Discovery and Knowledge Management Tools to Characterize Livelihoods Systems

Objectives

- To identify spatial data mining tools and knowledge discovery methodologies
- To develop and analyze spatial databases using data mining tools to assess spatial relationships in order to characterize livelihood systems at different spatial scales for vulnerability and adaptive capacity
- To develop a statistically valid index for assessing vulnerability of livelihoods systems

Progress

The Sustainable Rural Livelihoods (SRL) framework developed by DFID was used to characterize the livelihood system by five types of capital: natural, social, physical, financial and human capital. Open source data mining tools like WEKA and GeoDA were used together with commonly available development data from district handbooks, to develop an objective method to characterize the vulnerability of livelihood systems

by cluster analysis and identify homogenous vulnerability regions and ‘hotspots’. Data of 59 contiguous mandals of Nalgonda district in Andhra Pradesh on 23 livelihood attributes classified into five capitals was analyzed using the Expectation Maximization algorithm. Based on this analysis, a vulnerability index was derived to rank and map different clusters according to the degree of vulnerability (Table 2.1). The Vulnerability Index mapped into two clusters (Fig 2.1).

The spatial autocorrelations for the 23 livelihood attributes of 59 mandals in Nalgonda district was assessed using the following Moran’s global index of spatial association I or I statistic:

where N is the number of spatial units indexed by i and j; X is the variable of interest; \bar{x} is the mean

$$I = \frac{n}{\sum \sum w_{ij}} \frac{\sum \sum w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{\sum (x_i - \bar{x})^2}$$

of X; and w_{ij} is a matrix of spatial weights. If $I > 0$, spatial autocorrelation is positive and if $I < 0$, spatial autocorrelation is negative.

Spatial association of any unit (mandal) with neighboring units is assessed by the Local Indicator

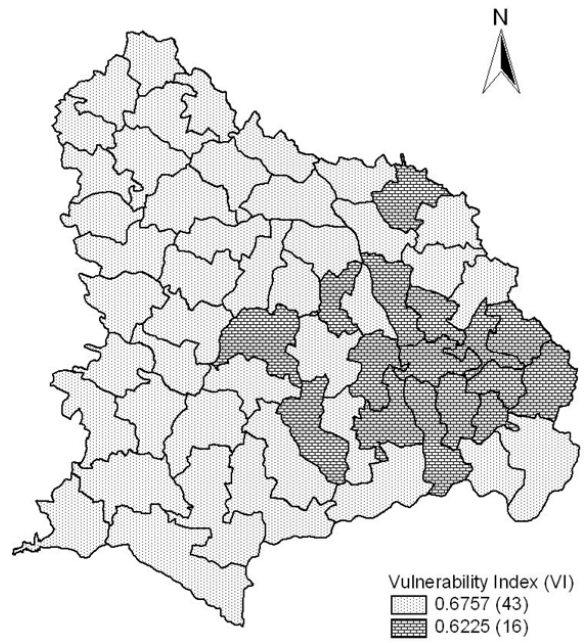


Fig 2.1. Cluster Results Showing the Spatial Distribution of Vulnerability Index (VI¹) for 23 Attributes of Nalgonda District – 2009.

of Spatial Association (LISA) or Local Moran’s I which is estimated as:

$$I_i = z_i \sum_j^n w_{ij} z_j$$

Table 2.1. Cluster Summary Statistics of Mean and Standard Deviation of Vulnerability Index (VI¹).

Attributes	Cluster 1		Cluster 2	
	Mean	SD	Mean	SD
Density of population (per sq. ms)	0.7749	0.1025	0.5291	0.2463
Total Literates	0.396	0.1679	0.5691	0.1774
Total Workers	0.3064	0.1761	0.2357	0.127
Normal Annual Rainfall	0.4871	0.2376	0.699	0.1524
Permanent Pastures and other grazing lands	0.2914	0.266	0.1625	0.1482
Cultivable waste	0.8532	0.2083	0.912	0.0711
Net area	0.4435	0.2234	0.7292	0.1138
Area sown more than once	0.1224	0.1071	0.303	0.3109
Total Food Crops	0.1451	0.1008	0.5109	0.2303
Area under Oil seeds (cotton, groundnut, castor, sesamum)	0.5609	0.2327	0.2082	0.1826
Manual Operated Equipments	0.0645	0.1815	0.0184	0.0259
Animal Operated Equipments	0.3951	0.2389	0.2164	0.0958
Power Operated Equipments	0.1854	0.1866	0.3752	0.2277
No. of Irrigated Sources	0.4557	0.1957	0.3351	0.2237
Actual Area Irrigated (Both seasons)	0.2565	0.1973	0.2027	0.1134

Hospitals/VPC/Office (Units)	0.0325	0.0855	0.1635	0.2477
Total (Cattle & Buffalo)	0.3488	0.1937	0.6761	0.2007
Total (Sheep & Goat)	0.3105	0.1827	0.277	0.1047
Total Poultry	0.0623	0.1649	0.0919	0.1799
Small Scale Industries(Units)	0.0658	0.1097	0.2633	0.355
Rural Banks	0.4493	0.2017	0.4592	0.2609
Co-Op Banks.	0.1509	0.2295	0.3457	0.2912
Villages Having adequate drinking water facility	0.3014	0.1347	0.3999	0.2148
			Log likelihood: 7.59139	
Vulnerability Index (VI)	0.3243		0.3775	
VI'=1-VI	0.6757		0.6225	

The cluster maps were generated using the GeoDa software for all the 23 attributes. The results for key attributes are given in given in Fig. 2.2 and 2.3.

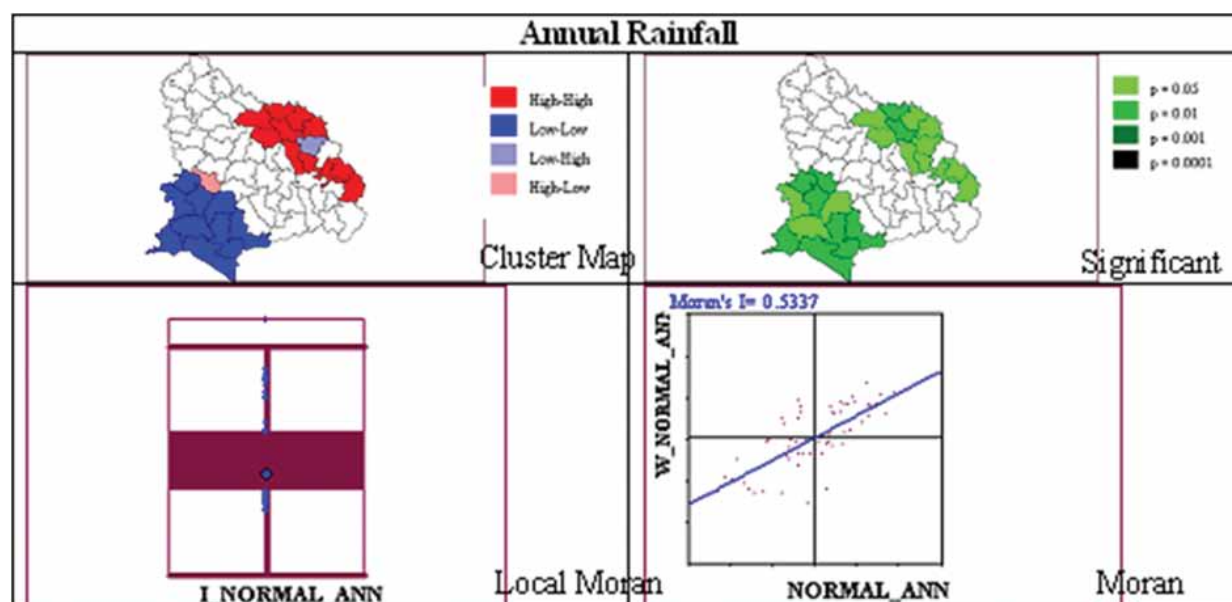


Fig 2.2. Results of LISA (Local Indicators of Spatial Association) for the Attribute 'Annual Rainfall'.

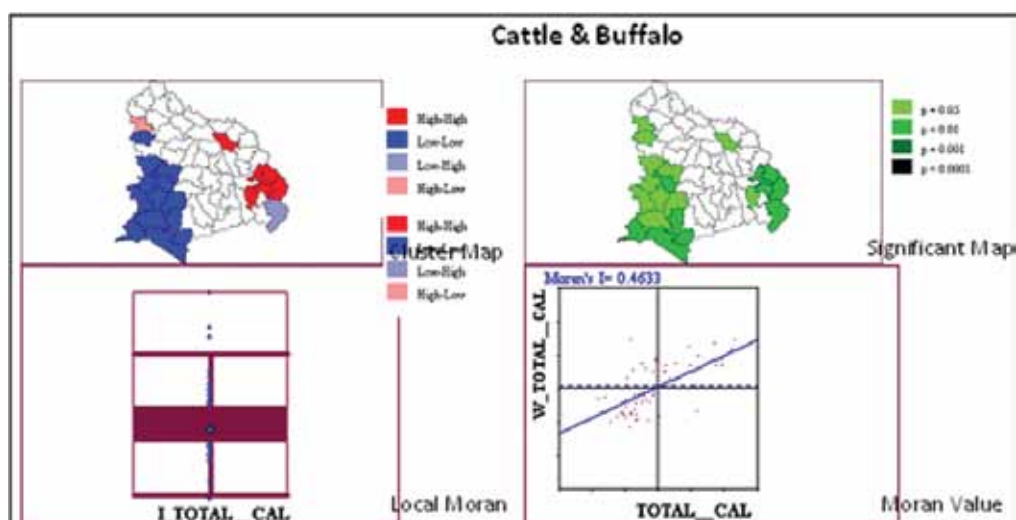


Fig 2.3. Results of LISA (Local Indicators of Spatial Association) for the Attribute 'Cattle and buffalo'.

Similar results of LISA have been derived for all the 23 variables, which indicate statistically significant spatial autocorrelations among several variables. This has implications for identifying 'hot spots' with respect to vulnerability resulting from different types of external stresses which can enable more effective targeting and prioritization of investments in these regions.

Accelerating Agricultural Innovations through ICTs and Institutional Change

3. Training Needs and Impact Assessment of L&CB under NAIP

Objective

- To develop methodology for training needs and impact assessment of L&CB under NAIP.

Progress

The results on 'end of the programme evaluation' of the seven L&CB programmes done during the year were consistent with trends obtained during previous years with appreciable increase in the programme rating on all the sixteen indicators of

programme design and delivery. The data collected from 118 participants of the seven programs organized by the Academy under L&CB project of NAIP during the year were analyzed using an on-line template specially developed for the purpose. The data were analyzed by working out programme-wise averages for the indicators and the same are summarized in Table 3.1.

A perusal of data in table 3.1 clearly indicates highly encouraging response on all the indicators of early impacts (initial reaction and learning) of L&CB programmes conducted during the year 2011-12. It is worth noting that there were no responses in the poor, average and good categories on any of the indicator studied as evidenced from the score ranges. Further, scores across the indicators ranged from a minimum of 3.80 to a maximum of 4.82. It could also be noticed that the mean score on these indicators ranged from a minimum of 4.15 (adequacy of theory:practical) to a maximum of 4.82 (coordinators skill and support), thereby supporting the observation on impressive results at reaction and learning levels. Interestingly, on impact indicators like content, relevance to needs, overall learning, expectations met, up to date topics, additional knowledge gained, resource material,

Table 3.1. Impact of L&CB Programmes of NAARM during 2011-12

(Number of programmes=6; Number of participants=118)

Impact Indicators	Score Range (Min – Max)	Mean Score
Content	3.95– 4.58	4.25
Coordinators' Skill & Support	4.32 – 4.90	4.82
Relevance to needs	3.90 – 4.59	4.34
Overall learning	3.98 – 4.62	4.41
Program/course in general	3.90 – 4.53	4.29
Expectations met	3.96 – 4.58	4.34
Recommend to others	4.12 – 4.63	4.51
Adequacy of theory:practical	3.76 – 4.28	4.15
Up to date topics	4.12 – 4.58	4.48
Additional knowledge gained	4.18 – 4.60	4.46
Resource material	4.32 – 4.64	4.57
Teaching aids	4.28 – 4.74	4.52
Clarity of speakers' presentations	4.3 – 4.82	4.68
Interaction opportunities	4.48 – 4.88	4.65
Training methodology	4.22 – 4.72	4.68
Use of knowledge & skills gained	4.18 – 4.73	4.52

teaching aids, clarity of speakers' presentations, interaction opportunities, training methodology and utility of knowledge and skills, the mean scores were in the range of 4.25 to 4.68 signifying overall ratings by participants in the range of very good to excellent.

Programme theme-specific results on mean ratings are presented in Table 3.2. Five of the seven thematic

areas recorded mean ratings of 4 and above across indicators while for the other two (PME and PPP) mean rating ranged from a minimum of 3.28 to a maximum of 4.37. These results imply that the themes of PME and PPP are still evolving both in concepts and practice, hence their overall relevance is under-perceived. The immediate transferability of the learning of such programmes is another factor contributing to the observed mean ratings.

Table 3.2. Early Impact of Training Programmes under L&CB Project (2007-08 to 2011-12)

Indicators	Mean Rating out of 5							Overall (TP-43, P-881)
	DWRP (TP-10, P-258)	DSS-GSKM (TP-3, P-48)	DSS-DCDM (TP-9, P-150)	Leadership (TP-6, P-98)	PME (TP-7, P-126)	PPP (TP-3, P-81)	Tech. & Admn. Support (TP-5, P-120)	
Course Content	4.43	4.52	4.02	4.19	3.98	3.78	4.22	4.19
Coordinators' Skill & Support	4.72	4.61	4.22	4.42	4.37	4.34	4.58	4.78
Relevance to Needs	4.52	3.97	3.84	4.18	3.83	3.80	4.09	4.11
Overall Learning	4.31	3.99	3.62	4.27	4.01	3.87	4.21	4.15
Course/ Programme in General	4.35	4.26	3.91	4.22	4.09	3.93	4.12	4.27
Expectations met	4.36	4.20	3.73	4.16	4.03	3.75	4.02	4.12
Recommend to others	4.76	4.57	4.03	4.55	4.12	3.96	4.22	4.38
Adequacy of Theory to Practical	4.09	4.21	3.66	4.13	3.74	3.28	4.00	3.98
Up-to-date Topics	4.49	4.51	4.02	4.18	4.03	3.69	4.14	4.26
Additional knowledge gained	4.45	4.50	4.25	4.19	4.18	3.83	4.33	4.34
Resource Material	4.51	4.85	4.14	4.26	4.17	3.76	4.33	4.29
Teaching Aids	4.58	4.62	4.13	4.36	4.32	3.98	4.30	4.52
Clarity of speakers' presentations	4.55	4.50	4.11	4.44	4.32	3.86	4.44	4.33
Interaction Opportunities	4.59	4.55	4.04	4.61	4.34	4.02	4.39	4.44
Training Methodology	4.52	4.30	4.09	4.18	4.15	3.76	4.31	4.29
Use of Information and Skills gained	4.66	4.28	4.14	4.36	4.04	4.07	4.35	4.31

DWRP	:	Developing Winning Research Proposals in Agriculture
PME	:	Policy and PME Support to Consortium-based Approach to Agricultural Research
PPP	:	Public Private Partnership in Agricultural Research
DSS-GSKM	:	IT-based Decision Support Systems for Geospatial Knowledge Management for Sustainable Rural Livelihoods
DSS-DCDM	:	IT-based Decision Support Systems for Digital Content Development and Management
Leadership	:	Leadership for Transition to NAIS
Tech. & Admn. Support	:	Technical and Administrative Support to Consortium-based Agricultural Research
TP	:	Training Programmes
P	:	Participants

4. Strategies to Promote Use of ICTs in Agricultural Value Chains

Objective

- To assess the role of ICTs and develop a road map on ICTs use in agriculture value chain.

Progress

- A nationwide survey was carried out seeking experiences of 417 rural respondents about the Information and Communication Technologies (ICT) use in their daily lives. The respondents belong to 12 states- Karnataka, Tamil Nadu, Kerala, Andhra Pradesh, West Bengal, Bihar, Rajasthan, Maharashtra, Uttarakhand, Uttar Pradesh, Himachal Pradesh and Haryana.
- Bulk of the respondents had school or higher education and only 10 per cent were illiterate. 77 per cent belong to marginal, small and medium category. Respondents were using ICTs for variety of purposes; the most important are for market, contacting development officials and other farmers. Using ICTs for technologies or crop practices or entertainment were not a high priority. In general, economic reasons outweigh knowledge based purposes.
- The pooled data shows media use has positive correlation with income (with expenses on media). People own various ICT tools as per their need and affordability and the most common being Mobile followed by TV, Radio, Newspaper and Phone. Many people do not own media tools but uses them from other sources and the most common tool for sharing being Newspaper followed by TV, Radio and Phone. Interestingly, mobiles are more personal and less shared.

5. IT-based Decision Support System for Effective Knowledge and Technology Transfer

Objective

- To identify appropriate content management strategies (CMS) for integration into decision support tools for effective knowledge and technology transfer

Progress

Having done the capacity building in e-learning implementation in NARS, a study was taken up on evaluating the e-learning process in a selected organization where e-learning capacity building was provided. E-learning and its effectiveness using various technology-based enhancements were studied.

i) Evaluation of E-Learning Process

A study was made on the extent of use and practice of E-learning methodology among the participants who underwent training in the Academy. The clientele consisted of the faculty teaching veterinary and animal sciences. Some of the salient findings are

- Apart from using MOODLE as a web-interactive platform for their course management activities, mostly used software for content delivery in e-mode are Power point (74.4 %), Flash (18.4 %) and photoshop (11.6 %)
- A proportion of 13 per cent of the teachers use off-campus access of the LMS to manage their courses as and when needed.
- About 42.9 per cent felt that sparing time for this activity is difficult. Among those are not practicing e-learning, about 31.8 percent cited shortage of time as the reason for not implementing e-learning

ii) Evaluation of Learning Effectiveness through Interactive White Board

As a supplement to the e-learning, a study was done on assessing the learning effectiveness through use of modern instructional technology like Interactive White Board. Subjects were chosen from the group of students who attend the course on Business Mathematics of PG Diploma programme. They were exposed to technology enabled learning environment for the entire course of four months duration and their responses were elicited on a pre-structured questionnaire. The details are given in Table 5.1. Some of the salient observations from the study are:

- Good visual effects through Interactive White Board was cited by 94.1 per cent of students as supporting factor to understand the subject.
- Technology enabled systems like Interactive White Board combined with visualiser and e-Learning Compact Discs are found to have instant acceptance among the students.
- While almost half of the class agreed that Interactive White Board was the contributing factor to learning, the other half disagreed mentioning teacher as another contributing factor to make Mathematics interesting.

- A sizeable proportion of 76.4 per cent of students rated the combination of Interactive White Board with Visualiser as the preferred mode of learning. Traditional mode of learning through Black Board was adjudged by only 5.8 per cent as first preference.
- Among the features of Interactive White Board, Annotation of content on slides or any other learning resources viz., videos, websites, animations received maximum acceptance (29.4 per cent) as the top most feature that impressed them.
- Coloured annotations, manual multidirectional scroll feature to move contents on the board, writing with fiber-tip pen and touch-based activation of files elicited equal and good response among the students (11.8 per cent).

6. Empowering Rural Women through Information and Communication Technologies (ICTs)

Objectives

- To assess the ICT readiness of women in agriculture for agriculture information sharing and e business
- To identify ICT strategies for farm women for bridging digital divide and strengthening networking between professional women and rural women

Table 5.1: Responses to Evaluation Statements

S No.	Statements	Responses in (per cent)		
		Agree	Somewhat agree	Disagree
1.	I am impressed with the new IW teaching	100.0	0.0	0.0
2.	The class is interesting because of IW	52.9	23.5	23.5
3.	I can understand what the teacher is teaching me on board because of good visuals/ animations/graphs etc.,	94.1	5.8	0.0
4.	Math class is hard for me even after learning through IW	11.7	11.7	76.4
5.	Learning through whiteboard is better than ordinary LCD projection	100.0	0.0	0.0
6.	My focus on the subject was better while learning through whiteboard	94.1	0.0	5.8
7.	I was so much motivated that I felt like using the board myself	88.2	5.8	5.8
8.	There are too many distractions from the IW sometimes which affect my concentration	11.7	23.5	64.7
9.	Quality of visuals is better than in ordinary LCD projection	82.3	11.7	5.8
10.	IW can be used effectively for any type of subject	94.1	5.8	0.0

Progress

In the process of implementing the integrated ICT model for the project, the gender preferred media were identified while conducting the media research and vernacular agri-content modules were prepared based on participatory need appraisal and prioritization for agriculture information sharing and entrepreneurial development for livelihood improvement.

The information modules were made accessible in information kiosk and also thru internet resulting in designing 'Agri information and e business gateway for Women SHG groups'. To aid in strengthening networking between professional women and women, the dynamic, searchable database on women agriculture professionals in India was updated.

In order to strengthen the traditional knowledge systems and the biodiversity that forms its base and to promote farmwomen from being the consumers of knowledge to the contributors of knowledge, web pages on Indigenous knowledge and biodiversity

were designed as a part of Rural ICTs website designed for farmwomen SHGs.

Strategies for efficient utilization of ICTs for farm women were identified for bridging digital divide as follows:

- Conduct regularised awareness creation campaigns and exposure trainings on ICTs use
- Adopt farm family approach involving farm youth (girls and boys) for training in ICTs and computers for accessing information in agriculture
- Use trained farm youth as unconventional agriculture communication sources
- Encourage development of locally relevant content in local languages by and for women, design content to overcome barriers of literacy
- Engender knowledge networking for information sharing and marketing
- Promote positive use of the internet through capacity building
- Organize ICT capacity building in women's organizations to enhance their capability to transfer knowledge to their target groups
- Encourage ICT industry to develop applications





- for young girls that will promote positive self-development and computer skills
- Integrate ICT services applicable to livelihood activities including agriculture, health, education and e business accessible at convenient time for farm women through community common access points
- Promote awareness of ICTs to rural women through broadcasting media and demonstrate the benefits of ICT in exhibitions and other fora
- Strengthen ICT based network opportunities by building on existing women’s community network
- Encourage the development of partnerships between and among government organisations, NGOs, private sector, corporations, community, academic institutions, and different stakeholders to promote information sharing and entrepreneurship development
- Mobilize resources to invest in ICT for development with specific reference to the advancement of rural women and create ICT user groups

7. Digital Multimedia for Agri-innovation Transfer (DMAT)

Objectives

- To assess the extent of availability, use and need of digital resources in NARS
- To develop comprehensive digital resource management strategy

Progress

Analysis of questionnaires for assessing the extent of availability, use and need of Digital Resources in NARS organizations was completed. Some of the key findings, conclusions and recommendations

- included the following:
- There is a strong need for establishment of Digital Multimedia Resource Centre (DMRCs) across NARS and organizations are ready to share resources
- Organizations’ preparedness in terms of IT infrastructure, trained manpower, policy framework etc., for installing DMRCs is inadequate and needs to be looked into
- Joomla is a suitable CMS for hosting DMRCs
- Identified shareware / freeware can be used for conversion of Digital Media Resources for web based content sharing
- Emphasis has to be laid on use of Window based applications – open source, free and commercial categories of Software

8. Digitally Enabled Customization of Information for Decision and Empowerment

Objectives

- To assess the information requirement for effective decision making among farmers
- To suggest model for developing real-time information system through customizing

Progress

- The information needs to make effective decisions among farmers on thematic areas data was collected on ICT readiness of rural women and suggestions for effective and functional ICTs use to serve farming community strengthen digital media forum-interface between the agricultural professional and farmers for problem–solution matrix. The communication between farmers and agriculture experts can be done through either

face to face interaction or interaction through Information Technology.

- Developed framework of Digital Media Forum (DMF) models for farmers development-Case studies. Impact of the ‘Digital media Forum model’ on the use of customized real time information by farmers in agriculture for problem solving and improvement in quality of life – case study, studied selected successful digital media forum models for farmers in India-case studies through SWOT analysis. For example, CDAC, DRISHTEE, BYRRAJU foundation, ASHWINI centers, etc., developed documentation of good practices on customizing real time information through DMF. Interactive learning objects developed in Flash, eXe Editor, Adobe presenter, Xerte and Adobe Director.

9. Technology Delivery Models for Less Favoured Areas

Objectives

- To study the profile of selected less favoured districts in terms of their agro-ecology, farming/enterprises, demographic features, etc.
- To document technological delivery models in vogue with reference to their relevance and usefulness in less favoured areas
- To evolve appropriate technology delivery models and strategies for less favoured areas.

Progress

The existing technology delivery models in general and producer company model and agri-preneur models in particular were reviewed for their suitability to less favoured areas. Based on the review and field observations, focused interviews with key informants, the following conclusions are

drawn:

- a) Agri-preneurship and producer company models have immense potential as technology delivery models for less favoured areas
- b) Both the models need further in-depth study to identify CSFs for scaling up
- c) Such models need to be promoted by ‘aggressive social marketing’ strategies
- d) While agri-preneurship needs to be promoted aggressively in less favoured areas, the producer company model needs policy and legal support
- e) Experiences of agri-preneurship and producer company models in Maharashtra, Chhattisgarh, Jharkhand, Odisha and Madhya Pradesh support the above observations
- f) Agri-preneurship and producer company models have immense potential as technology delivery models for less favoured areas.

10. Strengthening Statistical Computing for NARS

Objectives

- Strengthen the high end statistical computing environment for scientists in NARS
- Organize training programmes and develop training modules
- Sensitize the scientists in NARS with the statistical computing capabilities available for enhancing their computing and research analytics skills

Progress

Under the project, four training programmes were held and a total of 77 participants were trained in data analysis using SAS (Table 10.1). The new version of SAS 9.3, was distributed in a two-day workshop held at NAARM during 15-16, 2011 and 27 nodal officers of different institutes were the participants.

Table 10.1: List of Training Programmes on “Data Analysis using SAS”

Sl.No	Duration	No. of participants	Course Directors
1.	Aug. 17-23, 2011	26	M.N. Reddy A. Dhandapani
2.	Dec. 14-20, 2011	11	M.N. Reddy A. Dhandapani
3.	Jan. 27 – Feb. 2, 2012	16	A. Dhandapani G.P. Reddy
4.	Feb. 13-18, 2012	24	A. Dhandapani A. Sarkar

i. Tools for easy data analysis

- **Augmented designs**

During the development of new varieties, the experimenters face problem of not having sufficient seed materials for the test materials to conduct replicated trials. In such cases, Augmented designs are used to evaluate the new test materials against the Control or check varieties. The analysis of data obtained from Augmented Designs follow a different procedure unlike the usual randomized block design. To assist the experimenters to analyze the data from Augmented designs, a macro has been developed in SAS and made available. The “Augment” macro can analyze multiple characters from a single experiment done in Augmented design and produce the output in a highly customized report in Rich Text Format (RTF). The features in Augmented macro include ANOVA, treatment means and CV, grand mean etc.

- **Split-split factorial**

Split-Split factorial experiments are conducted where the experimental area within a replication has been divided into Main Plot, Sub Plot and Sub-Sub Plot and the treatments are allocated randomly into these separately. The analysis of such design would involve specifying appropriate error terms for main plot, sub-plot and sub-sub plot treatments so that statistically valid comparisons could be made from such experimental data. To facilitate analysis of such experimental data, a SAS Macro, “Split-Split” has been developed. The macro produces output of ANOVA table, related statistics and two-way, three-way mean tables along with group letters to show which treatment means are at par and which are not.

- **Split-factorial**

A split factorial design is nothing but a usual split plot design but the sub-plot treatment is in factorial structure. The analysis of split factorial experiment involve dividing the sub-plot treatment effect into sub-plot main effects, sub-plot interaction effects and interaction between main plot and the sub-plot treatment effects besides specifying correct error terms to compute F-ratio. A “Split-Factorial” macro has been developed in SAS and the output produced by the macro includes ANOVA tables, mean tables, CD values etc.

ii. Information System for All-India Coordinated Research Projects (AICRPs) of ICAR**Purpose**

- To develop an information system which can facilitates planning of experiments at AICRP
- To maintain information about the experiments at a centralized place
- To allow enter/upload experimental data during the course of experiment (or at the end)
- To carry out appropriate statistical analysis and automate uniform reporting process
- To provide secured access to data for authorized users
- To make information system flexible/generic so that any AICRP may use
- To aim at standardization of data collection and statistical analysis across AICRPs

iii. Components of the proposed system**Authorization system**

Authorization is role based. All the users are allowed to interact with the system based on their successful login into the system using their username and password. The following roles are proposed - (i) Guest user (ii) Registered users (iii) Experimenter (iv) Experiment In charge (v) Group Head (vi) Top Management (vii) Administration

i) Guest users

Guest users are typically at the lowest level in the hierarchy and have access to public domain materials such as final reports, research news, newsletters, press releases etc. No username/password is required for the guest users.

ii) Registered users

Registered users are those who can request for registration and upon acceptance of their request by Admin user can view experimental protocols of present and past information.

iii) Experimenters

First level of authorized users. The users must be from an organization associated with the AICRP, typically from the centres and are in charge of one or more experiments and have access to:

- View/Download experimental protocols
- View/Download Experimental layouts
- Download Experimental Data Entry file
- Upload data file
- data entry
- Analysis of their experimental data (of their own)
- Download reports
- Request for modifying data file
- Communicate with Experiment In-charge/group head etc.

iv) Experiment in-charge

Second level of user and are in-charge of experiment(s), starting from planning to execute to analyzing and reporting. Permitted Roles are:

- All the activities which can be performed by Experimenter
- Create/Update Experiment Layout
- Create/Update Experimental protocols
- Data scrutiny
- Analysis of Data centre-wise/combined etc.
- Finalize Reports
- Report Download
- View MIS reports (such as data received, defaulters, etc.)
- Modify data/Allow data Edits

v) Group head

Third level of user and in addition to the roles/ authorization allowed for experiment I/C users, they can obtain specific datasets for further analysis. Difference between the group head users and experiment I/C is that group head may have many experiment I/Cs looking after different trials (like one for Initial Varietal Trials, Advanced trial, etc.). In some cases, experiment I/C and Group Head may be same person.

vi) Top management

These users have access to view all the analysis reports (draft/final), status of data uploads etc.

vii) Admin users

Admin users have the following roles: create users, assign roles, backup data, create datasets based on requests and maintenance of master tables, fine-tuning applications, maintain websites etc.

The web-interface for creating experiment details has been completed. The interface would allow the persons who are responsible for designing experiments to be carried out in AICRP trails in

NEW EXPERIMENT

Title of the Experiment

Experiment Type: Initial Varital Trial

Crops: Rice, Wheat

Season: Kharif

Experiment Incharge: naarm n, exp incharge

Experiment Group Head: naarm n

Objectives (User Enter to separate objectives)

Locations: All Centres (uncheck to select centres)

N1(NAARM)
N2(NAARM)
N3(NAARM)
S1(PDSR)

Fig.10. 1. Screen-shot of Creating New Experiment

Table 11.1. Critical Success Factors ranked by Successful Agripreneurs (N=87)

Critical Success Factors	RBQ value	Rank
Satisfactory services to the customers	70.0	1
Up-to-date knowledge on latest innovations in the field	60.1	2
Timely introduction of sector innovations	57.6	3
Adequate professional experience in the sector before ACABC	56.9	4
Thorough knowledge about the subject dealt with	56.5	5
Fair relationship with the customers	51.9	6
Maintaining the professional network	50.2	7
Adequate business experience before ACABC	49.3	8
Frequent interaction with related professionals	47.6	9
Unique advertisement strategies	42.1	10
Obtaining adequate training related to the sector	41.5	11
Satisfying your employees	38.6	12
Gradual diversification of services to the related arenas	37.6	13
Creating brand image for services	36.6	14
Mean RBQ	45.7	

different subject matter. A sample screen shot is shown in Figure 10.1.

11. Analysis of Emerging Institutional Arrangement for Providing Broad-based Services to Farming Community-Agricultural Clinics and Agribusiness Centres (ACABC)

Objectives

- To understand the functioning of ACABC,
- To delineate operational challenges in establishing business ventures by the trained agripreneurs,
- To assess the impact of ACABC pertaining to services to the target audience,
- To assess the critical success factors of successful

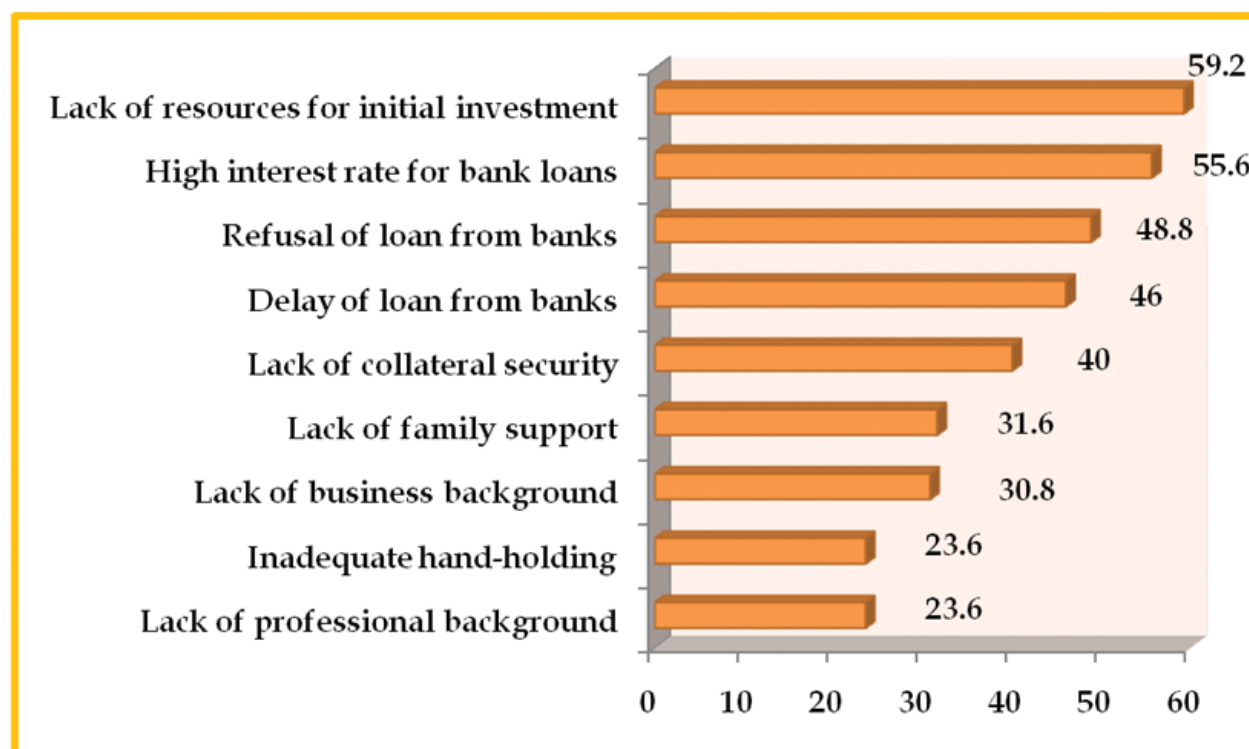


Fig.11.1. The Challenges (%) of Agripreneurs in Establishing ACABCs

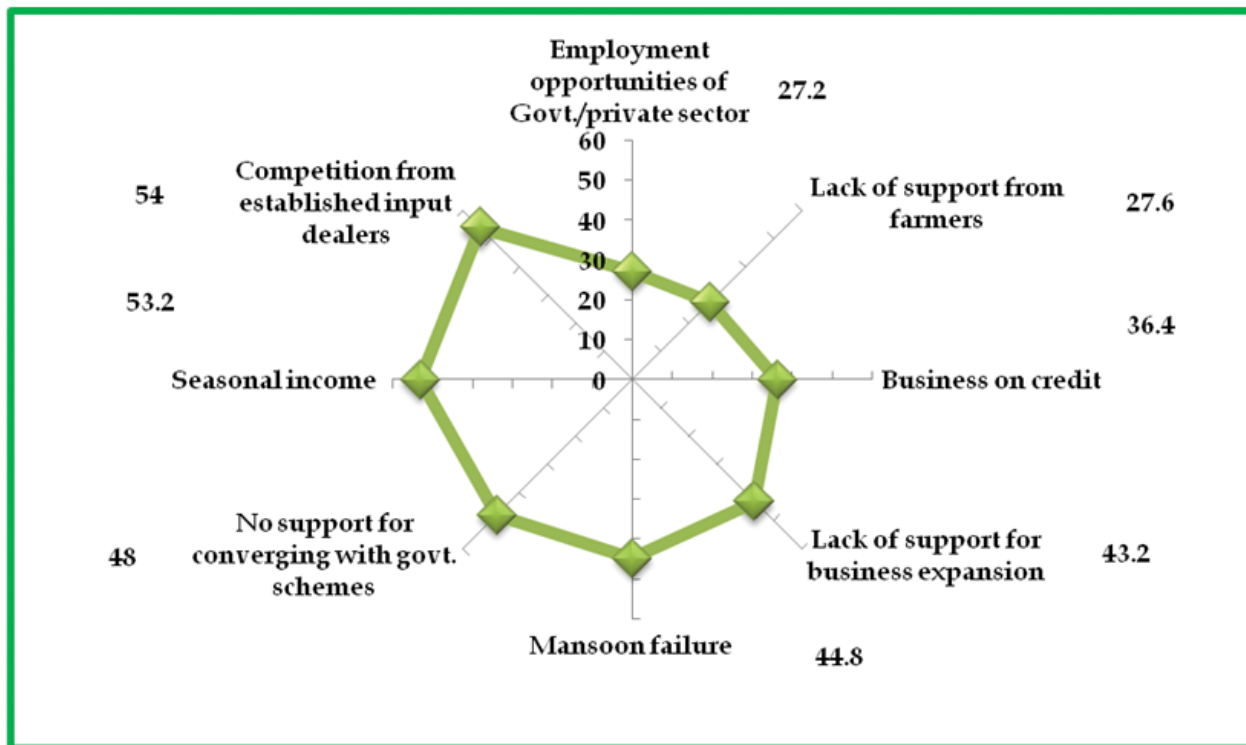


Fig.11.2. The Challenges (%) of Agripreneurs in Sustaining ACABCs

agripreneurs of ACABC scheme and to recommend policy strategies for strengthening ACABC

- diversification of agriculture on skill requirements and
- To evolve prospective human resource development strategies.

Progress

The critical success factors of ACABC were assessed from 100 agripreneurs (Table 11.1). The functioning pattern of ACABC was understood through desk study. Instruments pertaining to assessing the operational challenges in ACABC ventures and impact of ACABC in extending broad-based services were developed. The operational challenges pertaining to establishing (Fig. 11.1) and sustaining (Fig. 11.2) of ACABC were assessed from the participants (250) of refresher course conducted by MANAGE for successful agripreneurs.

Progress

Completed the project work as per the work program and submitted the final report. Project reports are made available online through Academy website. A workshop was organized at NAAS, Delhi to present the findings to officials from NAIP, Education division and other experts. Major findings are summarized below.

Organization and Management for Strengthening Agricultural Research

12. Assessment of Future Human Capital Requirements in Agriculture

Objectives

- To assess the trend in supply-demand of trained human resources in agriculture and allied sectors
- To evaluate institutional set up and the impact of

Supply, demand and gap in trained agricultural human resources: With the demand projections made in the NAARM-IAMR study for the eight sub-sectors (namely crops, horticulture, forestry, veterinary, fishery, dairy, agri-engineering and agri-biotechnology), the required annual outturn for the year 2020 in comparison to the actual supply during 2010 is given in Table 12.1.

- The existing education system is producing about 24,000 graduates per year with crop sciences contributing 2/3rd of it. The projections indicate that by 2020 the annual outturn required would have to be about 54,000. Based on the current

Table 12.1: Required Annual Outturn by Education Level in 2010 (Supply) & 2020 (Demand)

Discipline	UG		PG		PhD		All	
	2010	2020	2010	2020	2010	2020	2010	2020
Crop Science	11852	18659	3514	5422	583	1203	15949	25284
Horticulture	1001	7295	409	993	55	330	1465	8618
Veterinary	1761	5332	797	1854	125	486	2683	7672
Fisheries	285	2096	109	418	30	100	424	2614
Dairy	255	2605	30	503	25	207	310	3315
Agri-Biotech	558	582	156	323	20	134	734	1039
Agri-Engg	1218	2359	262	709	27	189	1507	3256
Forestry	386	1260	275	416	55	156	716	1832
Total	17316	40188	5553	10638	920	2805	23788	53630

supply the demand-supply gap would be 30,000.

- During the last decade, outturn of graduates and above grew at an annual rate of five per cent and in the coming decade it is projected that it has to grow at twice this rate to meet the emerging demand levels. In terms of annual flows from the educational system, the current levels of under-graduate, post-graduate and doctorate output need to be increased by 2.3, 1.9 and 3.0 times respectively.

Some major issues of concern reflected in the NAARM-IAMR study are as under:

- **Expansion in education system:** There is a substantial shortage in the available stock of graduates in agriculture and allied disciplines compared to the requirements to the extent of 10 to 80 per cent. This is true across the board, though the shortfall is high in the case of rapidly growing horticulture, fishery and dairy sectors and less serious in others. This shortage is likely to snowball to a much larger extent unless corrective steps are taken immediately.
- **Containing wastage of educational capacity:** The average outturn from educational institutions is around 50-70 per cent of the sanctioned capacity. The high wastage rates cause undue drain on the educational infrastructure. While excellence in school and entrance test performance may continue to serve as a basis for admission, there may be greater accent on factors like rural background, aptitude for farm work, etc. At the same time, a reorientation of the course structure, such as introduction of dual and integrated degree programmes may be explored to make the courses attractive.
- **Teacher availability:** It has been observed that about 40 per cent of the faculty positions in the agricultural universities have remained vacant for long periods of time leading to deterioration in the quality of education.
- **Increasing demand from private sector:** The private sector today employs about 44 per cent as against 37 per cent in the public sector. The bulk of private industry's requirements are for graduates and diploma holders. Private sector requires, apart from a broad-based general understanding of the subject, soft skills such as communication, management and practical skills in demonstrating the relevance and use of the products sold.
- **Diploma courses:** A far greater effort is needed to promote diploma level education. It can be developed in a three-tier system as is being done in engineering. This is urgent in view of the expressed preference of the private sector for diploma level personnel to handle most of the routine jobs, leaving only management and research functions to the higher level manpower.
- **Support for academic research:** A number of colleges in both public and private sector are keen to initiate research. At present, these colleges are not in a position to access the limited competitive grants available in the country. Graduate research through a special scheme can be initiated as is available in AICTE.
- **India as knowledge centre:** There is a general feeling that the country is not having high standard colleges of international standard except for few ICAR institutes and few departments in agricultural universities. It is time to establish few central

universities with international quality standards providing education from UG to higher levels in all agricultural and allied disciplines.

13. Technological Forecasting and Assessment of Future of Fly Ash in India

Objectives

- To analyze various factors/ components/ variables contributing to the fly ash situation and to forecast fly ash scenario in the country using technological forecasting and assessment methods.
- To develop and assess alternate scenarios on fly ash use in agriculture and evolve prospective development options and provide policy guide lines for strategic planning on fly ash.

Progress

Experts opined that fly ash will be a major source of plant nutrient and it can be used to improve soil texture, reclamation of soils and as micronutrient supplement. Large unproductive waste lands, degraded arable lands and forest lands in the country can be reclaimed with huge amount of fly ash available. The application should be site-specific depending upon the soil characteristics, agro ecology, type of crop to be raised etc. Recommendations to promote fly ash use in agriculture are as under:

- **Recommended quantity and safe dose:** To ensure its long-term availability for agriculture, up to 10 per cent of total quantity produced is recommended to be earmarked for agriculture. Although up to 200 tonnes/ha can be applied, it is recommended to apply up to 20 tonnes in arable lands and 50 tonnes / ha in other soils (waste / degraded/ forest lands) as safe dose for agricultural purposes.
- **Transportation to farms:** As farmers cannot afford its transportation cost from plant site to their field, thermal power plant (TPP) and state/ central government have to take initiative to promote the use of fly ash in agriculture. TPP can absorb cost associated with loading at their ash pond and building necessary infrastructure like connecting road, loading machines, etc. TPPs can meet the cost from the charges they collect from sale of fly ash for other commercial purposes. State or central

governments have to initiate special schemes to subsidize transport cost from ash pond to farm villages.

- **Central schemes:** As fly ash use in agriculture has tremendous employment generation and food production potential, it is recommended to include it in schemes like RKVY, NREGA and other rural development programmes. This is to meet transportation cost from ash pond to farm villages or block level distribution points.
- **Agency to promote fly ash use in agriculture:** The use of fly ash by farmers and payment of subsidy need to be monitored by a separate agency, other than plants and farmers. This will help in judicious use of fly ash and restrict indiscriminate application. Thus, a promotion agency is required to co-ordinate and implement the activities for promoting fly ash use. The structure is to have an independent central agency with state level / TPP specific team for effective monitoring and co-ordination. The team proposed is for each thermal power plant involving officials from Central Agency, Thermal Power Plant, State Department of Agriculture, State Agriculture University and a progressive farmer from the region.
- **Promotion of R&D:** Fly ash application in agriculture and dissemination can be best propagated through R&D centers within agricultural universities and research institutes. Ten per cent of the revenue generated from fly ash commercial sale by TPPs can be mandated for R&D activities. Recommended central agency has to monitor this. Besides, each TPP shall have a demonstration farm for promotion of fly ash utilization in agriculture, which can be established and sustained by the TPP in association with State Dept of Agriculture/ Horticulture/ Forestry.
- **Government notification:** There is need to make use of fly ash mandatory in wasteland development, forestry projects, commercial nurseries and vermin-compost units located within 100 km from TPPs. If government schemes are in place to provide transport of fly ash, then this can be extended up to 250 kms from TPP. Notification to this effect with regulatory power to implement to the proposed nodal agency is recommended.

14. Change Management for Promoting Innovation through Research Consortia

Objective

- To synthesize the experiences of change management and to identify issues for change management.

Progress

The five important areas that need to be addressed for understanding change in agricultural research are managing self and leadership development, facilitation for change, managing research and quality of science, facilitating partnership, and managing teamwork. Facilitating partnership and teamwork and managing research and quality of science were studied during the year under report.

Problems and prospects of inter-institutional collaboration were studied through a case study of an inter-institutional collaborative project involving five institutions covering one ICAR institute (lead institute) in partnership with another ICAR institute, an agricultural university, and two institutions outside NARS, with a total of 10 scientists working in the project. The project team was consciously formed with the following characteristics of the team:

- High level of interdependence among members
- Each member willing to contribute
- A relaxed climate for communication
- Members developing a mutual trust
- Team being clear about goals, establishing a mutually-agreed target
- Member roles being clearly defined
- The team having capacity to create new ideas
- Each member knowing clearly that he/she can influence the agenda

Notwithstanding the fact that a team with mutually dependant members and good cohesiveness was formed carefully, certain difficulties were faced during the execution. The lessons learned during the project would help enhance effectiveness of future inter-institutional collaboration.

Analysis of the information on the publication details of a few ICAR institutes was taken up to infer certain trends and the implications of the

same for focusing on managing research quality and productivity.

15. Leadership Effectiveness for Promoting Innovation

Objectives

- To identify the nature of leadership in research institutions
- To measure the leadership qualities and effectiveness with a view to suggest measures for enhancing leadership effectiveness

Progress

An opinion survey was conducted on leadership effectiveness with 48 respondents who are in the leadership position in the system. The results of the opinion survey are given below.

- With regard to leadership effectiveness, a majority of the respondents felt that major positive points of the leaders in NARS are decentralization of work, co-operative attitude and behaviour, encouraging the staff by giving constructive/positive remarks, frequent feedback collection, enthusiasm, knowledge and farsightedness, dedication, hard work, good analytical capability, and good problem solving skills; However, their abilities can be improved by open-mindedness, courage to face the problem, discussion, and motivation. Major shortcomings in the leaders are lack of energy and enthusiasm due to overload of assignments, poor judgment, resistance to new ideas, sadistic behaviour, not allowing others to come up, discouraging the work, no appreciation, criticizing the work done/others, divide and rule attitude, over-emphasis on hierarchy, low emotional quotient, rigidity, poor listening, aggressiveness, and lack of people enablement skill. The results point out the need to enhance leadership effectiveness in the system.
- A project workshop entitled “Leadership Effectiveness and Performance Enhancement in Agricultural Research” was conducted under NAIP sponsorship during July 29-30, 2011, after circulating the base papers to the participants. Major recommendations on leadership effectiveness brought out during the workshop were compiled. Personal interviews were conducted with selected

leaders in the system on leadership effectiveness with a view to document some of the approaches adopted by them for bringing about success.

16. Performance Enhancement for Promoting Innovation

Objectives

- To identify key drivers that influence performance at the individual, team and organizational levels and
- To identify different ways used by researchers and their superiors to encourage and motivate research scientists to develop and utilize their full potential

Progress

- With regard to performance enhancement, a majority of the respondents felt that the organizational factors are conducive for the performance. Respondents felt that positive reinforcement is a culture in the organization and positive feedback/reinforcement to their subordinates' work is given very frequently. The respondents indicated that the aptitude and skill level of their subordinates are good enough for higher performance, their subordinates understand the task well, they have sufficient freedom to choose tasks for expending their effort, and decision making is decentralized for better performance in their institute. It is also felt that no compensation management mechanisms exist for better performers in the institute and the concept of continuous training and learning is not implemented properly in the organization. Some respondents indicated that their institutes have self-managed teams for better performance and equal numbers of respondents indicated that other factors like administration and other management factors hamper the performance of their subordinates.
- A project workshop entitled "Leadership Effectiveness and Performance Enhancement in Agricultural Research" was conducted under NAIP sponsorship during July 29-30, 2011 after circulating the base papers to the participants. Major recommendations on performance enhancement brought out during the workshop were compiled. Interviews were also conducted with two leaders in Agricultural Research about their views on performance enhancement in NARS and they were compiled.

17. Assessment and Development of Organizational Citizenship Behavior for promoting efficiency and effectiveness in NARS

Objectives

- To identify indicators for Organizational Citizenship Behavior (OCB)
- To develop strategic plan for promoting OCB among scientific personnel working in NARS

Progress

Identification of appropriate strategies to promote organizational citizenship behavior provides a new means to enhance the efficiency and effectiveness of the agricultural research organizations. Elaborate discussions and interactions with the respondents helped us to identify the different indicators and their components and to validate the relationship of the indicators with organizational citizenship behaviour. The primary indicator of organizational citizenship behaviour is observed to be organizational commitment and its level depends on its components viz., continuance, normative and affective commitment. Other indicators identified were i) learning styles and efficiency ii) role perception iii) motivation level iv) personality profile and v) interpersonal behavior. The influence of independent variables such as age, gender, designation, and training undergone on these indicators was also studied. Perception on facilities and resources at work, work load, job autonomy, job satisfaction and organizational climate were found to act as enabling factors for developing organizational citizenship behaviour. OCB was observed to be channelized primarily through organizational commitment and job satisfaction. These were, in turn, influenced by the different components of indicators of OCB such as leadership support, personality / behaviour factors, organizational culture, HRD and capacity building policy, and professional growth.

Based on the observations from extensive survey through questionnaires and personal interview with the randomly selected respondents, the following model (Fig 17.1) has been developed for enhancing OCB among scientific personnel in agricultural research organizations

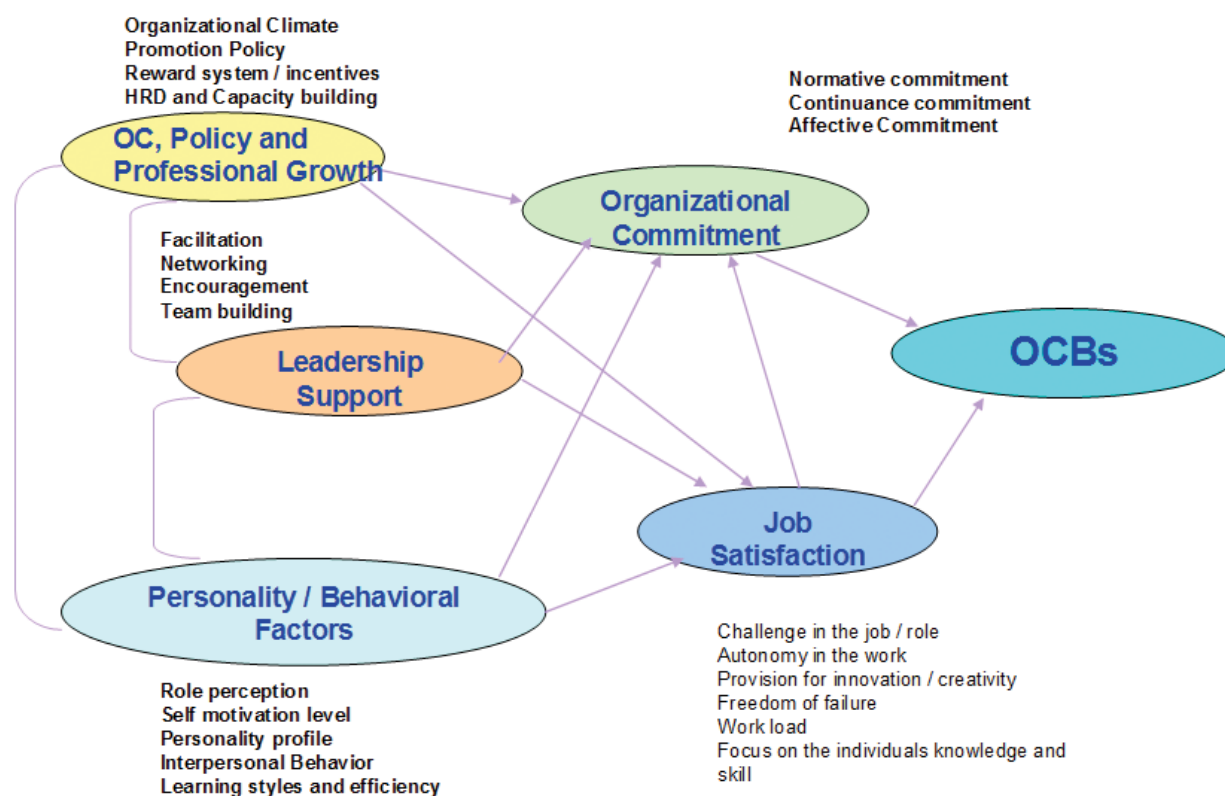


Fig 17.1 Model for Enhancing OCB among the Scientific Personnel in Agricultural Research Organizations

18. Procedures for Total Quality Management in Multi-stakeholder and Multi-institutional Consortia-based Research Project

Objectives

- To develop a rational framework for innovation quality management in agricultural R&D organizations.
- To identify the barriers to agricultural innovation and assess applicability of quality management principles to overcome them.

Progress

The barriers to innovation encountered by agricultural R&D organizations during innovation life cycle and applicability of quality management principles to mitigate their effects were analyzed. The relevance of 55 barriers to innovation, identified from the literature review, were ranked on a 10 point scale by 241 scientists. These relevance ratings of the 55 barriers were subjected to Principal component analysis and finally 21 variable (with factor loading greater than 0.65) were retained for further analysis. The perceived impact

of these 21 barriers in the four different stages of innovations (Ideation, Initiation, Transitional, and Commercialization) was assessed by 34 scientists on a three-point scale. The weighted impact score of these barriers indicating the propensity for obstacle in innovation process are given in table 18.1

Among all barriers identified, the lack of the systematic innovation process seems to be the prime barrier perceived by all respondents followed by high cost perception and lack of failure analysis culture respectively. Applicability of quality management principles for mitigating the impact of these barriers were analyzed from the responses on a three-point scale. Friedman's Test shows that applicability of quality management and its impact on mitigating the influence of innovation barriers is statistically significant.

The identified barriers are closely correlated to innovation process and all can be regarded as having considerable upshot on innovation in R&D organizations, which indicates the need for improvement through systematic and organized quality framework. Executing the quality

Table 18.1: Weighted Impact Score of Barriers on Innovation Cycle

S. No.	Barriers	Weighted Score	S. No.	Barriers	Weighted Score
1.	Lack of a systematic innovation process	2.049	12.	Intellectual Property Rights & Trade related Polices	1.765
2.	High Cost perception	1.990	13.	Weak lab to industry / end-user connections	1.738
3.	Lack of failure analysis culture and research Management	1.902	14.	Lack of in-house expertise and diversified work force	1.738
4.	Poor upfront market intelligence	1.704	15.	Risk and Uncertainty	1.716
5.	Low emphasis on diffusion of innovation	1.835	16.	Blindly copy best practices	1.846
6.	Lack of interdisciplinary approach	1.810	17.	Diversity of the agriculture and macroeconomic conditions	1.703
7.	Inadequate Design and Test in the organizations	1.806	18.	Lack of prioritization in allocating research resources	1.642
8.	Lack of team work and Synergies between departments	1.804	19.	Procedural Delays	1.610
9.	Resistance to Change& its Poor handling	1.793	20.	Legislation & Regulations	1.577
10.	Bureaucracy	1.786	21.	Lack of funds & resources for innovation activities	1.557
11.	Location restrictions between the parties/ Stakeholders	1.771			

management approach to these barriers can mitigate their effect resulting in better performance and sustainable development of innovations.

19. Assessing training transfer in National Agricultural Research system (NARS)

Objectives

- To assess the perception of NARS scientists towards their attributes, training design and delivery of NAARM capacity building programmes and the support of organizational climate towards training transfer
- To measure the contribution of training transfer system domains (learner characteristics, training design and delivery of NAARM and the organizational climate) towards transfer outcomes of NARS scientists
- To recommend strategies for strengthening training transfer system with respect to capacity

development and organizational performance of NARS.

Progress

An instrument was constructed to assess the perception of ICAR scientists pertaining to training transfer with respect to the capacity building programmes attended by them at NAARM, Hyderabad. The instrument was sent to all the ICAR institutes (97) to record the perception from ICAR scientists about the training transfer. It was decided to get the opinion from scientists who underwent capacity building programmes at NAARM other than FOCARS for the period between 2005 and 2009. Response from a total of 110 scientists representing 34 ICAR institutes (about one-third) was received. The response was analyzed for meaningful results and pragmatic implications as strategies for strengthening NAARM capacity building programmes, organizational climate of

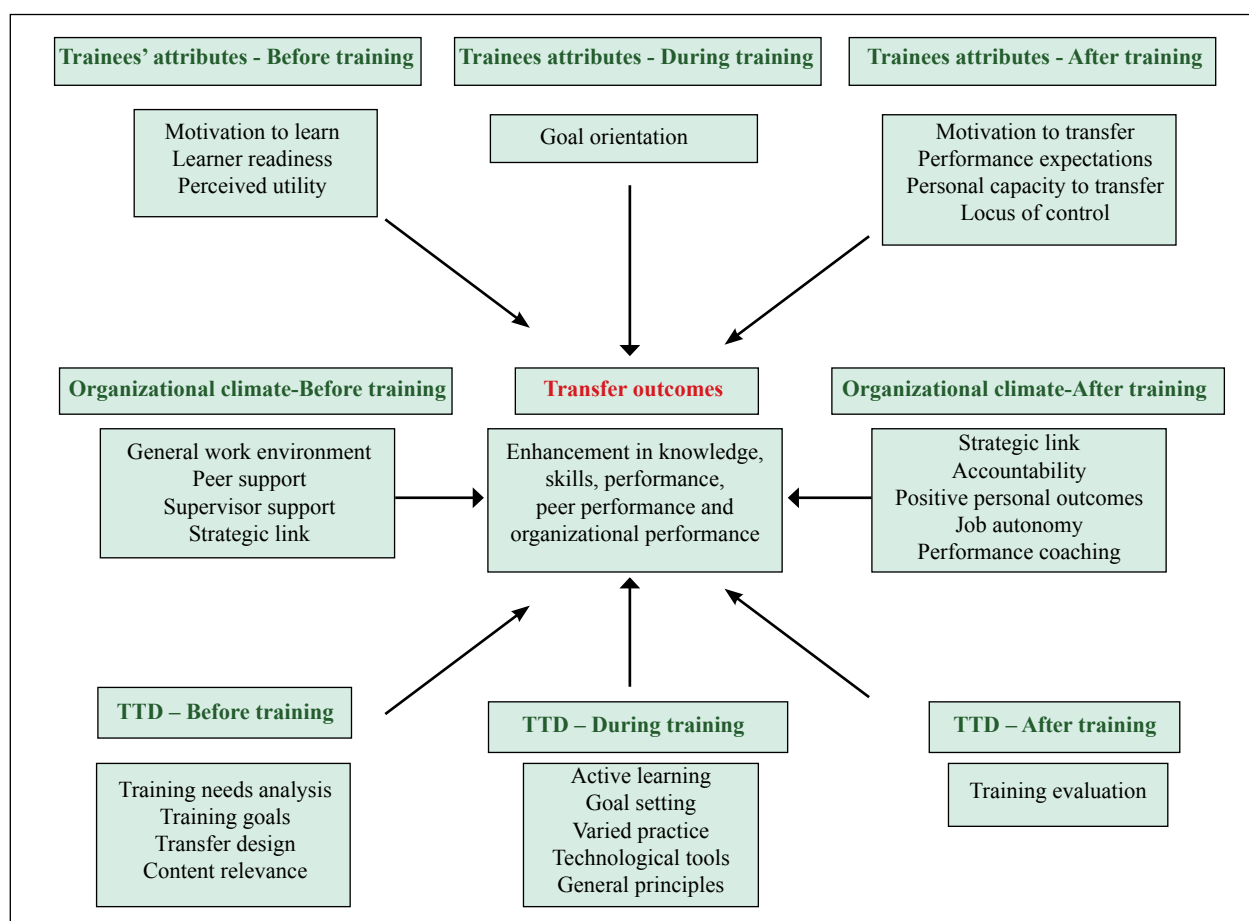


Fig. 19.1 Empirical Model Showing Factors Influencing 'Training Transfer' in NARS

Progress

ICAR organizations to support training transfer and preparation, participation and transfer of KSAs by ICAR scientists pertaining to NAARM capacity building programmes, were suggested through an empirically model validated through the study. The empirical model developed and validated through the study has been given in Fig.19.1. A research workshop was organized during March 27 – 28, 2012 to validate the study results and to decide future line of work.

Agri-marketing and Value Chain Management

20. Policy Support for Strengthening the Value Chain to Address the Challenges of Globalization

Objective

- To identify effective methods and tools for value chain optimization in agricultural supply chain

Food security is achieving reliable access to adequate, affordable and nutritious food supplies sufficient to avoid chronic hunger, crisis hunger and stunted development. The wide range of food security outcomes in India over the past several decades highlights the importance of country context (including geography, economic structure and policy and political factors) in determining the role of food aid and other public sector interventions in enhancing food security.

Market liberalization and increasing consumer demand at international level offer attractive opportunities in the field of agricultural supply chain management in the developing countries. Agricultural food security and Supply chain management are interrelated and will take interdisciplinary as well as whole systems approaches to research on India and global food supply systems, from both a consumer and producer perspective. Food security includes: food production and resource management; food

economics, markets supply chains and trade; food processing, manufacture and distribution systems; food safety and nutrition; consumption habits and practices; and waste in the food system. Thus supply chain management has not only emerged as a field of global importance being beneficial to agricultural stake holders and food security but also generates spin-offs which stimulate socio- economic and environmental sustainable development as well as livelihood security through the generation of employment, value addition, declines of product losses.

Scarcity of resources, climate change, globalization, quality and environmental awareness has stimulated the major structural change in the supply management system. The profound change in the production and operation patterns, product attribute demand, risk reduction, increased purchasing power, globalized production and consumption, technology shift and consolidated food change has presented new challenges and opportunities. It requires new innovations and concepts to analyze and implement food supply system.

The pressures for value chain formation appears to surface for overcoming following shortcomings in the existing supply chain system. In value chain, the value or synergy is created by linking otherwise disparate system through network functionality. Value chain analysis provides important insights into these four issues to account sustainable food production, biodiversity and other ecosystem services overarching challenges of reducing losses and waste throughout the food system.

- Economic resilience – securing a better understanding of how poor economic resilience leads to hunger, poverty and environmental degradation across the globe and how this might be addressed
- Resource efficiency – including water, energy, nutrients and other inputs; land use and soils, with particular focus on the sustainable use of resources; increasing competitiveness, profitability, efficiency and reducing waste
- Sustainable food production and supply – including farming systems, food production from crops and animals (including fish), food processing, manufacture and transport
- Sustainable, healthy, safe diets – including food safety throughout the supply chain, nutrition,

consumer behaviour, food choice and accessibility.

- Based on prior work and taking into account likely future challenges, the NAARM has identified an agenda for research and policy dialogue that addresses one overarching theme successful transitions and drivers of change. Major research themes of Agricultural food security research are:
- Improving food systems performance
- Understanding household income and livelihood dynamics.
- Sustainable increases in productivity.
- Marketing and supply chain efficiency.
- Managing food price and supply instability through marketing and trade policies.

Agricultural value chain management

Agriculture is resurging, largely fuelled by a new understanding that growth in the agricultural sector plays a major role in overall growth and poverty reduction through linkages to manufacturing and services in a supply chain and international trading network framework as well as in connecting the poor along the agri-supply chain to growth. Organization of agriculture along the value-chain framework has been conceived as one of the strategies to bring more efficiency in the agricultural sector. Value chain management has been the cornerstone to success in globalized agricultural food system and remains competitive advantage in the retail/ department store industry. The value chain system is generally regarded as the most efficient and an approach to upgrade existing supply chain management that has long emphasized visibility through the sharing of networks and resources. The value-chain network may be defined as a range of activities that are required to bring a product from its conception, through its designing, sourcing of raw materials and intermediate inputs, marketing and distribution, to the final consumer. There has been an increasing emphasis on the development of efficient agricultural value chains in India and several innovative and successful value chains have emerged.

In generalized form, it can be explained as integration of supply chain and demand chain. Thus, we can say that the Value chain management (VCM) is the integration of information, materials, labour, facilities, logistics, etc. into a time-responsive, capacity-managed result that maximizes economic resources and minimizes

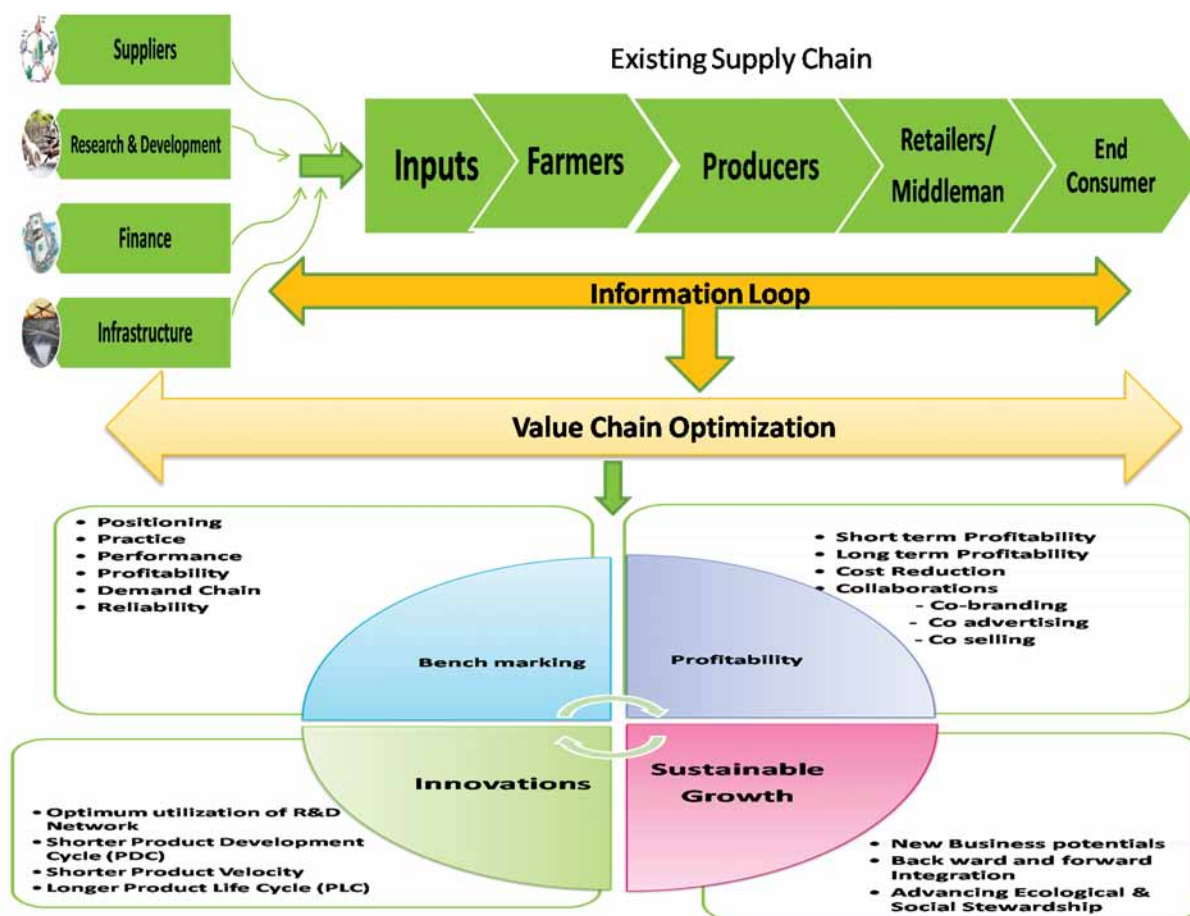


Fig 20.1 Structure for Value Chain Optimization.

waste. Value chain management is not only profitable to the organizations directly involved but it also stimulates social, economical and environmental sustainable development within a local area or country.

The drift toward functioning divergence focused establishments on evolving a value chain whereby an organization would inaugurate a networking relationship with all the stakeholders like producers, intermediaries, retailers, and end-users so that all the links in the supply chain could be efficiently incorporated. These interrelationships turn into extremely complicated to manage and optimize. Traditionally, the administration of these relationships and linkages was predominantly performance-based. But recent shift has been observed to be value based.

Value chain optimization in agriculture supply chain

In the recent past, intensified globalization due to international treaties has had a strong influence

on economic structures of traditional sectors (agricultural production, processing industry, and service sector) raising the need to reform existing models and methodologies (Kim / Shin 2002). The concept of value came into focus, with Porter's seminal work, "Competitive Advantage," (Tseng & Lin 2005). Value chain optimization recognizes that different arrangements of actors may affect outcomes along the chain by influencing capabilities and levels of bargaining of the actors. The different dimensions which are applied for optimization of value chain are shown in Fig.20.1.

Conclusion

In Value Chain Optimization (VCO) approach, the tools should be designed and applied in such a manner which aims at generating long-term sustainable value growth, as a complement to the traditionally applied strategic supply chain optimization techniques. For traditional supply chains to prompt utmost value in this dynamic and competitive environment due to rapidly shifting tastes, preferences and demand, the integrated

model must synchronize the supply chain with the demand chain resulting in flow of value to the customers. Although there is an emergent call for integrating agricultural supply chains with demand and value orientation, the further integration of the supply chain will result in more complex optimization techniques. Uncertainties in Agricultural sector create inevitable circumstances where strategic decisions can become a limitation in operational planning process. Agricultural supply and value chain ought not be exclusively rely on optimization models, but rather use them in different scenarios and condition as guidelines based on customized planning, judgments and experience.

21. Export potential of fruits and vegetables of India in Asian countries: issues, priorities and policy concerns

Objectives

- To estimate the import demand elasticity and relative price elasticity of Indian fruits
- To assess the export competitiveness of Indian fruits and vegetables in a global framework

Progress

Export performance and potential of rice, oil meals, cotton, jute, fruits, vegetables, spices, tea, coffee, milk and milk products, livestock products, fisheries etc., has been reviewed. Secondary data collected from various secondary sources like DGCIS, DGFT, CMIE (India trades), NHB, WITS, UNCOMTRADE, World Trade Atlas, Global Trade Atlas, Trade map, Market access map, APEDA, Export-Import data bank of Department of commerce, FAOSTAT, Economic Survey, Indiastat etc., is being analyzed. Growth and instability indices have been worked out for fruits and vegetables based upon the four digit HS Code.

22. Decision Support System for Optimizing Returns from Perishable Commodities

Objective

- To develop a decision support system for a perishable commodity- tomato through analyzing the production, price variability and marketing factors.

Progress

Data on tomato production and prices from selected markets is being collected from marketing information sites like agmarknet.nic.in and other secondary sources for further analysis.

23. Value chains of High Value Crops (HVC) in economically backward region: efficiency, institutions and policy environment

Objectives

- To analyze the production performance of fruits & vegetables in selected states
- To analyze the performance of different supply chains for major high value crops (HVCs) in the region
- To assess the policy and institutional environment facing HVCs marketing
- To document the key constraints and opportunities for HVCs in selected states.

Progress

Production trend of major fruits in Bihar and Jharkhand states

Bihar produces a variety of fruits in large quantity. Total area under fruits cultivation in Bihar has marginally increased from 2.76 lakh ha in 2005-06 to 2.96 lakh hectares in 2010-11 (about 5% of net cultivated area), while total fruits production has increased from 30.68 lakh tonnes in 2002-06 to 39.12 lakh tonnes in 2010-11 (Fig 23.1). It is the largest producer of litchi, third largest producer of pineapple and fourth largest producer of mango in the country. There are, by and large, specific districts in the state, producing specific fruits. For example, Muzaffarpur and Vaishali are leading in litchi and banana production; Darbhanga, Vaishali and East and West Champaran are ahead in mango production; and Rohtas and Bhojpur lead in guava production. Litchi occupies prime position among all fruit crops in Bihar. It has third largest area (0.31 lakh ha in 2010-11) under cultivation among all fruit crops after mango (1.47 lakh ha) and banana (0.32 lakh ha). However, in production terms, it stands at 4th position with 2.27 lakh tonnes during 2010-11 after banana (15.17 lakh tonnes), mango (13.35 lakh tonnes) and guava (2.35 lakh tonnes). Although, the stagnation of crop yield has been

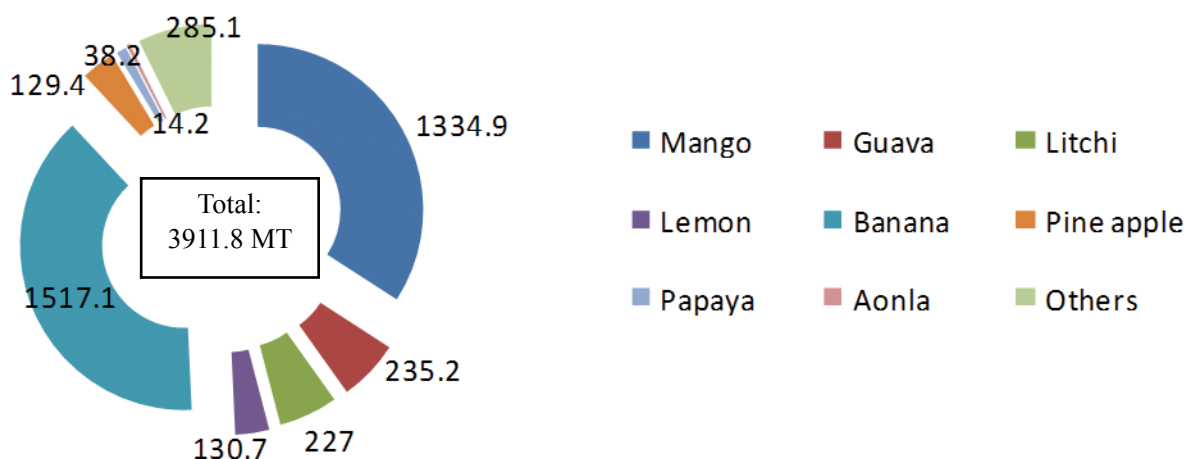


Fig 23.1 Fruits Production in Bihar ('000 MT) (2010-11)

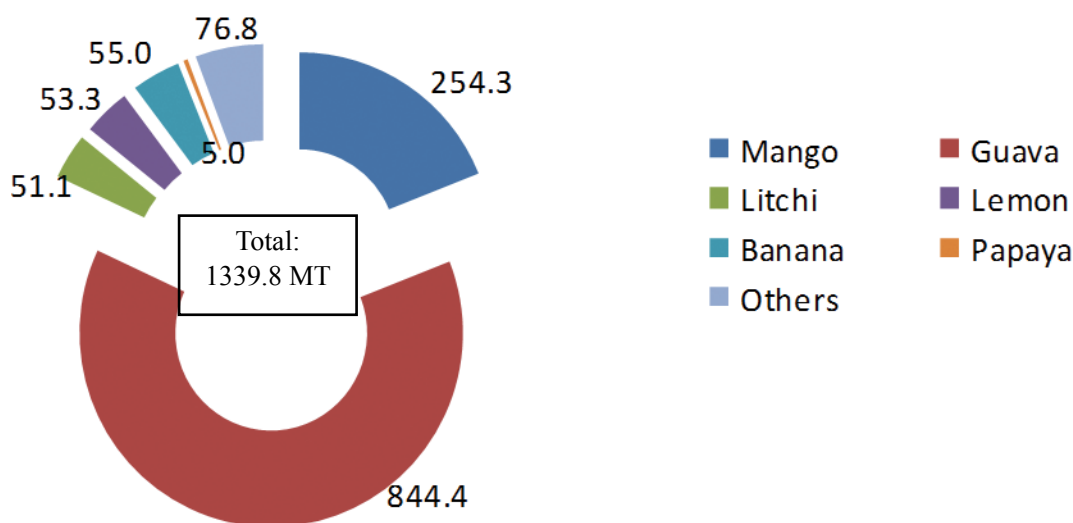


Fig 23.2 Fruits Production in Jharkhand ('000 MT) (2009-10)

major problem in Bihar for most of the fruit crops except for banana, lemon and aonla.

Jharkhand state is also on high growth trajectory of fruits production (Fig 23.2), though at limited scale. It ranks 3rd after Bihar & West Bengal in Litchi production, while for other fruits, the area and production are small.

Production trend of major vegetables in Bihar and Jharkhand states

With 831 thousand ha of area under vegetables, Bihar produces 14 MMT of vegetables (Fig 23.3) In Jharkhand, vegetables occupy 227 thousand ha area and produces 3.4 MMT (Fig 23.4). Both the states are net surplus in vegetables production, as they cater to the need of neighbouring states, like West

Bengal and Uttar Pradesh. Bihar is the 2nd largest producer of cauliflower (18%) and okra (17%), 3rd largest producer of brinjal (12%), cabbage (11%) and potato (17%) in India. The state also ranks 4th onion production (8%). Though, the share of Jharkhand state in vegetable production in India is comparatively small, however, it produces 5-9% of cabbage, cauliflower, okra and peas, besides almost all other vegetables grown in the state.

Cold storage capacity in Bihar and Jharkhand states

Bihar has 246 cold storages with 1.15 MMT capacity as on December 2010 and these are mostly in private sector. Most of these cold storages are used for potato storage, thereby the utilization capacity is 35-40 per cent. Only 18 cold storages

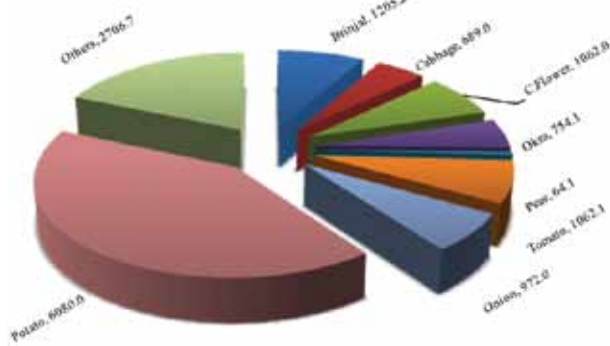


Fig 23.3 Vegetable Production in Bihar (‘000 MT) (2009-10)

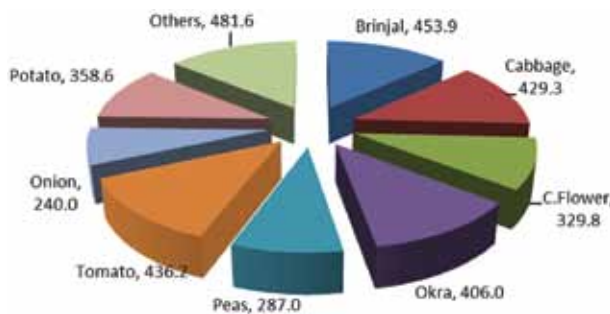


Fig 23.4 Vegetable Production in Jharkhand (‘000 MT) (2009-10)

are multipurpose. In Jharkhand, out of 45 cold storages, 8 are in co-operative sector with total capacity of 0.17 MMT capacity and as many as 37 are multipurpose.

Keeping in view the production profile of fruits and vegetables in these two states, even with conservative requirement of cold storing 20 per cent of total production, there is requirement of additional 470 cold storages in Bihar and 130 cold storages in Jharkhand states with capacity of 5000 metric tonnes each, which seems to be daunting task for both the states (Table 23.1). Furthermore, the additional multipurpose cold storages are also required.

Table 23.1. Additional Cold Storage Capacity Requirement

States	Production in MMT, TE 2009-10				Cold storage requirement		
	Fruits	Vegetables	Total	20% to be stored	Available capacity MMT	Required capacity MMT	No. of Cold storage with 5K MT
Bihar	3.5	14	17.5	3.5	1.15	2.35	470
Jharkhand	0.7	3.4	4.1	0.82	0.17	0.65	130

Source: Estimated from Economic Survey and Statistical Abstracts of Bihar & Jharkhand states

24. Impact of Commodity Future on Spot Price and Risk Management in High Value Commodities

Objectives

- To analyze the trend of agricultural commodities traded across commodity exchanges in India
- To find out the relationship between spot and future price of the selected agricultural commodities traded in commodity Exchanges
- To understand the perception of stakeholders and traders about future market and suggest measures for better inclusion

Progress

- Secondary data collected from Forward Market Commission (FMC) and National Commodity and Derivatives Exchange (NCDEX) website and growth rate of major group of commodity were analyzed.
- Out of 21 recognized exchanges, Multi Commodity Exchange (MCX), Mumbai, NCDEX, Mumbai, National Multi Commodities Exchange, (NMCE), Ahmedabad, Indian Commodity Exchange, Ltd., Gurgon, National Board of Trade (NBO), Indore, contributed 99.62% of the total value of the commodities traded during the year.
- During 2009-10, NCDEX, Mumbai, accounted for 11.82% of the total value of trade in the commodity market. In actual terms, the total value of trade in the NCDEX, Mumbai was Rs.9.18 lakh crore. During the year, 40 commodities were traded at NCDEX, Mumbai, amongst which guar seed, soya oil, chana, soybean, rape seed/mustard seed, turmeric and jeera were the prominent commodities.
- Co-integration model was applied to assess the impact of future trading on spot market.

Governance and Institutional Arrangements in Areas of Topical Issues

25. Intellectual Property Management in Public Private Partnerships - Patents, PVP and Copyrights

Objective

- To develop suitable management options of intellectual property at research institutes through analysis of research outputs and IPs from various sectors.

Progress

During the year under report three case studies were developed using a blend of tools like review of relevant, legal and policy documents through secondary sources; interviews and discussions with IP practitioners, officials of the statutory bodies, academicians, seed producers, farmers/group of farmers to obtain their views through participation and conduction of various Training cum workshops of ICAR on IP /Technology commercialization, followed by a critical analysis and synthesis of the collected information. A brief of each of three case studies is presented below.

Case study 1: Genetic Improvement of Biofuel Crops: Recent Progress and Patents

Due to depleting reserves of fossil fuels, political uncertainties, increase in demand of energy needs and growing concerns of environmental effects, bio-energy as an alternative source of energy has taken centre stage globally. In this report, the progress made in lignocellulose, cellulose and fermentation based biofuels in addition to tree borne oil seeds was reviewed. Algae, as a source of feedstock for the biofuel was also studied. Recent developments in genome sequencing of biofuel crops, molecular breeding approaches have increased the understanding towards crop improvement of major feed-stocks. This was further validated through an assessment of patent landscape analysis. The results showed an increasing trend in published patents during the last decade which is maximum during 2011. A conceptual framework of “transgenesis in biofuels to industrial application” was further developed based on the patent analytics information viz., International Patent Classification

(IPC) analysis and Theme Maps. A detailed claim analysis based on the conceptual framework revealed the trends that have provided the insights in current dimension of the technology. The study emphasizes the current thrust in bioenergy sector by various public and private institutions to expedite the process of biofuel production.

Case study 2: The *Laxmi Asu Machine*

The analysis of process of innovations of two grassroots innovators established the strength and magnitude of the knowledge in rural India. It brings forth the fact that the informal knowledge system based in rural India holds a lot of promise for the future of technological innovations. It was observed that both these innovations, The *Laxmi Asu Machine* and The *Gurrapu Dekka Cutting Machine*, were ideas generated due to a necessity i.e. they germinated out of the need to solve personal problems but later found a significant scope of application in different domains of society. Also the struggle that the innovators are going through in order to pursue their ideas was tremendous. It was concluded that this struggle is characteristic of the grass-root innovators due to their knowledge base being informal and also due to their humble beginnings. Perhaps the inherent technical strength of the technologies has given these grass-root innovators the grit to overcome the hurdles in their journey of developing their ideas. It was observed that there is a necessity of hand-holding in such cases. The identification of the innovations by Honeybee AP has been one of the most significant milestones with respect to both the cases. So with the external support which pitched in for the innovators, the journey of the innovators towards the formalization of their knowledge and upscaling of their inventions was made easier. Thus, technology innovation in the Indian rural sector displays a lot of challenges for the formal knowledge systems to pursue and the ideas originating in this sector are totally worth taking up due to the numerous and diverse opportunities which they contain.

Case study 3: Patenting in Agricultural Engineering Sector- A case of ‘Thresher’

With an objective to understand the patenting trends in the NARS in agricultural engineering sector, a study was undertaken to assess the patenting



scenario with reference to equipment like Thresher. Patents were retrieved for important crops like cereals and pulses. A total of 18 patent families comprising 47 patent records worldwide were retrieved of which 6 are Indian patents. Patenting activity in India started in 2002 with 2 filings and thereafter from 2005. ICAR had filed 2 patents. The small number of filings indicates transfer of this technology through license(s) without seeking IP protection.



- livelihood security of the rural poor
- To provide policy support for development of the integrated mechanism that protect GI, agro-biodiversity and traditional knowledge
- To incorporate innovative interventions for the socio-economic upliftment of rural poor and farmers

Progress

About 80% of Makhana (*Euryale ferox*) also called ‘Gorgon nut’ or ‘Fox nut’ is produced in seven districts of Bihar only. Therefore a primary study was conducted in these districts with the objectives of finding the strategic issues for creation and sustenance of the Makhana producers groups as a GI portfolio. Also to identify the research questions for strengthening Makhana production system and understanding the gender and equity issues among Makhana producers.

The data reveal that 46% producers are landless

26. IP Management in Public Private Partnerships - Agro-biodiversity, Geographical Indications and Traditional Knowledge

Objectives

- To develop comprehensive understanding of GIs/agro-biodiversity/traditional knowledge with respect to their availability and suitability to enhance the socio-economic conditions and



1st Marketing Channel

Fig 26.1 Existing Marketing Channel for ‘Makhana’ in Bihar.

labourers and 33% are small farmers. More than 65% producers are engaged in this activity as it is traditional family job but 32% see it as profit making venture. The activities of male and female in Makhana production system are clearly demarcated. As perceived, the makhana production system is not mostly organic about 86% producers use pesticides for controlling weed or insect pests. More than 70% producers felt the need of a new variety.

The major concern of the study was to study the marketing channel, presently the supply chain is mainly controlled by the intermediaries as given in fig 26.1.

For strengthening the bargaining power of the producers and also strengthening their socio-economic situation, a marketing channel is proposed (Fig 26.2).

Other major recommendations are:

- Registration of product as Geographical Indication
- Community based strategy to access water-bodies

through institutional mechanism such as Self Help Group or cooperatives.

- Reduce the technological gap, improve value chain by various interventions.
- Adoption of Makhana-Rice crop intensification approach especially in districts like Madhubani and Darbhanga.
- Mechanization of harvesting, post harvesting and processing
- Promoting the concept of e-Auctioning initiated by MSTC
- The Agri- Export Zone Hazipur, could be widened to include export promotion of Makhana products as well under partnership of makhana growers/processors.

27. IP Management and Transfer/ Commercialization of Agricultural Technology Scheme

Objectives

- To use tools emerging in the area of IP analysis and to prepare benchmarks in emerging areas in various

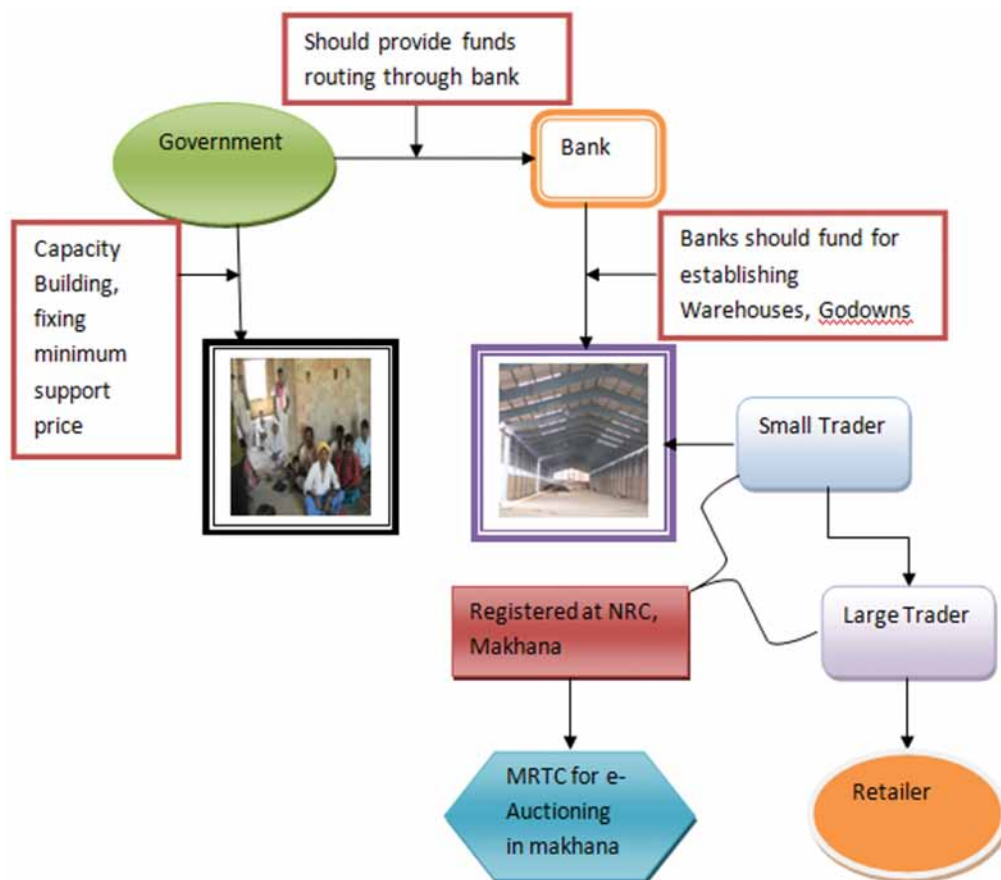


Fig 26.2 Proposed Marketing Channel for 'Makhana' in Bihar

sectors of agricultural R&D

- To assess IP documents to gauge trends in research for developing strategies to acquire and use IP based technologies in agricultural R & D

Progress

During the year under report, a study was undertaken to capture various possible IPs on the molecular marker technology (MMT) and intellectual properties (IPs) arising on the products of various crop research programmes on rice improvement using such technology. A conceptual framework adopting a five point strategy was developed for IP portfolio on MMT in crop research programmes and various processes and products related to MMT in rice were identified based on data mining from literature with close reference to development of molecular marker technology. All the possible IPs on the MMT were gauged from patent and non-patent literature and information from patent documents in conjunction with secondary sources was used for copyright and trademark search. Patent landscape analysis was deployed to map bibliographic patterns such as country, assignees and technological analysis of major research areas with applications in technology development. Results indicated that research and development activities in these technologies are on upward trajectory with involvement of several agencies. In depth analysis of claims and technology description of patents revealed advanced use of MMT for positional cloning, gene expression modification using transformation methods. In case of biotic stress resistance, MMT research/application is the maximum for blast disease resistance and in case of hybrid rice technology, MMT was extensively used for identification of parental lines, male sterility, fertility restoration and F1 hybridity and testing of hybrid purity and seed purity. Time slicing

analysis indicated that advances in MMT was seen from 2005 onwards extending the use of MMT for transgenic breeding and 2010-11 evidenced emergence of sequence based high throughput methods for marker development.

28. Prioritization and Socio-economic Impact of Agriculture Research and Development

Objective

- To aid in decision making for prioritization of investment in research for the NARS

Progress

During the year under the report, an attempt was made using congruence method of prioritization in which value of production (VOP) was taken as major extensivity parameter. On this basis, it is hypothesized that humid sub-tropical region should get the maximum share of investment followed by tropical wet & dry and semi arid region. However, the initial baseline reveals a different situation. This is due the fact that other extensivity parameters may also have the same effect as the VOP in the initial base line.

Ratio of final base line to value of product gives the impact of tradeoff between the two. If there is no tradeoff, that is FBL and VOP share are identical i.e. close to unity (say 0.95 to 1.05). A ratio greater than 1.05 means more emphasis is required on objectives other that efficiency as depicted by VOP. In terms of research allocations the states like Mountain and humid sub-tropical regions need more allocation than their proportionate share in VOP. That means there are other objectives like equity and sustainability where research allocation is important to achieve overall goal.

Table 28.1: Final Baseline and Impact of the Extensivity Parameter and Modifiers on Priorities: Region-wise

Agro-ecological regions	VOP	IBL	FBL	FBL/VOP
Mountain regions	2.8	4.43	5.39	1.95
Humid sub-tropical	37.1	39.82	41.28	1.11
Arid	6.3	5.32	4.83	0.77
Semi-arid	18.7	15.87	14.23	0.76
Tropical wet & dry	30.0	29.46	29.20	0.97
Tropical wet	5.2	5.10	5.07	0.99

These allocation to above states will come from the region whose ratio is less than 0.95. The details are presented in table 28.1.

The study clearly indicates the need for using other composite parameters rather than VOP.

Emeritus Scientist Scheme

29. Intellectual property landscaping studies of veterinary immunobiologicals: Technology assessment through different informational sources

Objective

- To analyze and assess the trends of patents in the area of veterinary immunobiologicals (diagnostics and vaccines) and their applications in disease management, technology transfer, markets trends, technology diffusion – market drivers and consumers

Progress

Patent data were collected from various informational sources namely: free databases of international and national patent offices (IPIRS, Ekaswa A, B and C, USPTO, EPO and WIPO); no charge providers (Google patents, FreePatents Online) and charge providers (Thomson Innovation, Questel). A set of subject - specific keywords and standardized search strings were identified and the resulting patents were reduced to one patent per family. Duplicates were removed and data exported to worksheets in XLS and CSV format. Accordingly, scrutiny of search results and analysis of on-target records, normalization of analyzed data and mapping of bibliographic as well as technology related information was carried out.

Patent landscaping of veterinary vaccines and diagnostics against important OIE listed animal diseases namely; tick and tick-borne infections (anaplasmosis, ehrlichiosis, babesiosis, and theileriosis) and enteric coccidiosis caused by apicomplexan protozoa of the genus *Eimeria* was initiated. In addition, foot and mouth disease and avian influenza (avian flu), the two important viral diseases of livestock and poultry of national importance were also taken up.

Post-doctoral Research Project

30. Assessment of Research Priorities for Crop Sector in Bangladesh

Objective

- To determine appropriate methods for setting research priorities that will maximize benefits from agricultural research in Bangladesh

Progress

Agriculture is the single largest producing sector of economy of Bangladesh since it comprises about 20.6% of the country's GDP employing around 48.1% of the total labour force. Rice, jute, sugarcane, potato, pulses, wheat, tea and tobacco are the principal crops. The crop sub-sector dominates the agriculture sector contributing about 56% of total production. Rice being the staple food, its production is of major importance. Rice production was found increased from 23.1 million tonnes in 1999-00 to 27.6 million tonnes in 2008-09 fiscal year which was surplus than the requirement. This increase in rice production has been possible owing largely to the adoption of modern varieties. There are apprehensions that the current growth momentum may not sustain long. The area of rice is found declining day by day. On the other hand, the rice lands are shifted to other crops which are more profitable. The production of pulses, oilseeds and vegetables are found deficit in production as per requirement. Areas under these crops are also found declining in trend. So, it is great challenge to become self sufficient in pulses, oilseeds and vegetables. Division wise production of major crop groups are also found deficit except rice in some of the divisions. It is observed that share of research allocation as percentage of GDP is about 0.05% which is very low compared to World Banks recommendation. An adverse trade balance in export and import has also been observed.

Since the resources available to research institutes of the country are scarce, and experimentation is the most costly phase of a research programme, researchers must ensure that the possible solutions to identified problems have a high chance of success. On the other hand, resource allocation needs to be based on the commodity and regional importance. The study generates indices of

research priorities for the crop sector in terms of commodities and regions keeping view the national developmental goals. Growth rates were calculated and compared with respect to share of different sectors. Commodities were used to determine the priorities which are basically initial base of the congruence analysis method. Literature survey was carried to understand the priorities at different point of times given the ground realities based on the secondary data. Division wise share analysis

was done to determine the regional priority. The study concludes and emphasizes the need for (a) the increased allocation for agricultural research at least to the tune of 2% of GDP, (b) frontier research like biotechnology and nanotechnology to increase vertical growth in rice (c) proportional allocation of research budget for pulses, oilseeds, cash crops, fruits and vegetables, (d) reduction of improper trade balance in export-import, and (e) regional importance for research resource allocation.

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Education

Education

The Academy offers the following Post Graduate education programmes:

1. Two-year full time residential Post Graduate Diploma in Management (Agriculture) approved by All India Council for Technical Education (AICTE), since 2009
2. One-year Post Graduate Diploma in Technology Management in Agriculture in distance mode in collaboration with the University of Hyderabad

1. Post Graduate Diploma in Management (Agriculture) - PGDMA

(i) **Admissions 2011-12:** Seventeen students were admitted to the PGDM Programme in July 2010.

The selection process included an all India test conducted jointly with MANAGE, Hyderabad and NIAM, Jaipur (Joint Entrance Test for Agribusiness Management or JETABM) followed by group discussions and personal interviews.

(ii) **Extension of Approval by AICTE:** The two-year PGDM (Agriculture) was initiated in 2009-10 after approval by AICTE. AICTE has to extend the approval every academic year. The extension of approval for 2011-12 has also been obtained. Application process for extension of approval to 2012-13 is underway.

(iii) **Admissions 2012-13:** The admission process has been initiated as per the new AICTE guidelines based on CAT/NAT and other examinations

Courses Offered During the Year

Area	Courses
<i>First Year (batch of 2011-12)</i>	
Agribusiness environment	1. Agricultural and food systems
Analytical Foundations	1. Business Mathematics 2. Managerial Economics 3. Statistics for Managers 4. Macroeconomics 5. Quantitative methods for Business
IT and Systems	1. Computers and Information systems 2. Management Information Systems
Organizational and Leadership Essentials	1. Human Resources Management 2. Organizational Behaviour 3. Business Communication I 4. Business Communication 2
Core business functions	1. Marketing Management 2. Market Research 3. Financial Accounting 4. Managerial Accounting 5. Financial Management 6. Project Management 7. Supply-Chain Management
Agribusiness	1. Agricultural Finance 2. Market Research 3. Commodity Trading and Futures Markets

Summer Internship	Placement in industries
Second Year (batch of 2010-12)	
IT and Systems	<ol style="list-style-type: none"> 1. GIS in Agribusiness 2. ERP in Agribusiness 3. Business Analytics with SAS
Agribusiness	<ol style="list-style-type: none"> 1. Agricultural Finance and Insurance 2. International Trade in Agriculture 3. Microfinance Management 4. Agri-food Retail Management 5. Rural Marketing 6. Agribusiness Strategy 7. Risk Management in Agribusiness
Electives	<ol style="list-style-type: none"> 1. Contract farming 2. Marketing Communication and Advertisement 3. e-commerce in Agribusiness Management
Project	<ol style="list-style-type: none"> 4. Independent study in an area of relevance to agribusiness under the supervision of faculty

(iv) Summer internship placements

Our PGDM (A) students of 2nd batch are placed for internship of two months in several leading agri-business firms such as Coromandel International, Metabolix, Syngenta, John-Deere, Mars International, Tata Chemicals, Monsanto, NCDEX, Sino-Chem, Metro Cash and Carry and Bonger Commodities.

Willmar, Savannah Seeds, National Spot Exchange Limited, Metro Cash and Carry, Nagarjuna Agri-chemicals Limited, Star-agri Logistics and Collateral Management, ING Vysya Bank, Pfizer, United Phosphorous Limited and John Deere.

2. Post Graduate Diploma in Technology Management in Agriculture – PGDTMA (Distance mode)

(v) Final placements

PGDM (A) placement cell successfully placed all 20 students of second batch of PGDM (Agriculture). The placement process witnessed participation of 10 companies cutting across the major sectors of agribusiness: retail, input (seed, fertilizers, chemicals), commodity exchange, services (logistics and collateral management) and finance.

The one year Distance Learning Programme, Post Graduate Diploma in Technology Management in Agriculture (PGD-TMA) in collaboration with University of Hyderabad (UoH) is being offered since 2011. The Academy has entered into MOU with University of Hyderabad for three years and the course is conducted through the University’s Centre of Distance and Virtual Learning, (CDVL), a Distance Education Council recognized centre. The first batch had 122 students admitted in the Programme.

Placement offers have been received from Adani

Course Outline for PGD-TMA

Semester	Course
First	<ul style="list-style-type: none"> • PGD-TMA 411- Intellectual Property Regime • PGD-TMA 412- IP Informatics • PGD-TMA 413- Technology Management • PGD-TMA 433- Project Work
Second	<ul style="list-style-type: none"> • PGD-TMA 421- IP Prosecution and Litigation • PGD-TMA 422- Rural Innovation • PGD-TMA 423- Technology Entrepreneurship • PGD-TMA 433- Project Work

The first contact session for the first Semester was inaugurated by Prof. Ramakrishna Ramaswamy, Hon. Vice Chancellor, University of Hyderabad (UoH) on Sept. 1, 2011. A total of 93 students registered for the contact sessions conducted during Sept. 1-3, 2011 and 88 students appeared for Term-End Examination of First Semester conducted at Centre for Distance & Virtual Learning, UoH, Hyderabad. The second contact session was conducted during April 5-7, 2012 followed by the term end examinations for both semesters. Admissions for second course were announced

during Jan. 2012. Out of 116 applications received, admission for 65 students has been completed. The academic session starts from last week of April 2012. The profile of students in both batches ranges from working professionals in ICAR, Industry, agricultural and other service departments, civil society and non-governmental organizations, self-employed entrepreneurs, patent agents, students from agricultural and non-agricultural Universities, SAUs and deemed Universities.

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Consultancy

Consultancy

N. Sandhya Shenoy

- Evaluation of a project for DST on gender issues
- Paper setter and examiner for the course on “Extension Communication and methods” (FEX 502), CIFE
- A study on Information and Communication technology using pattern of personnel working in Nongovernmental organisations in Andhra Pradesh
- Cotton farmers choice of information sources and their opinion on Bt Cotton
- A study on decennial cropping trends of major crops over last four decades in Andhra Pradesh.
- A study on Knowledge and Adoption of SRI paddy cultivation by farmers in Warangal district of Andhra Pradesh

S.K. Nanda

- Revised the self-learning course module on ‘Project Management Techniques’ for Post Graduate Diploma in Agricultural Extension Management (PGDMA), Distance Education Programme of MANAGE.
- Developed self-learning course material on “Project Management” for Post Graduate Diploma in Sustainable Rural Development, Distance Education Programme of NIRD.

Agribusiness Knowledge Centre (AKC)

The Agribusiness Knowledge Centre (AKC) is a Public Private Partnership (PPP) initiative between National Academy of Agricultural Research Management (NAARM), Hyderabad and Gyantech Information Systems Private Limited (GISPL), Hyderabad to primarily ‘Value Chain’ farmers,

academia, research and industry through exchange of knowledge among them.

Major achievements of AKC are:

- AKC has established space for private sector to function at NAARM. Five Companies, viz. Futureage Infrastructure, Mozo Bamboo Plantations, Sahaja Aharam, Shree Jagadamba Samiti and Yes Bank have joined AKC. These companies have been interacting with the faculty and students and some have taken students for project.
- GISPL has successfully developed and maintaining a Knowledge Exchange Portal on Wapr platform (www.akcnaarm.com).
- AKC has successfully conducted 3 Days “National Mega Meet on Technology Commercialization” from September 29 –October 1, 2011 with participation from ICAR institutes, private companies and grass root innovators. Observers from leading industries like ITC – ABD, Tata Chemicals, Nuziveedu Seeds, Agrichem, VSBT etc had participated. AKC identified five technologies for further commercialization.
- AKC has entered into an MoU with e-freshindia (www.efreshindia.com) for conducting crop improvement Programme and good agricultural practices in four identified regions of Andhra Pradesh. NABARD agreed to fund the costs. Rythu Ratham and open call centre 208 of e-fresh India will be used during this project.

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**Achievements / Awards /
Recognitions**

Achievements / Awards / Recognitions

S.L. Goswami, Director

- Member, Governing Council of UGC-DAE Consortium for Scientific Research at New Delhi on January 13, 2012
- Chaired a session titled “Role of government agencies in promoting agriculture” in the AP-TEC 2012 - A Conference and Exposition focusing on Technologies for Modern Agriculture organized by AP Technology Development and Promotion Centre (APTDC) and Confederation of Indian Industry (CII) at Hyderabad International Convention Centre (HICC), Hyderabad on March 3 and 4, 2012
- Member, Selection Committee for the post of Senior Scientist (Agribusiness and Marketing Management) on March 1, 2012
- Member, Management Committee of NCAP, New Delhi
- Chief Guest for the training programme on “Post-harvest Technology for Sorghum / Millet” at Directorate of Sorghum Research, Hyderabad
- Member, Institute Management Committee of Project Directorate on Cattle, Meerut

N.H Rao, Joint Director

- Referee for articles submitted to journals by the Editors of Food Security
- ICAR Committee of Vice Chancellors on Designing a Faculty & Staff Capacity Building Model for Academic Excellence
- Member, Consortium Advisory Committee of the CRIDA subproject under Component 4, entitled ‘Development of Decision Support Systems for insect pests of major rice and cotton based cropping systems’
- Member, Academic Council, Kerala Agricultural University
- Member, Committee on ICAR Vision 2030
- Member, Expert Committee, National Fund for

Basic, Strategic and Frontier Application Research in Agriculture of ICAR

- Member, IMC, NCAP, New Delhi
- Member, Governing Body, National Council of Rural Institutes, Hyderabad

R. Kalpana Sastry, Head, RSM Division

- Nominated Member Secretary, Research Advisory Committee, NAARM
- Empanelled member as Scientific Advisors as per Rule 103 of the Patents Rules, 2003 to offer technical assistance to various Courts in India under Section 115 of the Patents Act, 1970 since July 2010
- Nominated Member of ITMC of 7 ICAR institutes
- IPR expert member of Zonal Technology Management Committee (ZTMC) –South Zone
- Invited as a participant elected as a part of nine-member expert team for undertaking the Philippines Tech Transfer Project #120 by Public Interest Intellectual Property Advisors (PIIPA) on a pro bono basis
- Selected Fellow, Society for Technology Management (STEM)-February 2012

S.K. Soam, Head, ICM Division

- Expert member of ‘Policy Support Group’ to USAID sponsored project Agricultural Innovation Project (AIP) for ‘Curriculum Development Strategy Consultation Workshop’ organized by Cornell University and BHU at Varanasi during 2-5 April 2011.
- IPR expert in ITMU of DSR, Hyderabad and NRCOP, Pedavegi.
- Member of the committees constituted by AP Government for registration of Banganpalle mango and Kurnool rice as geographical indication

K. M Reddy, Head, ESM Division

- Member, Academic Council, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh.

G.P. Reddy, Head, ABM Division

- Vice President, Indian Society of Agricultural Marketing
- Executive Committee Member, Indian Society of Agricultural Economics
- Referee, Indian Journal of Agricultural Economics
- Referee, Indian Journal of Agricultural Marketing
- Referee, Agricultural Economics Research Review
- Honorary Referee, Karnataka Journal of Agricultural Sciences and Mysore Journal of Agricultural Sciences
- External Examiner for Evaluation of M.Sc thesis and Ph.D thesis of UAS, Bangalore, Dharwad, Raichur; University of Kuvempu, Shimoga, Karnataka University, Dharwad, Gulbarga University.
- Selection committee member for selection of Asst Professor, Associate Professors of Acharya N.G. Ranga Agricultural University, Hyderabad

D. Rama Rao, Principal Scientist

- Expert for staff selection at NRCS, Hyderabad and NIPHM, Hyderabad
- Member, IMC for NRCS, Hyderabad
- Member, IMC for DOR, Hyderabad
- Member, Core Group for State S&T Oriented Demonstration Projects, DST, Delhi
- Member, Working Group for Agricultural Sector - Human Resource Development/Capacity Building in educational institutions, BIS, New Delhi
- Member, Project Review Committee, Technology Systems Development Programme, DST
- Expert for Panel on 'Manpower needs assessment for science and technology in India', TIFAC, New Delhi

Bharat S. Sontakki, Principal Scientist

Referee for

- 1) Karnataka Journal of Agricultural Sciences published from UAS, Dharwad

- 2) Journal of Agricultural Extension Management published by MANAGE, Hyderabad

- 3) ANGRAU Journal of Agricultural Research published by ANGRAU, Hyderabad

- 4) Indian Journal of Oilseed Research published by DOR, Hyderabad

- Member of the Working Group on Agricultural Extension in Agriculture and Allied Sciences for the XII Plan
- Member Secretary of the sub-group on 'HRD, Training & Accreditation' of the Working Group on Agricultural Extension in Agriculture and Allied Sciences for the XII Plan

G.R.K Murthy, Principal Scientist

- Invited as an expert for the technical committee meeting of AP Micro Irrigation Project (APMIP) for meet on Use of ICT for APMIP requirements at APMIP, Hyderabad

K.H Rao, Principal Scientist

- Co-chairman for the technical session on "Advances in Dairy Processes and Equipments" in International Conference on Functional Foods held at NDRI, Karnal
- Chief guest for valedictory function of the training Programme on "Business Opportunities and Entrepreneurship Development in Food Processing Industries" held at IICPT, Tanjavur, Tamilnadu
- Acted as External Examiner for the course on "Judging of Dairy Products" and Human Nutrition and Dairy Extension Management of B. Tech (Dairy Technology) Programme of SVVU, Tirupati
- Acted as External Examiner for the course on "Dairy Plant Management" of B. Tech (Dairy Technology) of NDRI, Karnal
- Acted as referee for research articles of Journal of Food Science and Technology, Mysore; Indian Journal of Dairy and Bio-Sciences, Bangalore; Journal of Agricultural Extension, Hyderabad

V.K.J. Rao, Principal Scientist

- Referee, Karnataka Journal of Agricultural Sciences published by UAS Dharwad.
- Exam paper setter and evaluator for FST 502

Research Methodology (1+1) for CIFE, Mumbai.

- External Examiner to PGDAEM course offered by MANAGE, Hyderabad

K. Kareemulla, Principal Scientist

- Referee in African Journal of Agricultural Research
- Referee in MANAGE Journal of Extension Research Review
- Referee in Indian Journal of Agricultural Economics
- Referee in Indian Journal of Agricultural Marketing
- Vice President, Indian Society of Agricultural marketing

R. Venkattakumar, Principal Scientist

- External examiner for evaluation of thesis of M.Sc student of Tamil Nadu Agricultural University, Coimbatore
- Peer review expert by Society of Oilseeds Research (Journal of Oilseeds Research), DOR, Hyderabad and Journal of Agricultural Extension Management, MANAGE, Hyderabad
- Member of Assessment Committee Meeting for assessing the suitability of three employees of DOR, Hyderabad under Technical Service Rules of ICAR for grant of merit promotion to the next higher grade or grant of advance increments
- Member in the Committee for selection of Research Associates for NICRA project on October 18, 2011 at NAARM, Hyderabad
- Panel discussant for the IFPRI workshop on “Agri-services or inclusive agricultural growth” on June 30, 2011 at Centre for Economic and Social Sciences, Hyderabad
- Invited as expert for State-level workshop on Agriclincs and Agribusiness Centres (ACABC) on July 18, 2011 at NABARD, Hyderabad
- Invited expert for Second Meeting of Planning Commission’s Sub-group VII on ‘Outreach, linkages, ITKs and Technological Backstopping for Small and Marginal Holdings’ on August 11, 2011 at NAARM, Hyderabad

Ranjit Kumar, Senior Scientist

- Received First Prize for Best paper published in Agricultural Economics Research Review journal

of Agricultural Economics Research Association (India) for the paper ‘Extent of Groundwater Extraction and Irrigation Efficiency on Farms under Different Water-market Regimes in Central Uttar Pradesh,’ AERR, Vol 22(1), 2009, pp 87-97

- Received Second Prize for the best paper presented during the 18th Annual AERA Conference for the paper ‘Innovative Technologies, Institutions and Policies for Successful Value Chains for Tur Farmers: A Case Study of NCDEX Spot’
- Honorary Referee for Karnataka Journal of Agricultural Sciences

Ananta Sarkar, Scientist

- Recognized as External Examiner (Experimental Design) at Visva Bharati, Shantiniketan, West Bengal (2011)

D. Babu, Scientist

- External Examiner to evaluate thesis of MBA student of Tamil Nadu Agricultural University (TNAU)
- Appointed by Aligarh Muslim University (AMU) as an external examiner to evaluate thesis of MAEBM student

G. Aneja, Technical Officer (T-6)

- G. Aneja, Technical Officer (T-6), NAARM received Dr C.V.Narasimha Reddi Award for Best Public Relations Manager-2011 from Hon’ble Minister for Information and Public Relations, Govt. of Andhra Pradesh Mrs D.K. Aruna, on the occasion of National PR Day celebrations organized by Public Relations Society of India and Global Forum for Public Relations at Hyderabad on April 21, 2011
- Academic Counselor for a course on “Public Relations and Development” for Bachelor of Public Relations offered by B.R. Ambedkar Open University, Andhra Pradesh

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Other Events

Other Events

NAARM Restructured

NAARM has been restructured into six functional divisions in tune with the emerging expectations. The divisions along with faculty associated with each division are listed in the table below.

Multimedia Laboratory Inaugurated

A state of the art, Multimedia training lab was inaugurated by the DDG (Edn) Dr Arvind Kumar on 24th August, 2011. The laboratory is equipped with high end multimedia desktop personal computers with Intel® Core™ i5 650 Processor, 8GB RAM, 500 GB

New Divisions and Faculty

Name of the Division	Name of the Faculty
Human Resources Management	P. Manikandan, HoD
	M.M. Anwer
	R.V.S. Rao
	K.H. Rao
Information and Communication Management	S.K. Soam, HoD
	A. Dhandapani
	G.R.K. Murthy
	P.D. Sreekanth
Research Systems Management	Ananta Sarkar
	R. Kalpana Sastry, HoD
	S.K. Nanda
	K. Kareemullah
Agribusiness Management	K. Srinivas
	Jyothi Badri
	D. Babu
	G.P. Reddy, I/c HoD
Education Systems Management	Ranjit Kumar
	N. Sivaramane
	P.C. Meena
	M.L. Nithyashree
Extension Systems Management	K.M. Reddy, I/c HoD
	D. Rama Rao
	V.V. Sumanth Kumar
Extension Systems Management	N. Sandhya Shenoy, I/c HoD
	B.S. Sontakki
	V.K.J. Rao
	R. Venkattakumar

HDD, Wireless keyboard, Optical mouse, 22" HD wide screen flat panel monitor, Webcam and Windows 7 ultimate 64 bit OS, and MS Office Professional Application ware. The multimedia software procured include Adobe Director 11.5, Adobe Presenter and Adobe CS 5 Master Suite collection with captivate 5. The laboratory has 36 work places for trainees with standard Godrej buddy type customized tables and Godrej make revolving, adjustable half-back chairs. Equipment available in the lab include PC connectable Genee 9100 Visualiser, which can be doubled up for projecting objects, printed matter etc. Also available is Genee Electronic Smart Board - an interactive Whiteboard for projecting the outputs of PC and Visualiser. The lab is also equipped with very high resolution (4000 ANSI Lumens) LCD Projector connected to the demo PC and Visualiser. Besides this, the Lab also has got a Ceramic White Board for writing purpose and a motorized white screen for projection.



Other equipment which can support the multimedia and e-learning training activities of the lab include Digital Still Cameras, Handycams, Home Theatre, DVD Players, LCD TVs and Microphones (Collar and Handheld) and Amplifier. The lab also has a power back up through 2Nos 10KVA Emerson S400D UPS.



Foundation Day Celebrations

NAARM celebrated its 36th Foundation Day on September 1, 2011. Prof. Ramasamy, Vice Chancellor, University of Hyderabad (UoH) was the Chief Guest on the occasion. Dr P. Manikandan, Head, HRD division, welcomed the gathering whereas Dr N.H. Rao, Acting Director presided over the function. PG Diploma in Technology Management in Agriculture course contact sessions were inaugurated for which the Academy is partner with UoH. The Best Performance Awards of the Academy were given to Mr M. Dinesh (Administration); Mr D.R.S. Rao (Technical); Mr C. Chandramouli (Supporting Staff); Mr S.N. Rasool and Mrs V. Saroja (Temporary Status Workers) on the occasion. Dr K.H. Rao, Secretary, NAARM recreation club proposed vote of thanks.

Hindi Fortnight Celebrations



NAARM observed Hindi Fortnight from September 1 to 14, 2011. As a part of the celebrations, various Hindi competitions like elocution, noting and drafting, essay writing, general knowledge, construction of words, just a minute, etc., were organized. The scientist-trainees, PGDMA students and employees also took active part and exhibited their talent in the competitions. On the closing ceremony, Dr Renu Bhatnagar, Associate Professor, Shyamlal College, Delhi University who was the chief guest on the occasion, stressed that Hindi language is having the linking capacity which would flourish in free style. Dr N.H. Rao, Acting Director, NAARM expressed happiness over Hindi usage and training at the Academy. Mr Sanjay Kant, Joint Director (Admn) & Registrar briefed the activities of the official language section. Dr J. Renuka, Asst. Director (OL) gave vote of thanks on the occasion.



Medical Camps

Two medical camps were organized by NAARM Health Centre under the supervision of Dr A. Debnath, Medical Officer, NAARM for the benefit of NAARM employees, trainees and students during the period under report. A diabetic screening camp was conducted on the occasion of National Diabetic Day on November 14, 2011 wherein around 40 persons checked up their blood glucose (fasting, random, post prandial) levels. A multi-specialty health camp was

organized on December 2, 2011 wherein Dr Shanti, Gynecologist and Dr Sanjay Tapadia, Orthopedic Surgeon from Mediciti hospitals, Hyderabad checked around 72 patients.

ICAR - SRF Examination

NAARM successfully conducted the all-India competitive ICAR Senior Research Fellow (SRF) examination (2011) on December 4, 2011 for selecting the students for fellowship to pursue their Ph. D studies. The examination was conducted at 11 centres in 11 cities across in 56 disciplines of agriculture, veterinary, fisheries, forestry and home science. A total of 1492 candidates wrote the exam out of the 2118 candidates who applied for the 202 fellowships. Dr R.V.S. Rao was the controller of examination.

Participation in Rose Shows

NAARM won the following Prizes in XXVI Rose Show conducted by Secunderabad Horticultural

Prizes Won in Rose Show (Secunderabad Horticultural Society)

	Section/ Class	Description of participation	Type of Prize
First Prize (9 No.)	Section 1-Class 5	A vase of 1 H.T Specimen bloom of Deep pink Group	King of the Show Rolling Trophy
	Section 1-Class 6	A vase of 1 H.T Specimen bloom of Light pink colour	Cup
	Section 1-Class 11	A vase of 1 H.T Specimen bloom of Best Fragrant Rose of Any colour	Best Fragrant Rose (Pink Pervert) Rolling trophy
	Section 2-Class 24	A vase of 3 stems of 3 different stages of developing roses	Cup
Second Prize (12 No.)	Section 2-Class 15	12 HT Specimen blooms of 12 different varieties.	Cup
	Section 2-Class 23	Vases of 1 stem of single colour polyantha roses.	Cup
	Section 2-Class 17	A vase of 6 HT Specimen blooms of white roses of one or more varieties	Cup
	Section 1-Class 8	A vase of 1 H.T Specimen bloom of Apricot Group	Cup
Rolling Trophy for Second Highest Aggregate Point in the Show			

Prizes Won in Rose Show (Hyderabad Horticultural Society)

	Section/ Class	Description of participation	Type of Prize
First Prize (2 No.)	Section / Class	Description of participation	Type of Prize
	Section 1-Class 8	A vase of 1 H.T Specimen bloom of Apricot Group	Cup
	Section 1-Class 9	A vase of 1 H.T Specimen bloom of Stripped and other colour	Cup

Second Prizes 3 No.	Section 2-Class 15	12 HT Specimen blooms of 12 different varieties.	Cup
	Section 2-Class 23	A vase of 1 stem of single colour polyantha roses.	Cup
	Section 2-Class 17	A vase of 6 HT Specimen blooms of white roses of one or more varieties	Cup

Society during on 17th and 18th December 17-18, 2011 at Secunderabad.

NAARM won the following Prizes in XXXVI Annual Rose Show conducted by Hyderabad Rose Society during Dec. 10-11, 2011 at Public Gardens, Hyderabad.



Collaboration with APTDC

Andhra Pradesh Technology Development and Promotion Centre (APTDC) & Confederation of Indian Industry (CII) in association with International Crop Research Institute for Semi-Arid Tropics (ICRISAT) organized AP-TEC 2012, a conference and exposition focusing on Technologies for Modern Agriculture on March 3 and 4, 2012 at Hyderabad International Convention Centre (HICC), Hyderabad. NAARM as a knowledge partner for the conference had set up a stall to showcase NAARM activities.

ICAR South Zone Sports

ICAR inter-institutional sports were organized by NAARM at RRC Grounds, Secunderabad during

February 27 – March 2, 2012. Around 650 players from 23 ICAR institutions participated in ICAR Zone-IV sports and games competitions. During the inaugural ceremony Padmashri Syed Mohammed Arif, National Badminton Coach was the Chief Guest and Dr S.L. Goswami, Director, NAARM presided over the function. The following bagged the titles: K. Preethi, CPCRI, Kasaragod - Best Athlete (Women); B. Mallesh, IIHR, Bangalore - Best Athlete (Men); Best All round player (Women) - K.K. Rukmani



Prize Winners of NAARM

K.K. Rukmani Ammal	Shot-put, Discuss, Table Tennis (Singles), Shuttle Badminton (Singles)	1 st prize
G. Aneeja	Javelin throw Discuss throw	1 st prize 2 nd prize
Savithri Murali	Carrrom	2 nd prize
M.K. Samson	Shot-put and Discuss throw	1 st prize
Dr A. Debnath	Javelin throw	3 rd prize

Ammal, NAARM, Hyderabad; Best All round player (Men) B. Mallesh, IIHR, Bangalore. The overall Team Championship was bagged by IIHR, Bangalore.

NAARM contingent consisted of 51 players who bagged 10 prizes in total. Dr B. Venkateswarlu, Director, CRIDA, Hyderabad was the Chief Guest during closing ceremony on March 2, 2012 who gave away prizes to winners. Dr S.L. Goswami, Director, NAARM presided over the function. Dr D. Rama Rao, Organizing Secretary proposed vote of thanks.

Republic Day Celebration

NAARM celebrated Republic Day celebration on January 26, 2012 with much patriotic fervour. Dr S.L. Goswami, Director, NAARM hoisted the flag in presence of Dr N.H. Rao, Joint Director, NAARM and Mr Sanjay Kant, Jt. Director (Admn) and Registrar, NAARM. All the staff and faculty members of the Academy took part in the celebrations.

Foundation Stone for PG Students' Apartments



Foundation Stone for PG Student's Apartments was laid on March 14, 2012 by Dr K.V. Raman, Former Member, ASRB in the presence of Dr S.P. Tiwari, Former DDG (Edn), Dr C. Prasad, Former DDG (Extn) and Dr S.L. Goswami, Director, NAARM. The two-storied complex, with estimated cost 7.73 crores with ground floor and first floor (4600sq.mts.) with all amenities, is meant for PG students' accommodation.

Distinguished Visitors

The following members visited NAARM, Hyderabad during 2011-12 on various occasions:

- Dr S. Ayyappan, Secretary, DARE & DG, ICAR
- Dr Arvind Kumar, DDG (Edn), ICAR
- Dr Ashok Gulati, Chairman, CACP
- Prof P.G. Chengappa, Former Vice-Chancellor, UAS, Bangaluru
- Dr S. Nagarajan, Former Chairman, PPV&FRI
- Dr Shivkumar, Chief Executive, ITC-Agribusiness Division
- Prof Ramasamy, Vice-Chancellor, University of Hyderabad
- Dr P.N. Mathur, Former DDG (Extn)
- Dr S.A. Patil, Chairman, Karnataka Krishi Mission
- Dr Ramesh Chand, Director, NCAP
- Dr Kusumakar Sharma, ADG (Edn), ICAR
- Dr K.V. Raman, Former Director, NAARM
- Dr S.P. Tiwari, Former DDG (Edn), ICAR
- Dr C. Prasad, Former DDG (Extn), ICAR
- Dr Chandra Reddy, Dr Surender Singh, Sammy Coner, Tennessee State University, USA
- Prof D.P. Ray, Vice-Chancellor, OUTAT, Bhubaneswar
- Prof A.K. Gehlot, Vice-Chancellor, RAJUVAS, Bikaner
- Dr B. Mishra, Vice-Chancellor, SKUAST, Jammu
- Dr Suresh Honnappagol, Vice-Chancellor, KVAFSU, Bidar
- Mr P.M. Srivastava, Regional Labour Commissioner (Central Region)
- Dr David Spielman, SRF, IFPRI, Washington DC
- Dr A. Bandyopadhyay, National Coordinator, National Fund for Basic, Strategic and Frontier Application Research in Agriculture
- Dr Rajiv Khosla, Professor, Precision Agriculture, Colorado State University, USA
- Dr S.K. Dutta, DDG (CS), ICAR
- Dr Bangali Baboo, National Director, NAIP
- Prof D. Subba Rao, Governor, RBI
- Dr Abhijit Sen, Member, Planning Commission, GOI
- Prof R. Radhakrishna, President, Indian Society of Agricultural Marketing
- Dr M.M. Pandey, DDG (Engg), ICAR

- Dr C. Ramasamy, Former Vice-Chancellor, TNAU, Coimbatore
- Dr V.M.Mayande, Vice-Chancellor, Panjabrao Deshmukh Krishi Vidyapeeth (PDKV), Akola
- Dr Bisaliah, Former Vice-Chancellor, UAS, Bangaluru
- Dr B.P.Shah, Principal and Dean, SMC College of Dairy Science, Anand
- Dr Sunil Bhat, DGM (Research), JK Seeds
- Dr T.P. Rajendran, ADG (Plant Protection), ICAR
- Dr W.S. Lakra, Director. CIFE, Mumbai

Publicity Activities

During the period under report, the Academy's activities were widely publicized in both print media and electronic media. The Telugu newspapers which covered the events were Eenadu, Andhra Jyothi, Vaartha, Sakshi, Andhra Bhoomi, Surya, Prajasakti, Andhra Prabha along with Janapaksham- a telugu monthly magazine. The English newspapers which covered the Academy's events were The Hindu, Deccan Chronicle, Indian Express. The electronic media which covered NAARM events were ETV2, ABN Andhra Jyoti, TV5, Sakshi TV, Zee 24 gantalu, etc.

The documentary coverage on NAARM profile and activities in Telugu by All India Radio (AIR), Hyderabad under "Illu Vakili" programme which was aired on October 5, 2011. The participants for the programme were Drs N. Sandhya Shenoy, G.P. Reddy, R.V.S. Rao, G.R.K. Murthy, and G. Aneja of the Academy.

Meetings

XII Plan Working Group Meetings

The first meeting of the Sub-Group VII on Outreach programmes, Linkages, ITK and Backstopping for Small and Marginal Holdings (A Sub-group of Planning Commission's Working Group on Agriculture Research and Education for XII Plan) was held on August 11, 2011 under the chairmanship of Dr P.N. Mathur, Ex-DDG (Agricultural Extension), ICAR. The second meeting of the Planning Commission Working Group on 'Agricultural Research & Education' was held on August 17, 2011 to discuss issues related to



formulation of Twelfth Five Year Plan (2012-17). This meeting was held under the Chairmanship of Dr S.A. Patil, Chairman, Karnataka Krishi Mission, and Former Director, IARI. Apart from the working group members, the meeting was attended by the Directors of local ICAR institutes.

Meeting of the ICAR Committee for Developing HRD Plan for Agricultural Universities



A meeting of the ICAR Committee on Designing a Faculty & Staff Capacity Building for Agricultural Universities was held at NAARM on August 20, 2011. The purpose of the meeting was to recommend a model for capacity building plan for promoting academic excellence. This meeting was convened by Dr. N.H. Rao, Acting Director, NAARM and attended by four vice chancellor members - Prof D.P. Ray of OUAT, Bhubaneswar, Prof A.K. Gehlot of RAJUVAS, Bikaner, Dr B. Mishra of SKUAST, Jammu, Prof Suresh S Honnappagol of KVAFSU, Bidar. Dr. K. Sharma ADG(HRD) participated in the meeting as a special invitee besides senior faculty from NAARM.

During the meeting, Dr NH Rao made a detailed presentation of the proposed model for capacity building for academic excellence and the role of NAARM towards implementing the model. He stressed the need

for establishing a Centre for Excellence (CFE) led by a Dean (Faculty Development) in each of the universities, which emerged as the major recommendation of the meeting. Other recommendations defined role of CFEs, budget and other modalities of functioning, and role of NAARM through establishment of a Faculty Development Centre to support HRD initiatives for Agricultural Universities.

RAC Meeting

The 12th Meeting of the Research Advisory Committee (RAC) of NAARM was held on November 18, 2011 in the Director's Committee Hall of the Academy. The following recommendations emerged from the deliberations of the RAC meeting.

1. In the next meeting, detailed activities of Divisions and research proposals for XII Plan may be presented. If needed, Members of RAC can be invited as experts for any IRC meetings to render advice on development of new research proposals.
2. A one day stakeholder brainstorming workshop on 12th Plan proposals of NAARM may be conducted.
3. Review of capacity building programmes may be done regularly.
4. Capacity building programmes for faculty of SAUs and staff of KVKs may be increased.
5. Vacant posts in the Academy may be filled on top priority with specialists in the disciplines of management and other important areas like Sociology, Psychology, and Law.
6. Visiting and adjunct faculty may be hired to complement existing faculty resources
7. The current research portfolio of NAARM may be expanded to include, institutional innovations for improving efficacy of research in NARS, and natural resources and environmental management.
8. The Research Advisory Committee may meet at half yearly intervals or as required.



NAARM

Annual Report 2011-12

Publications

Publications

Research Papers

- Ahire, L. M., and Sontakki, B. S. (2011). Profile of trainers and their training management abilities. *Indian Journal of Social Research*. 52(2): 131-138.
- Ahire, L. M., and Sontakki, B. S. and Rao, K. H. (2011). Perception of distance learners of school of agricultural sciences in post graduate research programmes. *Journal of Communication Studies*. 29: 9-20.
- Babu, D., Verma, N. K., Meena, P.C., Reddy, G.P., Murli, P., and Senthil Kumar (2011). Constraints faced by organized sector dairy plants of Tamil Nadu at Milk Procurement, Processing and Marketing levels: Comparative Analysis, *Indian Journal of Agricultural Marketing*. 25(3): 103-104.
- Dadhich, C. L., and Meena, P.C. (2011). Dairy animal sector retrospect and prospect. *Indian Dairyman*. Nov. 2010.42-46.
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- Kareemulla, K. (2011). Rapporteur’s Report. ICT for Dissemination of Agricultural Knowledge. *Indian Journal of Agricultural Economics*. 66 (3): 567-571.
- Kumar, G.D.S., Padmaiah, M., Venkattakumar, R., and Ramana Rao, S.V. (2012). Sustainability of improved technologies of safflower (*Carthamus tinctorius* L.) demonstrated under frontline demonstrations in India. *Journal of Oilseeds Research*. 29 (Special Issue): 510-513.
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- Meena, P.C., Kumar. P., and Reddy, G.P. (2010). Factor demand and output supply of wheat in western India. *Indian Journal of Agricultural Economics*. 65(4): 739-745.
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- Kamala Jayanthi P.D., Abraham Verghese and Sreekanth, P.D. 2011. Predicting the oriental fruit fly *Bactrocera dorsalis* (Diptera: Tephritidae) trap catch using artificial neural networks: a case study. *International Journal of Tropical Insect Science*. 31(4): 205-211.
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- Rana, A. S., Nanda, S. K., and Sontakki, B. S. (2011). Innovation quality management in agricultural R & D organizations – Mapping innovation quality and performance. *Asian Journal of Management Research*. 1(2): 629-643.
- Rana, A. S., Nanda S. K., and Sontakki B. S., Shankar. (2011). Innovation quality management in public sector research and development organizations: Application of six sigma methodology. *International Journal of Management Science and Engineering Management*. 6(4): 307-312.
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- Reddy, A. A., and Reddy, G. P. (2010). Supply side constraints in production of pulses - A case study of lentil. *Agricultural Economics Research Review*, Vol. 23.

- Reddy, A. A., Radhika Rani, Ch., and Reddy, G.P. (2011). Policy options for edible oil complex in India under WTO regime. *Journal of Rural Development*. 30(1): 11-24.
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- Reddy, A. A., and Reddy, G.P. (2011). Integration of whole sale prices of groundnut prices, *Indian Journal of Agricultural Marketing*. 25 (2): 89-109.
- Reddy, G.P., Meena, P.C. (2011). Rythu Bazaar in Andhra Pradesh- An Innovative Approach in Marketing of Agricultural Commodities. *Indian Journal of Agricultural Marketing*, 25(3): 190-204.
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- Shalander Kumar, Raju, B.M.K., Rama Rao, C.A., Kareemulla, K. and Venkateswarlu, B. 2011. Sensitivity of yields of major rainfed crops to climate in India. *Indian Journal of Agricultural Economics*. 66(3): 340-352.
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- Venkattakumar, R. (2012). Safflower promotion in India: Need for innovative institutional arrangements. *Journal of Oilseeds Research*. 29 (Special Issue): 506-509.
- Venkattakumar, R, Padmaiah, M, Sudhakara Babu, S.N., hander Rao, S, Basappa, H and Prabhakaran, A.J. (2011). Productivity potentials and profitability of sunflower (*Helianthus annuus L.*) hybrid DRSH-1 under real farm situations in Andhra Pradesh. *Journal of Oilseeds Research*. 28 (2): 137-139.

Books

- Brajendra Verma, K.C., Mishra, G.P., Muthuraman, P., Kumar, A., Singh, N.K., Sridhara, S., Gopal Kumar, Yadav, B.D.K. and Ananta Sarkar. 2011. *Objective Agricultural Science*. New India Publishing Agency, New Delhi-110088. pp.878

Book Chapters

- Anshul Shrivastava, Bipasa Das, Winny Purohit, Akash Kumar, Dinesh Kumar, R., Kalpana Sastry, R., and Rao N.H. (2012). Biosynthesis of silver nanoparticles from oil seed crops, *Book of Abstracts, International conference on nanoscience & technology (ICONSAT), RH-25*, pp 270
- Jyothi Badri and Soam, S.K. (2012). Economic valuation of agro-biodiversity. *Modern trends in microbial biodiversity of natural ecosystem*. Asha Sinha, Sharma, B.K., and Manisha Srivastava (Eds). Chapter 11, 173-185, BIOTECH BOOKS, New Delhi. ISBN 978-81-7622.
- Kalpana Sastry, R., Anshul Shrivastava, Srinivas Morla, Sarada, B.V., and Rao, N.H. (2012). Effect of carbon nanotubes in seed germination and plant growth, *Book of Abstracts, International conference on nanoscience & technology (ICONSAT), CL-44*, pp 96.
- Kalpana Sastry, R. "Intellectual Property Landscape for Application of Agri-Nanotechnologies in India" in edited volume on "Knowledge Management". National Institute of Advanced Studies. IISC campus, Bangalore. India. Editorial acceptance received.

- Kalpna Sastry, R. Invited paper in proposed NAAS Publication “Water in Agriculture” – multi author paper with co-author for component on “Nanotechnology and water management”.
- Kareemulla, K., Venkatesh, G., Vijay Kumar, S. and Nirmala, G. 2011. An economic and environmental evaluation of *Prosopis juliflora*: A major bio-energy and livelihood source in India In (Eds.) J.C.Tewari et al. Desert Environmental Conservation & CAZRI, Jodhpur. p115
- Kareemulla, K. and Rama Rao, C. A. (2012). Socio economic and policy issues in abiotic stress management. In (Eds.) B. Venkateswarlu et al. Crop Stress and its Management: Perspectives and Strategies. Springer Science: pp565-584.
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- Ranjit Kumar. (2011). Nutrient use in Indian agriculture and paradigm shift in fertilizer policy (Chap 17) In Efficient Utilization of Farm Wastes for Sustainable Agriculture (Eds. A.B. Singh, K.S. Reddy, M.C. Manna and A. Subba Rao). Agrotech Publishing Academy, Udaipur, p328.
- Rao, K.H. (2011). Role perception of employees at work place. A compendium of lectures of short course on Participatory Research and Extension Management, DWR compendium No. 4: 41-45.
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- Ravinder Kumar, Soam, S.K. and Brajendra (2012). Plant Growth Promoting Rhizobacteria (PGPR) in Management of Plant Diseases. In: Eco-Friendly Innovative Approaches in Plant Disease Management. (Eds- Vaibhav K. Singh, Yogendra Singh and Akhilesh Singh), chapter 13, 207 – 240, International Book Distributors, Dehradun, I SBN 9788170893752.
- Shephalika Amrapali and Soam, S.K. (2012). Grain Amaranth: An underutilized crop with tremendous potential. Modern trends in microbial biodiversity of natural ecosystem. Asha Sinha, Sharma, B.K., and Manisha Srivastava (Eds). Chapter 24, 381-389, Biotech Books, New Delhi. ISBN 978-81-7622
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- Sreedevi, P.D., Srekanth, P.D, and Shakeel Ahmed (2011). Predicting the Groundwater levels using Support Vector Machine: A case study in Maheshwaram watershed. In: Diwakar Tiwari (Ed) Proceedings of Advances Environmental Chemistry, Excel India Publishers (ISBN: 978-93-81361-53-5), pp: 238-241.
- Venkattakumar, R. and Sontakki, B.S. (2011). SWOT analysis of Agriclincs and Agribusiness Scheme (ACABC) in India. Compendium (Eds.): N.K. Sudeep Kumar, P. Thilakar, N. Vimal Rajkumar,

T. Senthilkumar and P. Thirunavukarasu. National Seminar on “Innovations in Farming System Research and Extension for Inclusive Development”. Nov. 24-25, 2011. Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai-600 007. 94-98pp.

Popular Papers

Sontakki B. S., and Ahire Laxman, M. (2011): From the ground - Rural employment guarantee scheme: Boon or bane to Indian agriculture. *Kurukshetra*. 59 (6): 39 – 44.

Sumanth Kumar, V.V., and Raju B.M.K. (2011). Automation of distributed databases for national initiative on climate resilient agriculture. *ICAR News*. Vol. 17(2):5-6.

Training Manual / Bulletins / Resources Developed

National Academy of Agricultural Research Management (NAARM), ICAR, Hyderabad, 2011. User manual on “Agri-Nanotechnology literature & patent database”. 38 pp

Babu, D. and Ranjit Kumar. (2012). International Trade towards enhancement of competitiveness of Indian Agriculture-Resource material. p276.

Reddy, K.M. and Rao, V.K.J. (2011). Reading material for Programme entitled “IT based DSS for Digital content development” held at NAARM during Dec. 20-30, 2011.

Research Project Reports

Rama Rao, D., Rashmi Agrawal, S.K. Nanda, I.C. Awasthi, G.P.Joshi, Sanchita Bhattacharya, D. Indra Kumar. (2011). Assessment of Future Human Capital Requirements in Agriculture and Allied Sectors. NAIP Project Report. National Academy of Agricultural Research Management, Hyderabad, India, pp411.

Rama Rao, D., Rashmi Agrawal, S.K. Nanda, I.C. Awasthi, G.P.Joshi, Sanchita Bhattacharya, D. Indra Kumar. (2011). Abridged Report on “Assessment of Future Human Capital Requirements in Agriculture and Allied Sectors”. NAIP Project Report, National

Academy of Agricultural Research Management, Hyderabad, India, pp 66.

Rama Rao, D., S.K. Nanda and Kareemulla, K. (2011) “Technological Forecasting and Assessment of Future Fly Ash in India”, Draft final report submitted to DST, pp120.

Murthy, G.R.K., Rama Rao, D., Sandhya Shenoy, N., Dhandapani, A., Mohan Singh, P., Rajani, G. (2011). Agroweb - Digital Dissemination System for Indian Agricultural Research (ADDSIAR), NAIP Project Report, NAARM, Hyderabad, pp80.

Papers Presented in Seminars/Workshops/Symposia/Conferences

Arathy Ashok, Prakashan Chellattan Veettil, Nikita Gopal and Sontakki, B.S. (2012) Marine ecosystem services and rural livelihood: A gender perspective. Paper presented in the Global Conference on Women in Agriculture organized by the ICAR and APARI at NASC, New Delhi, during March 13-15, 2012

Babu, D. (2011). “Constraints faced by organized sector dairy plants of Tamil Nadu at Milk Procurement, Processing and Marketing levels: A Comparative Analysis”. ISAM Conference held at NAARM, Hyderabad on November 23, 2011.

Bhasker Rao, E., Murthy, G.R.K., Reddy, K.M., and Rama Rao, D. (2011). Profiling of smart implementable e-learning methodologies. Paper presented on National Seminar Smart IT Applications NSSITA- 2011 sponsored by Andhra Pradesh State Council of Higher Education at Hyderabad at Telangana University, Dichipally-Nizamabad held during September 16-17, 2011.

Kalpna Sastry, R. and Rao, N.H. (2011). Prospects of Application of Agri- Nanotechnologies in India. Invited paper at one-day Knowledge Fair on “Emerging Trends in Nutraceuticals and Agri-solutions” at TCL Innovation Centre, Pune.

Kalpna Sastry, R. (2011), Invited Paper on Patents in the biotechnology sector in the Workshop on Biotech Patenting in India on September 23, 2011 at National Law University, Delhi.

Meena P.C. (2011). “Rythu Bazaars in Andhra Pradesh-An Innovative Approach in Marketing of Agricultural Commodities” was presented in national conference of Indian Society of

- Agricultural Marketing at NAARM Hyderabad during November 22-24, 2011.
- Meena P.C. (2012). "Innovative Approaches to Agribusiness Management during recent time few selected case of corporates in India". National Seminar on Agribusiness Management: New Initiative, challenges and strategies of Indian Society of Agricultural Marketing at School of Agribusiness Management, Nagpur during February 21-22, 2012.
- Rama Rao, D. (2011). Estimates on diploma and graduate manpower in agriculture disciplines. Expert Panel Discussion on Manpower needs assessment for Science & Technology in India on August 26, 2011 at TIFAC, New Delhi.
- Rama Rao, D. (2011). Manpower planning for agricultural education. Brainstorming session on Human Resource Assessment in relation to Working and Output in Agricultural Universities organized by Indian Agricultural Universities Association, New Delhi and PDKV, Akola at College of Agriculture, Nagpur during August 5-6, 2011.
- Reddy G. P., Reddy, M. N., Sontakki, B. S., and Kumar, K. V. (2011). A frame work of participatory geo-spatial information system for micro level planning - A case study of aquaculture. Paper presented in the 71st Annual Conference of the Indian Society of Agricultural Economics at UAS, Dharwad during November 3-5, 2011.
- Reddy G. P., Rana, A.S., and Lavanya, S. (2012). "Climate change: Impact on water resources". National Seminar on Water resource management in India - Problems and prospects organized by NFG College, Sedam, Karnataka during February 24-25, 2012.
- Reddy G. P., Rana, A.S., and Lavanya, S. (2012). "Climate change: Impact on agricultural water management". International workshop on Climate change in agriculture: Adoption and mitigation strategies organized at Gandhigram Rural Institute, Gandhigram, during March 21-23, 2012.
- Sandhya Shenoy, N. (2012). Information and Communication Technologies for empowering farm women. Paper presented in National Seminar on Quality Extension for Quality Production at Banaras Hindu University, Varanasi, during January 12-13, 2012.
- Sandhya Shenoy, N. (2012). Information and Communication Technologies (ICT) integration for empowering farm women. Global Conference of Women in Agriculture organized by ICAR and APAARI during March 13-15, 2012 at NASC, New Delhi.
- Sontakki, B. S., and Venkattakumar, R. (2011). Redesigning agricultural extension in India for effective agricultural knowledge management: Opportunities and challenges. Paper presented in International Conference on Innovative Approaches for Agricultural Knowledge Management: Global Extension Experiences organized by the International Society of Extension Education at NASC, New Delhi during November 9-12, 2011.
- Sontakki, B. S., Rana, A. S., and Nanda S. K. (2011). Innovative technology transfer in agricultural R&D organizations. Paper presented in the Sixth National Extension Education Congress organized by the Society of Extension Education Agra at ICAR Research Complex for Goa, Goa, during December 17-19, 2011.
- Soam, S.K. (2011). Use of modern IT tools to prioritize, monitor and evaluate agriculture research, education and extension. Paper presented at Brainstorming on Agricultural Education in India conducted by National Academy of Agricultural Sciences on December 23, 2011 at Delhi.
- Srinivas, K. (2011). Development though efficient marketing of vegetables and fruits using e-information in North Western Hill. Paper presented at Annual conference of Indian Society of Agricultural Marketing at NAARM, during November 22-24, 2011.
- Venkattakumar R. and Sontakki B.S. (2011). Producer companies - Indian experiences and implications. Paper presented in the Sixth National Extension Education Congress organized by the Society of Extension Education Agra at ICAR Research Complex for Goa, Goa during December 17-19, 2011.

Occasional /Discussion/Background Papers

- Rama Rao, D., Rashmi Agrawal and Nanda, S.K., Human capital needs in agriculture and allied sectors - Policy options, NAARM occasional paper, October, 2011. p12.

Rao, R.V.S. 2011. Base paper entitled “How to improve effectiveness of leader” for the project workshop.

Rao, R.V.S. 2011. Base paper entitled “Performance enhancement of agricultural researcher” for the project workshop.

Venkattakumar, R., Sontakki, B.S., Manikandan, P and Dhandapani, A. 2012. Assessing training transfer in National Agricultural Research System (NARS). Discussion Paper. NAARM. Hyderabad. P 54.

Participation of Scientists and Staff in Seminars/ Workshops/Symposia/ Conferences/ Meetings

S.L Goswami, Director

- First Annual Conference and International Symposium of Association of Avian Health Professionals (AAHP-2012) of Project Directorate on Poultry at University Auditorium, ANGRAU, Rajendranagar, Hyderabad on February 3, 2012
- Stakeholders Consultation Meeting at Directorate of Rice Research, Rajendranagar, Hyderabad on February 10, 2012
- Inaugural function of Centre of Excellence for Value addition on Food Processing at Directorate of Sorghum Research, Hyderabad on February 14, 2012
- Directors and Vice Chancellors Interface at NASC Complex, New Delhi on February 17, 2012
- Directors’ Conference at NASC Complex, New Delhi on February 18, 2012
- Annual Day Celebrations of Retired ICAR Employees Association (RICAREA) held at Vasavi Conference Hall, Hyderabad on February 19, 2012 where he was the Chief Guest
- Foundation Day Celebrations at National Research Centre on Meat, Hyderabad on February 22, 2012 where he was the Chief Guest
- “Open Day Exhibition” organized on the occasion of National Science Day on February 28, 2012 by Project Directorate of Poultry, Hyderabad where he was the Chief Guest
- Inaugural ceremony of “Stem cell and regenerative medicine: Research to Business” at Indian School of Business, Hyderabad on March 22, 2012

N.H Rao, Joint Director

- Inaugural session of 46th Annual Rice Group meeting held at Directorate of Rice Research on April 9, 2011
- Consortia Advisory Committee meeting held at CRIDA on May 20, 2011
- Brainstorming Session on Water in Agriculture held at NAAS, New Delhi on May 31, 2011
- ICAR Directors’ Conference and 83rd ICAR Foundation Day and Award Ceremony at New Delhi on July 15 and 16, 2011
- Meeting of the ICAR Committee as Member to look into the anomalies related to technical staff at ICAR, New Delhi on July 20, 2011
- Central Joint Staff Council meeting as official side member held at New Delhi on August 4, 2011
- Special invitee, ARS committee meeting held at New Delhi on August 30, 2011
- Stakeholders Consultation on “Climate Change Platform” held at CRIDA on September 20, 2011

P. Manikandan, HoD, Human Resources Management Division

- Management Development Programme on “Timeless leadership – Discover Your Leadership DNA!” organized by Indian Institute of Management, Kozhikode, Kerala from November 30 to December 3, 2011

R. Kalpana Sastry, HoD, Research Systems Management Division

- Participated in STEM Annual Summit 2010 held at Pune during December 6-9, 2011
- Participated in UK Intellectual Property Office Workshop on the “Management of Intellectual Property in UK-India R&D collaborations” organized by UK Intellectual Property Office (UKIPO)
- Invited participant in Workshop on Scoping the needs of governments and the collaborative work to meet those needs: Follow-up to the Symposium on Assessing the economic value of nanotechnology

K.M Reddy, HoD, Education Systems Management Division

- Participated in 10th Meeting of Academic Council Sri Venkateswara Veterinary University held at Tirupati, Andhra Pradesh on August 11, 2011
- Participated in Meeting of the ICAR committee on “Designing a faculty and staff capacity building model for academic excellence” held at NAARM on August 20, 2011
- Participated in sensitization workshop on “Emerging trends in technology-enhanced learning for agricultural development” held at IGNOU, Delhi on November 7, 2011
- Participated in National Stakeholders’ Consultation Meeting held at NAARM on March 14, 2012

N. Sandhya Shenoy, HoD, Extension Systems Management Division

- Participated in the meeting as IMC member for DRWA
- Delivered presentations for MANAGE and Urdu University on the topics such as ICTs for empowering farmwomen and Audio visual aids/ Instructional aids for learning and presentations
- AIR recording on NAARM and its role in rural ICTs and ITK in agriculture.
- Participated as gender expert in discussion forum organized by DRWA at New Delhi from August 8 to 9, 2011
- Participated in discussion meeting of “Gender based man power planning” at DRWA, Bhubaneswar on July 8, 2011
- Participated in National Planning Commission Workshop sub-group on ‘Farm women development in agriculture’ at MANAGE on May 26, 2011
- Participated in “SRI vari Saagu (Telugu)-SRI paddy cultivation” - Video module developed for Stree Shakti Programme of Saptagiri Channel, Doordarshan
- Participated in National Seminar on “Quality Extension for Quality Production” at Banaras Hindu University, Varanasi during January 12-13, 2012
- Participated in ‘Global Conference of Women in

Agriculture’ organized by ICAR and APAARI at NASC, New Delhi during March 13-15, 2012

D. Rama Rao, Principal Scientist

- Brainstorming Session on “Human Resource Assessment in relation to working and output in agricultural universities”, organized by Indian Agricultural Universities Association, New Delhi and PDKV, Akola at College of Agriculture, Nagpur during August 5-6, 2011
- Experts meeting on “Manpower needs assessment for Science & Technology in India”, organized by TIFAC, Delhi during August 26-27, 2011
- Workshop on Manpower Project Report Writing, DWM, Bhubaneswar during August 8-13, 2011
- Meeting with SAU VCs on HRD Plan, NAARM, Hyderabad on August 20, 2011
- Meeting of “Core Group on State S&T Oriented Demonstration Projects” at DST, New Delhi on September 7, 2011
- Workshop on Fly ash, Organized by TERI, New Delhi on September 14, 2011
- NAIP Review Workshop of Component-1 sub-projects at Delhi during November 14-15, 2011
- National Seminar on Fly ash organized by CFRAM and DST, Hyderabad during December 5-7, 2011
- Brainstorming meeting on Agricultural Education in India organized by NAAS at NASC Complex, New Delhi on December 23, 2011
- Seminar on Advanced Writing Skills organized by Indian Academy of Management, Mumbai on January 20, 2011
- Launch workshop on e-learning courses in Agricultural Engineering, AAU, Anand on February 2, 2011

S.K. Nanda, Principal Scientist

- Workshop on “Gender Issues in Manpower Planning for Agriculture” organized by Directorate of Research on Women in Agriculture, Bhubaneswar on July 8, 2012
- Expert group meeting on Manpower requirement in Agricultural Engineering Sector at Indian

Agricultural Statistical Research Institute, New Delhi on May 20, 2012

R.V.S. Rao, Principal Scientist

- 25th Annual conference of Indian Society of Agricultural Marketing during November 22-24, 2011

B.S. Sontakki, Principal Scientist

- Consultation Meeting for Formulation of XII Plan Working Group on Agricultural Extension at MANAGE on April 5, 2011
- First Meeting of the Planning Commission's Working Group on Agricultural Extension in Agriculture and Allied Sectors at Planning Commission, New Delhi on April 29, 2011
- First Meeting of the Sub-group III on 'HRD, training and accreditation' of the Planning Commission's Working Group on Agricultural Extension in Agriculture and Allied Sectors at Agricultural Extension Division, ICAR, New Delhi on May 25, 2011
- Second Meeting of the Sub-group III on 'HRD, Training and Accreditation' of the Planning Commission's Working Group on Agricultural Extension in Agriculture and Allied Sectors at FTC, BCKV, Kalyani, Kolkata on June 10, 2011
- Second Meeting of the Sub-Group VII on Outreach Programmes, Linkages, ITK and Backstopping for Small and Marginal Holdings of Planning Commission's Working Group on Agriculture Research and Education for XII Plan on August 11, 2011
- B.S Sontakki attended a meeting with Dr K. D. Kokate, DDG (Agricultural Extension), ICAR & Chairman of Sub-group III on HRD, Training and Accreditation and Shri Suresh Kumar, Chairman, XII Plan Working Group on Agricultural Extension in Agriculture and Allied Sectors for finalizing the recommendations and preparations for Interface meeting with HRD sub-groups of other Working Groups in Agriculture and Allied Sectors on September 9, 2011 at CIRCOT, Mumbai
- Third Meeting of the Sub-group III on "HRD, Training and Accreditation" of the Planning

Commission's Working Group on Agricultural Extension in Agriculture and Allied Sectors at NASC, New Delhi on August 16, 2011

- Interface Meeting of the Four HRD Sub-Groups across the XII Plan Working Groups under the Chairmanship of Shri Suresh Kumar, Chairman, XII Plan Working Group on Agricultural Extension in Agriculture and Allied Sectors on September 12, 2011 at CIFE, Mumbai
- 71st Annual Conference of the Indian Society of Agricultural Economics at UAS, Dharwad during November 3-5, 2011 as Rapporteur for session on ICTs in Agricultural Marketing
- International Conference on Innovative Approaches for Agricultural Knowledge Management: Global Extension Experiences organized by the International Society of Extension Education at NASC, New Delhi during November 9-12, 2011 as session convener of Concurrent Technical Session – 2 of Theme- I: Agricultural Knowledge Generation, Refinement and Dissemination and Sub-Theme: Recent Innovations and Reforms in Extension
- Sixth National Extension Education Congress organized by the Society of Extension Education Agra at ICAR Research Complex for Goa, Goa during December 17-19, 2011
- As Invited expert attended interview committee meeting for selection of National Consultants for various schemes like ACABC, Kisan Call Centre and DAESI of MANAGE on August 13, 2011
- As invited expert attended selection committee meeting for selecting Assistant Director (Agricultural Extension) at MANAGE on February 21, 2012
- As invited expert, attended selection committee meeting for selection of District Coordinators / facilitators for Diploma in Agricultural Extension Services for Input Dealers (DAESI) programme at MANAGE on March 2, 2012

V.K.J. Rao, Principal Scientist

- Executive Education Programme on "Brand Management" at Indian School of Business, Hyderabad organized during August 28 to 31, 2011
- Executive Education Programme on "Integrated

Marketing and Communications” organized by Indian School of Business, Hyderabad from December 5 to 8, 2011

- Training on Agri-Input Marketing during January 16-22, 2012 at IIM, Ahmedabad
- Attended the 25th Annual conference of Indian society of Agricultural Marketing, November 22-24, 2011
- Attended the second meeting of Planning commission’s sub group VII on Outreach, Linkages, ITK’s and technological backstopping, small and marginal holdings, on August 11, 2011 at NAARM, Hyderabad

R. Venkattakumar, Principal Scientist

- Participated in the Consultation meeting organized by DDG (Extension), ICAR, on “Capacity Building Programme for KVK Coordinators” at Division of Agricultural Extension, IARI, New Delhi on June 2, 2011
- Panel discussant in the workshop organized by IFPRI on “Agri-services for inclusive agricultural growth” at Centre for Economic and Social Sciences, Hyderabad and delivered a special lecture on “Agri-extension services” on June, 30, 2011
- Participated as an invited expert in the state-level workshop on “Agriclinics and agribusiness centres” on at NABARD, Hyderabad on July 18, 2011
- Participated in the second meeting of Planning Commission’s Sub-Group VII on “Outreach, linkages, ITKs and Technological Backstopping, Small and Marginal Holdings” on August 11, 2011 at NAARM, Hyderabad
- Participated as Rapporteur for the technical session-III on “PPP in higher agricultural education” the National Workshop on PPP in agriculture -Challenges and opportunities” during September 19-20, 2011
- Participated as an invited speaker in the National Seminar on “Innovations in farming system research and extension for inclusive development” organized by Society of Extension Education, Coimbatore at Madras Veterinary College, Chennai during November 24-25, 2011, and presented an invited paper on “SWOT analysis of Agri-clinics and Agribusiness Centres (ACABC) Scheme in India”

- Participated in the 6th National Extension Education Congress-2011 on “Emerging Models of Technology Application for Agri-rural Development” organized by Society of Extension Education, Agra at ICAR Research Complex for Goa during 17-19, December, 2011 and presented a paper on “Producer companies-Indian Experiences and Implications”
- Participated as the rapporteur for the session on “Information, dissemination and innovation” pertaining to International Safflower Conference organized by ISOR at Hyderabad on January 22, 2012
- Recognized as a guest of honour for inauguration of a rural hub by IKYA GLOBAL foundation, Hyderabad at Moinabad mandal, Ranga Reddy District of Hyderabad on January 27, 2012
- Participated in one-day sensitization workshop on ‘Web-based system for half-yearly progress monitoring (HYPM)’ organized by IASRI, New Delhi and NAARM, Hyderabad on 13.2.2012

K. Srinivas, Principal Scientist

- Participated in Annual Conference of Indian Society of Agricultural Marketing at NAARM during November 22-24, 2011
- Participated in National Workshop on public private partnership in agriculture: Challenges and Opportunities at NAARM during September 19-20, 2011
- Participated in International conference-cum exhibition on Food 3600 organized by FICCI, Hyderabad during November 21-22, 2011
- Participated in ASSOCOM-India conference hosted by “Current trends in Asian Agribusiness” at Bangalore on November 3, 2011
- Participated in National Consultation on “Water: Research Prioritization” at Lucknow on October 18, 2011
- Participated in 6thUttarakhand State Science and Technology Congress 2011 at Kumaun University, SSJ Campus, Almora during November 14-16, 2011
- K. Srinivas, Principal Scientist attended MDP on risk Management at IIM Ahmedabad during September 13-17, 2011, and also National Training

on Science Policy and Technology Forecasting in Agriculture at NAARM during January 16-25, 2012

A. Dhandapani, Principal Scientist

- Installation workshop of SAS 9.3 held at IASRI, New Delhi during November 1-3, 2011

K.H Rao, Principal Scientist

- Food and Agribusiness conclave organized by Yes Bank and Hindu Business Line at Delhi on April 4, 2011
- International Conference on Functional Dairy Foods organized by Dairy Technology Society of India and National Dairy Research Institute, Karnal during November 16-19, 2011
- Food 3600 – International Conference on Agribusiness and Food Processing cum Exhibition held at Hyderabad International Convention Centre on November 21, 2011
- 25th Annual Conference of Indian Society of Agricultural Marketing held at NAARM during November 22-24, 2011
- Agri Vision 2020 – Partnering and Innovation for Sustainable Agriculture organized by Food and Agriculture Centre of Excellence (FACE) of Confederation of Indian Industry on February 18, 2012
- AP-TEC 2012 – Enhancing and Optimizing Agricultural Value Chains organized by confederation of Indian Industry, APTDC and ICRISAT during March 3-4, 2012
- National Conference on “Appropriate Technologies for Indian Food Processing Industries” organized by IICPT, Tanjavur and UAS, Bangalore at GKVK, Bangalore during March 5-6, 2012
- International Workshop on “Strategies in value addition and safety aspects pertaining to dairy and food industry” organized by Madras Veterinary College, Chennai and ICAR, New Delhi at Department of Dairy Science, TANVASU, Chennai during 15-16 March, 2012

K. Kareemulla, Principal Scientist

- Participated in the Silver Jubilee (Annual) conference of Indian Society of Agricultural marketing at NAARM, Hyderabad during November 22-24, 2011
- Participated and chaired a session and also presented the rapporteurs/ chairman’s report on the theme - ICT for Dissemination of Agricultural Knowledge during November 3-5, 2011

Ranjit Kumar, Senior Scientist

- Attended Workshop on “Indian agriculture and the world market: Is it a business-as-usual” during 30th March 30, 2012 at NAAS complex Delhi organized by International Food Policy Research Institute, New Delhi office
- Attended training on “Risk: Modelling Management” at IIM, Ahmedabad during September 5-9, 2011
- Attended national training on “Application of Geo-informatics and Crop Simulation Models in Agricultural Management (under NAIP)” at NAARM, Hyderabad during March 13-26, 2012

P.C. Meena, Scientist

- Attended 21 days MDP on “Strengthening of Microfinance Education in India” at Indian Institute of Management, Lucknow during May 9-30, 2011
- Attended Faculty Development Programme in Management at Indian Institute of Management, Ahmedabad during June 6-September 24, 2011
- Attended ISAM conference on Role of Agriculture Marketing in Food security in India at NAARM, Hyderabad during November 22-24, 2011
- Attended national training on “Policy perspective in value chain management & commodity research in Indian agriculture” during December 12-21, 2011 at NAARM, Hyderabad
- Attended MDP on “Agricultural input marketing” at Indian Institute of Management, Ahmedabad during January 16-22, 2012

- Attended national seminar on “Agribusiness Management: New Initiative, challenges and strategies at Nagpur during February 21-22, 2012
- Attended capacity building programme on “International Trade towards Enhancement of Competitiveness of Indian Agriculture” during March 14-16 at NAARM, Hyderabad
- Attended Workshop on “Indian agriculture and the world market: Is it a business-as-usual” during 30th March 30, 2012 at NAAS complex Delhi organized by International Food Policy Research Institute, New Delhi office

V.V. Sumanth Kumar, Scientist

- Attended training programme on ‘Oracle Apps SCM’ during September 28, 2011 to October 5, 2011 at Ora-Train Technologies, Hyderabad
- Participated in ‘Innovations 4 Industry Meet in crop Science’ and supported the activities by providing and configuring the systems and software on November 19, 2011
- Attended 25th Annual Conference of Indian Society of Agricultural Marketing at NAARM during November 22-24, 2011
- Participated in National workshop on “ICT applications in agricultural extension management” at MANAGE, Hyderabad during December 8-9, 2011
- Participated in Workshop on the “Use and application of agropedia” at ICRISAT, Hyderabad on January 23, 2012
- Attended training programme on ‘Open Source GIS Training’ during January 16-20, 2012 at Adepto Geo Informatics, Hyderabad

P. D. Sreekanth, Scientist

- Participated in National Workshop on “ICT applications in agricultural extension management” at MANAGE, Hyderabad during December 8-9, 2011

Ananta Sarkar, Scientist

- Training Programme on “Quantitative methods

and business statistics” at College of Agriculture and Life Sciences, Cornell University, Ithaca, New York, USA during March 28-April 27, 2011

Jyothi Badri, Scientist

- Participated in “TIUG Conference 2011” organized by Thomson Reuters at The Hotel Lalit Ashok, Bangalore on July 28, 2011
- Participated in workshop on “Patent Retrieval and Analysis” at Indian Habitat Centre, New Delhi on January 8, 2012
- Invited lead speaker on “ Intellectual Property Rights and Bioethics” in National Seminar on “Trends in Agricultural Biotechnology and Environmental Protection” organized by Dept of Agricultural Science and Rural Development Biotechnology and Food Technology and Management at Loyola Academy Degree and PG College, Alwal, Hyderabad during February 24-25, 2012
- Invited lecture on “DUS Testing for Registration and Protection of Varieties/Parental Lines under PPV&FRA, 2001” in “Awareness cum Training Programme on PPV&FRA” to farmers at Seed Research and Technology Centre, ANGRAU during March 13-15, 2012
- Sessions on IP Informatics in a Training Workshop on “Intellectual Property Rights in Agriculture in SAARC Countries” jointly organized by NAARM and SAARC Agricultural Centre (SAC) during October 10-17, 2011
- Invited Guest Lecture on “PPV &FRA” on Nov.16, 2011 in a training Programme on “Hybrid Seed Production in Field Crops” organized by Seed Research and Technology Centre (SRTC), ANGRAU, Hyderabad during November 14-18, 2011
- Invited Guest Lecture on “IPR in Agriculture” in a training Programme organized by Department of Agriculture, AP for officials working in extension service at SAMETI, Malakpet, Hyderabad on December 14, 2011

D. Babu, Scientist

- Attended the training programme on “Managing

public private partnerships in agricultural research” at NAARM, Hyderabad during June 22-28, 2011

- Workshop on “Forex exposure and risk management” organized by GCM Worldwide on September 23 and 24, 2011
- Participated in the Capacity Building Programme for master trainers on “International Trade towards enhancement of competitiveness of Indian Agriculture” organized by Indian Institute of Foreign Trade (IIFT) and sponsored by Ministry of Agriculture, Government of India at IIFT, New Delhi during September 5-9 2011
- Attended the training programme on “Intellectual Property Rights in Agriculture in SAARC Countries” jointly organized by SAARC Agriculture Centre (SAC) and NAARM during October 10-17, 2011 at NAARM, Hyderabad
- Attended the on campus classes between 20th and 23rd October for the Certificate Programme in Export Management (online) (October 2011-March 2012) at IIFT, New Delhi
- Attended 25th Annual Conference of Indian Society of Agricultural Marketing during November 22-24, 2011 at NAARM, Hyderabad
- Attended online classes every week on Saturday and Sunday from October 2011-March 2012 from NAARM, Hyderabad
- Attended seminar on “India’s engagement with Free Trade Agreements (FTAs): Business opportunities and challenges” organized jointly by Ministry of Commerce and Industry, GoI and FICCI on January 10, 2012 at Hyderabad
- Attended the NAIP National Training on “Science Policy and Technology Forecasting in Agriculture” organized during January 16-25, 2012 at NAARM, Hyderabad
- Attended AP-TEC 2012 Conference & Exposition on Enhancing and optimizing Agricultural Value Chains organized by CII, APTDC and ICRISAT of which NAARM is a knowledge partner during March 3-4, 2012 at HICC, Hyderabad

G. Aneja, Technical Officer (T-6)

- Invited speaker on the topic “New media and public relations” in the Media Conference and Exhibition-2011 with main theme “Value-based

media-Need of the hour” organized by Media Wing, Rajyoga Education and Research Foundation along with Prajapita Brahma Kumaris Ishwariya Vishwa Vidyalaya at Abu, Rajasthan during September 16-19, 2011

- Participated in 33rd All India Public Relations Conference on “Role of public relations in branding” organized Public Relations Society of India, Nagpur from December 23 to 25, 2011
- Participated in an International Seminar on “Changing face of Indian Media: What needs to be done?” organized by Centre for Economic and Social Studies (CESS) and Programme Staff Association of All India Radio and Doordarshan, Andhra Pradesh at CESS, Hyderabad during March 21 and 22, 2012

Foreign Visits

- G.R.K Murthy, Principal Scientist attended International training on “Supply chain management and e-commerce” at School of Agricultural and Consumer Sciences, Tennessee State University, Nashville, TN, USA under NAIP (L and CB) programme during March 30-May 1, 2011
- K. Srinivas, Principal Scientist was deputed to Kansas State University, Manhattan KS, USA during March 31-May 3, 2011 under L&CB component of NAIP project
- Ranjit Kumar, Senior Scientist was deputed to International Food Policy Research Institute, Washington DC, USA during June 6- July 6, 2011 to attend training on ‘Impact of changing demand and supply factors on prices of food grains in India: Implications on India’s food security and global trade’
- Ranjit Kumar, Senior Scientist was deputed to Mexico to attend Global launch meeting of the CGIAR maize and wheat research programme during January 16-20, 2012
- Ananta Sarkar, Scientist attended a training programme on “Quantitative Methods and Business Statistics” at College of Agriculture and Life Sciences, Cornell University, Ithaca, New York, USA during March 28-April 27, 2011
- R. Kalpana Sastry, HoD, RSM division was invited as a speaker in International Symposium on “Assessing the Economic Impact of

Nanotechnology” during March 27-28, 2012, Washington DC, organized by Organization for Economic Co-operation and Development (OECD) and U.S. National Nanotechnology Initiative

Guest Faculty / Special Lectures Delivered

R. Kalpana Sastry, HoD, RSM division

- National Training Course on “Nanoparticle production, characterization and utilization in agriculture” during February 23-March 3, 2012 talk on “Biosafety on Nanoparticles and IPR Issues” at CAZRI, Jodhpur during March 13- January 14, 2012 ITMU-CICR, Nagpur
- Invited as a panelist in Technical Session on “Technology Translation and Agripreneurship” in Collaborative Workshop on Strengthening Agricultural Professional Development through Education sponsored by – Agricultural Innovation Partnership (AIP)
- Participated in PD_ITMC Meet in South (Agril 2012, Annual Meeting-cum-Workshop organized by Zonal Technology Management - Business Planning and Development (ZTM-BPD) Unit, South Zone during February 24 - 25, 2012 at Cochin and West Zone (ICAR – ZTM-BPD meeting cum workshop (West Zone- CIRCOT, Mumbai)
- Invited as a resource person for session on IPR Regime in Short Term Executive Programme titled “Commercialization of technological innovations” for the Scientists of Rubber Research Institute of India in February, 2012
- Invited faculty for DST sponsored programmes on “MDP on IP and technology commercialization” conducted for R&D scientists during 2011-12 at ASCI, Hyderabad
- Invited speaker on IPR regime and IPR Management in institutes at One Day Workshop on IPR, NRC for Citrus. November 2011

K.M Reddy, HoD, ESM Division

- Delivered a Guest lectures on ‘Time Management’ to scientists of Directorate of Rice Research, Hyderabad on June 30, 2011

R.V.S. Rao, Principal Scientist

- Three special lectures on “Positive Reinforcement”, “Trust building”, “Motivation and fun at work” for the participants of off-campus specialized short-term training for improving efficiency of technical personnel of CAZRI, Jodhpur organized during October 17-20, 2011

B.S. Sontakki, Principal Scientist

- As invited resource person delivered the following guest lectures in the Induction Training for the newly recruited Assistant Professors of University of Horticulture Research, Bagalkot. The Programme was conducted at College of Horticulture, Arabhavi during April 19-21, 2011
 - a) Student-centered Teaching Learning
 - b) Essentials of Effective Classroom Communication
 - c) Student Performance Monitoring and
 - d) Evaluation and Prioritization, Monitoring and Evaluation of Agricultural Research
- Guest lecture on Participatory Technology Development in the ICAR-sponsored Short Course of Participatory Agricultural Extension Management at Directorate of Wheat Research, Karnal on January 27, 2012
- Guest lectures in the Training Programme on Training Skills for the Sakshar Bharat Programme at NIRD, Hyderabad
 - a) Overview of Training Methods (January 21, 2012)
 - b) Core Instructional Methods: Lecture and Demonstrations (January 23, 2012) and
 - c) Supporting Instructional Methods: Cooperative Learning and Discussion (February 1, 2012)
- As resource person delivered the following guest lectures in the Induction Training to the newly recruited Assistant Professors on
 - a) Effective Classroom Presentation Techniques
 - b) Teaching Effectiveness Exercise
 - c) Student Centered Teaching Learning
 - d) Science writing and writing scientific papers, proposals and reports and

- e) Student Performance Monitoring and Evaluation
- Guest lectures on a) Responsibilities, Roles and Competencies of Trainers (February 5, 2012, February 29, 2012 & March 29, 2012), b) Supporting Instructional Methods: Cooperative Learning, Discussion Method and Case Study and c) Ice Breakers, How to Introduce Trainees and Simulation and Games (February 16, 2012, March 1, 2012 & March 30, 2012) at NIRD, Hyderabad for the Training Programme on Training Skills for the Sakshar Bharat programmes
- Communication skills development for students of College of Agriculture, Bheemarayana Gudi (UAS, Raichur) on February 17, 2012
- Guest lecture on Overview of National Agricultural Extension System in the International Training Programme Innovative Extension Approaches on February 22, 2012
- Contact classes for 2nd Semester on “Project Management in Agricultural Extension” during January 11-13, 2012 at SAMETI, Hyderabad
- Guest lecture on National Training Course on ‘Soil quality, Land and Water management for sustained Production’ during February 1-21, 2012 session held on February 14, 2012 on Participatory Irrigation Management.
- Guest lecture on ‘Advances in Front line Extension’ for the ICAR sponsored Workshop on ‘Achieving Proficiency and Excellence in Teaching, Research and extension’ at UAS, Raichur during February 6-8, 2012
- Lecture on Rural Knowledge Exchange at MANAGE on February 13, 2012

V.K.J. Rao, Principal Scientist

- Guest lecture on ‘Giving an Extension talk’ at SAMETI, Hyderabad on June 17, 2011
- Guest lecture on ‘Agricultural Extension Management’ at UAS, Raichur for the newly recruited Asst professors on Planning monitoring evaluation, etc. on August 26, 2011
- Guest lecture at FABS on Rural Marketing and Advertising on September 26, 2011
- Guest Lecture on PRA and Focused Group Discussion as tools for participatory Natural Resources Management for the training on “Soil and Rainwater Conservation and Management for Drought Proofing” at Hyderabad (during July 18-29, 2011) for SAARC country participants. , Session held on July 23, 2011, at CRIDA, Hyderabad
- Lecture on ‘Experiential learning Methods’ held at MANAGE on September 29, 2011 for the training programme on HRM for extension personnel organized during September 26- 30, 2011
- Lecture on Farm Business Management skills for Extension Workers at MANAGE on November 25, 2011
- Lecture on Farm Business Management skills for Extension Workers at MANAGE on December 16, 2011

K. Srinivas, Principal Scientist

- Lecture on “Hill Agriculture: Policy Options” at VPKAS, Almora during Brain storming session on “Hill Agriculture-Tryst with challenges and beyond” on November 14, 2011
- Delivered lecture on “Smart farming and solutions to maximize productivity in agriculture” on March 3, 2012 at AP-TEC 2012 conference and exposition on “Enhancing and optimizing agricultural value chains” in Hyderabad

R. Venkattakumar, Principal Scientist

- Participated as a panel discussant in the Workshop organized by IFFPRI on “Agri-services for inclusive agricultural growth” on 30.6.2011 at Centre for Economic and Social Sciences, Hyderabad and delivered a special lecture on “Agri-extension services”

A. Dhandapani, Principal Scientist

- “Multivariate Analysis and Econometric Analysis using R” to Probationers of Indian Statistical Service at Indian Agricultural Statistics Research Institute, Pusa, New Delhi on June 15, 2011

K. Kareemulla, Principal Scientist

- Market Strategy Supplement: Modalities/ Framework to Line Department Officials Implementing MACP Project of MANAGE during October 12-14, 2011
- Economic Analysis of Production Systems to Officers from line departments of Asia Pacific Region at NIRD on November 26, 2011
- Entrepreneurship and Business management to Extension Officers of Andhra Pradesh at SAMETI, Hyderabad on January 12, 2012

Ananta Sarkar, Scientist

- Invited as a resource person to deliver lecture on “Analysis of field experimental data using MS excel” on Jan. 19, 2012 in the training programme on “Analytical tools for field experimental data” held at Barwale Foundation Knowledge and Study Centre, Jalna, Maharashtra during January 19-21, 2012
- Invited as a resource person to deliver lecture on “Sampling methods, data analysis and presentation of data” on January 6, 2012 in the training Programme on “Training of master trainers on monitoring and evaluation” held at National Institute of Rural Development, Hyderabad during January 4-6, 2012

D. Babu, Scientist

- Delivered a Guest Lecture on “Dumping and Anti-Dumping Laws in the wake of WTO” as a part of the workshop on “WTO and its implications on Agriculture and Allied Sectors” on 15th November, 2011 at Extension Education Institute (EEI), Hyderabad

Academic Guidance/Activities

Many of the faculty members have guided the students of PG Diploma in Management (Agriculture). The other academic guidance details provided are given below.

N.H Rao, Joint Director**Handled the following courses for PGDMA**

1. PGDM 614: Agriculture and Food Systems
2. PGDM 624: Quantitative methods in Business (with Dr M.N. Reddy)
3. PGDM 726: GIS Applications in Agribusiness (with Dr M.N. Reddy)
4. PGDM 722: Agribusiness Strategy (with Dr D. Rama Rao)

R. Kalpana Sastry, HoD, RSM division

- Guided two student interns (B Tech, IIT Kharagpur) and M Tech (JNTU, Kakinada)

S.K. Soam, HoD, ICM division

- Guided four B Tech students of Aurora’s scientific, technological and research academy, Hyderabad for their four month internship project

N. Sandhya Shenoy, HoD, ESM division

- External examiner for Ag Extension PG students of Tirupati and Bapatla Agricultural colleges of ANGRAU
- PGTMA 422 – “Rural Innovations” Course facilitator and Course Editor
- Ph. D thesis Reviewer in Ag Extension for EEI, ANGRAU, and Guide for PhD student, Ag Extension, YCMOU

D. Rama Rao, Principal Scientist

- A course on Agribusiness Strategy to PGDMA in the 5th Trimester

G.R.K Murthy, Principal Scientist

- Creation of e-commerce web site for Self-Help

Group Women of Aipoor & Undrampalli villages of Nalgonda District, Andhra Pradesh for marketing their home made agro-products as a course project of II year PGDM students of 2010-12 batch

K.H. Rao, Principal Scientist

- Course facilitator for the Courses titled Supply Chain Management (PGDM-631) and Agri-food Retail Management (PGDM-716). Also handled the assigned topics in the course titled Organizational Behavior (PGDM-634)

B.S. Sontakki, Principal Scientist

- Kiran Kumar Bandari, a PGDM (A) 2009-11 batch student of NAARM for his final project work on Supply Chain Management
- Sreekat Chidrewar, a PGDM(A) 2010-12 batch student of NAARM for his internship project on Logistics Management
- C.B. Meti, a Ph.D student of YCMOU, Nashik for his Doctoral research on Impact Assessment of Micro Irrigation Scheme Implemented in Dharwad District of northern Karnataka. Survey to assess the impact of micro irrigation scheme is in progress

K. Srinivas, Principal Scientist

- Dr Paresh Chandra Golder for Post Doctoral Fellow from Bangladesh on “Assessment of Research Priorities for Crop Sector in Bangladesh” during July 2011 - January 2012
- Anjali Sati on “Survey on Financial Literacy and Credit Counseling Centers in Selected Districts of Karnataka” internship at Reserve Bank of India
- Kriti Pareek and Ashok Muddada on “Mapping the Procurement, Storage & Trading of Agri-commodities in Andhra Pradesh” internship at National Spot Exchange Limited (NSEL)

R. Venkattakumar, Principal Scientist

- PGDMA-627: Business Communication-II as Course Director for PGDMA-11 batch

- “Rural Marketing” course for PGDMA-2010 batch as one among the Course Directors.
- Facilitator for PGD-TMA 423 on “Technology Entrepreneurship”
- Handled classes on “Technology diffusion in agriculture”, “Social marketing in agriculture” and “Group dynamics and team building” for FOCARS
- Handled classes pertaining to “Group dynamics and team building” for Refresher Courses and MDPs of the Academy

Ranjit Kumar, Senior Scientist

- Khurshid Alam (2011) Dissemination of maize seeds and the seed value chains in Samastipur district- Bihar
- Rashmi Kumari (2011) Government policies influencing sugar sector in India: Demand-supply scenario & future trading
- Minakshi Roy (2012) Agrochemical Industry Analysis: Emerging trends in sustainable agriculture
- Keshav Kumar (2012) Segmentation study of Rice market for grain quality and crop maturity
- Taught PGDMA students following courses:
 1. Managerial Economics
 2. Agricultural Marketing
 3. Risk Management in Agribusiness

P. D. Sreekanth, Scientist (Sr. Scale)

- Guided 5 B.Tech students for their project work on “Web based feedback evaluation for training programmes of NAARM”
- Guided four B Tech students of Aurora’s scientific, technological and research academy, Hyderabad for their four month internship project

V.V. Sumanth Kumar, Scientist

- Taught PGDM-622 “Computers and Information Systems” (2011) to the PGDMA students (2011-13 Batch)
- Taught PGDMA-622 “Management Information

Systems” (2012) to the PGDMA students (2011-13 Batch)

- Taught PGDM-721 “ERP for Agribusiness” (2012) to the PGDMA students (2010-12 Batch)
- Guided 5 B.Tech students for their project work on “Web based Training MIS of NAARM”
- Guided four B Tech students of Aurora’s scientific, technological and research academy, Hyderabad for their four month internship project

D. Babu, Scientist

- Faculty for International Trade in Agriculture (PGDM 711), Macro Economic Analysis (PGDM-637) and Contract Farming (elective) for the PGDMA students
- Delivered two lectures on “Market Identification process in International business of agricultural commodities” and “Introduction to Trade Databases” as part of the Capacity building program on “International Trade towards Enhancement of Competitiveness of Indian Agriculture” on March 15, 2012 at NAARM, Hyderabad

Jyothi Badri, Scientist

- Provided guidance to two PGDMA student projects
- Provided guidance to one PGDMA student for his summer project

Ananta Sarkar, Scientist

- Taught PGDMA-613, Statistics for Managers (2011) to the PGDMA students (2011-13 Batch) at NAARM, Hyderabad
- Taught PGDMA-725, Business Analytics using SAS (2011) to the PGDMA students (2010-12 Batch) at NAARM, Hyderabad
- Teaching PGDMA-633, Marketing Research (2012) to the PGDMA students (2011-13 Batch) at NAARM, Hyderabad

P.C. Meena, Scientist

- Acted as internal facilitator for the course Commodity Trading and Future Markets
- Taught rural marketing to PGDMA
- Taught Agricultural Marketing (PGDMA-724)
- Guided two PGDMA (2009-11) students for their project work during Summer Internship
- Guided a PGDMA 2009-11 students for academic project work on “Impact of Futures Trading on Spot Price: A case study of chilly and cotton
- Taught Managerial Economics to PGDMA
- Member in placement committee of the Academy to facilitate placement of PGDMA students in different companies

Professional Development Initiatives

Paresh Chandra Golder, Chief Scientific Officer, Bangladesh Agricultural Research Council (BARC) joined the Academy as Post-Doctoral Fellow on July 27, 2011. He did his Ph. D in Horticulture from Bangabandhu Sheikh Mujibur Rahman Agricultural University, Bangladesh. He started his career as Scientific Officer at the Bangladesh Agricultural Research Institute (BARI) in 1983. After 22 years service in the BARI, he joined at the BARC in 2005 in the division of planning and evaluation. He has about 25 national and international scientific publications to his credit in the areas of fruit and vegetable crops research. His areas of interest include priority setting, project planning and management, and monitoring, evaluation and impact assessment in agricultural research.

Dr D. Babu acquired online certification in “Export Management” from Indian Institute of Foreign Trade, New Delhi.

Dr K.M. Reddy, In-charge Head, Education Systems Management division and Dr G.R.K. Murthy, Senior Scientist, enrolled for Post Graduate Diploma in E-learning (PGDEL) being offered by Indira Gandhi National Open University, New Delhi.

Dr G. P. Reddy, In-charge Head, ABM division has successfully completed P.G Diploma in Marketing Management in December 2011 from IGNOU.

NAARM

Annual Report 2011-12

Personnel

Personnel

I. Scientific Staff

Dr S.L. Goswami, Director (w.e.f., December 21, 2011)
Dr N. Hanumantha Rao, Joint Director

Heads of Divisions

Dr P. Manikandan, Human Resources Management
Dr (Mrs) R. Kalpana Sastry, Research Systems Management
Dr S.K. Soam, Information and Communication Management
Dr G.P. Reddy, Agribusiness Management
Dr K.M. Reddy, Education Management
Dr (Mrs) N. Sandhya Shenoy, Extension Systems Management

Principal Scientists

Dr D. Rama Rao
Dr Santosh Kumar Nanda
Dr R.V.S. Rao
Dr Bharat S. Sontakki
Dr M.M Anwer
Dr K.H. Rao
Dr A. Dhandapani
Dr V.K. Jayaraghavendra Rao
Dr K. Srinivas
Dr R. Venkattakumar
Dr K. Kareemulla

Senior Scientists

Dr G.R. Ramakrishna Murthy
Dr Ranjit Kumar
Dr N. Sivaramane

Scientist (Senior Scale)

Dr P.D. Sreekanth

Scientists

Dr Jyothi Badri

Dr D. Babu
Dr Prem Chand Meena
Dr Ananta Sarkar
Dr M.L. Nithyashree
V.V. Sumanth Kumar

II. Administration Staff

Sh. Sanjay Kant, JD (Admn) & Registrar (since July 23, 2010)
Dr (Mrs) J. Renuka, Asst. Director (OL)
Sh. Zakir Hussain Khilji, Finance & Accounts Officer
Sh. P.P. Brahmaji, Asst. Admn. Officer
Sh. P.G. Kohad, Asst. Admn. Officer
Ms. N. Vijayalakshmi, Junior Accounts Officer
Sh. N. Raghunath, Private Secretary

III. Technical Staff

Grade T-9 Category III

Sh. V. Murali, Farm Superintendent
Dr A. Debnath, Medical Officer
Sh. Zameer Ahmed, Manager (Hostel Services)

Grade T (7-8) Category III

Dr M.A. Basith
Sh.K.V. Kumar

Grade T-6 Category III

Sh. Ch. Janardhan Rao
Sh. P. Vijender Reddy
Sh. P. Namdev
Sh. Sohail Ahmed Khan
Ms. G. Aneeja
Sh. M. Shekher Reddy
Sh. Sham Bahadur

Grade T-5 Category II

Sh.N.R. Nageswara Rao

Sh. Bansidhar Nayak
 Sh. L. Ramesh
 Sh. B. Veeraiah
 Dr Ahire Laxman
 Sh. N. Naresh Kumar
 Sh. M. Ravi
 Ms. Savithri
 Sh B.S.N. Murthy
 Sh K. Obulapathi
 Sh. M.K. Shamshuddin
 Sh. M.K. Sonkusare
 Sh. K. Shivaiah
 Sh. D. Rajagopal Rao

NAARM Family Welcomes.....

Dr P. D. Sreekanth joined the Academy as Scientist (Sr. Scale), on March 12, 2011. After completion of MCA, he did his Ph.D (Computer Science) on “A Study on Precision Enhancement and Computational Intelligence Analysis of Soft Computing Tools” from Sri Krishnadevaraya University in 2009. Dr Sreekanth started his career as Scientist at Directorate of Cashew Research, Puttur in 2000 and served there for eleven years. He was instrumental in developing a yield forecasting model for cashew and different CD-packages for cashew like Cashew database; About Anacardium; Cashew Cultivation Practices; Cashew Scenario; IPM of Cashew Stem and Root Borer; IPM of Cashew Tea Mosquito Bug; Cashew Germplasm Database, etc. His areas of interest include soft computing tools, Visual Basic, SQL, ASP, GIS and multimedia tools. He has number of national and international research papers to his credit.



Mr Sumanth Kumar joined the Academy as Scientist on May 4, 2011. He did his M.Sc (Computer Applications) from IARI, New Delhi. He started his career as Assistant Professor at Havard Institute of Management and Technology, Noida. He served as a Teaching Associate at RFS of IASRI, New Delhi and was involved in software training to ICAR officials. Later, Mr Sumanth joined as a Programmer at Education Division of ICAR and was instrumental in computerizing all the activities of ICAR-JRF Exam-2001. He joined as a Research Assistant at NBPGR and developed Information



Systems for National Gene Bank Database. In 2003, he joined National Research Centre for Groundnut as a Scientist (Computer Applications). Later, he joined NRC for Citrus in 2009 and subsequently transferred to NAARM in 2011. His areas of interest include ICT solutions for agriculture, designing, building and maintenance of large distributed databases, real application clusters and other HA options of Oracle 11g; Linux Administration; PHP; MySQL & PostgreSQL database administration; Replication, Duplication and migration of Data warehouses; ORACLE ERP. Mr Sumanth cleared ‘Oracle Certified Associate’ and ‘Oracle Certified Professional’ certifications in 2006.

Dr K. Kareemulla joined the Academy on August 17, 2011 as Principal Scientist in Research Systems Management Division. Dr Kareemulla commenced his career as research associate at University of Agricultural Sciences, Bengaluru in 1990. Later he worked as a faculty member in the National Centre for Management Development in Agriculture and Rural Development Banking, Bengaluru during 1993-99. He briefly worked as an Economist with the Coffee Board in 1999. Later, he joined ICAR as Senior Scientist in 1999 at National Research Centre for Agroforestry, Jhansi, and worked there till 2007. He was with the Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad during 2007-2011. He was visiting faculty at IIM, Kozhikode and at IGNOU study centres. His areas of interest include project management, agricultural finance, agribusiness management, natural resource economics, policy and institutional analysis, impact assessment, watershed development, etc.



Mr Zakir Hussain Khilji joined the Academy as Finance and Account Officer on October 14, 2011. He entered the ICAR service in 2001. Earlier, he worked as Deputy Director (A&F) in Bureau of Indian Standards from 2009 to 2011. He did his B.Sc (PCM), B.Ed., PGD LL, IR, MBA (Finance).



Dr Surender Lal Goswami, joined NAARM as Director on December 21, 2011. With a Ph.D. in Animal Genetics and Breeding, he served ICAR for more than 35 years in different capacities. Earlier, he

worked as Joint Director (Research) at National Dairy Research Institute, Karnal, Haryana. Dr Goswami was the brain behind the first IVF goat kid produced in the country. His major research areas included genomic studies of early embryonic development; hormone and hormone receptor genes relevant to fertility in different Indian breeds of buffaloes and initiated research in upstream areas like, genomics, stem cells, structural and functional proteomics, etc. Dr Goswami was recipient of Jawaharlal Lal Nehru Award for Outstanding Postgraduate Research (1986), Indian Council of Agricultural Research; FAO Fellowship in the field of Animal Biotechnology (1988), UNDP/FAO; Dr G. B. Singh Memorial Award for Best Paper (1993), Indian Society for Study of Animal Reproduction (ISSAR) and World Bank Fellowship in the area of Molecular Biology (1995), NARP/ World Bank.

Ms. Nithyashree, M.L. Joined the Academy as Scientist (Agricultural Economics) on December 23, 2011. She received her Bachelor's in Agriculture from University of Agricultural Sciences, Bengaluru and Masters in Agricultural Economics from G.B.Pant University of Agriculture & Technology, Pantnagar. She is an awardee of Junior Research Fellowship and Senior Research Fellowship in Economics during 2008 and 2010 respectively. Prior to joining the Academy, She was a Ph.D. scholar at Indian Agricultural Research Institute, New Delhi.



Dr M.M. Anwer joined the Academy as Principal Scientist on February 8, 2012. Earlier he was holding the office of Director, National Research Centre on Seed Spices, Ajmer.

Dr N. Sivaramane Joined the Academy on March 28, 2012 as Senior Scientist (Agribusiness & Marketing Management) in Agribusiness Management division. He did his Ph. D in Agricultural Economics, and started his career as scientist at Indian Agricultural Statistics Research Institute, New Delhi in 2001. Later, he was promoted to Scientist (Senior Scale) at IASRI during 2007. During this period, he also served as faculty of PG School, Indian Agricultural Research Institute, New Delhi.



His areas of Interest include Econometrics, Market Analytics, International Trade, Agricultural Marketing and Microeconomics.

Promotions

- Mr K.R. Ghanshyam and Mr C. Julius Samuel have been promoted from UDC to Assistant with effect from March 25, 2011.
- Mr K.V. Kumar, Technical Officer (T-6) has been promoted to Technical Officer (T 7-8) with effect from July 1, 2009.
- Mr M. Narsing Rao, Mr P. Swamy and Mr M. Ashok have been promoted from Skilled Support Staff to Lower Division Clerk with effect from April 11, 2011.
- Mr G. Muthyalu, Mr N. Ashok, Mr U.V. Ratnam, Drivers, have been promoted from T-2 to T-3 w.e.f June 29, 2011
- Mr T. Laxman, Driver has been promoted from T-3 to T-4 w.e.f. June 29, 2011
- Mr R. Siva Prasad, Driver has been promoted from T-1 to T-2 w.e.f. October 20, 2010
- Ms Manibai and Mr C. Bickshapathi have been promoted from Skilled Support Staff to Lower Division Clerk with effect from May 4, 2011.
- Four Casual Labourers (temporary status) of the Academy i.e., Shri M. Ganesh Kumar, C. Venkatesham, S. Narasimha and K. Satyanarayana were given appointment as Skilled Support Staff (Group-C) with effect from October 29, 2011.
- Mr Veeranasais, Mr D.R.S. Rao, Mr M. Srinivasa Rao, Mr N. Prabhakar, P. Gaikwad have been promoted from T-2 to T-3 w.e.f June 29, 2011.
- Dr Ahire Laxman has been promoted from T-5 to T-6 w.e.f. September 23, 2010.
- Mr Shekar Reddy has been promoted from T-5 to T-6 w.e.f January 1, 2010.
- Mr Sham Bahadur has been promoted from T-5 to T-6 w.e.f. June 29, 2011.
- Mr Mohan Singh has been promoted from T-5 to T-6 w.e.f January 1, 2011.

NAARM family congratulates them.

Farewell

Dr P.K. Joshi, Director, retired voluntarily from ICAR service on April 1, 2011 (forenoon). He joined the Academy on Sept. 19, 2009. Before joining the Academy, he served at National Centre for Agricultural Economics and Policy Research (NCAP), New Delhi for more than eight years as Principal Scientist and Director. Dr Joshi was South Asia Coordinator for International Food Policy Research Institute (IFPRI), Washington from 2003 to 2006. He also served International Crops Research Institute for Semi-Arid Tropics (ICRISAT) from 1993 to 1998. With a Ph. D in Agricultural Economics from G.B. Pant University of Agriculture and Technology, Pantnagar, Dr Joshi started his career as Scientist at Central Soil Salinity Research Institute, Karnal for about a decade. Dr Joshi was Chairman, Governing Board of United Nations Centre for Alleviating Poverty through Secondary Crops (CAPSA), Bogor and also SAARC Agriculture Centre, Dhaka. He is a panel member for World Bank's Independent Evaluation Group (IEG) on Agriculture and agribusiness apart from member in several national and international bodies. Dr Joshi did several international consultancies to World Bank, Dutch and Ethiopian Governments, ICRISAT, AAPARI, etc in the areas of sustainable agricultural development, environmental issues and watershed management. He is a recipient of prestigious D.K. Desai Award (1991), Doshi Award (1998 and 2006), M.S. Randhawa Memorial Award for the Biennium 2009-10 in recognition of his excellent contribution to the field. He is fellow of the National Academy of Agricultural Sciences (NAAS) and Treasurer of the Trust for Advancement of Agricultural Sciences (TAAS). Dr Pramod Kumar Joshi had more than 125 research articles, 12 book reviews, 25 book chapters and 12 books to his credit showcasing his outstanding contribution to agricultural economics.



Dr Jagannadham Challa, Principal Scientist, superannuated on June 30, 2011 after serving the Academy for 22 years. In his illustrious career spanning over 37 years in the National Agricultural Research System, Dr Challa has held various positions in the system. He started his career at University of Agricultural Sciences (UAS), Bengaluru as Instructor in 1974. Later, he joined Indian Veterinary



Research Institute (IVRI), Izatnagar in 1977, and worked in the capacities of Scientist and Senior Scientist. Dr Challa joined NAARM in 1989 as Senior Scientist and continued till 2011 in the capacity of Principal Scientist. His expertise especially in the areas of organizational behaviour theory and practical, and developing winning research proposals won much accolades across the NARS system. He also rendered expert services in the areas of team building and group dynamics, personality development, distance learning/training in agricultural research management and education technology, educational technology and psychology, HRD strategies for organizational effectiveness of NARS, scientist-administration interface, organizational and management reforms, HRD for agricultural education and allied sciences. He was the recipient of "Best Teacher Award" twice from the Education division of ICAR.

Mrs Jhansi Lakshmi, Private Secretary, superannuated on June 30, 2011 after rendering services to NAARM since its inception in 1976. She joined the Academy as Junior Stenographer on September 3, 1976 and later on promoted to Stenographer on August 12, 1983. Mrs Jhansi got promoted to Senior Stenographer (re-designated as Private Secretary later on) on March 25, 1989. Since then she served the Academy including the additional responsibility as Purchase Officer.



Shri U.V. Ratnam, Driver (T-3) retired voluntarily on February 01, 2012. He joined the Academy in 1987 and rendered services for more than 24 years.

Shri M. Shyam Rao, Skilled Support Staff, retired on superannuation on February 29, 2012. He joined the Academy in 1987 as SSG-1. Later on, he was granted two financial upgradations w.e.f. 01-09-2008 for having completed 20 years of regular service under MACP Scheme. Before joining the Academy, he worked as Naik in EME Unit, Indian Army for 15 years.



The Academy thanks all of them for their valuable contributions and wishes them a very healthy, happy and peaceful post-retirement life!

Obituary

Dr M. Narayana Reddy, Principal Scientist, passed away on December 22, 2011. He did his M.Sc (Statistics) from Andhra University and Ph.D (Statistics) from IIT, Kanpur. He started his career as Scientist S-1 at CRIDA, Hyderabad in 1976, and served there as Scientist S-2 from 1983 to 1999. Later on, he joined NAARM as Principal Scientist in Information and Communication Management division, and served for more than a decade. Dr Reddy was also In charge Head, ICM Division, In charge CAO/JD (A) & Registrar during his tenure at the Academy. He was a great



faculty involved in training both budding agricultural scientists and senior scientists in quantitative techniques using statistical methods and models, computational statistics, information management, Geographical Information System (GIS) applications in agriculture, web design, etc. He has been key faculty for the PG Diploma in Management (Agriculture) of the Academy. NAARM family expresses deep shock and condolences to the bereaved family. May his soul rest in eternal peace! May God give enough strength and courage to his family to bear this terrible grief!



राष्ट्रीय कृषि अनुसंधान प्रबंध अकादमी

National Academy of Agricultural Research Management

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